



MEMORANDUM

FROM: Carrie A. Swain, Clerk
Board of Education

DATE: January 31, 2023

TO: Michael J. Dalton, City Clerk

SUBJECT: Notice of Workshop/Committee Meetings, Thursday, February 2, 2023
5:30 p.m., Wallace Middle School Media Center

The Committees of the Board of Education will meet on Thursday, February 2, 2023, 5:30 p.m., Wallace Middle School, 3465 East Main Street, Waterbury, Connecticut.

AGENDA

SILENT PRAYER

PLEDGE ALLEGIANCE TO THE FLAG

PUBLIC SPEAKING

PRINCIPAL'S REPORT ~ Vincent Balsamo

1. Committee of the Whole/5 minutes: Request approval of a Collective Bargaining Agreement between the Waterbury Board of Education and United Public Service Employees Union (UPSEU) Local 424-Unit 68-Classroom Assistants – Attorney Emily Cadman, Attorney Tara Shaw.
2. Committee of Whole/5 minutes: Request approval of an Agreement with Southern Connecticut State University for Type "A" Tuition and Fee Waiver for qualified high school students to take college level SCSU courses – N. Toucet.
3. Committee of Whole/5 minutes: Request approval of an Agreement with Southern Connecticut State University for Type "C" Tuition and Fee Waiver for qualified high school students to take college level SCSU courses – N. Toucet.
4. Committee on Finance/5 minutes: Request approval of an Assignment and Assumption Agreement between Edgenuity, Inc. and Imagine Learning, LLC – N. Toucet.
5. Committee on Finance/5 minutes: Request approval to apply for the Connecticut Department of Energy and Environmental Protection (DEEP), Public Utilities Regulatory Authority (PURA) "Public Educational and Governmental Programming and Education Technology Investment Account" (PEGPETIA) Grant – L. Allen Brown, W. Zhuta.
6. Committee on Finance/5 minutes: Request approval of Amendment Three (3) to the Contract with Environmental Systems Corp. (ESC) for School Security Video Surveillance and Access Control System Expansions and Upgrades – D. Barry, W. Zhuta.
7. Committee on Finance/5 minutes: Request approval of a Construction Contract with J. A. Rosa Construction, LLC for Elevator Additions at Washington and Bunker Hill Schools – R. Maghfour.
8. Committee on Finance/5 minutes: Request approval of a Contract with Sarracco Mechanical Services, Inc. for boiler system replacement at International School – R. Maghfour.

9. Committee on Finance/5 minutes:
- a) FYI - ARP/ESSER Update – D. Schwartz.
 - b) FYI - Monthly Expenditure Report – D. Schwartz.
 - c) FYI - Budget Timeline/Development Process Fiscal Year 2024 – D. Schwartz.
 - d) Approval of transfer in the General Fund Operating Budget – D. Schwartz.
 - e) Approval of transfer in Capital Improvement Budget – R. Maghfour.
10. Superintendent’s Update: Dr. Ruffin.
11. Committee on Building & School Facilities/3 minutes: Use of school facilities by school organizations and/or City departments – W. Zhuta.
12. Committee on Building & School Facilities/3 minutes: Use of school facilities by outside organizations and/or waiver requests – W. Zhuta.
13. Superintendent’s Notification to the Board/5 minutes:

a. Athletic appointments:

<u>Name</u>	<u>Position</u>	<u>Location</u>	<u>Effective</u>
Hart, Richard	Intramural Boys Basketball	Duggan	01/25/23
Salemme, Cassandra	Intramural Girls Basketball	Duggan	01/24/23
Sincuir, Silvia	Assistant Indoor Trach	WHS	01/26/23

b. Grant funded appointments:

<u>Name</u>	<u>Position/Location</u>	<u>FT/PT</u>	<u>Rate</u>	<u>Union</u>	<u>Funding</u>	<u>Eff.</u>
Fuller, Diane	Certified Adult Ed Instructor	PT	\$33/hr	NON BOE	Adult Ed 22-23	01/30/23
Vixama, Marjorie	Hall Monitor Crosby	PT	\$98/day	NON BOE	General Fund	01/26/23

c. After-school Programs appointments:

<u>Name</u>	<u>Grant</u>	<u>School</u>	<u>Position</u>
Garcia, Sharyn	21st Century	Academic Academy	Teacher
James, Joelizz	21st Century	Bucks Hill	Rec Specialist
Williams, Chelcey	21st Century	Regan	Teacher
Renna, Karen	ARP ESSER	Carrington	Site Administrator
Gwiazdoski, Kristen	ARP ESSER	Carrington	Administrator Sub
Doolan, Heidi	ARP ESSER	Carrington	Teacher
Kearns, Maura	ARP ESSER	Carrington	Teacher
Rosa, Marissa	ARP ESSER	Carrington	Teacher
Theriault, Patricia	ARP ESSER	Carrington	Teacher
Salemme, Cassandra	ARP ESSER	Duggan	Site Administrator
Ferrare, Patricia	ARP ESSER	Duggan	Administrator Sub
DiGiovanni, Melissa	ARP ESSER	Duggan	Administrator Sub
DeFeo, Dawn	ARP ESSER	Duggan	Teacher
Lucian, David	ARP ESSER	Duggan	Teacher
Morales, Elizabeth	ARP ESSER	Duggan	Teacher
St. Pierre, Theodora	ARP ESSER	Duggan	Rec Specialist

d. Miscellaneous appointments:

<u>Name</u>	<u>School</u>	<u>Program</u>
Caruso, Anthony	KHS	Mastery Based Learning Panel
Veneziano, Ellen	CHS	Edgenuity Site Coordinator
Wells, Traci	Enlightenment	Mastery Based Learning Panel Lead
Aresti, Robert	DW	School Equity Leadership Team
Bajraktarevic, Zehra	DW	School Equity Leadership Team
Caldarone, Paula	DW	School Equity Leadership Team
Catricala, Julia	DW	School Equity Leadership Team
D’Alessio, Jennifer	DW	School Equity Leadership Team

Dali-Parker, Suzanna	DW	School Equity Leadership Team
DiBella, Lee	DW	School Equity Leadership Team
Doolan, Heidi	DW	School Equity Leadership Team
Ferrare, Patricia	DW	School Equity Leadership Team
Gonzalez Casanova, Ilea	DW	School Equity Leadership Team
Grant, Nataine	DW	School Equity Leadership Team
Johnson, Joshua	DW	School Equity Leadership Team
Klesyk, Mary	DW	School Equity Leadership Team
Mancinone, Taylor	DW	School Equity Leadership Team
Mulhern, Jacqueline	DW	School Equity Leadership Team
Norton, Dianna	DW	School Equity Leadership Team
O'Neill, Patrick	DW	School Equity Leadership Team
Parker, Marlene	DW	School Equity Leadership Team
Parker, Marly	DW	School Equity Leadership Team
Pitcairn-Broughton, Dorothea	DW	School Equity Leadership Team
Rincon, Catalina	DW	School Equity Leadership Team
Rivera, Michael	DW	School Equity Leadership Team
Velez, Crystal	DW	School Equity Leadership Team
Westerville, Jennifer	DW	School Equity Leadership Team
Williams, Chelcey	DW	School Equity Leadership Team

e. Resignations:

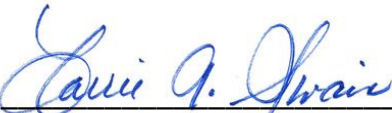
<u>Name</u>	<u>Position</u>	<u>Effective</u>
Gordon, Sonia	Enlightenment Math	02/28/23
McNamara, Hannah	Wilson Grade 3	01/27/23
Pannoni, Andrea	Carrington Special Education	01/27/23
Saverino, Yesika	CHS Spanish	01/24/23
Zold, Kristine	Sprague Special Education	02/03/23

f. Retirements:

<u>Name</u>	<u>Position</u>	<u>Effective</u>
Negron, Nicole	WMS Math Grade 8	06/30/23
Nonamaker, Rhonda	Generali Kindergarten	06/30/23

EXECUTIVE SESSION for discussion concerning the appointment, employment, performance, evaluation, health, or dismissal of a public officer or employee.

ADJOURNMENT

ATTEST: 
Carrie A. Swain, Clerk
Board of Education

**OFFICE OF THE CORPORATION COUNSEL
CITY OF WATERBURY
MEMORANDUM**

To: Board of Education
From: Attorney Tara Shaw
 Attorney Emily Cadman
Date: January 24, 2023
Re: Executive Summary of 2022-2026 UPSEU Local 424 - Unit 68 (Classroom Assistants) Collective Bargaining Agreement

Enclosed please find a proposed successor Collective Bargaining Agreement (“contract”) between the UPSEU Local 424 - Unit 68 (Classroom Assistants) and the Waterbury Board of Education, which was negotiated pursuant to Connecticut General Statutes Section 7-467, *et seq.* (the “Municipal Employee Relations Act”). This memorandum represents a summary of the changes to the parties’ contract as a result of a tentative agreement reached by the parties. The Union voted to ratify the tentative agreement on January 12, 2023.

Duration:

Article XX

July 1, 2022 – June 30, 2026

Wages:

Article XV and Appendix A

During these negotiations, the parties agreed to revise the existing salary schedule to make it more competitive in order to be able to attract Classroom Assistants in the future.

2022-23 (Year 1): 3.0% General Wage Increase for all employees except for entry rate, which will be brought to \$15/hour

- Projected cost of Year 1 = \$49,292
- Projected percentage increase of Year 1: 3.83%

2023-24 (Year 2): 2.75% General Wage Increase for all employees

- Projected cost of Year 2 = \$36,715

2024-25 (Year 3): 2.25% General Wage Increase for all employees

- Projected cost of Year 3 = \$33,977

2025-26 (Year 4): 2.25% General Wage Increase for all employees

- Projected cost of Year 4 = \$31,250

Insurance:

Article XVII

2022-23 (Year 1): No insurance changes.

2023-24 (Year 2):

- Employee Premium Cost Share remains at 16%

2024-25 (Year 3):

- Employee Premium Cost Share increased to 17%

2025-26 (Year 4):

- Employee Premium Cost Share increased to 18%

Total Projected Net % increase of wage/insurance package over 4 years = 10.3%

Other Contract Changes:

- **Article I, Section 1:** Strike Bus Driver as a covered position in this Unit.
- **Article III, Section 4:** Modified language regarding information the Board provides on a regular basis to Union in order to comply with PA 21-22, which mandates that public sector employers provide certain information to unions on a quarterly basis.
- **Article V, Sections 3(b) & 3(c):** Adds language to the contract requiring three (3) weeks' written notice of a layoff and provides for payout of vacation days and personal days upon layoff as long as the employee works the remainder of her/his scheduled days.
- **Article VII, Section 8:** Adds language prorating personal days for employees hired after the start of the school year.

- **Article VII, Sections 12 & 13:** Modifies existing language to clarify when classroom assistants are expected to stay for professional development and when they are released on the half days.
- **Article XI, Section 4:** Language added to allow for up to two (2) Union members to attend Union-sponsored training and/or conferences.
- **Article XIII, Section 4:** Increases the stipend paid when a classroom assistant covers a classroom when a teacher is absent for at least fifteen minutes from \$4.00 Dollars to \$10.00 Dollars.
- **Article XIV, Section 3:** Language added to life insurance provision to clarify that any questions about coverage or payment shall be determined by the life insurance carrier.
- **Article XXII, Section 2:** Eliminated language that prevented employees from participating in the 403b Plan until they passed their probationary period.
- **Article XXIII, Section 3:** New language added providing for the timely investigation and response related to unsafe working conditions reported.

COLLECTIVE BARGAINING AGREEMENT

By and Between

Waterbury Board of Education

and the



UNITED PUBLIC SERVICE EMPLOYEES UNION
WATERBURY BOE CLASSROOM ASSISTANTS,
Local 424 -Unit 68

July 1, 2022 through June 30, 2026

COLLECTIVE BARGAINING AGREEMENT

By and Between

Waterbury Board of Education

and the UNITED PUBLIC SERVICE EMPLOYEES
UNION WATERBURY BOE CLASSROOM ASSISTANTS,
Local 424 -Unit 68

July 1, 2022 through June 30, 2026

Table of Contents

	PAGE
<u>ARTICLE I</u> <u>RECOGNITION</u>	1
<u>ARTICLE II</u> <u>MANAGEMENT RIGHTS CLAUSE</u>	1
<u>ARTICLE III</u> <u>DUES CHECKOFF</u>	2
<u>ARTICLE IV</u> <u>HOURS OF WORK, WORK ASSIGNMENTS,</u> <u>HIRING, DISCHARGE AND PROBATION</u>	3
<u>ARTICLE V</u> <u>SENIORITY</u>	5
<u>ARTICLE VI</u> <u>JOB SECURITY</u>	6
<u>ARTICLE VII</u> <u>LEAVE PROVISIONS</u>	6
<u>ARTICLE VIII</u> <u>GRIEVANCE PROCEDURE</u>	10
<u>ARTICLE IX</u> <u>HOLIDAYS</u>	12
<u>ARTICLE X</u> <u>PRESERVATION OF RIGHTS</u>	13
<u>ARTICLE XI</u> <u>UNION ACTIVITIES</u>	13
<u>ARTICLE XII</u> <u>NO STRIKE OR LOCKOUT</u>	14
<u>ARTICLE XIII</u> <u>WAGES</u>	14
<u>ARTICLE XIV</u> <u>INSURANCE</u>	15
<u>ARTICLE XV</u> <u>VACATION</u>	20
<u>ARTICLE XVI</u> <u>AUTO USAGE</u>	20
<u>ARTICLE XVII</u> <u>LONGEVITY</u>	20
<u>ARTICLE XVIII</u> <u>SUMMER JOB OPPORTUNITIES</u>	21
<u>ARTICLE XIX</u> <u>EDUCATION INCENTIVES</u>	21
<u>ARTICLE XX</u> <u>MISCELLANEOUS</u>	21
<u>ARTICLE XXI</u> <u>DISCIPLINE</u>	22
<u>ARTICLE XXII</u> <u>PENSION AND RETIREMENT</u>	22
<u>ARTICLE XXIII</u> <u>SAFETY</u>	23
<u>ARTICLE XXIV</u> <u>DURATION</u>	23
<u>APPENDIX A</u> 25	

ARTICLE I RECOGNITION

Section 1. The Board hereby recognizes the Union as the sole and exclusive bargaining agent for the employees, whose positions are Classroom Assistant for the purposes of collective bargaining with respect to wages, hours, and other conditions of employment the C.S.B.L.R. in Case No. ME-307S7. These employees are employed by the Board in connection with the administration and implementation of grant funded educational programs. The Board and the Union specifically agree that these positions are paid for and funded by federal and or state grants.

Section 2. DEFINITIONS -For purposes of this Agreement, the following terms shall have the following meaning:

- a. "Board" shall mean the Board of Education, City of Waterbury;
- b. "Employee" or "Employees" shall mean those personnel who are members of the bargaining unit certified by the C.S.B.L.R. Subject to provisions of Article II, Section 2 hereof, the parties further agree that the term "employee" or "employees" does not include Supervisors, Licensed Teachers, Coordinates, Substitute or Part-Time Aides employed in the Grant Programs or any other personnel employed by the Board of Education.
- c. The term "in pay status" as used in this Agreement shall be defined to embrace the following situation: an employee is receiving compensation (e.g. workers' compensation or vacation payor paid sick leave or other paid leave) from the Board.
- d. The word "parties" shall be defined to mean, unless the contract clearly indicates otherwise, the Board and the Union.
- e. The term "school year" shall mean, unless the contract clearly indicates otherwise, the period from July 1 of a given year through June 30 of the next succeeding year.

ARTICLE II MANAGEMENT RIGHTS CLAUSE

Section 1. Except as otherwise limited by an express provision of this Agreement, the Board reserves and retains, whether exercised or not, all lawful and customary rights, powers and prerogatives of public management. Such rights include, but are not limited to, the following:

- a. the right to prescribe and enforce reasonable work rules and regulations for the maintenance of discipline and for the performance of work in accordance with the requirements of the City, provided such rules and regulations are made known in a reasonable manner to the employees affected by them. Prior to the promulgation of new or modified rules and regulations, the Board shall meet with the Union to discuss them and shall give due consideration to the Union's recommendations concerning same. The City shall bargain over the impact, if any, of the Board's decision;

- b. the right to assign work to employees, including the right to assign incidental duties that may not be specifically enumerated in an employee's job specification;
- c. the right to create job descriptions and revise existing job descriptions as deemed necessary, with such procedures for the applicable rate of pay as are required by Article XIII of this Agreement;
- d. the right to determine work schedules including the right to change the regular workweek, the length of the regular workday, the hours of work, the beginning and ending time of each shift or assignment and the number of shifts to be utilized;
- e. the right to establish the methods and processes by which work is performed, including the right to select and to determine the number and types of employees required to perform operations;
- f. the right to establish or continue policies, practices and procedures for the conduct of City business and, from time-to-time, to change or abolish such policies, practices, or procedures, subject to the City's obligation to bargain over the impact, if any;
- g. the right to layoff or otherwise relieve employees from duty for lack of work or other legitimate reasons;
- h. the right to discontinue services, positions, operations or programs in whole or in part; and
- i. the right to transfer or subcontract, in whole or in part, work performed by the bargaining unit if, in the sole judgment of the Board, it can be done more economically, effectively or expeditiously as a result of such action.

ARTICLE III DUES CHECKOFF

Section 1. All employees covered by this Agreement who have submitted a Union membership application shall pay dues to the Union. The Union agrees to defend and hold the Board harmless as the result of any claim by an employee arising from the provisions of this section.

Section 2. The Board agrees to make arrangements with the Payroll Department of the City of Waterbury to deduct from the paycheck of each Union member, a sum certified in proper form in writing by the Local Secretary or other authorized official of the Union, which sum is specified to be Union dues.

Section 3. These deductions will be made bi-weekly on the same payday of each month, as specified by the Board and the Grants Payroll Office of the Board and agreed to

by the Union, during the ten-month period from September of a given calendar year through June of the next succeeding calendar year in an amount which represents 1/10th of the annual union dues; that is, each monthly deduction shall be an amount which is the equivalent of one-tenth of the annual union dues. In the event that Agency Fee union deductions become permissible by State and/or Federal Law, the parties agree that the Employer shall deduct the designated Agency Fee amount as provided in writing by the Union. The parties further agree that such Agency Fee union deductions shall be remitted to the Union either weekly, bi-weekly or on a monthly basis.

Section 4. The Employer shall provide the UPSEU Labor Relations Representation in writing via email within ten (10) school days the following information as it relates to new hires: 1) first and last name; 2) job title; 3) worksite location; 4) hire date; 5) available contact information to include work phone/email; and 6) rate of pay.

Section 5. The Union shall be provided an opportunity to meet with new employees during the course of any employment orientation program for new employees. Where such an orientation program does not exist, the Union shall be provided an opportunity to meet new employees during the first month of a new hire's appointment either on employee time, or for such new employees who have a paid lunch, at a convenient time during the workday, but shall not exceed thirty (30) minutes.

ARTICLE IV HOURS OF WORK, WORK ASSIGNMENTS, HIRING, DISCHARGE AND PROBATION

Section 1. Subject to the right of the Board to alter the hours of work because of bona fide reasons, the hours of work for employees covered by this Agreement shall be seven (7) hours per day inclusive of a paid one-half hour lunch break for Classroom Assistants) based upon a five (5) day work week. The Board or Superintendent or his/her designee retains the exclusive right to schedule the hours worked in any workday. The work year shall be determined annually by the Board and may include at least four (4) non-instructional days to be scheduled at the Board's discretion.

Section 1a. Employees shall be paid for actual hours worked and shall not be paid for anytime not at work (e.g., tardiness or absences) unless paid pursuant to authorized paid leave set forth in this Agreement.

Section 2. The right and authority to hire employees, to transfer and/or assign employees to programs, and to make work schedules, including starting and stopping hours, to change the work year, work week, or daily work hours, and to make work assignment schedules, is vested exclusively in the Board, the Superintendent of Schools or his/her designee.

Section 3. In all cases of determining an employee's qualifications for a job assignment within any of the programs, the final judgment rests with the Board and/or Superintendent of Schools or his/her designee. Any employee deemed unqualified shall be entitled to hear from the Superintendent of Schools or his/her designee, with or without the

presence of his/her steward as he/she may desire, the reasons why he/she has been adjudged unqualified.

Section 4. Any employee hired for a position covered by this Agreement shall work a probationary period of six (6) months. During the probationary period, the employee shall have no seniority entitlement (which seniority entitlement is prescribed in Article V hereof) and shall have no right or recourse to the Grievance procedure, prescribed in Article VIII hereof. Such employee, upon successful completion of the said probationary period shall acquire seniority back to his/her original date of hire. The Board may extend the probationary period up to the amount of lost time during the first six (6) months. The Board may unilaterally extend an employee's probation for up to an additional three (3) months at its sole discretion.

When an employee finishes his/her probationary period, then in the event he/she is discharged, he/she shall have recourse to the grievance procedure at the second step thereof. In the case of an attempt to file a grievance by an employee who has completed his/her probationary period and whose services have been terminated, the fact of termination or cutback in funding under the grant program, and/or change in the program by the Board, shall be a complete and valid defense by the Board and the Parties agree that such a matter is not grievable matter under this Agreement.

Section 5. In the event a bargaining unit member works in excess of forty (40) hours in a work week, the employee shall be compensated at the overtime rate of one and one-half (1 1/2) times his/her hourly rate of pay for all hours worked in excess of forty (40) hours in accordance with the Fair Labor Standards Act.

Section 6. Prior to the implementation of final decisions regarding changed responsibilities of employees in these Units, such personnel shall be informed. In any disagreement regarding changes in duties, employees shall have recourse to established grievance procedures, as prescribed by this Agreement.

Section 7. Employees shall be compensated at their regular hourly rate up to a maximum of four hours each year for required attendance at the annual "Open House" teacher/parent conferences during the school year.

Section 8. The ten-month employees' work schedule is directly related to the school year and the academic year. It is agreed that these employees shall be required to work only the days that the schools are scheduled to be in session plus a possible additional day or two either before or after the close of the academic year. The Board will pay the said ten month employees for all hours actually worked.

ARTICLE V SENIORITY

Section 1. Seniority will be defined as an employee's total length of service since his/her most recent date of hire with the Board of Education in a bargaining unit for which UPSEU Local 242 or the Union is recognized as the bargaining representative.

Section 2. The Board shall provide annually a list of employees, showing their most recent dates of employment, and their seniority on or before October and July 1.

Section 3. For the purpose of layoffs, seniority shall be defined as an employee's total length of service in the classification within the bargaining unit. In the event of a layoff employees shall be laid off in the reverse order of seniority (the least senior), within each classification within their bargaining unit.

Section 3(a). In the event of layoff, those employees with the least seniority in the bargaining unit shall be laid off first provided the more senior employees have the ability to perform the required work. Employees shall have the right to bump less senior employees in previously held lower classifications provided they are qualified and immediately capable of performing the required work, as determined by the Board.

Section 3(b). The Board shall give the Union and any affected employee(s) written notice of layoff at least fifteen (15) work days prior to the proposed effective date. Such notice shall state the reason for such action and shall delineate the names of the affected employees and number of positions the Board intends to eliminate.

Section 3(c). In the event of layoff, any affected employee shall be paid out her/his accrued personal days and paid for winter recess and/or spring recess in accordance with Article XV so long as the layoff occurs prior to winter and/or spring recess in a given school year, and provided the employee works her/his scheduled days after layoff notice is provided.

Section 4. Laid-off employees shall have recall rights for two (2) complete years from their date of lay-off, or for a period equal to their length of seniority, whichever period is shorter.

a. No new employee(s) shall be hired into a classification while employee(s) are on layoff with recall rights to the same classification.

Section 5. Any job or position openings in the bargaining unit shall be posted for a period of five (5) working days. Employees interested in bidding for the job openings will notify the Office of Educational Grants in writing prior to the expiration of the five (5) days.

a. In determining the granting of a request for assignment to job or position openings, the Superintendent or his/her designee shall consider the following:

1. The qualifications of the employee.

2. Seniority.
3. Experience in the building.
4. The needs and educational interests of the School District.

Section 6. Any provision of Article V shall not be construed to be in conflict with the federal/state grant requirements. The employer and the Union will meet to attempt to resolve conflicts, should they arise.

Section 7. When an employee, who was previously eligible for benefits, transfers from another bargaining unit not represented by UPSEU Local 424 to this bargaining unit, with no break in service, then he/she brings with him/her the years of service credit for vacation and longevity time and sick bank. This credited service does not count towards layoff, seniority, or bumping rights.

ARTICLE VI JOB SECURITY

Section 1. Subject to Civil Service rules and regulations, incumbent employees within the bargaining unit shall be retained with full seniority and other rights and benefits under the Agreement, should the City of Waterbury assume administration of the Office of Educational Grants and other programs under its jurisdiction. The City shall retain all the rights and privileges set forth in this agreement, including management rights.

Section 2. At any time during the terms of this Agreement, the City shall have the right, pursuant to applicable law, to require that the Civil Service Commission administer the hiring and promotion of bargaining unit positions. The Board shall have the obligation to bargain with the Union over the impact of such decision as required by applicable law.

ARTICLE VII LEAVE PROVISIONS

Section 1. For the purposes of this Article, sick leave is defined as absence from work because of non-service connected illness or injury or absence from work for medical or dental treatment which cannot be scheduled during the employee's non-working hours. Sick leave shall be granted without loss of the employee's normal pay to the extent of the employee's sick leave eligibility as prescribed in Section 2 hereof. Loss of time from work occasioned, or necessitated, by maternity disability may be considered to be sick leave as defined herein.

Section 2. Employees shall be credited with sick leave eligibility, as hereinafter noted, for each complete calendar month in pay status during the months September through June and shall carry forward unused sick leave accumulated. The sick leave eligibility for employees shall be one and one-quarter (1 1/4) days per month for each month of the school year that the employee is in pay status. Employees must be in pay

status on all of the school days in a given month (except for 2 days) in order for that employee to be entitled to receive the one and one-quarter (1 1/4) days of sick leave entitlement for that month that school is in session. The said unused sick leave carried forward to this Agreement together with the sick leave eligibility accrued in accordance with the formula prescribed herein shall be limited to 100 days. Employees may take sick time in minimum increments of 1 hour. The Board may convert paid time off accruals to a unit consistent with operation of the City's/Board's recordkeeping and/or payroll system, as the same may be revised from time-to-time. The accrual unit may be calculated each year based on the number of scheduled school days.

In the event that an employee suffers a prolonged and serious physical illness or injury and has used all of his sick leave and personal leave, employees may donate up to ten (10) sick days each per school year. The total number of sick days donated to an employee may not exceed sixty (60) sick days over the course of his employment. Donated sick days may not be used during the first twenty (20) work days of an absence.

Section 3. An acceptable medical certificate signed by a licensed physician may be required of an employee by his/her department head to substantiate a request for sick leave for the following reasons: paid vacation period prescribed by Article XV, hereof);

- a. any period of absence consisting of more than three (3) consecutive work days;
- b. To support a request for such leave during annual leave (i.e., during the paid vacation period prescribed by Article XV, hereof);
- c. Any absence from work if previous absences from work occur frequently, habitually, or abusively (e.g., absences occurring immediately before or after weekends, holidays, and other time off) provided that prior to the absence, the employee has been warned in writing, or notified, by his/her department head, that such certification will be required.

Section 4. In each instance encountered, each employee shall be granted leave of up to three (3) working days without loss of pay in the event of a death in his or her immediate family. For the purpose of this section, the phrase "immediate family" shall include the following: spouse, child, mother, father, grandchild, mother-in-law, father-in-law, son-in-law, daughter-in-law, grandparent, sister, brother, step-parents, step-children, brother-in-law, sister-in-law, or any foster parent/child or any relative domiciled in the employee's household.

In the case of an aunt, uncle, niece, nephew, former legal guardian, foster parents/children (except those domiciled in the employee's home who shall be considered immediate family) of the employee, one (1) day of Funeral Leave with pay, if necessary to attend the funeral of such relative shall be granted to the employee. For purposes of the preceding sentence, the words "aunt" and "uncle" shall include, within their meaning, the spouse of a blood related aunt or uncle.

In no event shall employees be paid funeral leave for days upon which they are not

scheduled to work.

The employee must notify the Board as to the date or dates he will be on Funeral Leave. When the employee returns to duty he shall provide to the Board all pertinent information as requested on the Funeral Leave Forms provided by the Board.

Section 5. An employee may be granted a leave of absence without pay by the Board (e.g., maternity leave) in accordance with the Family Medical Leave Act, 29 USCS § 2612, as amended and the City's policy effect on July 1, 2014.

Section 6. An employee who has exhausted his/her sick leave may request in writing an advance of additional sick leave. Such request shall be reviewed by a committee of three, consisting of the Superintendent of Schools, his/her designee and a member of the Board of Education: which committee shall consider the employee's record as a whole including his/her length of service and his/her use and/or abuse of sick leave privileges in the past. In no event shall the committee approve advance sick leave in excess of twenty (20) working days for anyone request. The committee's decision regarding such request shall not be subject to the grievance procedure. An employee who is granted advance sick leave shall be required to sign a wage deduction authorization form and related promissory note to ensure the advance is repaid.

Section 7. In the event of retirement (as retirement is hereinafter defined) or death, an employee, or the employee's estate, shall receive, as terminal pay, one-half (1/2) of his/her then accumulated sick leave valued at the applicable rates in use at the time of death or retirement. For the purpose of this Section, an employee will be deemed to have retired if he resigns from employment after attaining twenty-five (25) years of service and fifty-five (55) years of age or fifteen (15) years of service and sixty-five (65) years of age. Neither an employee terminated for cause nor an employee hired or rehired after April 10, 2003 shall be entitled to this benefit.

Section 8. Each employee who was an employee on September 10th of the pertinent school year shall be granted three (3) personal days as days off with pay, within the school year subject to the demands of service as determined by the Superintendent of Schools or his/her designee, provided the employee is an employee (as defined in this Agreement) on the date of the personal day and provided, further, that he/she satisfactorily completed his/her probationary period as a new employee. Employees hired after September 10th shall have personal days prorated according to the following schedule, which is contingent upon the satisfactory completion of employee's probationary period: employees hired on or before November 1 of any given school year shall be granted two (2) personal days. Unused personal days may not be carried over to the following year. Except in an emergency situation, a request for the personal day shall be made by the employee to the Superintendent of Schools or his/her designee at least one week in advance of the date requested for the personal day.

Section 9(a). Jury Duty. An employee who is summoned and reports for jury duty (examination as a prospective juror and/or actual service as a juror) as prescribed by applicable law shall be paid a jury duty pay, an amount equal to the length of his/her

necessary absence from work during his/her normal work day hours multiplied by his/her regular straight time hourly rate of pay for a maximum of seven (7) hours in any day, less any statutory juror fees received by the employee.

Section 9(b). In order to be eligible for jury duty pay, prescribed by Section 9(a) hereof, an employee:

- a. must have been scheduled to work on that day;
- b. must immediately notify the Superintendent of Schools or his/her designee after receipt of notice of report to jury duty;
- c. must have reported for work on any day during the period of jury duty when he/she was not necessarily absent from work on account of jury duty;
- d. must furnish a certificate of jury service showing the time of reporting and the time of dismissal on each day for which jury duty is claimed and the amount of all statutory juror fees received by him/her.

Section 9(c). The provisions of Section 9 (a) and (b) hereof shall not apply in cases of any jury duty on a Saturday or Sunday or any day that the employee is not regularly scheduled to perform work because of a school recess or otherwise.

Section 10. If a member of the unit is absent because of illness due to a communicable disease (i.e. mumps, measles, chicken pox, conjunctivitis and mononucleosis) traceable to contact made in school, the absence shall not be charged against his/her annual or accumulative sick leave.

Section 11. In the event of a snow day or other school day when school is called off, employees may make one of the following elections:

- To take a personal day (if available), or
- To be paid in advance for the make-up day (regardless of when it may be scheduled). If the employee elects to be paid in advance and does not come into work on the scheduled make up day, then the employee shall not be eligible for any paid time off (i.e., vacation, sick or personal) for the make-up day regardless of the employee's reason for not coming into work; or
- To take the day without pay and be paid instead for the make-up day whenever it occurs.

"Snow days" are defined as days when schools are closed due to severe snow conditions.

Section 12. In the event of an early dismissal, employees shall be paid for a full work day. In the event of a student only early dismissal where professional development and/or training is being offered to members in accordance with Section 13 herein, that provision shall be instructive as to whether or not the employees are expected to remain for

professional development and/or training. The Board retains the right to require employees to remain working until all students have left the school.

Section 13. In the event of a professional in-service day (or afternoon in-service on a student early dismissal day) for teachers, employees shall receive communication from their respective supervisors via email, at least forty-eight (48) hours in advance to either participate or not in Board scheduled training, if relevant to the bargaining unit. In the event that employees are not provided with the required notice or are not required to attend the professional in-service, employees shall receive the day off with pay and/or be paid for the full workday for early dismissal days. The Board will make every effort to make such directive to attend training and/or professional development consistent districtwide. .

Section 14. When an employee's services are terminated by the Board because of death or retirement, vacation pay shall be granted to such employee in accordance with the vacation entitlement under this Agreement. The Board shall make such payment not later than the next regularly scheduled paycheck following the effective date of termination. For purposes of this Section, an employee will be deemed to have retired if he resigned from employment after attaining twenty-five (25) years of service and fifty-five (55) years of age or, fifteen (15) years of service and sixty-five (65) years of age. An employee terminated for cause shall not be entitled to this benefit.

Section 15. The Board shall grant military leave pursuant to State and Federal Law.

Section 16. Work-Related Illness or Injury. An employee injured in the performance of and during the course of her/his employment with the Board, shall be paid benefits in accordance with the Connecticut Workers' Compensation Act.

If at any time during the period of an employee's injury leave or thereafter, the Board receives a medical report from a treating physician which states that the employee is permanently unable to perform the essential functions of his/her position, the Board may terminate the employee from service following a pre-termination hearing. The Union may appeal such decision subject to an arbitrary and capricious standard.

If eighteen (18) months from the date of the work-related illness or injury, the employee is unable to return to full duty, the City may separate the employee from employment. The Union may appeal such decision subject to an arbitrary and capricious standard.

ARTICLE VIII GRIEVANCE PROCEDURE

Section 1. The most effective accomplishment of an employee's work for the Board requires prompt consideration and equitable adjustment of employee grievances. It is the desire of the Board to address the grievances informally, and both supervisors and employees are expected to make every effort to resolve problems as they arise. However, it is recognized that there will be grievances which will be resolved only after formal appeal and review.

Section 2. Any employee who has a complaint that there has been a violation, misinterpretation or misapplication of a specific provision of this Agreement or of a condition affecting his/her health or safety, may process a grievance in accordance with the procedures specified herein and shall have the right to have Union representation present at any step in the grievance procedure if he/she so desires.

Step 1: An employee with the Union shall first present his/her grievance to the coordinator of the Program in which the employee is employed within ten (10) calendar days of the occurrence giving rise to the grievance. The coordinator shall make careful inquiry into the facts and circumstances of the complaint in an attempt to resolve the problems promptly and fairly. He shall give his answer to the employee and the Union within five (5) working days from the time the grievance is submitted to him.

Step 2: Any employee with the Union who is dissatisfied with the decision of his/her coordinator may submit the grievance in writing to the Superintendent of Schools or his/her designee with a copy to the Union within five (5) working days of the receipt of the coordinator's answer under Step 1. The Superintendent of Schools or his/her designee shall make such investigation and conduct such hearings as it deems necessary and inform the employee and the Union in writing, of his decision and the reasons therefore within ten (10) working days subsequent to the date of his receipt of the grievance.

Step 3: If the Union is dissatisfied with the Superintendent's decision in Step 2, then either the Union or the Board may within fifteen (15) calendar days of the issuance of the decision in Step 2, request, in writing, (with a copy of the request to be sent to the other party) the mediation services of the Connecticut State Board of Mediation and Arbitration.

Step 4: In the event that either party exercises its right to mediation and mediation does not resolve the dispute or in the event that neither party exercises its right to mediation, and the grievance is not resolved within twenty (20) days of the filing of the Step 3 notice, then either the Union or the Board may request, in writing, (with a copy of the request to the other party) that the Connecticut State Board of Mediation and Arbitration provide arbitration service. The written request for arbitration service must be made within ten (10) calendar days of the receipt of notification from the Mediator that the Mediator is unable to resolve the grievance by means of his or her Mediation Service. If no such intention to seek arbitration of the grievance is received by the Board or by the Union from the other party, as the case may be, within the said 10-day period, the grievance shall be considered settled on the basis of the disposition given in writing by the Superintendent at Step 2.

Section 3. All questions submitted to arbitration under the terms of this Agreement shall be submitted in accordance with the rules and regulations, then prevailing, of the Connecticut State Board of Mediation and Arbitration.

Section 4. The Arbitrator or Arbitration Panel shall have no power to add to, subtract from or modify any of the terms of this Agreement.

Section 5. The Arbitrator's award shall be made in writing and shall be rendered within the time limit prescribed by the then current rules of the Connecticut State Board of

Mediation and Arbitration. The decision of said arbitrator shall be final and binding on both parties and on all employees.

Section 6. Any expenses incidental to mediation and/or arbitration shall be borne equally by both parties although each party shall be responsible for its own legal fees associated with mediation and/or arbitration.

Section 7. Failure to process the grievance within the time limits established in the preceding Sections presumes that it has been satisfactorily resolved at the last step to which it has been properly processed. Failure on the part of the Board's representatives to answer the grievance in the time limits established in the preceding Sections presumes that the claim made in the grievance is denied and may be processed to the next step.

Section 8. The parties agree that all notices and other documents involved in the Grievance Procedure beyond Step 2 must be e-mailed or sent by Certified mail, return receipt requested.

ARTICLE IX HOLIDAYS

Section 1. The following days are hereby designated as holidays and they shall be paid for, at the employee's normal rate of pay for one work day, under the following conditions when not worked

New Year's Day	Labor Day
Martin Luther King Day	Columbus Day
Lincoln's Birthday	Veteran's Day
Washington's Birthday	Thanksgiving Day
Good Friday	Day after Thanksgiving Day
Memorial Day	Christmas Day

Section 2(a). For each year of this Agreement, the Board shall have the discretion to select the dates on which Lincoln's Birthday and Washington's Birthday shall be celebrated.

Section 2(b). To qualify for the above (Section 1) holiday pay, the employee must be in pay status for the last scheduled working day prior to and the first scheduled working day subsequent to the holiday.

Section 2(c). The holiday must fall on a regularly scheduled work day except:

- a. Any holiday falling on a Sunday shall be observed on the following Monday;

b. Any holiday falling on Saturday shall be observed on the preceding Friday.

Section 3. If a holiday occurs during an employee's paid sick leave, he/she shall receive full holiday pay, prescribed by Section 3 hereof, for that day but the day shall not be charged against his/her sick leave allowance.

ARTICLE X PRESERVATION OF RIGHTS

Section 1. The parties recognize that the Board retains all rights it had prior to the signing of this Agreement, except as such rights, whether exercised or not, have been specifically relinquished or abridged by this Agreement.

Section 2. The parties further recognize that if any provision of this Agreement is contrary to a specific practice existing prior to the date of execution of this Agreement, then the provision of this Agreement shall prevail.

Section 3. This Agreement represents the complete and full understanding of the parties with respect to rates of pay, wages, hours of employment and other conditions of employment which shall prevail during the term hereof and any matters or subjects not herein covered have been satisfactorily adjusted, compromised or waived by the parties for the life of this Agreement.

ARTICLE XI UNION ACTIVITIES

Section 1. The Union shall notify the Board in writing of the names of all officers and stewards who are employees of the Board

Section 2. Union activities required to administer this Agreement shall be carried on with the approval of the Superintendent of Schools or his/her designee in such a manner as not to interfere with the educational process of any of the programs. In the event it is necessary to present a grievance step during normal work hours and the employee requests the presence of a steward or other authorized Union representative at this time, then the steward or Union official (who is an employee) shall continue to be paid during the time that he/she is acting in behalf of the employee. However, no compensation shall be paid to any employee or any steward or any Union official for any Union activity, including representation at any step in the grievance procedure, which occurs beyond the normal work hours.

Section 3. The Board agrees that the Union shall have access to existing bulletin board space for notices and information concerning Union affairs and matters of interest to Union members in an appropriate place in the schools or in the Business Office of the Superintendent of Schools or his/her designee. The exact sites of the "bulletin board" or the notice posting place shall be determined by the Administrator in charge of the school building or the Superintendent of Schools or his/her designee, as appropriate. The Board shall continue to allow the Union access to the Department of Education's email system for purposes of issuing notices to Union members.

Section 4. The City will allow no more than a total of six (6) days per year of paid leave to the bargaining unit for the purpose of attending union conference, provided that no more than two (2) employees are off at a time, that written request is submitted to the employee's supervisor as soon as possible but not less than two (2) weeks prior to the leave and that approval is subject to the operational need of the school system.

ARTICLE XII NO STRIKE OR LOCKOUT

During the life of this Agreement, there shall be no strikes, slowdowns, suspension of work or stoppage of work by any employee or employees in any part of the Board's operation dealing with the programs covered by this Agreement or otherwise. There shall be no picketing of schools or headquarters or otherwise and this provision shall also prohibit informational picketing. There shall be no lockout by the Board of any employee. The prohibition against strikes, slowdowns, suspensions, or stoppage of work in this Section shall be in addition to the prohibition as by State Statute made and provided.

ARTICLE XIII WAGES

Section 1. The wage schedule in effect for the term of this Agreement shall be set forth in Appendix A.

Section 2. The Union understands that the Board has been paying the employees covered by this Agreement on a bi-weekly basis; the Union agrees that the Board reserves that right to establish or change the pay period for employees upon two (2) weeks' notice.

Section 3. Each employee shall be entitled to participate in the City's 457 Deferred Compensation Plan.

Section 4. A classroom assistant who is left in sole charge of a classroom for any period exceeding fifteen (15) minutes under circumstances set forth below shall be paid a premium of 10\$per hour for any hour or portion thereof, during which the time the classroom teacher:

- a. is assigned to a scheduled meeting or appointment which removes him/her from the classroom, or
- b. is absent, utilizing accrued leave, and no substitute is present.

Section 5. By January 1, 2020, all employees shall authorize the Board to pay wages via direct deposit at a banking institution chosen by the employee.

ARTICLE XIV INSURANCE

Section 1 Employees may elect the current medical, prescription and dental plans as follows:

a. Health Insurance

Each employee shall be eligible to elect the following health care options effective the first of the month following date of hire or during the City's designated open enrollment period(s):

1. Effective July 1, 2022, the Open Access Plus (OAP) Plan with the following co-payments:

- \$25 for office visits;
- \$30 for visit to specialist
- \$50 for urgent care
- \$150 for emergency room
- \$225 for outpatient surgery
- \$325 inpatient hospitalization

1(a). Effective July 1, 2023, the Open Access Plus (OAP) Plan with the following co-payments:

- \$30 for office visits;
- \$30 for visit to specialist
- \$50 for urgent care
- \$175 for emergency room
- \$250 for outpatient surgery
- \$350 inpatient hospitalization

There is unlimited lifetime maximum benefit for in-network providers.

For out-of-network services, there shall be an annual deductible of \$400/\$800/\$1,200 for individual, two persons, and family coverage with subsequent coinsurance of 30% on covered expenses of up to \$4,000/\$8,000/\$12,000 respectively for individual, two persons, and family coverage. The maximum "out-of-pocket" expense associated with the out-of-network cost share is \$1,600/\$3,200/\$4,800 for individual, two persons, and family coverage respectively. If a nonnetwork provider is used, the employee or dependent may be subject to balance billing above and beyond the allowable maximums. The program includes managed benefits with a 25% professional penalty imposed if guidelines are not followed. There is an unlimited lifetime maximum benefit for in-network providers.

If two employees of the City are married to each other, one of the two may waive participation in the medical insurance program and be covered as a dependent under the other's plan, subject to execution of a waiver that is satisfactory to the City and its insurance plan administrator, and subject to such conditions on re-enrollment as the administrator requires and are permitted by law.

b. Prescription Drug Benefits

1. Employees who enroll in the Open Access Plus (OAP) Plan shall be enrolled in the City's integrated prescription drug program with co-payments of \$55 for generic drugs, \$30 for listed brand name drugs, and \$40 for non-listed brand name drugs, and required generic substitution, for a 30-day supply. Mail order co-payments for a 90day supply of maintenance medications are twice the co-pay for a 30-day supply. For non-participating pharmacies, the plan reimburses at 70%.

c. Dental Plan

Employees who enroll in one of the medical plans made available shall have the option to enroll in the dental coverage that is associated with each specific health plan. The dental coverage associated with the above referenced medical plans is the Cigna Dental Plan. The following shall apply to this plan:

- 100% and 50% coverage for services as listed in Appendix B.
- A deductible of \$50, \$100, or \$150 respectively shall apply for individual, two person, or family coverage. The deductible shall not apply to those services highlighted and underscored in Appendix B.
- A calendar year maximum of \$1 ,000 per participant.

Dental coverage may not be elected independent of the City's medical coverages.

Section 2. Premium Cost Sharing

Employee premium cost sharing shall be by payroll deduction and shall be as follows:

a. Medical. Each employee shall pay the following portion of the premium or premium equivalent for the above medical plans for the coverage of the employee and their eligible dependents who meet the criteria set forth in the insurance carrier's plan description:

July 1, 2022	16%
July 1, 2023	16%
July 1, 2024	17%
July 1, 2025	18%

b. Prescription. Each employee who is enrolled in the prescription plan shall pay 20% of the premium or premium equivalent.

c. Dental. Each employee who is enrolled in the dental plan shall pay 20% of the premium or premium equivalent.

d. The City shall provide a premium cost sharing plan on a pre-tax basis. The City shall also establish such plan(s) as are required to allow employees to elect participation in:

- i. a flexible spending account for medical expense reimbursements; and/or
- ii. a dependent care assistance plan.

These plans shall be established and administered in accordance with Internal Revenue Code requirements.

Section 3. Life Insurance. The City shall provide, without charge to the employee, life insurance equal to one and one-half (1.5) times the annual base salary of the employee rounded up to the next one thousand dollars (\$1,000), provided that this amount does not exceed the rules of the City's designated life insurance carrier and plan. The City reserves the right to change carriers or plans, provided that the coverage amounts remain the same. Any questions concerning coverage eligibility and payment of benefits pertaining to a life insurance claim shall be determined by the insurance carrier in accordance with the provisions of such policy.

Section 3a. In addition to the life insurance provided in Section 3, employees may purchase, at the employee's cost, supplemental life insurance coverage, subject to the following conditions:

- a. Supplemental life insurance shall equal the amount of the employee's annual base salary, rounded up to the next one thousand dollars (\$1,000).

Employees participating in supplemental life insurance coverage prior to the effective date of this Agreement, shall have the right to continue such coverage throughout the life of this Agreement. Deductions from the employee's pay for the total cost of this additional life insurance coverage shall be made in accordance with the employee's pay cycle.

Section 3b. If the Board receives notice that the total, cost of a group health insurance plan or plans offered under this contract will trigger an excise tax under Internal Revenue Code Section 49801, federal statute or federal regulation, during the term of this contract, the Board and the Union will, upon request of the Board, engage in mid-term negotiations regarding the impact of such excise tax, in accordance with the Municipal Employees Relations Act ("MERA").

Section 3c. Health and Well ness Incentive. Any employee who voluntarily participates in any health and wellness initiative offered by the City, as such initiatives may be offered from time to time, shall be eligible for an incentive payment or offer, which shall be set exclusively by the City. This provision shall not be subject to negotiation or the grievance procedure so long as participation in any health and wellness initiative remains voluntary.

Section 4. Change of Carrier. The City may elect to change insurance

carrier(s)/administrator(s) during the life of this Agreement for any of the benefits specified in this Article, provided the coverage is at least comparable to the coverage in effect immediately prior to the change. "Comparable" means same overall plan design, equivalent benefit levels as to each of the major elements of the plan, and comparable value (balancing off pluses and minus) as to the remaining elements of the plan. The City agrees to give the Union reasonable notice and to discuss with the Union prior to any change in carrier(s)/administrator(s). In the event of a dispute over the interpretation or application of this Section, the Union may, within thirty (30) days after being notified of a health insurance change, request grievance arbitration without proceeding through the initial steps of the grievance procedure. The request for arbitration shall include a listing of the element or elements of the plan that the Union claims are not "comparable" to the pre-existing plan. Arbitration shall be conducted by a mutually acceptable arbitrator, or if none can be agreed upon within five (5) business days of the Union's notice of arbitration, by the Alternative Dispute Resolution Center in accordance with its rules and procedures. The costs of arbitration shall be shared equally by the parties. The network of providers must be seventy-five percent (75%) of the network on July 1, 2008. The following shall be excluded in determining whether a plan is "comparable": out-of-state reciprocal arrangements for non-emergency care, provided that there is at least one plan option that includes out-of-state reciprocal arrangements; claims processing; plan documents, definitions and wording.

The City may change a carrier or administrator of a plan (medical, dental prescription) once each contract year.

Section 5. Any question concerning payment of benefits pertaining to any of the aforementioned provisions shall be determined by the insuring company in accordance with the provisions of such policies.

Section 6. In the event coverage becomes available through the State of Connecticut Insurance Plans, the Union and the City may at any time request the other party to enter into discussions regarding inclusion of the bargaining unit in such plans. Such discussions shall not constitute negotiations under MERA or Special Act 01-1.

Section 7. Those employees who are participating in the City's medical insurance plan at the time of retirement (as that term is defined in Article VII, Section 7), and who are not eligible for Medicare at the time of retirement or for medical insurance coverage from another employer, shall be allowed to purchase such medical insurance plan as the City provides to its employees, as such plans may change from time-to-time and subject to the same conditions as may exist at any time for employees, until such time that the employee becomes eligible for Medicare or for medical insurance from another employer, whichever event occurs first. In order to continue to be eligible for coverage, retirees and their covered spouses must elect Medicare Part B upon becoming eligible for Medicare. The retiree may enroll his/her spouse at the time of retirement. Employees terminated for cause shall not be eligible for this benefit. Employees hired on or after 7/1/09 and who retire and elect continued coverage shall pay an additional 2% administrative fee bringing the total cost to 102% of the applicable cost of the plan.

Section 8. Retired employees or their spouses, who are eligible for Medicare at the

time of retirement or become eligible for Medicare subsequent to retirement (as that term is defined in Article VII, Section 7), and has been participating in the City's medical plan prior to becoming eligible pursuant to the terms of this Article must enroll in both Medicare Part A and B and shall be responsible for any premiums for Medicare Part A and B in order to continue to be eligible for medical insurance and may purchase a Medicare Supplemental Program through the City provided the City offers such a Program on the date the employee becomes eligible for Medicare. To be eligible for the benefit, employees must opt into the Medicare Supplemental Program no longer than six (6) months (or less if the provider of the Program requires a shorter period of time) after becoming eligible for Medicare. Employees terminated for cause shall not be eligible for participation in this program. Employees hired on or after 7/ 1/09 and who retire and elect continued coverage shall pay an additional 2% administrative fee bringing the total cost to 102% of the applicable cost of the plan.

Should the City obtain a subsidy from the state or federal government, or any cost savings, for offering prescription drug benefits to Medicare eligible retirees and/or spouses, such subsidy or savings shall belong exclusively to the City to the extent permitted by applicable law.

Section 9. For the purposes of the benefit plans set forth in this Article, "eligible dependent" shall be a spouse or child who meets the criteria set forth in the insurance carrier's plan description. Any employee who receives benefits for dependents who do not meet the requirements of Section 152 of the Internal Revenue Code shall be solely responsible for any resulting taxes and related charges and shall hold the City harmless from any costs in connection with the provision of such benefits.

ARTICLE XV VACATION

Section 1. For purposes of this Article the phrase "vacation" shall refer to annual leave with pay; which annual leave shall be paid for at the employee's normal rate of pay for one work day for each day of such leave.

Section 2. The following should be the vacation schedule for employees for the duration of this contract:

For the school years occurring in the contract term, employees shall be entitled to one week's vacation pay for each of the following "vacation recesses": Christmas recess, winter recess and spring recess; PROVIDED, HOWEVER, if the Board does not schedule two recesses subsequent to the Christmas recess, then there shall not be any vacation pay for any period of time which has not been officially designated by the Board as "vacation recess." The parties agree that the provisions in the last sentence can be understood by the following example: in the event the Board of Education votes and schedules only one recess in a school year subsequent to the Christmas recess then, regardless of the length of that one recess, an employee shall be entitled to only one week's vacation time off for that one recess. This example, with its limitations of one week's pay, shall be true even though that one recess consists of more than five (5) otherwise scheduled school days.

ARTICLE XVI AUTO USAGE

Section 1. The Superintendent of Schools and his/her designee shall establish a list of "Automobile Travel Allowance" of personnel required to use their own private automobiles in the performance of their duties. Such personnel shall be reimbursed at the most current IRS mileage reimbursement rate.

Section 2. Each employee who is reimbursed for auto usage shall transmit to the Department of Finance a copy of the Certificate of Insurance covering his/her private auto indicating the name of the insurance company and agent, amounts of coverage for bodily injury in the amounts of at least \$100,000.00 per person, and \$300,000.00 per occurrence, and property damage liability in amounts of at least \$20,000.00 per occurrence, or a combined single limit of \$300,000.00. The City of Waterbury shall be listed as an additional insured on said liability insurance. Failure of the employee to transmit said Certificate to the Department of Finance within thirty (30) days of receipt by the employee of authorization to receive reimbursement pursuant to Section 1 or within thirty (30) days of the renewal of the underlying insurance policy shall be grounds to terminate authorization to utilize private auto and any prior reimbursement claimed.

ARTICLE XVII LONGEVITY

Section 1. Employees who were receiving longevity payments prior to the date of this Agreement shall continue to receive longevity payments with the amount frozen at the last longevity amount received. There shall be no further increases in any employee's longevity amount for the duration of his/her employment.

Section 2. No current or future employee who was not receiving longevity pay prior to the date of this Agreement shall become eligible for or receive any longevity pay.

Section 3. Longevity payments, as hereinbefore prescribed, shall be paid to employees in their regular paycheck on the first pay period of the month of December in each calendar year. The parties agree that the inclusion of the longevity payment in the employee's regular pay shall be subject to the normal withholdings and deductions and shall not be treated as a bonus.

ARTICLE XVIII SUMMER JOB OPPORTUNITIES

Section 1. Whenever comparable positions in the bargaining unit are available during the summer programs administered by the Office of Educational Grants, such vacancies shall be filled by selecting members of the bargaining unit who have expressed interest. Selection shall be based upon the seniority of those employees who have expressed

interest in writing on a form posted by the Office of Educational Grants before the end of the preceding school year.

ARTICLE XIX EDUCATION INCENTIVES

Section 1. The Board of Education will reimburse bargaining unit members for tuition (up to \$200.00 per course) for successfully completed (grade B or higher) work related course given by state approved college level educational institutions. For reimbursement, the course must be pre-approved by the Board or its designee prior to registration by the classroom assistant. The decision of the Board or its designee shall not be subject to the grievance procedure.

ARTICLE XX MISCELLANEOUS

Section 1. Bloodborne Pathogens. Classroom assistants shall be provided with such training regarding the Board's exposure control plan for bloodborne pathogens as is provided to other Board employees who risk exposure.

Section 2. The Board shall provide necessary supplies related to changing diapers in order to ensure sanitary practices and facilities.

Section 3. Should any provision herein be deemed unlawful or otherwise found to be unenforceable during the term of this Agreement or during any holdover period after its expiration, all other provisions of this Agreement shall remain in full force and effect.

ARTICLE XXI DISCIPLINE

Section 1. No employee who has completed his/her probationary period shall be disciplined in any manner except for just cause. If any employee is disciplined, and, in the judgment of such employee this action is taken without just cause, the Union may file a grievance in accordance with Article VIII.

Section 2. The Board and/or the Superintendent or his/her designee shall have the exclusive authority to terminate any employee for just cause. Just cause for discharge shall include but not be limited to the following offenses:

- a. Insubordination.
- b. Conviction of a felony or a misdemeanor involving moral turpitude.
- c. Willfully giving false statement to supervisors, officials, the public or the Board of a serious nature.

- d. Discovery by the Board of a false statement in an application.
- e. Refusal to be examined by a Board authorized medical physician when so directed by the Board.
- f. Inefficiency, misconduct or inability to perform the work of the position satisfactorily.
- g. Tardiness in excess of 15 minutes on four separate occasions in a school year.
- h. Unauthorized leaves of absence. Which are defined as leaves taken which are not pursuant to contract, law or written approval of the Superintendent of Schools or his/her designees, in excess of a total of four days in a school year.
- 1. Unsatisfactory work performance.
- j. Action or conduct detrimental to the program(s) or students In the program(s) or the Board in general.

ARTICLE XXII PENSION AND RETIRMENT

Section 1. Employees of this bargaining unit are covered under the Federal Social Security Act. The employer will contribute the federally required amount to said plan.

Section 2. Employees shall be entitled to participate in the City's 403b Plan or City's 457 Plan.

Section 3. The employer is not obligated to make any contributions to said 403b or 457 Plans on behalf of employees.

ARTICLE XXIII SAFETY AND QUALITY OF WORK LIFE

Section 1. The Union shall appoint One (1) member to serve as a representative on the Waterbury Board of Education Executive Safety Committee. The Union shall provide notification to the Committee Chair upon initial appointment and any subsequent changes.

Section 2. The Union shall appoint One (1) member to serve as a representative on any building safety committee so long as the building is one in which at least one (1) member of this Union is assigned. The Union shall provide notification to the chair and/or organizer of the building safety committee regarding the union representative appointed and any subsequent changes.

Section 3. The Board will timely investigate complaints from the Union regarding an unsafe working condition. The Board will respond timely to any substantiated complaint regarding an unsafe working condition.

**ARTICLE XXIV
DURATION**

Section 1. The parties agree that this Agreement shall be effective as of July 1, 2022 through June 30, 2026.

Section 2. The parties agree that this Agreement, or any successor Agreement renewed per the terms of Section 1 hereof, may be terminated prior to the termination date prescribed by Section 1 of Article II, in the event that the Board does not receive adequate funds, or receives a reduced amount of funds or if the funds previously allocated are cut or terminated; which funds are received from state and/or federal sources as delineated in Section 2 hereof and which funds are utilized to carry on those educational programs which are described in the Preamble.

Section 3. Upon termination or reduction of grant funds, there will be no residual liability on the part of the City of Waterbury to make payments under this Agreement.

IN WITNESS HEREOF, the parties have hereunto cause their hands and seals to be signed on this _____ day of _____, 2023.

WITNESS

WATERBURY BOARD OF EDUCATION

BY:

Verna D. Ruffin, Ed D., Superintendent

WITNESS

UPSEU Local 424 -Unit 68

BY:

WITNESS

UPSEU Local 424 -Unit 68

BY:

Kevin E. Boyle, Jr. UPSEU President

APPENDIX A

Classroom Assistants Wage Schedule								
Description	7/ 1/2022		7/ 1/2023		7/ 1/2024		7/ 1/2025	
	3.0% GWI		2.75% GWI		2.25% GWI		2.25% GWI	
	CDA/Assoc Degree	BA/BS	CDA/Assoc Degree	BA/BS	CDA/Assoc Degree	BA/BS	CDA/Assoc Degree	BA/BS
Hire Rate	\$15.00	\$20.90	\$15.41	\$21.47	\$15.76	\$21.96	\$16.11	\$22.45
After 1 yr.	\$18.28		\$18.79		\$19.21		\$19.64	



MEMORANDUM

TO: Board of Education
Board of Alderman

FROM: Nyree Toucet, Director of College and Career Readiness

DATE: January 27, 2023

RE: Contract Agreement with Southern Connecticut State University to offer college credit courses

EXECUTIVE SUMMARY

The Department of Education requests your approval for a partnership with Southern Connecticut State University (SCSU) for \$0 to offer Waterbury Public School, high school students the opportunity to take college-level SCSU courses.

Type “A” Agreement: A full waiver of the part-time tuition and general University fees, for courses held on the University’s campus when taught by SCSU faculty. Enrollment at the University shall be on a space-available basis with the University reserving the right to accept or not accept students at its discretion. Students will have the opportunity to enroll in SCSU courses on campus, hybrid, or online. A student may enroll in up two courses per semester and one course per summer session for a total of 10 courses per high school students (30 credits).

Type “C” Agreement: A full waiver of the part-time tuition and general University fees for those cases in which an academic department of the University authorizes Waterbury Public Schools high school faculty member(s) under the supervision of a department of the University. Students will have the opportunity to enroll in SCSU courses at their respective school. A student may enroll in up two courses per semester and one course per summer session for a total of 10 courses per high school students (30 credits).

The term of this contract is upon signature of both parties and will continue until June 30, 2024.

Accordingly, attached for your review and consideration is the proposed contract, the successful responders Disclosure and Certification of Obligations Affidavit Regarding Outstanding Obligations Form, and the Tax Clearance issued by the Office of Tax Collections.

**Agreement Between
City of Waterbury
Waterbury Public Schools
and
Southern Connecticut State University
for
Type A Tuition and Fee Waiver**

This Agreement is made by and between the **City of Waterbury**, Waterbury Public Schools with offices at 236 Grand Street, Waterbury, CT 06702 (hereinafter the "Contractor" or "Waterbury Public Schools") and Southern Connecticut State University, a constituent unit of the Connecticut State Colleges and Universities (SCSU) with its campus located at 501 Crescent Street, New Haven, CT 06515 (hereinafter "SCSU" or the "University") (jointly referred to as the "Parties" to this Agreement.)

1. Term and Termination: This Agreement shall become effective upon the date executed by both parties hereto and shall terminate June 30, 2024, or sooner, pursuant to the provisions contained herein. Either Party may terminate this Agreement by providing the other Party with five (5) days' prior written notice.
 - (a) The Contractor shall have the right to terminate this agreement at any time upon sixty (60) days written notice to SCSU.
2. Program: SCSU shall offer at its discretion to current academically qualified high school students within the Waterbury Public Schools, the opportunity to take college-level SCSU courses at "Waterbury Public Schools" taught by authorized high school faculty member(s) under the supervision of a department of the University with the understanding that should any SCSU faculty teach at Waterbury Public Schools, an Amendment to this Agreement will be required, and provided that:
3. Responsibilities of Waterbury Public Schools
 - (a) Intentionally left blank.
 - (b) If arranging for students from Waterbury School District to take course(s) at SCSU, no later than three weeks prior to the start of the desired term Waterbury School District will:
 - Provide a written recommendation (via email) from a teacher within the Waterbury School District to the named SCSU official noting that the applicant(s) are prepared for college-level work in subject area(s)
 - Provide a list of SCSU courses or course types each student is interested in taking.
4. Responsibilities of SCSU:
 - (a) Review student materials submitted by the high school to confirm all course pre-requisites are met.
 - (b) Provide optional dates for registration assistance.

- (c) Facilitate student access to SCSU email and Banner Student Information System.
- (d) Provide transcripts for students upon request to share as they deem appropriate.
- (e) Monitor student end-of-term progress and make student information available to University offices for reporting.

5. Student Data Requirements.

5.1. All student records, student information, and student-generated content (collectively, "Student Data") provided or accessed pursuant this Agreement are not the property of, or under the control of, SCSU.

5.2. The City's Board of Education ("Board") shall have access to and the ability to delete Student Data in the possession of SCSU in instances where such data is (A) otherwise prohibited from deletion or required to be retained under state or federal law, or (B) stored as a copy as part of a disaster recovery storage system and that is (i) inaccessible to the public, and (ii) unable to be used in the normal course of business by the Contractor. The Board may request the deletion of any such student information, student records or student generated content if such copy has been used by the operator to repopulate accessible data following a disaster recovery. The Board may request the deletion of Student Data by SCSU within two (2) business days of receiving such a request and provide to the Board confirmation via electronic mail that the Student Data has been deleted in accordance with the request, the date of its deletion, and the manner in which it has been deleted. The confirmation shall contain a written assurance from SCSU that proper disposal of the data has occurred in order to prevent the unauthorized access or use of Student Data and that deletion has occurred in accordance with industry standards/practices/protocols.

5.3. SCSU shall not use Student Data for any purposes other than those authorized pursuant to this Agreement.

5.4. A student, parent or legal guardian of a student may review personally identifiable information contained in Student Data and correct any erroneous information, if any, in such Student Data. If SCSU receives a request to review Student Data in the Contractor's possession directly from a student, parent, or guardian, SCSU agrees to refer that individual to the Board and to notify the Board within two (2) business days of receiving such a request. SCSU agrees to work cooperatively with the Board to permit a student, parent, or guardian to review personally identifiable information in Student Data that has been shared with SCSU, and correct any erroneous information therein.

5.5. SCSU shall take actions designed to ensure the security and confidentiality of the student data.

5.6. SCSU will notify the Board, in accordance with Conn. Gen. Stat. § 10-234dd, when there has been an unauthorized release, disclosure or acquisition of Student Data. Such

notification will include the following steps:

Upon discovery by SCSU of a breach of Student Data, SCSU shall conduct an investigation and restore the integrity of its data systems and, without unreasonable delay, but not more than thirty (30) days after such discovery, shall provide the Board with a more detailed notice of the breach, including but not limited to the date and time of the breach; name(s) of the student(s) whose student data was released, disclosed or acquired; nature of and extent of the breach; and measures taken to ensure that such a breach does not occur in the future.

5.7. Student Data shall not be retained or available to SCSU upon expiration of the Agreement between SCSU and City, except a student, parent or legal guardian of a student may choose independently to establish or maintain an electronic account with SCSU after the expiration of such Agreement for the purpose of storing student-generated content.

5.8. SCSU and Board shall each ensure their own compliance with the Family Educational Rights and Privacy Act of 1974, 20 U.S.C. § 1232g, as amended from time to time.

5.9. SCSU acknowledges and agrees to comply with the above and all other applicable aspects of Connecticut's Student Data Privacy law according to Connecticut General Statutes §§ 10-234aa through 10-234dd.

5.10. The Parties agree that this Agreement controls over any inconsistent terms or conditions contained within any other Agreement entered into by the Parties concerning Student Data.

6. Tuition and Fee Waiver: SCSU shall offer at its discretion to current academically qualified high school students within the Waterbury Public Schools, Waiver Type A:

Waiver Type A:

(Type A): A full waiver of the part-time tuition and general University fees, for courses held on the University's campus or at the high school when taught by SCSU faculty. Enrollment at the University shall be on a space-available basis with the University reserving the right to accept or not accept students at its discretion.

Note that Type C Waivers are also available via a separate, signed agreement:

(Type C): A full waiver of only the part-time tuition and general University fees for those cases in which an academic department of the University authorizes high school faculty member(s) to teach the University's course(s) at the Waterbury School District under the University department's supervision.

Waiver Type A and/or Waiver Type C

- Shall apply for total enrollment in up to ten courses per high school student (30

credits).

- Courses may be on ground, hybrid, or online.
- Courses requiring registration for both a lecture and a laboratory section shall count as one course toward the three.
- Students may be enrolled in up to two courses per semester and up to one course per summer session.

7. Payment: There shall be no exchange of funds between the contracting parties for this Agreement. Enrolled students shall be responsible for payment of any determined tuition and fees outside of the Agreement outlined in Article 5 above.

8. Insurance: The Contractor agrees that while performing services specified in this Agreement that it shall carry sufficient insurance as applicable according to the nature of the service to be performed so as to "save harmless" the State of Connecticut from any insurable cause whatsoever. If requested, the Contractor shall provide SCSU with certificates of insurance.

9. SCSU's Insurance: SCSU agrees to procure and maintain at its own cost all necessary insurance coverage. This requirement may be satisfied by a combination of primary and excess policies, and/or may be self-insured. SCSU shall maintain and provide to the City, upon request, written proof of insurance with coverages as approved by the City and Additional Insured Endorsement and Waiver of Subrogation Endorsement verifying the approved coverages, including the naming of the City of Waterbury, as follows: "The City of Waterbury and it Board of Education are listed as Additional Insured on a primary and non-contributory basis on all policies except Workers Compensation and Professional Liability. All policies shall include a Waiver of Subrogation."

10. Applicable Law: This Agreement shall be governed by the laws of the State of Connecticut, without regard to its principles of conflicts of laws. The Contractor, shall at all times comply with and observe all federal and state laws, local laws, ordinances, and regulations which are in effect during the period of this contract and which in any manner affect the work or its conduct.

11. Contract Assignment: No right or duty, in whole or in part, of the Contractor, under this Agreement may be assigned or delegated without the prior written consent of the University.

12. Claims Against the State: The Contractor, agrees that the sole and exclusive means for the presentation of any claim against the State of Connecticut arising from this agreement shall be in accordance with Chapter 53 of the Connecticut General Statutes (Claims Against the State) and the Contractor further agrees not to initiate legal proceedings in any state or federal court in addition to, or in lieu of, said Chapter 53 proceedings.

13. Non-Discrimination

For purposes of this Section, the following terms are defined as follows:

- a. "Commission" means the Commission on Human Rights and Opportunities;
- b. "Contract" and "contract" include any extension or modification of the Contract or contract;
- c. "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;
- d. "Gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose;
- e. "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;
- f. "good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements;
- g. "marital status" means being single, married as recognized by the State of Connecticut, widowed, separated or divorced;
- h. "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders;
- i. "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of Connecticut General Statutes §32-911; and
- j. "public works contract" means any agreement between any individual, firm or corporation and the State or any political subdivision of the State other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

For purposes of this Section, the terms "Contract" and "contract" do not include a contract where each contractor is (1) a political subdivision of the state, including, but not limited to, a municipality, (2) a quasi-public agency, as defined in Conn. Gen. Stat. Section 1-120, (3) any other state, including but not limited to any federally recognized Indian tribal governments, as defined in Conn. Gen. Stat. Section 1-267, (4) the federal government, (5) a foreign government, or (6) an agency of a subdivision, agency, state or government

described in the immediately preceding enumerated items (1), (2), (3), (4) or (5).

(a) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, mental retardation, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut; and the Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, mental retardation, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by the Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which the Contractor has a collective bargaining Agreement or other contract or understanding and each vendor with which the Contractor has a contract or understanding, a notice to be provided by the Commission, advising the labor union or workers' representative of the Contractor's commitments under this section and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor agrees to comply with each provision of this Section and Connecticut General Statutes §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes §§ 46a-56, 46a-68e and 46a-68f; and (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this Section and Connecticut General Statutes § 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.

(b) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may prescribe that are designed to ensure the participation of minority business enterprises in public works projects.

(c) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.

(d) The Contractor shall include the provisions of subsection (b) of this Section in every

subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes §46a-56; provided if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

(e) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.

(f) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes § 46a-56; and (4) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this Section and Connecticut General Statutes §46a56.

(g) The Contractor shall include the provisions of the foregoing paragraph in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes § 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

14. Executive Orders Nos. 3, 17, 16, and 7C: The Contract is subject to the provisions

of Executive Order No. 7C of Governor M. Jodi Rell, promulgated July 13, 2006, concerning contracting reforms, Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, Executive Order No. Seventeen of Governor Thomas J. Meskill promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, all of which are incorporated into and are made a part of the Contract as if they had been fully set forth in it.

15. City of Waterbury's Ethics Code Ordinance: The Signatories to this Agreement hereby acknowledges it is responsible for familiarizing itself with and adhering to Chapter 39 of the City's Ordinance regarding, Ethics and Conflicts of Interest. The text of Chapters 38 and 39 of said Code may be obtained from the Office of the City Clerk of the City and on the internet at the City Clerk's web site: <https://www.waterburyct.org/services/city-clerk/code-of-ordinances> [click link titled "Code of Ordinances (Rev. 12/31/19)". For Chapter 39, click on "TITLE III: ADMINISTRATION", then click on "CHAPTER 39: ETHICS AND CONFLICTS OF INTEREST"]].
16. Prohibition Against Gratuities and Kickbacks (§39.042 of City's Code of Ordinances):
 - No person shall offer, give, or agree to give any current or former public official, employee or member of a board or commission, or for such current or former public official, employee or member of a board or commission to solicit, demand, accept or agree to accept from another person a gratuity or an offer of employment in connection with any: decision; approval; disapproval; recommendation; preparation of any part of a program requirement or a requisition; influencing the content of any specification or procurement standard; or rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter pertaining to any program requirement or a contract or purchase order, or to any solicitation or proposal therefore.
 - No person shall make any payment, gratuity, or offer of employment as an inducement for the award of a subcontract or order, by or on behalf of a subcontractor, the prime contractor or higher tier subcontractor or any person associated therewith, under contract or purchase order to the City.
 - The value of anything transferred or received in violation of the provisions of this Chapter or regulations promulgated hereunder by any person subject to this Chapter may be recovered by the City.
17. Prohibition Against Contingency Fees (§39.47 of City's Code of Ordinances): The Signatories to this MOU hereby represents that it has not retained anyone to solicit or secure a contract with the City upon an agreement or understanding for a commission, percentage, brokerage or contingency fee.
18. Indemnification: The Contractor shall defend, indemnify and hold harmless SCSU and the State of Connecticut, their officers and employees against any and all suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities, monetary loss, interest, attorneys' fees, costs and expenses of whatsoever kind or nature arising out of the performance of this Agreement, including those arising out of injury to or death of the Contractor's employees or subcontractors, whether

arising before, during or after completion of the services hereunder and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part, by reason of any act, omission, fault or negligence of the Contractor or its employees, agents or subcontractors.

19. Sovereign Immunity: Notwithstanding any provisions to the contrary contained in his agreement, it is agreed and understood that the State of Connecticut shall not be construed to have waived any rights or defenses of sovereign immunity which it may have with respect to all matters arising out of this contract.
20. Severability: If any provision of this agreement shall be held invalid by any court of competent jurisdiction, such holding shall not invalidate any other provision hereof.
21. Amendment: The parties may agree to amend or add provision of this Agreement only by written Amendment signed by the parties.
22. Entire Agreement: This Agreement constitutes the entire agreement of the parties and supersedes all prior communications, understandings and agreements relating to the subject matter hereof, whether oral or written. No specific level of activity or dollar amount is committed or assigned to the Contractor through this contract. SCSU reserves the right to solicit bids for any project and there is no special privilege or right of first refusal conveyed by the execution of this Agreement.

[Signature Page Follows]

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement.

CITY OF WATERBURY
WATERBURY PUBLIC SCHOOLS

By: _____

Its: Mayor

Dated: _____

SOUTHERN CONNECTICUT STATE UNIVERSITY

By: _____

Its: _____

Dated: _____

**Agreement Between
City of Waterbury
Waterbury Public Schools
and
Southern Connecticut State University
for
Type C Tuition and Fee Waiver**

This Agreement is made by and between the **City of Waterbury**, Waterbury Public Schools with offices at 236 Grand Street, Waterbury, CT 06702 (hereinafter the "Contractor" or "Waterbury Public Schools") and Southern Connecticut State University, a constituent unit of the Connecticut State Colleges and Universities (SCSU) with its campus located at 501 Crescent Street, New Haven, CT 06515 (hereinafter "SCSU" or the "University") (jointly referred to as the "Parties" to this Agreement.)

1. Term and Termination: This Agreement shall become effective upon the date executed by both parties hereto and shall terminate June 30, 2024, or sooner, pursuant to the provisions contained herein. Either Party may terminate this Agreement by providing the other Party with five (5) days' prior written notice.
 - (a) The Contractor shall have the right to terminate this agreement at any time upon sixty (60) days written notice to SCSU.
2. Program: SCSU shall offer at its discretion to current academically qualified high school students within the Waterbury Public Schools, the opportunity to take college-level SCSU courses at "Waterbury Public Schools" taught by authorized high school faculty member(s) under the supervision of a department of the University, provided that:
 - (a) The Parties to this Agreement acknowledge that certain provisions of this Agreement related to teacher, staff, and administration responsibilities, duties, and schedules may be subject to union negotiations under the applicable collective bargaining agreement.
3. Responsibilities of Waterbury Public Schools
 - (a) No later than three months prior to the start of the desired term, finalize with the named SCSU official authorization and appointment of high school faculty member(s) to teach the University's course(s) at a named high school under the University department's supervision.
 - (b) No later than three weeks prior to the start of the desired term, provide a written recommendation from a teacher within the Waterbury Public Schools to the named SCSU official noting that the applicant(s) for the SCSU course(s) to be delivered at the high school are prepared for college-level work in the relevant subject area(s).
4. Responsibilities of SCSU:
 - (a) Review student materials submitted by the high school to confirm all course pre-requisites are met.

- (b) Provide optional dates for registration assistance.
- (c) Facilitate student access to SCSU email and Banner Student Information System.
- (d) Coordinate billing with the SCSU's Student Account's Office to apply any appropriate tuition and fee waivers.
- (e) Provide transcripts for students upon request to share as they deem appropriate.
- (f) Monitor student end-of-term progress and make student information available to University offices for reporting.

5. Student Data Requirements.

5.1. All student records, student information, and student-generated content (collectively, "Student Data") provided or accessed pursuant this Agreement are not the property of, or under the control of, SCSU.

5.2. The City's Board of Education ("Board") shall have access to and the ability to delete Student Data in the possession of SCSU in instances where such data is (A) otherwise prohibited from deletion or required to be retained under state or federal law, or (B) stored as a copy as part of a disaster recovery storage system and that is (i) inaccessible to the public, and (ii) unable to be used in the normal course of business by the Contractor. The Board may request the deletion of any such student information, student records or student generated content if such copy has been used by the operator to repopulate accessible data following a disaster recovery. The Board may request the deletion of Student Data by SCSU within two (2) business days of receiving such a request and provide to the Board confirmation via electronic mail that the Student Data has been deleted in accordance with the request, the date of its deletion, and the manner in which it has been deleted. The confirmation shall contain a written assurance from SCSU that proper disposal of the data has occurred in order to prevent the unauthorized access or use of Student Data and that deletion has occurred in accordance with industry standards/practices/protocols.

5.3. SCSU shall not use Student Data for any purposes other than those authorized pursuant to this Agreement.

5.4. A student, parent or legal guardian of a student may review personally identifiable information contained in Student Data and correct any erroneous information, if any, in such Student Data. If SCSU receives a request to review Student Data in the Contractor's possession directly from a student, parent, or guardian, SCSU agrees to refer that individual to the Board and to notify the Board within two (2) business days of receiving such a request. SCSU agrees to work cooperatively with the Board to permit a student, parent, or guardian to review personally identifiable information in Student Data that has been shared with SCSU, and correct any erroneous information therein.

5.5. SCSU shall take actions designed to ensure the security and confidentiality of the student data.

5.6. SCSU will notify the Board, in accordance with Conn. Gen. Stat. § 10-234dd, when there has been an unauthorized release, disclosure or acquisition of Student Data. Such notification will include the following steps:

Upon discovery by SCSU of a breach of Student Data, SCSU shall conduct an investigation and restore the integrity of its data systems and, without unreasonable delay, but not more than thirty (30) days after such discovery, shall provide the Board with a more detailed notice of the breach, including but not limited to the date and time of the breach; name(s) of the student(s) whose student data was released, disclosed or acquired; nature of and extent of the breach; and measures taken to ensure that such a breach does not occur in the future.

5.7. Student Data shall not be retained or available to SCSU upon expiration of the Agreement between SCSU and City, except a student, parent or legal guardian of a student may choose independently to establish or maintain an electronic account with SCSU after the expiration of such Agreement for the purpose of storing student-generated content.

5.8. SCSU and Board shall each ensure their own compliance with the Family Educational Rights and Privacy Act of 1974, 20 U.S.C. § 1232g, as amended from time to time.

5.9. SCSU acknowledges and agrees to comply with the above and all other applicable aspects of Connecticut's Student Data Privacy law according to Connecticut General Statutes §§ 10-234aa through 10-234dd.

5.10. The Parties agree that this Agreement controls over any inconsistent terms or conditions contained within any other Agreement entered into by the Parties concerning Student Data.

6. Tuition and Fee Waiver: SCSU shall offer at its discretion to current academically qualified high school students within the Waterbury Public Schools, Waiver Type C:

(Type C): A full waiver of the part-time tuition and general University fees for those cases in which an academic department of the University authorizes high school faculty member(s) to teach the University's course(s) at the Waterbury Public Schools under the University department's supervision.

Note that Type A Waivers are also available via a separate, signed agreement:

(Type A): A full waiver of the part-time tuition and general University fees, registration, transportation, and writing center fees, and any laboratory fees for

courses held on the University's campus or at the high school when taught by SCSU faculty. Enrollment at the University shall be on a space-available basis with the University reserving the right to accept or not accept students at its discretion.

Waiver Type A and/or Waiver Type C

- Shall apply for total enrollment in up to ten courses per high school student (30 credits).
- Courses may be on ground, hybrid, or online.
- Courses requiring registration for both a lecture and a laboratory section shall count as one course toward the three.
- Students may be enrolled in up to two courses per semester and up to one course per summer session.

7. Payment: There shall be no exchange of funds between the contracting parties for this Agreement. Enrolled students shall be responsible for payment of any determined tuition and fees outside of the Agreement outlined in Article 5 above.

Contractor's Insurance: The Contractor agrees that while performing services specified in this Agreement that it shall carry sufficient insurance as applicable according to the nature of the service to be performed so as to "save harmless" the State of Connecticut from any insurable cause whatsoever. If requested, the Contractor shall provide SCSU with certificates of insurance.

8. SCSU's Insurance: SCSU agrees to procure and maintain at its own cost all necessary insurance coverage. This requirement may be satisfied by a combination of primary and excess policies, and/or may be self-insured. SCSU shall maintain and provide to the City, upon request, written proof of insurance with coverages as approved by the City and Additional Insured Endorsement and Waiver of Subrogation Endorsement verifying the approved coverages, including the naming of the City of Waterbury, as follows: "The City of Waterbury and it Board of Education are listed as Additional Insured on a primary and non-contributory basis on all policies except Workers Compensation and Professional Liability. All policies shall include a Waiver of Subrogation."

9. Applicable Law: This Agreement shall be governed by the laws of the State of Connecticut, without regard to its principles of conflicts of laws. The Contractor, shall at all times comply with and observe all federal and state laws, local laws, ordinances, and regulations which are in effect during the period of this contract and which in any manner affect the work or its conduct.

10. Contract Assignment: No right or duty, in whole or in part, of the Contractor, under this Agreement may be assigned or delegated without the prior written consent of the University.

11. Claims Against the State: The Contractor, agrees that the sole and exclusive means for the presentation of any claim against the State of Connecticut arising from this agreement shall be in accordance with Chapter 53 of the Connecticut General Statutes

(Claims Against the State) and the Contractor further agrees not to initiate legal proceedings in any state or federal court in addition to, or in lieu of, said Chapter 53 proceedings.

12. Non-Discrimination

For purposes of this Section, the following terms are defined as follows:

- a. "Commission" means the Commission on Human Rights and Opportunities;
- b. "Contract" and "contract" include any extension or modification of the Contract or contract;
- c. "Contractor" and "contractor" include any successors or assigns of the Contractor or contractor;
- d. "Gender identity or expression" means a person's gender-related identity, appearance or behavior, whether or not that gender-related identity, appearance or behavior is different from that traditionally associated with the person's physiology or assigned sex at birth, which gender-related identity can be shown by providing evidence including, but not limited to, medical history, care or treatment of the gender-related identity, consistent and uniform assertion of the gender-related identity or any other evidence that the gender-related identity is sincerely held, part of a person's core identity or not being asserted for an improper purpose;
- e. "good faith" means that degree of diligence which a reasonable person would exercise in the performance of legal duties and obligations;
- f. "good faith efforts" shall include, but not be limited to, those reasonable initial efforts necessary to comply with statutory or regulatory requirements and additional or substituted efforts when it is determined that such initial efforts will not be sufficient to comply with such requirements;
- g. "marital status" means being single, married as recognized by the State of Connecticut, widowed, separated or divorced;
- h. "mental disability" means one or more mental disorders, as defined in the most recent edition of the American Psychiatric Association's "Diagnostic and Statistical Manual of Mental Disorders", or a record of or regarding a person as having one or more such disorders;
- i. "minority business enterprise" means any small contractor or supplier of materials fifty-one percent or more of the capital stock, if any, or assets of which is owned by a person or persons: (1) who are active in the daily affairs of the enterprise, (2) who have the power to direct the management and policies of the enterprise, and (3) who are members of a minority, as such term is defined in subsection (a) of Connecticut General Statutes §32-911; and
- j. "public works contract" means any agreement between any individual, firm or corporation and the State or any political subdivision of the State other than a municipality for construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, or which is financed in whole or in part by the State, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees.

For purposes of this Section, the terms "Contract" and "contract" do not include a contract where each contractor is (1) a political subdivision of the state, including, but not limited to, a municipality, (2) a quasi-public agency, as defined in Conn. Gen. Stat. Section 1-120, (3) any other state, including but not limited to any federally recognized Indian tribal governments, as defined in Conn. Gen. Stat. Section 1-267, (4) the federal government, (5) a foreign government, or (6) an agency of a subdivision, agency, state or government described in the immediately preceding enumerated items (1), (2), (3), (4) or (5).

(a) (1) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, mental retardation, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such Contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the State of Connecticut; and the Contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, mental retardation, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by the Contractor that such disability prevents performance of the work involved; (2) the Contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission; (3) the Contractor agrees to provide each labor union or representative of workers with which the Contractor has a collective bargaining Agreement or other contract or understanding and each vendor with which the Contractor has a contract or understanding, a notice to be provided by the Commission, advising the labor union or workers' representative of the Contractor's commitments under this section and to post copies of the notice in conspicuous places available to employees and applicants for employment; (4) the Contractor agrees to comply with each provision of this Section and Connecticut General Statutes §§ 46a-68e and 46a-68f and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes §§ 46a-56, 46a-68e and 46a-68f; and (5) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor as relate to the provisions of this Section and Connecticut General Statutes § 46a-56. If the contract is a public works contract, the Contractor agrees and warrants that he will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works projects.

(b) Determination of the Contractor's good faith efforts shall include, but shall not be limited to, the following factors: The Contractor's employment and subcontracting policies, patterns and practices; affirmative advertising, recruitment and training; technical assistance activities and such other reasonable activities or efforts as the Commission may

prescribe that are designed to ensure the participation of minority business enterprises in public works projects.

(c) The Contractor shall develop and maintain adequate documentation, in a manner prescribed by the Commission, of its good faith efforts.

(d) The Contractor shall include the provisions of subsection (b) of this Section in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes §46a-56; provided if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

(e) The Contractor agrees to comply with the regulations referred to in this Section as they exist on the date of this Contract and as they may be adopted or amended from time to time during the term of this Contract and any amendments thereto.

(f) The Contractor agrees and warrants that in the performance of the Contract such Contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or the State of Connecticut, and that employees are treated when employed without regard to their sexual orientation; (2) the Contractor agrees to provide each labor union or representative of workers with which such Contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such Contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the Contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment; (3) the Contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said Commission pursuant to Connecticut General Statutes § 46a-56; and (4) the Contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the Commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the Contractor which relate to the provisions of this Section and Connecticut General Statutes §46a56.

(g) The Contractor shall include the provisions of the foregoing paragraph in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the State and such provisions shall be binding on a subcontractor, vendor or manufacturer unless exempted by regulations or orders of the Commission. The Contractor shall take such action with respect to any such subcontract or purchase order as the

Commission may direct as a means of enforcing such provisions including sanctions for noncompliance in accordance with Connecticut General Statutes § 46a-56; provided, if such Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the Commission, the Contractor may request the State of Connecticut to enter into any such litigation or negotiation prior thereto to protect the interests of the State and the State may so enter.

13. Executive Orders Nos. 3, 17, 16, and 7C: The Contract is subject to the provisions of Executive Order No. 7C of Governor M. Jodi Rell, promulgated July 13, 2006, concerning contracting reforms, Executive Order No. Sixteen of Governor John G. Rowland promulgated August 4, 1999, concerning violence in the workplace, Executive Order No. Seventeen of Governor Thomas J. Meskill promulgated February 15, 1973, concerning the listing of employment openings and Executive Order No. Three of Governor Thomas J. Meskill, promulgated June 16, 1971, concerning labor employment practices, all of which are incorporated into and are made a part of the Contract as if they had been fully set forth in it.
14. City of Waterbury's Ethics Code Ordinance: The Signatories to this Agreement hereby acknowledges it is responsible for familiarizing itself with and adhering to Chapter 39 of the City's Ordinance regarding, Ethics and Conflicts of Interest. The text of Chapters 38 and 39 of said Code may be obtained from the Office of the City Clerk of the City and on the internet at the City Clerk's web site: <https://www.waterburyct.org/services/city-clerk/code-of-ordinances> [click link titled "Code of Ordinances (Rev. 12/31/19)". For Chapter 39, click on "TITLE III: ADMINISTRATION", then click on "CHAPTER 39: ETHICS AND CONFLICTS OF INTEREST"]].
15. Prohibition Against Gratuities and Kickbacks (§39.042 of City's Code of Ordinances):
 - No person shall offer, give, or agree to give any current or former public official, employee or member of a board or commission, or for such current or former public official, employee or member of a board or commission to solicit, demand, accept or agree to accept from another person a gratuity or an offer of employment in connection with any: decision; approval; disapproval; recommendation; preparation of any part of a program requirement or a requisition; influencing the content of any specification or procurement standard; or rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter pertaining to any program requirement or a contract or purchase order, or to any solicitation or proposal therefore.
 - No person shall make any payment, gratuity, or offer of employment as an inducement for the award of a subcontract or order, by or on behalf of a subcontractor, the prime contractor or higher tier subcontractor or any person associated therewith, under contract or purchase order to the City.
 - The value of anything transferred or received in violation of the provisions of this Chapter or regulations promulgated hereunder by any person subject to this Chapter may be recovered by the City.
16. Prohibition Against Contingency Fees (§39.47 of City's Code of Ordinances): The Signatories to this MOU hereby represents that it has not retained anyone to solicit or secure

a contract with the City upon an agreement or understanding for a commission, percentage, brokerage or contingency fee.

17. Indemnification: The Contractor shall defend, indemnify and hold harmless SCSU and the State of Connecticut, their officers and employees against any and all suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities, monetary loss, interest, attorneys' fees, costs and expenses of whatsoever kind or nature arising out of the performance of this Agreement, including those arising out of injury to or death of the Contractor's employees or subcontractors, whether arising before, during or after completion of the services hereunder and in any manner directly or indirectly caused, occasioned or contributed to in whole or in part, by reason of any act, omission, fault or negligence of the Contractor or its employees, agents or subcontractors.
18. Sovereign Immunity: Notwithstanding any provisions to the contrary contained in his agreement, it is agreed and understood that the State of Connecticut shall not be construed to have waived any rights or defenses of sovereign immunity which it may have with respect to all matters arising out of this contract.
19. Severability: If any provision of this agreement shall be held invalid by any court of competent jurisdiction, such holding shall not invalidate any other provision hereof.
20. Amendment: The parties may agree to amend or add provision of this Agreement only by written Amendment signed by the parties.
21. Entire Agreement: This Agreement constitutes the entire agreement of the parties and supersedes all prior communications, understandings and agreements relating to the subject matter hereof, whether oral or written. No specific level of activity or dollar amount is committed or assigned to the Contractor through this contract. SCSU reserves the right to solicit bids for any project and there is no special privilege or right of first refusal conveyed by the execution of this Agreement.

[Signature Page to Follow]

IN WITNESS WHEREOF, the parties hereto have duly executed this Agreement.

CITY OF WATERBURY
WATERBURY PUBLIC SCHOOLS

By: _____

Its: _____

Dated: _____

SOUTHERN CONNECTICUT STATE UNIVERSITY

By: _____

Its: _____

Dated: _____



MEMORANDUM

TO: Board of Education

FROM: Nyree Toucet, Director of College and Career Readiness

DATE: January 25, 2023

RE: Online Learning System name change from Edgenuity to Imagine Learning

EXECUTIVE SUMMARY

The Department of Education requests to enter into an agreement that reflects the Edgenuity merged with Imagine Learning. Imagine Learning has assumed the original contract the City of Waterbury Board of Education had with Edgenuity and there are no changes to scope of service, cost, or term.

**ASSIGNMENT AND ASSUMPTION AGREEMENT
BETWEEN EDGENUITY, INC. AND IMAGINE LEARNING, LLC**

THIS ASSIGNMENT AND ASSUMPTION AGREEMENT, made by and between Edgenuity, Inc., having a mailing address of 8860 East Chaparral Road, Suite 100, Scottsdale, Arizona 85250, hereinafter referred to as “Edgenuity” or “Assignor,” and Imagine Learning, LLC having a mailing address of 8860 East Chaparral Road, Suite 100, Scottsdale, Arizona 85250, hereinafter referred to as “Imagine Learning” or “Assignee” and the City of Waterbury, City Hall, 235 Grand Street, Waterbury, Connecticut hereinafter the “City”;

WHEREAS, Assignor, Edgenuity, entered into an Agreement with the City of Waterbury, Connecticut, (“City”) effective on July 30, 2020 for an Online Learning System (hereinafter referred to as the “Assigned Agreement”); and

WHEREAS, Assignor, Edgenuity, wishes to assign and transfer to Assignee, Imagine Learning, all of its rights, title interest, responsibilities, obligations, benefits and burdens in said Assigned Agreement to Assignee; and

WHEREAS, the Assignee, Imagine Learning, agrees to assume all of the Assignor’s rights, title interest, responsibilities, obligations, benefits and burdens in said Assigned Agreement; and

WHEREAS, the Assigned Agreement between the City and Assignor provides, in paragraph 19, that the Assigned Agreement may be assigned with the written consent of the City; and

WHEREAS, the Assignor merged into the Assignee effective December 31, 2021, and agreed to assume all rights and obligations of the Assignor to all contracts between the City and Assignor. Assignor has transferred its rights and obligations under the Assigned Agreement with the City to Imagine Learning, and Imagine Learning has accepted and assumed all said obligations, subject to the written consent of the City; and

WHEREAS, the City is willing to consent to the Assignment of the Assigned Agreement from the Assignor to Assignee, subject to the terms of this Assignment and Assumption Agreement.

NOW THEREFORE, THE PARTIES AGREE AND COVENANT AS FOLLOWS:

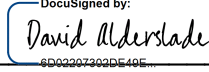
1. That, effective December 31, 2021 (the “Effective Date”), all of the Assignor’s rights, title interest, responsibilities, obligations, benefits and burdens in all Agreements and Contracts with the City to which Edgenuity is a party, including but not limited to the following Assigned Agreement shall be assigned and transferred to Imagine Learning, as evidenced by merger documents and letter executed by an authorized executive of Assignee attached hereto in Attachment A:

- 1.1 Professional Services Agreement RFP No. 6497 for On-Line Learning System Provider between the City of Waterbury, Connecticut and Edgenuity Inc., effective July 30, 2020, (CC file CRT20-194).
2. That upon the Effective Date of this Assignment and Assumption Agreement, the above listed Assigned Agreement shall henceforth be read and understood to be between the City and Imagine Learning.
3. All rights and obligations of Edgenuity under the Assigned Agreement prior to the Effective Date shall remain the rights and obligation of the Assignor and remain in full force and effect.
4. Attachment A to this Assignment and Assumption Agreement shall be incorporated herein and made part of this Agreement and includes the following:
 - 4.1. Letter signed by authorized executive of Imagine Learning, LLC evidencing assumption of Edgenuity's rights and obligations, dated January 1, 2022, consisting of 1 page, attached hereto; and
 - 4.2. Assignee's State of Delaware Certificate of Merger, consisting of 4 pages, attached hereto.

[Signature Page Follows]

IN WITNESS WHEREOF, the Parties have entered into this Assignment and Assumption Agreement, effective as of the Effective Date.

IMAGINE LEARNING, LLC

By: 
Its: Executive Vice President, CFO
Date: January 23, 2023

The City of Waterbury hereby acknowledges receipt of Edgenuity's notice of assignment, pursuant to Paragraph 19 of the Assigned Agreement as set forth above with the City of Waterbury. By signing below the City of Waterbury hereby consents to the Assignment and Assumption of said Agreements from Edgenuity to Imagine Learning, LLC.

CITY OF WATERBURY

By: _____
Neil M. O'Leary, Mayor
Its Mayor
Date: _____



January 1, 2022

Dear Customer,


Please be advised that as part of an internal corporate restructuring, effective as of December 31, 2021, Edgenuity, Inc. (“Edgenuity”) and Imagine Learning Inc. (“Imagine”) merged into **Imagine Learning LLC** (f/k/a Weld North Education LLC) (“Imagine Learning”). Prior to the merger, both Edgenuity and Imagine were wholly-owned subsidiaries of Imagine Learning. Imagine Learning LLC is the surviving entity following the merger.

For your reference, we have attached a copy of the State of Delaware Certificate of Merger.

As the surviving entity, Imagine Learning has assumed all of the assets and liabilities of both Edgenuity and Imagine Learning Inc., including all Edgenuity and Imagine contracts with you, and is responsible for the performance of those contracts.

We look forward to continuing to work with you.

Sincerely,

DocuSigned by:


6D02207302DE49E...
David Alderslade

Executive Vice President, CFO, Treasurer

Delaware

The First State

Page 1

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF MERGER, WHICH MERGES:

"IMAGINE LEARNING, INC.", AN UTAH CORPORATION,

"WELD NORTH ANALYTICS LLC", A DELAWARE LIMITED LIABILITY COMPANY,

"EDGENUITY INC.", A NEVADA CORPORATION,

WITH AND INTO "WELD NORTH EDUCATION LLC" UNDER THE NAME OF "IMAGINE LEARNING LLC", A LIMITED LIABILITY COMPANY ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, AS RECEIVED AND FILED IN THIS OFFICE ON THE TWENTY-FIRST DAY OF DECEMBER, A.D. 2021, AT 10:33 O`CLOCK A.M.

AND I DO HEREBY FURTHER CERTIFY THAT THE EFFECTIVE DATE OF THE AFORESAID CERTIFICATE OF MERGER IS THE THIRTY-FIRST DAY OF DECEMBER, A.D. 2021.



A handwritten signature in black ink, appearing to read "JBullock", is written over a horizontal line. Below the line, the text "Jeffrey W. Bullock, Secretary of State" is printed.

4965214 8100M
SR# 20214168983

You may verify this certificate online at corp.delaware.gov/authver.shtml

Authentication: 205071194
Date: 12-23-21

State of Delaware
Secretary of State
Division of Corporations
Delivered 10:33 AM 12/21/2021
FILED 10:33 AM 12/21/2021
SR 20214168983 - File Number 4965214

**STATE OF DELAWARE
CERTIFICATE OF MERGER**

Merging

EDGENUITY INC., a Nevada corporation,

IMAGINE LEARNING, INC., a Utah corporation, and

WELD NORTH ANALYTICS LLC, a Delaware limited liability company

with and into

WELD NORTH EDUCATION LLC, a Delaware limited liability company

Pursuant to Section 18-209 of the Delaware Limited Liability Company Act, the undersigned, being the surviving company, executed the following Certificate of Merger:

FIRST: The name of the surviving company is Weld North Education LLC, a Delaware limited liability company (the "Surviving Company"), and the names of the subsidiary companies being merged into the Surviving Company are Edgenuity Inc. ("Edgenuity"), a Nevada corporation, Imagine Learning, Inc. ("Imagine"), a Utah corporation and Weld North Analytics LLC ("WNA"), a Delaware limited liability company (each a "Subsidiary" and a "Merging Company" and collectively the "Merging Companies"). The merger of the Merging Companies was authorized in accordance with the Surviving Company's limited liability company agreement and the Delaware Limited Liability Company Act.

SECOND: The Surviving Company owns all of the outstanding shares of each class of capital stock of Edgenuity and Imagine and all of the membership interests of WNA.

THIRD: The Agreement and Plan of Merger has been approved, adopted, certified, executed and acknowledged by the Surviving Company and by the Merging Companies. The amendment to the Certificate of Formation of the Surviving Company has also been approved, adopted, certified, executed and acknowledged by the Surviving Company.

FOURTH: Article One of the Certificate of Formation of the Surviving Company shall be amended as follows:

First: The name of the limited liability company is Imagine Learning LLC.


FIFTH: The executed Agreement and Plan of Merger is on file with the Surviving Company at 2187 Atlantic Street, Suite 501, Stamford, CT 06902.

SIXTH: Pursuant to Section 18-209(c)(5) of the Delaware Limited Liability Company Act, the effective date and time of the merger herein provided for is December 31, 2021, 11:59 p.m. Eastern Standard Time.

SEVENTH: A copy of the Agreement and Plan of Merger will be furnished by the Surviving Company, on request and without cost, to any member or stockholder of any constituent company.

IN WITNESS WHEREOF, the Surviving Company has caused this Certificate of Merger to be signed by an authorized officer, the 20th day of December, 2021.

WELD NORTH EDUCATION LLC
THE SURVIVING COMPANY

BY  _____
DocuSigned by:
D9C5D6301F9746B...
NAME: ADAM J. KLABER
TITLE: Vice President and Secretary

LIMITED LIABILITY COMPANY RESOLUTION

I, Christopher Graham, hereby certify that I am the duly authorized and acting Senior Vice President, General Counsel and Secretary of Imagine Learning LLC, a limited liability company organized and existing under the laws of the State of Delaware (the "LLC" or "Company"), do hereby certify that the following facts are true and were taken from the records of said LLC.

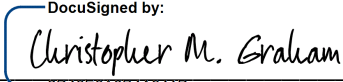
The following action was taken by resolution of the Board of Directors of the LLC by written consent dated as of January 1, 2022:

The Board of Directors of the LLC authorized David Alderslade as the duly appointed Executive Vice President, Chief Financial Officer and Treasurer, Adam Klaber, as the duly appointed Vice Chairman and Chief Administrative Officer, and Kelly Staniec, as the duly appointed Vice President, Controller and Assistant Secretary of the LLC to execute and deliver contracts, documents, and bonds in the name of and on behalf of the LLC.

And I do further certify that the above resolution has not been in any way altered, amended, or repealed, other than Adam Klaber's title is now Vice Chairman and Chief Operating Officer, and is now in full force and effect.

IN WITNESS WHEREOF, I hereunto set my hand and affix the company seal of said Imagine Learning LLC this 4th day of January, 2023.

Imagine Learning LLC

By: 
DocuSigned by:
2D46E6A8B4A941D...

Senior Vice President, General Counsel and Secretary
Imagine Learning LLC

**CITY OF WATERBURY
ANNUAL STATEMENT OF FINANCIAL INTERESTS (Calendar Year 2022)
Persons or Entities Conducting Business with the City**

I. Outstanding Purchase Orders of Contracts with the City

A. Contracts

No Contracts with the City

☐

Imagine Edgenuity (Courseware) 6-8

(Service or Commodity Covered by Contract)

July 1, 2020 - June 30, 2023

(Term of Contract)

*The City has been a partner with Imagine Learning (f/k/a Edgenuity)
since August 2014. See the following page for a summary of purchase orders.

Imagine Edgenuity (Courseware) 9-12

(Service or Commodity Covered by Contract)

July 1, 2020 - June 30, 2023

(Term of Contract)

MyPath (Legacy)

(Service or Commodity Covered by Contract)

December 1, 2022 - November 30, 2023

(Term of Contract)

**CITY OF WATERBURY
ANNUAL STATEMENT OF FINANCIAL INTERESTS (Calendar Year 2022)
Persons or Entities Conducting Business with the City**

B. Purchase Order(s).

No Purchase Order(s) with the City

☐

Digital Library Site License (PO# 205017 / Invoice #864073)

(Service or Commodity Covered by Purchase Order)

09/21/2022

(Date of Purchase Order)

(Service or Commodity Covered by Purchase Order)

(Date of Purchase Order)

(Service or Commodity Covered by Purchase Order)

(Date of Purchase Order)

CITY OF WATERBURY
ANNUAL STATEMENT OF FINANCIAL INTERESTS (Calendar Year 2022)
Persons or Entities Conducting Business with the City

II. Financial Interest Disclosure

(Public Officials, Employees or Board and Commission Members with interest in
Person or Entity Conducting Business with the City)

**No Officials, Employees or Board and Commission Members with
Financial Interest**

☒

(Name of Official)

(Position with City)

(Nature of Business Interest)
(e.g. Owner, Director etc...)

Interest Held By:

Self

☐

Spouse

☐

Joint

☐

Child

☐

(Name of Official)

(Position with City)

(Nature of Business Interest)
(e.g. Owner, Director etc...)

Interest Held By:

Self

☐

Spouse

☐

Joint

☐

Child

☐

1. I certify that this Annual Statement of Financial Interests is a complete and accurate statement of those matter required to be disclosed by me pursuant to §39.061 of the Code of Ordinances.

2. I understand that if I fail to file an Annual Statement (or amendment thereto) or an inaccurate Statement I will be in violation with Chapter 39 of the Code of Ordinance and, thereby, subject to the remedies set forth in §§38.71 and 39.101 of said Code.

3. I understand that I must file with the City Clerk, within fifteen (15) days following any reportable occurrence, any amendments to the Annual Statement.

I have read and agree to the above certification.

Imagine Learning LLC

(Name of Company, if applicable)



Signature of Individual (or Authorized Signatory)

12/13/2022

Date

Kelly Staniec, Vice President, Controller

Print or Type Name and Title (if applicable)

DELIVERED

| By Mail

☒

Hand-Delivered

☐

**City of Waterbury Certification
Regarding
Debarment, Suspension, Ineligibility and Exclusion**

If the transaction is Federally funded, in whole or in part (including pass through grants to state and/or municipal government), this certification is required by the regulations implementing one or more Presidential Executive Orders. If this transaction is funded by the State of Connecticut, in whole or in part, this certification is required in accordance with one or more State of Connecticut general statutes.

1. By signing and submitting the attached proposal and/or this document, the prospective lower tier participant, vendor, or contractor is providing the certification set out below.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant, vendor, or contractor knowingly rendered an erroneous certification, in addition to other remedies available to the Federal, State, or City government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant, vendor or contractor shall provide immediate written notice to the person to which the attached proposal and/or this document is submitted if at any time the prospective lower tier participant, vendor or contractor learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction", "debarred", "suspended", "ineligible", "lower tier covered transaction", "participant", "person", "primary covered transaction", "principal", "proposal", and "voluntarily excluded", as used herein, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 and/or State of Connecticut statutes and regulations. You may contact the person to which this proposal and/or this document is submitted for assistance in obtaining a copy of the foregoing.
5. The prospective lower tier participant, vendor or contractor agrees by submitting the attached proposal and/or this document that, should the proposed covered transaction be entered into, it shall not knowingly enter into any covered transaction with a person who is debarred, suspended,

declared ineligible, or voluntarily excluded from participation in this covered transaction unless authorized by the department or agency with which this transaction originated.

6. The prospective lower tier participant, vendor or contractor further agrees by submitting the attached proposal and/or this document that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion-Lower Tier Covered Transactions", without modification, in all covered transaction and in all solicitations for covered transactions.

7. A participant in a covered transaction may rely upon the certification of a prospective participant in a covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may but is not required to, check the Non-procurement List.

8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required herein. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under paragraph 5 herein, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal, State or Municipal government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification

- (1) The prospective recipient of monies hereby certifies, by submission of its attached proposal and/or by execution of this document, that neither it nor its principles are presently debarred, suspended, proposed for debarment, declared ineligible, disqualified, or voluntarily excluded from bidding or participation in the proposed transaction by any Federal, State, or Municipal department or agency or by the statutes, regulations or ordinances of the foregoing departments and agencies.
- (2) Where the prospective recipient of monies is unable to certify to any of the statements in this certification, such prospective participant shall attach a written explanation hereto.

Full Legal Name and address of Recipient, Vendor, or Contractor:

Imagine Learning LLC
8860 East Chaparral Road, Suite 100
Scottsdale, AZ 85250

Print Name and Title of Authorized Representative:

Kelly Staniec, Vice President, Controller

Signature of Authorized Representative:



Date: 12/13/2022

OFFICER'S CERTIFICATE
of
IMAGINE LEARNING LLC

The undersigned, being a duly authorized officer of Imagine Learning LLC (the "Company"), does hereby certify in such capacity on behalf of the Company as follows:

1. The Board of Directors acting by Written Consent dated as of January 1, 2022,
 - a. authorized David Alderslade as the duly appointed Executive Vice President, Chief Financial Officer and Treasurer, Adam Klaber, as the duly appointed Vice Chairman and Chief Administrative Officer, and Kelly Staniec, as the duly appointed Vice President, Controller and Assistant Secretary of the Company to execute and deliver contracts, documents, and bonds in the name of and on behalf of the Company, and such execution and delivery of a contract of obligation in the Company's name on its behalf shall be valid and binding on the Company and that David Alderslade and Kelly Staniec are individually authorized to authorize an officer of the Company as an alternate signer in writing, for a specified purpose or date range; and
 - b. authorized Kinsey Rawe as the duly appointed Senior Vice President and General Manager – Courseware and Instructional Services of the Company, Jack Shira as the duly appointed Vice President of Product Development of the Company and Leslie Sobon as the duly appointed Senior Vice President – Customer Experience of the Company, to execute and deliver customer contracts and related documents and agreements in the name of and on behalf of the Company.
2. The undersigned confirms that such individual: in 1(a) above executing and delivering contracts, documents, and bonds or authorizing an officer of the Company as an alternate signer in writing, for a specified purpose or date range, and in 1(b) above executing and delivering the customer contracts, related documents and agreements, that this Officer's Certificate accompanies has been duly authorized to do so.

Dated: January 6, 2022



Name: Christopher M. Graham

Title: Senior Vice President, General Counsel and Secretary

CITY OF WATERBURY
DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING
OBLIGATIONS TO THE CITY OF WATERBURY

For the purposes of this Disclosure of Outstanding Financial Obligations, the following definitions apply:

- (a) "Contract" means any Public Contract as defined below.
- (b) "Person" means one (1) or more individuals, partnerships, corporations, associations, or joint ventures.
- (c) "Public Contract" means any agreement or formal commitment entered into by the city to expend funds in return for work, labor, services, supplies, equipment, materials or any combination of the foregoing, or any lease, lease by way of concession, concession agreement, permit, or per agreement whereby the city leases, grants or demises property belonging to the city, or otherwise grants a right of privilege to occupy or to use said property of the city.
- (d) "City" means any official agency, board, authority, department office, or other subdivision of the City of Waterbury.

State of Arizona

SS.: December 13, 2022

County of Maricopa

Kelly Staniec, being first duly sworn, deposes and says that:

1. I am the **owner, partner, officer, representative, agent or Vice President, Controller** of Imagine Learning LLC (Contractor's Name), the Contractor that has submitted the attached agreement.

2. I am fully informed respecting the preparation and contents of the attached Agreement and of all pertinent circumstances respecting such Agreement;

3. That as a person desiring to contract with the City (check all that apply):

 The Contractor and each owner, partner, officer, representative, agent or affiliate of the Contractor has filed a list of taxable personal property with the City of Waterbury for the most recent grand list, as required by Conn. Gen. Stat. §12-42.

x Neither the Contractor nor any owner, partner, officer, representative, agent or affiliate of the Contractor are required to file a list of taxable personal property with the City of Waterbury for the most recent grand list, as required by Conn. Gen. Stat. §12-42.

x Neither the Contractor nor any owner, partner, officer, representative, agent or affiliate of the Contractor either directly or through a lease agreement, owes back taxes to the City of Waterbury

CITY OF WATERBURY
DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING
OBLIGATIONS TO THE CITY OF WATERBURY

X Neither the Contractor nor any owner, partner, officer, representative, agent or affiliate of the Contractor either directly or through a lease agreement, has any other outstanding obligations to the City of Waterbury

4. The following list is a list of the names of all persons affiliated with the business of the Contractor, if none state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Name	Title	Affiliated Company (if none state NONE)	Service or Material	DOB
1 David Alderslade	Executive Vice President, CFO	Imagine Learning LLC		
2 Kelly Staniec	Vice President, Controller	Imagine Learning LLC		
3 Adam Klaber	Vice Chairman, CAO	Imagine Learning LLC		
4				

5. That as a person desiring to contract with the City:

(a) The Contractor or an owner, partner, officer, representative, agent or affiliate of the Contractor provides, or has provided, services or materials to the City within one (1) year prior to the date of this disclosure, if none, state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Name	Title	Affiliated Company (if none state NONE)	Service or Material	DOB
1 NONE*				
2				
3				
4				

(b) The Contractor possesses an ownership interest in the following business organizations, if none, state none. Use additional sheet if necessary (Must be on company letterhead and notarized) :

Organization Name	Address	Type of Ownership
1 Robotify	8860 East Chaparral Road, Suite 100 Scottsdale, AZ 85250	wholly owned subsidiary
2		
3		
4		

*The City has been a partner with Imagine Learning LLC (f/k/a Edgenuity) since 2014; see Financial Disclosures form for applicable contract/purchase order information.

(c) The following persons possess an ownership interest in the Contractor. If the Contractor is a corporation, list all of the officers of the corporation and the names of each stockholder whose shares exceed twenty-five

CITY OF WATERBURY

DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING OBLIGATIONS TO THE CITY OF WATERBURY

(25) percent of the outstanding stock, if none, state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Name	Title	DOB	Stock %
1 NONE			
2			
3			
4			

(d) Of the following of the affiliates, individuals or business entities identified in this affidavit, list each that owns, owned, or within one (1) year prior to the date of this disclosure has owned, taxable property situated in the City of Waterbury, if none state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Name	Title	Affiliated Company (if none state NONE)	Address	DOB
1 NONE				
2				
3				
4				

(e) If the Contractor conducts business under a trade name, the following additional information is required: the place where such entity is incorporated or is registered to conduct such business; and the address of its principal place of business, if none, state none:

TRADE NAME	PLACE OF INCORPORATION/REGISTRY	PRINCIPAL PLACE OF BUSINESS
1 NONE		
2		
3		
4		

I hereby certify that the statements set forth above are true and complete, and I understand that any incorrect information or omission of information from this affidavit may result in the immediate termination of the Contractor's agreement with the City of Waterbury.

For Partnership/Sole Proprietor

In presence of:

Witness

Name of Partnership/Business

DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING OBLIGATIONS TO THE CITY OF WATERBURY

Address of Business

For Corporation

CITY OF WATERBURY

**DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING
OBLIGATIONS TO THE CITY OF WATERBURY**

State of Arizona)

) SS

County of Maricopa)



Kelly Staniec being duly sworn,

deposes and says that he/she is Vice President, Controller of Imagine Learning LLC and
that he/she answers to the foregoing questions and all statements therein are true and
correct.

Subscribed and sworn to before me this 13th day of December 2022.

My Commission Expires: 10/23/25 [Signature] (Notary Public)

THE CITY OF WATERBURY
MEMORANDUM

From: Delinquent Tax Office

Date 12/20//2022

To: Jerry Gay- Contract Manager
Department of Education

Subject: Tax Clearance

As of this date, the records in the Tax Collector's Office indicate that the following **are not delinquent**.

Imagine Learning, LLC
David Alderslade
Kelly Stanio
8860 East Chaparral Road, Suite 100
Scottsdale, AZ 85250

If you have any questions regarding this issue, do not hesitate to call our office at (203) 574-6815.

Very truly yours,



NJO/wmf

Nancy J. Olson, CCMC
Deputy Revenue Collections Manager
City of Waterbury



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
11/03/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an **ADDITIONAL INSURED**, the policy(ies) must have **ADDITIONAL INSURED** provisions or be endorsed. If **SUBROGATION** IS **WAIVED**, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Willis Towers Watson Northeast, Inc. c/o 26 Century Blvd P.O. Box 305191 Nashville, TN 372305191 USA	CONTACT NAME: Willis Towers Watson Certificate Center PHONE (A/C No. Ext): 1-877-945-7378 FAX (A/C No): 1-888-467-2378 E-MAIL ADDRESS: certificates@willis.com																					
INSURED Imagine Learning LLC 8860 E Chaparral Rd Ste 100 Scottsdale, AZ 85250	<table border="1"><thead><tr><th colspan="2">INSURER(S) AFFORDING COVERAGE</th><th>NAIC #</th></tr></thead><tbody><tr><td>INSURER A:</td><td>Transportation Insurance Company</td><td>20494</td></tr><tr><td>INSURER B:</td><td>National Fire Insurance Company of Hartford</td><td>20478</td></tr><tr><td>INSURER C:</td><td>Continental Insurance Company</td><td>35289</td></tr><tr><td>INSURER D:</td><td>American Casualty Company of Reading Penns</td><td>20427</td></tr><tr><td>INSURER E:</td><td>Endurance Assurance Corporation</td><td>11551</td></tr><tr><td colspan="2">INSURER F:</td><td></td></tr></tbody></table>	INSURER(S) AFFORDING COVERAGE		NAIC #	INSURER A:	Transportation Insurance Company	20494	INSURER B:	National Fire Insurance Company of Hartford	20478	INSURER C:	Continental Insurance Company	35289	INSURER D:	American Casualty Company of Reading Penns	20427	INSURER E:	Endurance Assurance Corporation	11551	INSURER F:		
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INSURER E:	Endurance Assurance Corporation	11551																				
INSURER F:																						

COVERAGES

CERTIFICATE NUMBER: W26597753

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE \$ 1,000,000
	<input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000
							MED EXP (Any one person) \$ 15,000
							PERSONAL & ADV INJURY \$ 1,000,000
							GENERAL AGGREGATE \$ 2,000,000
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG \$ 2,000,000
	<input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC						\$
	OTHER:						
B	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000
	<input checked="" type="checkbox"/> ANY AUTO						BODILY INJURY (Per person) \$
	<input type="checkbox"/> OWNED AUTOS ONLY						BODILY INJURY (Per accident) \$
	<input checked="" type="checkbox"/> HIRED AUTOS ONLY						PROPERTY DAMAGE (Per accident) \$
	<input type="checkbox"/> SCHEDULED AUTOS NON-OWNED AUTOS ONLY						\$
C	<input checked="" type="checkbox"/> UMBRELLA LIAB						EACH OCCURRENCE \$ 10,000,000
	<input checked="" type="checkbox"/> EXCESS LIAB						AGGREGATE \$ 10,000,000
	<input type="checkbox"/> DED <input checked="" type="checkbox"/> RETENTION \$ 10,000						\$
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	Y/N					E.L. EACH ACCIDENT \$ 1,000,000
	If yes, describe under DESCRIPTION OF OPERATIONS below	No	N/A				E.L. DISEASE - EA EMPLOYEE \$ 1,000,000
							E.L. DISEASE - POLICY LIMIT \$ 1,000,000
D	Workers Compensation & Employers Liability Per Statute		Y				EL - Each Accident \$1,000,000 EL- Disease-Each Emp. \$1,000,000 EL- Disease-Pol Limit \$1,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Named Insured previously Imagine Learning Inc and Edgenuity Inc

SEE ATTACHED

CERTIFICATE HOLDER

The City of Waterbury CT Attn: Office of Corporate Counsel 235 Grand Street Waterbury, CT 06702	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE

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ADDITIONAL REMARKS SCHEDULE

Page 2 of 2

AGENCY Willis Towers Watson Northeast, Inc.		NAMED INSURED Imagine Learning LLC 8860 E Chaparral Rd Ste 100 Scottsdale, AZ 85250	
POLICY NUMBER See Page 1		EFFECTIVE DATE: See Page 1	
CARRIER See Page 1	NAIC CODE See Page 1		

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,
FORM NUMBER: 25 **FORM TITLE:** Certificate of Liability Insurance

Re: RFP 5495

The City of Waterbury and BOE are included as Additional Insureds as respects to General Liability and Auto Liability.

General Liability and Auto Liability policies shall be Primary and Non-contributory with any other insurance in force for or which may be purchased by Additional Insureds.

Waiver of Subrogation applies in favor of Additional Insureds with respects to Auto Liability as required by written contract, General Liability, and Workers Compensation as permitted by law.

Umbrella/Excess Follows Form.

INSURER AFFORDING COVERAGE: Endurance Assurance Corporation

NAIC#: 11551

POLICY NUMBER: PRO30027038000 EFF DATE: 10/29/2022 EXP DATE: 10/29/2023

TYPE OF INSURANCE: Professional (E&O)/Cyber	LIMIT DESCRIPTION: Per Claim/Aggregate Retention Retroactive Date	LIMIT AMOUNT: \$5,000,000 \$250,000 5/12/2003
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WATERBURY
PUBLIC SCHOOLS

TO BE ADDED #4A

Miguel A. Pabón

Director of Pupil Services

(203) 346-3505

miguel.pabon@waterbury.k12.ct.us

February 2, 2023

Board of Education

Board of Alderman

Re: Approval of Agreement between the City of Waterbury and Ben Bronz Academy

Dear Honorable Board of Education and Board of Aldermen:

I respectfully request approval of the attached agreement between the City of Waterbury and Ben Bronz Academy. Ben Bronz Academy is an approved private special education placement for students with special needs. Our department is seeking approval of this agreement in order to provide special education services to identified students with disabilities, in accordance with their Individual Education Plan (IEP).

The Director of Purchasing has reviewed and allowed this agreement, finding that it is a sole source procurement under Section 38.026 (B) (5) of the procurement process.

This agreement is subject to approval of non-substantive changes by the Office of the Corporation Counsel. The term of this agreement shall be for three fiscal years commencing July 1, 2022 through June 30, 2025. The total amount for this 3-year agreement is \$203,268.00 and is paid for with general funds. A tax clearance and all requisite city compliance documents have been or will be obtained.

I appreciate your consideration in this regard, and respectfully request approval of this agreement.

Respectfully Submitted,

Miguel Pabón

Director of Pupil Services

Enc. Agreement between the City of Waterbury and Ben Bronz Academy

**AGREEMENT
BETWEEN
CITY OF WATERBURY
AND
BEN BRONZ ACADEMY**

THIS AGREEMENT, (“Agreement”) effective on the date signed by the Mayor (the “Effective Date”), is by and between the City of Waterbury, City Hall, 235 Grand Street, Waterbury, Connecticut, 06702, (“City”), and the Ben Bronz Academy, an educational institution doing business at 11 Wampanoag Drive, West Hartford, Connecticut 06117 (“Contractor”).

WHEREAS, Contractor is a private education institution specializing and licensed in the education of children with disabilities;

WHEREAS, the educational needs of the students covered by this Agreement cannot be met with public school arrangements;

WHEREAS, Contractor is willing to provide educational services to identified City of Waterbury students in accordance with each student’s Individual Education Program (IEP), by providing education to children with disabilities, placed in its facility for non-residential reasons, by the Waterbury Board of Education; and

WHEREAS, the City is desirous of having the Contractor perform said educational services for the City.

NOW THEREFORE, it is mutually agreed as follows:

1. Scope of Services.

1.1. Contractor hereby agrees to provide a special education program, including instruction and related services, suitable for those children to be served in accordance with the Connecticut General Statutes, the Individuals with Disabilities Education Act (“I.D.E.A.”), and their respective regulations, and each individual student’s IEP as developed by the City and the Planning and Placement Team (PPT), which IEP is incorporated herein by reference as if fully set forth herein. Each student’s IEP contains a description of the student’s educational program, supports and related services the student is to receive, a statement of goals and objectives relating to the student, and an estimated time schedule for returning the child to the community or transferring such student to another appropriate facility, Contractor shall provide conferences with parents and report to the City when required by the student’s IEP, by Section 10-76d of the Connecticut General Statutes or when necessary, regarding the progress of the child.

1.2. Contractor agrees to provide the educational program, supports and related services, as approved by the City and identified in the student's IEP by the Planning and Placement Team (PPT). All other activities will be the responsibility of the Contractor.

1.3. The City shall provide the Contractor with information needed to access appropriate IEP Systems, including but not limited to CT-SEDS, or the current electronic IEP system utilized by Waterbury Public Schools. The School agrees to complete the IEP, as revised and effective July 1, 2022, and update as required to include the following:

1.3.1. Present level of performance

1.3.2. Transition Planning (as appropriate)

1.3.3. Goals and objectives

1.3.4. Program Accommodations

1.4. The Contractor shall hold and attend PPT meetings as needed, but at a minimum, on an annual basis. It shall be the responsibility of the City to notify all necessary participants of any PPT meeting, which shall include a representative from the City and a representative from Contractor. A PPT meeting may be held via a telephone conference as required by the City.

1.5. Contractor shall provide the City with monthly reports of the attendance of each child at Contractor's facility along with documentation of the specific services and frequency of services rendered to students under this Agreement. Said reports may be reviewed by the City and reconciled to the services to be provided under this Agreement. Student attendance reports shall accompany the City of Waterbury voucher and the Contractor's billing.

1.6. Contractor shall not withdraw any child from the program for any reason, without providing the City with thirty (30) day prior written notice.

1.7. The parties agree to review each student's progress and need for services at least yearly, at the student's annual PPT meeting, to determine an estimated time for returning the student to the community or transferring the child to another appropriate facility, if appropriate for the student.

1.8. The Superintendent or her designees may, at any time, conduct periodic site visits at the location where the special education services hereunder are being provided.

1.9. Contractor shall immediately notify the child's parents and/or guardian and the City in the event of an emergency or injury, concerning or involving the child.

2. Term.

2.1. The term of this Agreement shall be for three fiscal years commencing on July 1, 2022 and terminating on June 30, 2025, or any part thereof. The City shall have the option to extend this Agreement for two (2) additional years, upon the same terms and conditions

as set forth herein, by giving notice to Contractor sixty (60) days prior to the end of the initial three year term. No agency or individual can increase the specified number, or length of school days, without the prior approval or authority of the City. If such change is made without the City's prior approval, it shall be deemed a breach of this Agreement and the City shall have no obligation for payment of said services or further obligation under this Agreement.

2.2. The parties agree that the Agreement may be amended from time to time by way of a letter placing additional students in Contractor's facility and acknowledged by Contractor that services will be provided to such students in accordance with each student's IEP and in accordance with the Agreement.

3. Payment.

3.1. The City shall pay Contractor an amount up to Two Hundred Three Thousand Two Hundred Sixty-Eight Dollars (\$203,268.00) for the entire three (3) year Agreement term, for the educational program, supports and related services properly rendered hereunder, unless this Agreement is sooner terminated as provided herein. The basis for payment of said services shall be as set forth in **Attachment A** entitled "Rate Schedule". **Attachment A** shall consist of one rate schedule for each student placed in the Contractor's facility. The rate schedule shall set forth the name of the student, the services to be provided to each student, number of days anticipated to be in attendance and the cost of said service. **Attachment A** is incorporated herein and made a part of this Agreement.

3.2. Each child's tuition or cost for services provided under the Agreement shall be calculated based upon the number of days at said facility and/or specified hours of required specialized instruction and related services. If the child attends said school for only a portion of the school year the tuition rate will be determined by multiplying the number of days in attendance by the daily rate or hourly rate as set forth in the Rate Schedule, **Attachment A**. The Contractor's Rate Schedule shall provide an explanation of how the tuition or costs for services provided under this Agreement are calculated. Payment shall be made only for the school days and provision of the educational program, supports and related services as identified in each child's IEP and shall be in accordance with the City of Waterbury's payment policy and procedures. Contractor shall provide a yearly "Rate Schedule" for each fiscal year of this three year Agreement for all services that may be rendered by Contractor under this Agreement.

3.3. The City may add or delete students, or any services required by each student, at any time as it deems necessary per each student's IEP, as may be amended from time to time, thereby increasing or decreasing the number of students placed in the Contractor facility. Accordingly, all rates shall remain as set forth in the current "Rate Schedule" for each fiscal year.

3.4. For all the services provided to each child under this Agreement, the City shall pay to Contractor an amount based upon the "Rate Schedule" for that fiscal year. Payment for each child may be changed from time to time based upon each child's individual IEP and

services required. Payment to be made by the City shall be for educational costs, supports and related services only.

3.5. The Contractor shall submit all required Medicaid documentation to the City for purposes of submitting claims to the Medicaid School Based Child Health Program administered by the department of Social Services. Such documentation shall include, but is not limited to , daily service logs, session notes, monthly progress reports, and detailed invoicing including the types of services provided, the dates of the services, the units of services, the names, disciplines, and licensing and certification information of the individual providing the service. All progress notes references in this section shall be signed by the individual(s) who performed the and/or supervises the service. This information shall be entered directly into the District's electronic Medicaid Billing System. The Contractor acknowledges and agrees that its submission of all required documentation to the City for purposes for purposes of submitting claims to the Medicaid School Based Child Health Program shall be a condition precedent to any payment by the City to the Contractor pursuant to this Agreement.

3.6. In the event that any child enters Contractor's facility at a time subsequent to the beginning of the school term or should withdraw from Contractor's facility prior to the end of the school year, said educational costs, supports and related services shall be proportionately reduced. Contractor shall provide the City with a yearly rate per child as mandated by the State of Connecticut. The daily rate per child shall be calculated by dividing the annual rate by the days each child is required to attend Contractor's program as indicated on each child's IEP Contractor shall provide the City with a monthly attendance log and the City shall only be responsible to pay Contractor for days the child is actually in attendance, or in which Contractor is providing services. In the case of pupil absence, payment will be reduced where such absence is chronic or extended; however, this is contingent upon Contractor's adhering to the City of Waterbury Board of Education's attendance policy with regard to absences. City will compensate Contractor for school days as set forth under this Agreement unless the student is withdrawn by the City. Further, unless the Planning and Placement Team recommends a change in placement or length of the school day the City shall compensate Contractor in accordance with the day rate schedule attached hereto. In no case will payment be made in excess of the rates approved by the State of Connecticut to schools subject to such rates.

4. Records/Reports.

4.1. The City hereby agrees to provide to Contractor such medical, psychological and educational evaluations, as are available to the City, to determine the appropriateness of the placement of those children with disabilities under this Agreement. It shall be the responsibility of the City, in conjunction with the Planning and Placement Team (PPT), to develop an annual IEP for each student placed at the Contractors facility. Contractor shall provide evaluative reports that may be required to keep the City duly informed concerning the educational needs of children enrolled and to enable the City to make judgments concerning those needs and the desirability of continuing the children in Contractor's program. Contractor and the City hereby agree that medical and psychological records shall

not be open to public inspection, in accordance with Section 10-209 of the Connecticut General Statutes, without the written permission of the parent or guardian.

4.2. Contractor agrees to adhere to the City of Waterbury Board of Education's policy regarding student attendance and shall notify and contact all parties regarding attendance or lack thereof pursuant to said policy. Contractor hereby acknowledges receipt of said policy and has familiarized itself with all aspects of said policy.

4.3. The Contractor agrees to provide all required documentation to the City and its Board of Education for the purposes of submitting claims to the Medicaid School Based Child Health Program administered by the State of Connecticut, Department of Social Services.

5. **Student Data Requirements.**

5.1. All student records, student information, and student-generated content (collectively, "Student Data") provided or accessed pursuant this Agreement are not the property of, or under the control of, the Contractor.

5.2. The City's Board of Education ("Board") shall have access to and the ability to delete Student Data in the possession of the Contractor except in instances where such data is (A) otherwise prohibited from deletion or required to be retained under state or federal law, or (B) stored as a copy as part of a disaster recovery storage system and that is (i) inaccessible to the public, and (ii) unable to be used in the normal course of business by the Contractor. The Board may request the deletion of any such student information, student records or student generated content if such copy has been used by the operator to repopulate accessible data following a disaster recovery. The Board may request the deletion of Student Data by the Contractor within two (2) business days of receiving such a request and provide to the Board confirmation via electronic mail that the Student Data has been deleted in accordance with the request, the date of its deletion, and the manner in which it has been deleted. The confirmation shall contain a written assurance from the Contractor that proper disposal of the data has occurred in order to prevent the unauthorized access or use of Student Data and that deletion has occurred in accordance with industry standards/practices/protocols.

5.3. The Contractor shall not use Student Data for any purposes other than those authorized pursuant to this Agreement.

5.4. A student, parent or legal guardian of a student may review personally identifiable information contained in Student Data and correct any erroneous information, if any, in such Student Data. If the Contractor receives a request to review Student Data in the Contractor's possession directly from a student, parent, or guardian, the Contractor agrees to refer that individual to the Board and to notify the Board within two (2) business days of receiving such a request. The Contractor agrees to work cooperatively with the Board to permit a student, parent, or guardian to review personally identifiable information in

Student Data that has been shared with the Contractor, and correct any erroneous information therein.

5.5. The Contractor shall take actions designed to ensure the security and confidentiality of student data.

5.6. The Contractor will notify the Board, in accordance with Conn. Gen. Stat. § 10-234dd, when there has been an unauthorized release, disclosure or acquisition of Student Data. Such notification will include the following steps:

Upon discovery by the Contractor of a breach of Student Data, the Contractor shall conduct an investigation and restore the integrity of its data systems and, without unreasonable delay, but not more than thirty (30) days after such discovery, shall provide the Board with a more detailed notice of the breach, including but not limited to the date and time of the breach; name(s) of the student(s) whose student data was released, disclosed or acquired; nature of and extent of the breach; and measures taken to ensure that such a breach does not occur in the future.

5.7. Student Data shall not be retained or available to the Contractor upon expiration of the Agreement between the Contractor and City, except a student, parent or legal guardian of a student may choose independently to establish or maintain an electronic account with the Contractor after the expiration of such Agreement for the purpose of storing student-generated content.

5.8. The Contractor and Board shall each ensure their own compliance with the Family Educational Rights and Privacy Act of 1974, 20 U.S.C. § 1232g, as amended from time to time.

5.9. The Contractor acknowledges and agrees to comply with the above and all other applicable aspects of Connecticut's Student Data Privacy law according to Connecticut General Statutes §§ 10-234aa through 10-234dd.

5.10. The Parties agree that this Agreement controls over any inconsistent terms or conditions contained within any other Agreement entered into by the Parties concerning Student Data.

6. Confidentiality/FERPA.

6.1. Contractor shall strictly adhere to all State and Federal Statutes, rules, policy, regulations, codes of participant protection and confidentiality, administrative directives of the State of Connecticut Board of Education, Connecticut Department of Education and the Waterbury Board of Education regarding confidentiality of student records, files, PPTs, IEPs, etc. Contractor shall further ensure that its employees, agents, or anyone performing work on their behalf under the terms of this Agreement shall strictly adhere to all State and Federal Statutes, rules, policy, regulations, codes of participant protection and

confidentiality, administrative directives of the State of Connecticut Board of Education and those of the Waterbury Board of Education regarding confidentiality of student records, files, PPTs, IEPs, etc.

6.2. Any and all materials contained in City of Waterbury student files that are entrusted to Contractor or gathered by the Contractor in the course of its services shall remain in the strictest confidence to prevent disclosure of the same. All information furnished by the City or gathered by Contractor shall be used solely for the purposes of providing services under this Agreement.

6.3. Contractor acknowledges that in the course of providing services under this Agreement, it may come into the possession of education records of City Waterbury students as defined in and governed by Family Educational Rights and Privacy Act ("FERPA", 20 U.S.C. § 1232g) and related regulations (34 C.F.R. § 99) Contractor and City shall comply with the requirements of said statute and regulations, as amended from time to time and Contractor agrees to use information obtained from the City or student education records only for the purposes provided in this Agreement. Without the prior written consent of the student's parent or guardian, as required by FERPA, Contractor has no authority to make disclosures of any information from education records.

6.4. The Contractor shall ensure that the confidential information in the electronic IEP is maintained and kept secure at all times. The Contractor shall provide access only to those providers who provide services to the identified students and who have been identified as requiring electronic access by the Contractor's Administrator. The Contractor's Administrator shall provide a list of providers identified by them as requiring electronic access to each students IEP and their respective positions prior to access being given.

7. Criminal Background Check and DCF Registry Check.

7.1. The Contractor shall ensure, and represents to the City, that any employee who will have direct contact with a student pursuant to this Agreement has stated, in writing, whether such person has ever been convicted of a crime or whether criminal charges were ever pending against such person. The Contractor shall further ensure, and represents to the City that any person who will have direct contact with a student has submitted to a records check of the Department of Children and Families child abuse and neglect registry established pursuant to Conn. Gen. Stat. §17a-101k, as well as state and national criminal history records checks conducted in accordance with Conn. Gen. Stat. §29-17a, the federal National Child Protection Act of 1993, and the federal Volunteers for Children Act of 1998. The Contractor shall not permit any person with a disqualifying criminal history to have direct contact with a student. The City and Board shall rely upon these representations

8. Representation Regarding Qualifications.

8.1. Contractor hereby represents that it has been duly approved by the Connecticut State Department of Education for the education of children with or without disabilities, as defined by the Connecticut General Statutes and its regulations.

8.2. Contractor hereby represents that it is knowledgeable regarding any and all federal and/or state regulations, policies, procedures, statutes, codes, participant protection and confidentiality, family rights to privacy, protection of pupil rights, local school system policies and procedures, administrative directives of the Connecticut State Board of Education and the State Department of Education. Contractor hereby represents that it has reviewed all the state and federal policies, regulations, procedures, statutes, codes (applicable to this Agreement) and agrees to adhere to each and every condition as it applies.

8.3. Contractor represents that its employees are licensed and certified to perform the scope of work set forth in this Agreement. Contractor further represents that its employees have the requisite skill, expertise and knowledge necessary to perform the scope of work required under the terms of this Agreement. Upon request, Contractor shall provide the City with copies of Contractor's license, certification and resumes, as applicable. Contractor further represents and shall provide documentation that all present staff have the requisite skill and are properly licensed and credentialed, and shall make such licenses available for inspection upon said request. If Contractor is a corporation, it shall provide a corporate resolution authorizing this Agreement and the signatory thereof.

8.3.1 **Representations Regarding Personnel.** Contractor represents that it has or will secure at its own expense, all personnel required to perform the services under this Agreement. Such personnel shall not be employees of or have any contractual relationship with the City, unless use of City employees or of personnel having a contractual relationship with the City is approved in writing. As set forth above, all the services required hereunder shall be performed by Contractor or under its supervision and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under state or local law to perform such services.

8.3.2 The Contractor represents and warrants that it and its employees who may be assigned to perform the Scope of Services set forth in this Agreement have no history of violations of the laws or regulations of the State of Connecticut pertaining to public health, have not been convicted of a crime and have no criminal investigation pending. That each of Contractor's employees have submitted to a state and national criminal history records check and a DCF registry check and said results revealed not violations.

9. **Debarment.** Contractor hereby certifies that it and its principals are not debarred or suspended from doing business as required by Executive Order 12549 and shall provide to the City of Waterbury a signed certificate regarding debarment and suspension.

10. **Indemnification.**

10.1. Contractor shall indemnify and hold harmless the City, the City's Board of Education and their agents, commissioners, officials and employees from and against all claims, suits, damages, losses, judgments, costs and expenses including attorney's fees

arising out of or resulting from the performance of the Contractor's services, caused in whole or in part by any willful or negligent act or omission of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

10.2. Contractor assumes all risk in the operation of this Agreement, and shall be solely responsible and answerable in damages for all accidents or injuries to person or property, except for the actions or negligence of the City and the Board and their officers, agents or employees. Contractor hereby covenants and agrees to (i) indemnify, (ii) pay the City and Board, their officers, agents, or employees attorney's fees, and (iii) hold harmless the City and Board and their officers, agents or employees from any claims, suits, actions, damages, losses and injury to person or property arising out of the operation of this Agreement or the negligence or improper conduct of Contractor or any servant, agent or employee thereof, which responsibility shall not be limited to the insurance coverage herein provided.

10.3. In any and all claims against the City, the Board of Education or any of its employees by any employee of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation above, shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under Worker's Compensation Acts, disability benefit acts or other employee benefit acts.

10.4. Contractor expressly understands and agrees that any insurance protection required by this Agreement, or otherwise provided by Contractor, shall in no way limit the responsibility to indemnify, keep and save harmless and defend the City as provided here.

10.5. The City shall indemnify and hold harmless Contractor, and their agents, officials and employees from and against all claims, suits, damages, losses, judgments, costs and expenses including attorney's fees arising out of or resulting from any of the City's obligations under this Agreement, provided that any such claims, suits, damages, losses, judgments, costs or expenses are caused in whole by any willful or negligent act or omission of the City, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

10.6. The City assumes all risk with regards to its obligations as set forth in this Agreement, and shall be solely responsible and answerable in damages for all accidents or injuries to person or property, except for the actions or negligence of the Contractor their officers, subcontractors, agents or employees. The City hereby covenants and agrees to hold harmless Contractor and their officers, agents or employees from any claims, suits, actions, damages, losses and injury to person or property arising out the negligence or improper conduct of the City or any servant, agent or employee thereof, which responsibility shall not be limited to the insurance coverage herein provided.

10.7. In any and all claims against Contractor, or any of its employees by any employee of the City, any of the City's subcontractor, anyone directly or indirectly employed by any

of them or anyone for whose acts any of them may be liable, the indemnification obligation above, shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the City or any subcontractor under Worker's Compensation Acts, disability benefit acts or other employee benefit acts.

11. Contractor's Liability Insurance.

11.1. Contractor shall not commence work under this Agreement until all insurance required under this section has been obtained by Contractor and such insurance has been approved by the City, nor shall Contractor allow any subcontractor to commence work on any subcontract until all similar insurance required of any such subcontractor has been so obtained and approved by the City. Insurance shall be provided by insurers, satisfactory to the City and authorized to do business in the State of Connecticut, an "A-" Best's Rating and at least a Class V3 or better financial size category as shown in the most current A.M. Best Company ratings. Contractor shall secure and maintain for the duration of this Agreement, including any amendments hereto, with the City and the Board of Education being named as an additional insured party, the following minimum liability insurance coverage at no cost to the City.

11.2. At no additional cost to the City, the Contractor shall purchase and maintain the insurance coverages set forth below which shall protect the City from claims which may arise out of or result from the Contractor's obligation under this Contract, whether such obligations are the Contractor's or subcontractor or person or entity directly or indirectly employed by said Consultant or subcontractor or anyone for whose acts Contractor or subcontractor may be liable.

11.3. Each insurance policy shall state that the insurance company shall agree to investigate and defend the insured against all claims for damages, even if groundless. If any insurance required herein is to be issued or renewed on a claims made form as opposed to an occurrence form, the retroactive date for coverage shall be no later than the commencement date of this Contract and shall provide that in the event of cancellation or non-renewal, the discovery period for insurance claims ("Tail Coverage") shall be available for at least 60 months.

11.3.1 Comprehensive General Liability Insurance. Coverage with limits of \$1,000,000 per Occurrence/ \$2,000,000 Aggregate/ \$2,000,000 Products Completed Operations Aggregate

11.3.2 Commercial Auto Liability Insurance. Coverage with limits of \$1,000,000 Combined Single Limit Any Auto, all owned and Hired Auto (if no owned autos then Hired & Non-owned Auto Liability coverage should be procured);

11.3.3 Worker's Compensation Insurance in accordance with the State of Connecticut's Worker's Compensation Laws; Employer Liability (EL):

\$500,000 EL Each Accident
\$500,000 EL Disease each Employee
\$500,000 EL Disease Policy Limits

11.3.4 Professional Liability/Errors and Omissions. Coverage for the acts and/or omissions of any professional, if applicable, in the amount of at least \$1,000,000 each Wrongful Act /\$1,000,000 Aggregate.

11.3.5 Excess/Umbrella Liability Insurance: Coverage with limits of \$1,000,000 per Occurrence/ \$1,000,000 Aggregate

11.3.6 Abuse & Molestation Liability. Coverage with limits of \$ 1,000,000 per Occurrence / \$1,000,000 Aggregate

11.3.7 Certificates of Insurance. Contractor will, prior to the execution of this Agreement, provide the City with Certificates of Insurance. Said policies shall be endorsed to add the City and the Board of Education as additional insured on all lines of coverage except Professional Liability and Workers Compensation. The insurance afforded the addition insured shall be primary and non-contributory insurance and the coverage and limits provided under the Consultant's policies shall not be reduced or prorated by the existence of any other insurance applicable to any loss the additional insured may have suffered. Certificate(s) of Insurance shall evidence the aforementioned Comprehensive General Liability, Commercial Auto Liability Professional Liability, Worker's Compensation Excess General Liability Insurance and Abuse & Molestation Liability coverage and a 30-day notice of cancellation prior to the cancellation of any insurance. **The Certificates of Insurance must read: "The City of Waterbury and the Waterbury Board of Education are listed as additional insureds on a primary and non-contributory basis on all policies except Workers Compensation and Professional Liability as their interest may appear."**

Such certificate(s) shall be subject to certification by the City's Risk Manager. Contractor shall provide replacement and/or renewal certificates at least thirty (30) days prior to the expiration of the policy(ies). Said certificates shall contain a provision that coverage afforded under the policies shall not be cancelled or reduced for any reasons unless notice of no less than thirty (30) days has been mailed to:

City of Waterbury
Attn: Education Dept.,
Chief Operating Officer, 3rd Floor
236 Grand Street
Waterbury, CT 06702

Upon request, Contractor shall deliver to the City a copy of its insurance policies and endorsements and riders.

11.3.8 Failure to Maintain Insurance. In the event Contractor fails to maintain the minimum required coverage as set forth herein, the City may, at its option, purchase same, and invoice or offset Contractor's invoices for the cost of said insurance, or the City and Board may terminate this Agreement immediately upon information of no insurance coverage.

11.3.9 Cancellation. THE CITY SHALL RECEIVE WRITTEN NOTICE OF CANCELLATION AT LEAST THIRTY (30) CALENDAR DAYS PRIOR TO THE DATE OF ACTUAL CANCELLATION, REGARDLESS OF THE REASON FOR SUCH CANCELLATION.

12. Discriminatory Practices.

12.1. In performing this Agreement, Contractor shall not discriminate against any employee or applicant for employment, with respect to his or her hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, sex, age, religious creed, disability, national origin or ancestry, marital status, family status, prior psychiatric treatment, health care, military status or source of income or because of a handicap that is unrelated to the employee's or the applicant's ability to perform the duties of a particular job or position. Subcontracts with each subcontractor shall contain a provision requiring non-discrimination in employment as herein specified. This covenant is required pursuant to §93.04 of the Code of Ordinances of the City and any breach thereof may be regarded as a material breach of this Agreement. Said provisions with subcontractors shall require conformity and compliance with all local, state and federal laws, rules and regulations and Executive orders pertaining to discrimination and equal opportunity requirements.

12.2. The Contractor shall admit any eligible child and shall not discriminate against any child regardless of race, religion, color, ancestry, natural origin, sex, handicap or disability.

12.2.1 Equal Opportunity. In its execution of the performance of this Agreement, Contractor shall not discriminate and shall comply with applicable laws prohibiting discrimination on the grounds of race, color, religion, sex, national origin or citizenship status, age or handicap. Contractor agrees to comply with all local, state and federal laws, rules and regulations and Executive orders pertaining to discrimination and equal opportunity requirements, and will require the same of all subcontractors.

13. Termination.

13.1. Termination of Agreement for Cause. If, through any cause, Contractor shall fail to fulfill in timely and proper manner his obligations under this Agreement, or if Contractor shall violate any of the covenants, agreements, or stipulations of this Agreement, the City shall thereupon have the right to terminate this Agreement by giving written notice to Contractor of such termination and specifying the effective date thereof, at least ten (10) days before the effective date of such termination. In the event of such

termination, all documents, data, studies, and reports prepared by Contractor under this Agreement shall, at the option of the City, become its property.

13.2. Notwithstanding the above, Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any breach of this Agreement by Contractor, and the City may withhold any payments to Contractor for the purpose of setoff until such time as the exact amount of damages due the City from Contractor is determined.

13.3. Termination for Convenience of the City. The City may terminate this Agreement at any time for the convenience of the City, by a notice in writing from the City, to Contractor. If this Agreement is terminated by the City as provided herein, Contractor will be paid an amount for the services actually performed and provided for under this Agreement.

13.4. Termination for Lack of Funding. The Contractor acknowledges that the payment obligations of the City under this Agreement are intended to be funded by the City through General Fund appropriations, federal or state assistance or grant monies provided by the federal or state governments as well as the sale of tax exempt long and short term debt obligations issued by the City. Contractor acknowledges that continuation of this Agreement is subject to the lawful continual appropriation of funds by the City, State or Federal government, including the funding of grants for the purpose of this Agreement. Moreover, this Agreement may also be subject to the ability of the City to legally issue and sell the aforementioned debt obligations, (as determined by opinion of bond counsel and or the Internal Revenue Service) and to do so in a commercially viable manner, and is furthermore subject to the lawful continual appropriation of funds by the City, State or Federal government. Contractor therefore agrees that the City and Board shall have the right to terminate this Agreement in whole or in part without penalty in the event that: (1) the City is unable to issue the debt obligations for sale because of a legal infirmity as otherwise determined by Bond counsel or the Internal Revenue Service; or, (2) the City is unable to market and or timely sell the required amount of debt obligations required to fund the Agreement in whole or in part, or, (3) the money required to enable the City to pay Contractor is either not appropriated, authorized or made available pursuant to law, or such funding appropriations have been reduced pursuant to law.

13.5. The Contractor therefore agrees that the City shall have the right to terminate this Agreement in whole or in part without penalty in the event that the money required to enable the City to pay Contractor is either not appropriated, authorized or made available pursuant to law, or such funding appropriations or grant monies have been reduced pursuant to law.

13.5.1 Effects of Nonappropriation. If funds to enable the City to effect continued payment under this Agreement are not appropriated, authorized or otherwise made available by law, the City shall have the right to terminate this Agreement without penalty at the end of the last period for which funds have been appropriated, authorized or otherwise made available by law by giving written notice of termination to Contractor.

13.5.2 No Payment for Lost Profits. In no event shall the Board or the City be obligate to pay or otherwise compensate Contractor for any lost or expected future profits.

14. Delivery of Documents. In the event of termination or fulfillment of this Agreement, or at any point that each individual student no longer receives services at Contractor, Contractor shall promptly deliver to the City, in a manner reasonably specified by the City, all documents and other tangible items furnished by, or owned, leased, or licensed by the City. This shall include, but is not limited, to any and all student records, evaluations, reports, IEP, or any other records provided to Contractor under this Agreement. The City shall have the right to withhold any payment due to Contractor until said documents have been returned to the City of Waterbury.

15. Subcontracting.

15.1. The Contractor shall not, without the prior written approval of the City, subcontract, in whole or in part, any of Contractor's services.

15.2. The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by Contractor.

16. Assignability. The Contractor shall not assign any interest in this Agreement, and shall not transfer any interest in the same (whether by assignment or novation) without the prior written approval of the City; provided, however, that claims for money due or to become due Contractor from the City under this Agreement may be assigned to a bank, trust, company, or other financial institution, or to a Trustee in Bankruptcy, without such approval. Notice of any such assignment or transfer shall be furnished promptly to the City.

17. Audit. The City reserves the right to audit Contractor's books of account in relation to this Agreement any time during the period of this Agreement or at any time during the twelve month period immediately following the closing or termination of this Agreement, or as required by the grant. In the event the City elects to make such an audit, Contractor shall immediately make available to the City all records pertaining to this Agreement, including, but not limited to, documentation of the type, frequency and duration of all services provided to each student, student records including staff records relating to the student, payroll records, bank statements and canceled checks.

18. Interest of City Officials. No member of the governing body of the City, and no other officer, employee, or agent of the City who exercises any functions or responsibilities in connection with the carrying out of this Agreement, shall have any personal interest, direct or indirect, in this Agreement.

19. Prohibition against Gratuities and Kickbacks.

19.1. No person shall offer, give, or agree to give any current or former public official, employee or member of a board or commission, or for such current or former public official, employee or member of a board or commission to solicit, demand, accept or agree to accept from another person a gratuity or an offer of employment in connection with any: decision; approval; disapproval; recommendation; preparation of any part of a program requirement or a requisition; influencing the content of any specification or procurement standard; or rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter pertaining to any program requirement or a contract or purchase order, or to any solicitation or proposal therefore.

19.2. No person shall make any payment, gratuity, or offer of employment as an inducement for the award of a subcontract or order, by or on behalf of a subcontractor, the prime contractor or higher tier subcontractor or any person associated therewith, under contract or purchase order to the City.

19.3. Upon showing that a subcontractor made a kickback to the City, a prime contractor or a higher tier subcontractor in connection with the award of a subcontract or order thereunder, it shall be conclusively presumed that the amount thereof was included in the price of the subcontract or order and ultimately borne by the City and will be recoverable hereunder from the recipient. In addition, said value may also be recovered from the subcontractor making such kickbacks. Recovery from one offending party shall not preclude recovery from other offending parties.

19.4. The value of anything transferred or received in violation of the provisions of this Chapter or regulations promulgated hereunder by any person subject to this Chapter may be recovered by the City.

19.5. The Contractor, and all subcontractors if applicable, shall perform the work in accordance with all applicable laws and requirements, whether or not covered by the contract documents forming a part of this Agreement, including but not limited to the following City Ordinances: prohibition against gratuities (§39.042(A) of the Ethics Ordinance) and prohibition against kickbacks (§39.042(B) of the Ethics Ordinance). The value of anything transferred or received in violation of the provisions of this Chapter or regulations promulgated hereunder by any person subject to this Chapter may be recovered by the City. Upon showing that a subcontractor made a kickback to the City, a prime contractor or a higher tier subcontractor in connection with the award of a subcontract or order thereunder, it shall be conclusively presumed that the amount thereof was included in the price of the subcontractor order and ultimately borne by the City and will be recoverable hereunder from the recipient. In addition, said value may also be recovered from the subcontractor making such kickbacks. Recovery from one offending party shall not preclude recovery from other offending parties.

20. **Prohibition Against Contingency Fees.** The Contractor hereby represents that it has not retained anyone to solicit or secure a contract with the City upon an agreement or understanding for a commission, percentage, brokerage or contingency fee.
21. **City of Waterbury's Ethics Code Ordinance.** The Contractor hereby acknowledges receipt of the City of Waterbury's Ordinance regarding Ethics and Conflicts of Interest and has familiarized itself with said Code.
22. **Entire Agreement.** This Agreement shall constitute the complete and exclusive statement of the contract between the parties as it relates to this transaction and supersedes all previous agreements and understandings, whether written or oral, relating to such subject matter. Any amendment to this Agreement must be in writing and agreed to by the City and Contractor.
23. **Independent Contractor Relationship.** The relationship between the City and Contractor is that of client and independent Contractor. No agent, employee, or servant of Contractor shall be deemed to be an employee, agent or servant of the City. Contractor shall be solely and entirely responsible for its acts and the acts of its agents, employees, servants and subcontractors during the performance of this Agreement.
24. **Severability.** Whenever possible, each provision of this Agreement shall be interpreted in such a manner as to be effective and valid under applicable law. If any provision of this Agreement, however, is held to be prohibited or invalid under applicable law, such provision shall be deemed restated to reflect the original intentions of the parties, as nearly as possible in accordance with applicable law, and if capable of substantial performance, the remaining provisions of this Agreement shall be enforced as if this Agreement was entered into without an invalid provision.
25. **Survival.** Any provisions of this Agreement that impose continuing obligations on the parties shall survive the expiration or termination of this Agreement for any reason.
26. **Disputes; Legal Proceedings and Continued Performance.** Notwithstanding any such claim, dispute or legal action, Contractor shall continue to perform services under this Agreement in a timely manner, unless otherwise directed by the City.
27. **Binding Agreement.** The City and Contractor each bind themselves and their successors, assigns and legal representatives to the other party to this Agreement and to the successors, assigns and legal representatives of such other party with respect to all covenants of this Agreement.
28. **Waiver.** Any waiver of the terms and conditions of this Agreement by either of the parties hereto shall not be construed to be a waiver of any other term or condition of this Agreement.
29. **Governing Laws.** This Agreement, its terms and conditions and any claims arising therefrom shall be governed by the laws of the State of Connecticut.

IN WITNESS WHEREOF, the parties hereto execute this Agreement on the dates signed below.

WITNESSES:

CITY OF WATERBURY

Print name

By: _____

Neil M. O'Leary
Mayor, City of Waterbury, Duly authorized

Print name

Date: _____

WITNESSES:

BEN BRONZ ACADEMY

Gail Lanza
Print name

By: Gail Lanza

exec. dir., Duly authorized

Print name

Date: 10/14/22

SCHEDULE "A"
Yearly Rate Schedule
City of Waterbury
And
Ben Bronz Academy
(Consisting of pages)

2022 - 2023 School Calendar
Special Education rate per year

ATTACHMENT A

Rate Schedule
City of Waterbury
and
Ben Bronz

2022-2023

Student Name: _____

of Days attending: 180

Annual Tuition:

\$63,756.00 Per Diem

Tuition rate:

Total annual SLP cost: \$4,000.00

Total Annual Cost: \$67,756.00



WATERBURY
PUBLIC SCHOOLS

TO BE ADDED #4B

Miguel A. Pabón
Director of Pupil Services
(203) 346-3505
miguel.pabon@waterbury.k12.ct.us

February 2, 2023

Board of Education
Board of Alderman

Re: Approval of Agreement between the City of Waterbury and Yale University, Cedarhurst School

Dear Honorable Board of Education and Board of Aldermen:

I respectfully request approval of the attached agreement between the City of Waterbury and Yale University, Cedarhurst. Cedarhurst School is an approved private special education placement for students with special needs. Our department is seeking approval of this agreement in order to provide special education services to identified students with disabilities, in accordance with their Individual Education Plan (IEP).

The Director of Purchasing has reviewed and allowed this agreement, finding that it is a sole source procurement under Section 38.026 (B) (5) of the procurement process.

This agreement is subject to approval of non-substantive changes by the Office of the Corporation Counsel. The term of this agreement shall be for three fiscal years commencing July 1, 2022 through June 30, 2025. The total amount for this 3-year agreement is \$208,440.00 and is paid for with general funds. A tax clearance and all requisite city compliance documents have been or will be obtained.

I appreciate your consideration in this regard, and respectfully request approval of this agreement.

Respectfully Submitted,

Miguel Pabón
Director of Pupil Services

Enc. Agreement between the City of Waterbury and Yale University, Cedarhurst School

**AGREEMENT
BETWEEN
CITY OF WATERBURY
AND
YALE UNIVERSITY, ON BEHALF OF ITS CEDARHURST SCHOOL**

THIS AGREEMENT, (“Agreement”) effective on the date signed by the Mayor (the “Effective Date”), is by and between the City of Waterbury, City Hall, 235 Grand Street, Waterbury, Connecticut, 06702, (“City”), and the Yale University, on behalf of its Cedarhurst School, an educational institution doing business at 871 Prospect Street, Hamden, Connecticut 06517 (“Contractor”).

WHEREAS, Contractor is a private education institution specializing and licensed in the education of children with disabilities;

WHEREAS, the educational needs of the students covered by this Agreement cannot be met with public school arrangements;

WHEREAS, Contractor is willing to provide educational services to identified City of Waterbury students in accordance with each student’s Individual Education Program (IEP), by providing education to children with disabilities, placed in its facility for non-residential reasons, by the Waterbury Board of Education; and

WHEREAS, the City is desirous of having the Contractor perform said educational services for the City.

NOW THEREFORE, it is mutually agreed as follows:

1. Scope of Services.

1.1. Contractor hereby agrees to provide a special education program, including instruction and related services, suitable for those children to be served (the “student”) to be served in accordance with the Connecticut General Statutes, the Individuals with Disabilities Education Act (“I.D.E.A.”), and their respective regulations, and the student’s IEP as developed by the City and the Planning and Placement Team (PPT), which IEP is incorporated herein by reference as if fully set forth herein. Each student’s IEP contains a description of the student’s educational program, supports and related services the student is to receive, a statement of goals and objectives relating to the student, and an estimated time schedule for returning the child to the community or transferring such student to another appropriate facility. Contractor shall provide conferences with parents and report to the City when required by the student’s IEP, by Section 10-76d of the Connecticut General Statutes or when necessary, regarding the progress of the child.

1.2. Contractor agrees to provide the educational program, supports and related services, as approved by the City and identified in the student's IEP by the Planning and Placement Team (PPT). All other activities will be the responsibility of the Contractor, unless otherwise set forth in this Agreement.

1.3. The City shall provide the Contractor with information needed to access appropriate IEP Systems, including but not limited to CT-SEDS, or the current electronic IEP system utilized by Waterbury Public Schools. The School agrees to complete the IEP, as revised and effective July 1, 2022, and update as required to include the following:

1.3.1. Present level of performance

1.3.2. Transition Planning (as appropriate)

1.3.3. Goals and objectives

1.3.4. Program Accommodations

1.4. The Contractor shall hold and attend PPT meetings as needed, but at a minimum, on an annual basis. It shall be the responsibility of the City to notify all necessary participants of any PPT meeting, which shall include a representative from the City and a representative from Contractor. A PPT meeting may be held via a telephone conference as required by the City. At Contractor's discretion, representatives of the Contractor may attend meetings via audiovisual technology.

1.5. Contractor shall provide the City with monthly reports of the attendance of each child at Contractor's facility along with documentation of the specific services and frequency of services rendered to students under this Agreement. Said reports may be reviewed by the City and reconciled to the services to be provided under this Agreement. Student attendance reports shall accompany the Contractor's billing.

1.6. Contractor shall not withdraw any child from the program without a PPT meeting.

1.7. The parties agree to review each student's progress and need for services at least yearly, at the student's annual PPT meeting, to determine an estimated time for returning the student to the community or transferring the child to another appropriate facility, if appropriate for the student.

1.8. The Superintendent or designee may, at reasonable times during school hours, conduct periodic site visits at the location where the special education services hereunder are being provided as described in this Section. Contractor shall permit the Superintendent or designee to observe the student in authentic settings, defined as those where the student would generally be found receiving services on a typical school day, with typical levels of staffing and in the general student population. Authentic settings may also include times of remote instruction in the event the Contractor provides hybrid or fully remote instruction due to health and safety concerns related to the COVID-19 pandemic. Contrived observations in which the student is placed in a separate setting for purposes of the City's observation are not permitted.

1.9. Contractor shall immediately notify the child’s parents and/or guardian and the City in the event of an emergency or injury, concerning or involving the child.

1.10. In the event the Contractor cannot provide in-person instruction due to health and safety concerns related to the COVID-19 pandemic, the Contractor shall continue to fully implement the IEP as set forth in this Agreement, through a partially remote (“hybrid”) or fully remote model. The tuition and costs of services as set forth in this Agreement are the same under all three models. In the event the Contractor decides to provide instruction through a fully remote or hybrid model due to health and safety concerns related to the COVID-19 pandemic, the Contractor shall immediately notify the City of its decision, and shall work with the City to develop and implement an individualized Learning Model IEP Implementation Plan (LMIIP) satisfactory to the City. The LMIIP shall continue to implement the student’s IEP including the receipt of all services on the student’s IEP, however, the services may be provided in a manner different than if provided in person.

1.11. Tutors and other related service providers engaged by the City to serve the student may have access to the student at the school, subject to Contractor’s policies and procedures, including, without limitation, those related to COVID-19 restrictions and relating to access to students and activities while at the school, with which City shall ensure tutors and other service providers comply. Without limiting the generality of the foregoing, the City shall ensure that tutors and service providers interact only with the student and not with students from other school districts-

2. Term.

2.1. The term of this Agreement shall be for three fiscal years commencing on July 1, 2022 and terminating on June 30, 2025. The City shall have the option to extend this Agreement for two (2) additional years, upon the same terms and conditions as set forth herein, by giving notice to Contractor sixty (60) days prior to the initial term. No agency or individual can increase the specified number, or length of school days, without the prior approval or authority of the City. If such change is made without the City’s prior approval, it shall be deemed a breach of this Agreement and the City shall have no obligation for payment of said services or further obligation under this Agreement.

3. Payment.

3.1. The City shall pay Contractor an amount up to Two Hundred Eight Thousand Four Hundred Forty-Four Dollars (\$208, 440.00) for the entire three (3) year Agreement term, for the education program, supports and related services properly rendered hereunder, unless this Agreement is sooner terminated as provided herein and in accordance with **Attachment A** entitled “Rate Schedule”. **Attachment A** shall set forth the name of the student, the services to be provided to the student, number of days anticipated to be in attendance and the cost of said service. **Attachment A** is incorporated herein and made a part of this Agreement. The City shall make payment to the following payee and address:

Yale University
Treasury Services, School of Medicine

P.O. Box 208087
333 Cedar Street, I-100 SHM
New Haven, CT 06520-8087

3.2. Each child's tuition or cost for services provided under the Agreement shall be calculated based upon the number of school days between the Board-approved start date and either the date of the exit PPT terminating services with the Contractor or the date of discharge set during the exit PPT, whichever date occurs last. The Contractor shall immediately notify the City if the student is absent from in-person, hybrid, or remote instruction for four (4) days in any one month period or ten (10) days in one year.

3.3. The City may add or delete students, or any services required by each student, at any time as it deems necessary per each student's IEP, as may be amended from time to time as part of the PPT process, thereby increasing or decreasing the number of students placed in the Contractor facility. Accordingly, all rates shall remain as set forth in the current **Attachment A** "Rate Schedule" for each fiscal year, and total compensation will be adjusted according to any addition or removal of students.

3.4. For all the services provided to each child under this Agreement, the City shall pay to Contractor an amount based upon the "Rate Schedule" for that fiscal year. Payment for each child may be changed from time to time based upon each child's individual IEP and services required. Payment to be made by the City shall be for educational costs, supports and related services only.

3.5. The Contractor shall submit the following documentation to the City to support the City submitting claims to the Medicaid School Based Child Health Program administered by the department of Social Services. On a monthly basis, the Contractor will submit daily service logs for the student. If the City utilizes a web-based platform for purposes of claims submissions to Medicaid (e.g., CT-SEDS, Compuclaim, Frontline), the Contractor will complete service logs and monthly progress reports in such web-based applications for students in which those web-based applications indicate that such document is required. The Contractor will not determine Medicaid eligibility of the student. Daily service logs and monthly progress reports will include date and times of services, names, disciplines, and licensing information of the individual providing the services; and shall be signed by the individual(s) who performed and/or supervised the services.

3.6. Contractor shall provide the City with a yearly rate per child as mandated by the State of Connecticut. The daily rate per child shall be calculated by dividing the annual rate by the days each child is required to attend Contractor's program as indicated on each child's IEP. Contractor shall provide the City with a monthly attendance log. City will compensate Contractor for school days as set forth under this Agreement unless the student is withdrawn by the City in accordance with an exit PPT. Further, unless the Planning and Placement Team recommends a change in placement or length of the school day the City shall compensate Contractor in accordance with the day rate schedule attached hereto. In no case will payment be made in excess of the rates approved by the State of Connecticut to schools subject to such rates.

4. Records/Reports.

4.1. The City hereby agrees to provide to Contractor such medical, psychological and educational evaluations, as are available to the City, to determine the appropriateness of the placement of those children with disabilities under this Agreement. It shall be the responsibility of the City, in conjunction with the Planning and Placement Team (PPT), to develop an annual IEP for each student placed at the Contractors facility. Contractor shall provide evaluative reports that may be required to keep the City duly informed concerning the educational needs of children enrolled and to enable the City to make judgments concerning those needs and the desirability of continuing the children in Contractor's program. Contractor and the City hereby agree that medical and psychological records shall not be open to public inspection, in accordance with Section 10-209 of the Connecticut General Statutes, without the written permission of the parent or guardian.

4.2. Intentionally Omitted.

4.3. Intentionally Omitted.

4.4. The Contractor agrees to send to the City monthly a record of the dates on which the student was in actual school attendance or receiving fully remote or hybrid instruction, or if the student is involved in an educational program within a hospital setting, agrees to send to the City each month a record of the number of hours per week of actual educational services which the student has received.

6. Confidentiality/FERPA.

6.1. Contractor shall adhere to all State and Federal Statutes, regulations, and administrative directives of the State of Connecticut Board of Education, Connecticut Department of Education, and Waterbury Board of Education administrative directives which have been provided by City to the Contractor, regarding confidentiality of student records, files, PPTs, and IEPs, and Contractor shall instruct its employees, agents, or anyone performing work on their behalf under the terms of this Agreement to adhere to same.

6.2. Any and all materials contained in City of Waterbury student files that are entrusted to Contractor or gathered by the Contractor in the course of its services shall be maintained confidentially. All information furnished by the City or gathered by Contractor shall be used solely for the purposes of providing services under this Agreement.

6.3. Contractor acknowledges that in the course of providing services under this Agreement, it may come into the possession of education records of City Waterbury students as defined in and governed by Family Educational Rights and Privacy Act ("FERPA", 20 U.S.C. § 1232g) and related regulations (34 C.F.R. § 99). Each party acknowledges that for purposes of this Agreement, Contractor will be designated as a "school official" with "legitimate educational interests" in the "student information," as

those terms have been defined under FERPA and related regulations. Contractor and City shall comply with the requirements of said statute and regulations, as amended from time to time and Contractor agrees to use information obtained from the City or student education records only for the purposes provided in this Agreement. Without the prior written consent of the student's parent or guardian, as required by FERPA, Contractor has no authority to make disclosures of any information from education records, except as may otherwise be permitted by FERPA.

6.4. The Contractor shall use reasonable efforts to ensure that the confidential information in the electronic IEP is maintained and kept secure at all times. The Contractor shall provide access only to those providers who provide services to the identified students and who have been identified as requiring electronic access by the Contractor's Administrator. The Contractor's Administrator shall provide a list of providers identified by them as requiring electronic access to each student's IEP and their respective positions prior to access being given.

7. Criminal Background Check and DCF Registry Check.

7.1. The Contractor shall ensure, and represents to the City, that no employee who will have direct contact with a student pursuant to this Agreement has ever been convicted of a crime or had criminal charges pending against such person. The Contractor shall further ensure, and represents to the City that any person who will have direct contact with a student has submitted to a records check of the Department of Children and Families child abuse and neglect registry established pursuant to Conn. Gen. Stat. §17a-101k, as well as state and national criminal history records checks conducted in accordance with Conn. Gen. Stat. §29-17a, the federal National Child Protection Act of 1993, and the federal Volunteers for Children Act of 1998. The Contractor shall not permit any person with a disqualifying criminal history to have direct contact with a student. The City and Board shall be permitted to rely upon these representations.

8. Representation Regarding Qualifications.

8.1. Contractor hereby represents that it has been duly approved by the Connecticut State Department of Education for the education of children with or without disabilities, as defined by the Connecticut General Statutes and its regulations.

8.2. Contractor hereby represents that it is knowledgeable regarding any and all federal and/or state regulations, policies, procedures, statutes, codes, participant protection and confidentiality, family rights to privacy, protection of pupil rights, local school system policies and procedures, administrative directives of the Connecticut State Board of Education and the State Department of Education.

8.3. Contractor represents that its employees and staff providing services hereunder are licensed and/or certified as required by applicable law to perform the scope of work set forth in this Agreement. Contractor further represents that its employees have the requisite skill, expertise and knowledge necessary to perform the scope of work required under the

terms of this Agreement. Upon request, Contractor shall provide the City with copies of Contractor's license, certification and resumes, as applicable.

8.3.1 Representations Regarding Personnel. Contractor represents that it has or will secure at its own expense, all personnel required to perform the services under this Agreement. Such personnel shall not be employees of or have any contractual relationship with the City, unless use of City employees or of personnel having a contractual relationship with the City is approved in writing. As set forth above, all the services required hereunder shall be performed by Contractor or under its supervision and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under state or local law to perform such services.

8.3.2 The Contractor represents and warrants that it and its employees who may be assigned to perform the Scope of Services set forth in this Agreement have not been convicted of a crime and have no criminal investigation pending. That each of Contractor's employees have submitted to a state and national criminal history records check and a DCF registry check and said results revealed not violations.

9. Debarment. Contractor hereby certifies that it and its principals are not debarred or suspended from doing business as required by Executive Order 12549 and shall provide to the City of Waterbury a signed certificate regarding debarment and suspension.

10. Indemnification.

10.1. Contractor shall indemnify and hold harmless the City, the City's Board of Education and their agents, commissioners, officials and employees from and against all claims, suits, damages, losses, judgments, costs and expenses including attorney's fees arising out of or resulting from the performance of the Contractor's services, caused in whole or in part by any willful or negligent act or omission of Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

10.2. Contractor assumes all risk in the operation of this Agreement, and shall be solely responsible and answerable in damages for all accidents or injuries to person or property, except for the actions or negligence of the City and the Board and their officers, agents or employees. Contractor hereby covenants and agrees to (i) indemnify, (ii) pay the City and Board, their officers, agents, or employees attorney's fees, and (iii) hold harmless the City and Board and their officers, agents or employees from any claims, suits, actions, damages, losses and injury to person or property arising out of the operation of this Agreement and resulting from the negligence or improper conduct of Contractor or any servant, agent or employee thereof, which responsibility shall not be limited to the insurance coverage herein provided.

10.3. In any and all claims against the City, the Board of Education or any of its employees by any employee of Contractor, any subcontractor, anyone directly or indirectly

employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation above, shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any subcontractor under Worker's Compensation Acts, disability benefit acts or other employee benefit acts.

10.4. Contractor expressly understands and agrees that any insurance protection required by this Agreement, or otherwise provided by Contractor, shall in no way limit the responsibility to indemnify, keep and save harmless and defend the City as provided here.

10.5. The City shall indemnify and hold harmless Contractor, and their agents, officials and employees from and against all claims, suits, damages, losses, judgments, costs and expenses including attorney's fees arising out of or resulting from any of the City's obligations under this Agreement, provided that any such claims, suits, damages, losses, judgments, costs or expenses are caused in whole by any willful or negligent act or omission of the City, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable.

10.6. The City assumes all risk with regards to its obligations as set forth in this Agreement, and shall be solely responsible and answerable in damages for all accidents or injuries to person or property, except for the actions or negligence of the Contractor their officers, subcontractors, agents or employees. The City hereby covenants and agrees to hold harmless Contractor and their officers, agents or employees from any claims, suits, actions, damages, losses and injury to person or property arising out the negligence or improper conduct of the City or any servant, agent or employee thereof, which responsibility shall not be limited to the insurance coverage herein provided.

10.7. In any and all claims against Contractor, or any of its employees by any employee of the City, any of the City's subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation above, shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the City or any subcontractor under Worker's Compensation Acts, disability benefit acts or other employee benefit acts.

11. Contractor's Liability Insurance.

11.1. Contractor shall not commence work under this Agreement until all insurance required under this section has been obtained by Contractor and such insurance has been approved by the City, nor shall Contractor allow any subcontractor to commence work on any subcontract until all similar insurance required of any such subcontractor has been so obtained and approved by the City. Insurance shall be provided by insurers, satisfactory to the City and authorized to do business in the State of Connecticut. Contractor shall secure and maintain for the duration of this Agreement, including any amendments hereto, with the City and the Board of Education being named as an additional insured party as respects the negligence of Contractor, the following minimum liability insurance coverage at no cost to the City.

11.2. At no additional cost to the City, the Contractor shall purchase and maintain the insurance coverages set forth below which shall protect the City from claims which may arise out of or result from the Contractor's obligation under this Contract or anyone for whose acts Contractor or subcontractor may be liable.

11.3. Each insurance policy shall state that the insurance company shall agree to investigate and defend the insured against all claims for damages, even if groundless. If any insurance required herein is to be issued or renewed on a claims made form as opposed to an occurrence form, the retroactive date for coverage shall be no later than the commencement date of this Contract and shall provide that in the event of cancellation or non-renewal, the discovery period for insurance claims ("Tail Coverage") shall be available for at least 60 months.

11.3.1 Commercial General Liability Insurance. Coverage with limits of \$1,000,000 per Occurrence/ \$2,000,000 Aggregate/ \$2,000,000 Products Completed Operations Aggregate

11.3.2 Commercial Auto Liability Insurance. Coverage with limits of \$1,000,000 Combined Single Limit Any Auto, all owned and Hired Auto (if no owned autos then Hired & Non-owned Auto Liability coverage should be procured);

11.3.3 Worker's Compensation Insurance in accordance with the State of Connecticut's Worker's Compensation Laws; Employer Liability (EL):

\$1,000,000 EL Each Accident
\$1,000,000 EL Disease each Employee
\$1,000,000 EL Disease Policy Limits

11.3.4 Professional Liability/Errors and Omissions. Coverage for the acts and/or omissions of any professional, if applicable, in the amount of at least \$1,000,000 each Wrongful Act /\$1,000,000 Aggregate.

11.3.5 Excess/Umbrella Liability Insurance: Coverage with limits of \$1,000,000 per Occurrence/ \$1,000,000 Aggregate

11.3.6 Abuse & Molestation Liability. Coverage with limits of \$ 1,000,000 per Occurrence / \$1,000,000 Aggregate

11.3.7 Certificates of Insurance. Contractor will, prior to the execution of this Agreement, provide the City with Certificates of Insurance and access to a memorandum of insurance. Said policies shall include the City and the Board of Education as additional insured, as respects the negligence of Contractor, on all lines of coverage except Automobile Liability, Professional Liability and Workers Compensation. The insurance afforded the addition insured shall be primary and non-contributory insurance and the coverage and limits provided under the

Consultant's policies shall not be reduced or prorated by the existence of any other insurance applicable to any loss the additional insured may have suffered. **The Certificates of Insurance must read: "The City of Waterbury and the Waterbury Board of Education are listed as additional insureds on a primary and non-contributory basis on all policies except Workers Compensation and Professional Liability as their interest may appear."**

Such certificate(s) shall be subject to approval by the City's Risk Manager. Contractor shall provide replacement and/or renewal certificates/memorandum within ten (10) days of expiration of the policy(ies). Said certificates shall contain a provision that coverage afforded under the policies shall not be cancelled or reduced for any reasons unless notice of no less than thirty (30) days has been mailed to:

City of Waterbury
Attn: Education Dept.,
Chief Operating Officer, 3rd Floor
236 Grand Street
Waterbury, CT 06702

Notwithstanding the above, Contractor retains the right, at its sole option, to self-insure any of the insurance required under this provision.

11.3.8 Failure to Maintain Insurance. In the event Contractor fails to maintain the minimum required coverage as set forth herein, the City may, at its option, purchase same, and invoice or offset Contractor's invoices for the cost of said insurance, or the City and Board may terminate this Agreement immediately upon information of no insurance coverage.

12. Discriminatory Practices.

12.1. In performing this Agreement, Contractor shall not discriminate against any employee or applicant for employment, with respect to his or her hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, sex, age, religious creed, disability, national origin or ancestry, marital status, family status, prior psychiatric treatment, health care, military status or source of income or because of a handicap that is unrelated to the employee's or the applicant's ability to perform the duties of a particular job or position. Subcontracts with each subcontractor shall contain a provision requiring non-discrimination in employment as herein specified. This covenant is required pursuant to §93.04 of the Code of Ordinances of the City and any breach thereof may be regarded as a material breach of this Agreement. Said provisions with subcontractors shall require conformity and compliance with all local, state and federal laws, rules and regulations and Executive orders pertaining to discrimination and equal opportunity requirements.

12.2. The Contractor shall admit any eligible child and shall not discriminate against any child regardless of race, religion, color, ancestry, natural origin, sex, handicap or disability.

12.2.1 Equal Opportunity. In its execution of the performance of this Agreement, Contractor shall not discriminate and shall comply with applicable laws prohibiting discrimination on the grounds of race, color, religion, sex, national origin or citizenship status, age or handicap. Contractor agrees to comply with all local, state and federal laws, rules and regulations and Executive orders pertaining to discrimination and equal opportunity requirements, and will require the same of all subcontractors.

13. Termination.

13.1. Termination of Agreement for Cause. If, through any cause, either party shall fail to fulfill in timely and proper manner its obligations under this Agreement, or if either party shall violate any of the covenants, agreements, or stipulations of this Agreement, the other party shall thereupon have the right to terminate this Agreement by giving written notice to such party of such termination and specifying the effective date thereof, at least ten (10) days before the effective date of such termination, unless the cause is cured during such ten (10) day period.

13.2. Notwithstanding the above, Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any breach of this Agreement by Contractor, and the City may withhold any payments not in dispute and/or services have been accepted by the City, to Contractor for the purpose of setoff until such time as the exact amount of damages due the City from Contractor is determined.

13.3. Termination for Convenience. Either the Contractor or the City may terminate this Agreement at any time for convenience, by a notice in writing to the other party.

13.4. Termination for Lack of Funding. The Contractor acknowledges that the payment obligations of the City under this Agreement are intended to be funded by the City through General Fund appropriations, federal or state assistance or grant monies provided by the federal or state governments as well as the sale of tax exempt long and short term debt obligations issued by the City. Contractor acknowledges that continuation of this Agreement is subject to the lawful continual appropriation of funds by the City, State or Federal government, including the funding of grants for the purpose of this Agreement. Moreover, this Agreement may also be subject to the ability of the City to legally issue and sell the aforementioned debt obligations, (as determined by opinion of bond counsel and or the Internal Revenue Service) and to do so in a commercially viable manner, and is furthermore subject to the lawful continual appropriation of funds by the City, State or Federal government. Contractor therefore agrees that the City and Board shall have the right to terminate this Agreement in whole or in part without penalty in the event that: (1) the City is unable to issue the debt obligations for sale because of a legal infirmity as otherwise determined by Bond counsel or the Internal Revenue Service; or, (2) the City is unable to market and or timely sell the required amount of debt obligations required to fund

the Agreement in whole or in part, or, (3) the money required to enable the City to pay Contractor is either not appropriated, authorized or made available pursuant to law, or such funding appropriations have been reduced pursuant to law.

13.5. The Contractor therefore agrees that the City shall have the right to terminate this Agreement in whole or in part without penalty in the event that the money required to enable the City to pay Contractor is either not appropriated, authorized or made available pursuant to law, or such funding appropriations or grant monies have been reduced pursuant to law.

13.5.1 Effects of Nonappropriation. If funds to enable the City to effect continued payment under this Agreement are not appropriated, authorized or otherwise made available by law, the City shall have the right to terminate this Agreement without penalty at the end of the last period for which funds have been appropriated, authorized or otherwise made available by law by giving written notice of termination to Contractor.

13.5.2 No Payment for Lost Profits. In no event shall the Board or the City be obligate to pay or otherwise compensate Contractor for any lost or expected future profits.

13.6. Notwithstanding the expiration or termination of this Agreement for any reason, the City shall pay Contractor with respect to the student's enrollment in the school prior to the expiration or termination of this Agreement.

14. Delivery of Documents. In the event of termination or fulfillment of this Agreement, or at any point that each individual student no longer receives services at Contractor, upon written request of the City, Contractor shall promptly deliver to the City, in a manner reasonably specified by the City, all documents and other tangible items furnished by, or owned, leased, or licensed by the City. This shall include, but is not limited, to any and all student records, evaluations, reports, IEP, or any other records provided by City to Contractor under this Agreement. The City shall have the right to withhold any payment due to Contractor until said documents have been returned to the City of Waterbury.

15. Subcontracting.

15.1. The Contractor shall not, without the prior written approval of the City, subcontract, in whole or in part, any of Contractor's services.

15.2. The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by Contractor.

16. Assignability. The Contractor shall not assign any interest in this Agreement, and shall not transfer any interest in the same (whether by assignment or novation) without the prior written approval of the City; provided, however, that claims for money due or to become

due Contractor from the City under this Agreement may be assigned to a bank, trust, company, or other financial institution, or to a Trustee in Bankruptcy, without such approval. Notice of any such assignment or transfer shall be furnished promptly to the City.

17. **Audit.** The City reserves the right to audit Contractor's books of account in relation to this Agreement any time during the period of this Agreement or at any time during the twelve month period immediately following the closing or termination of this Agreement, or as required by the grant. In the event the City elects to make such an audit, Contractor shall immediately make available to the City all records pertaining to this Agreement, including, but not limited to, documentation of the type, frequency and duration of all services provided to each student, student records including staff records relating to the student, payroll records, bank statements and canceled checks. Any audit provided hereunder shall be upon ten (10) business days' notice and performed at reasonable times during school hours, unless otherwise agreed to by the Contractor. City shall be permitted to conduct no more than two (2) audits under this Section, in addition to any audits as may otherwise be required by the grant.
18. **Interest of City Officials.** No member of the governing body of the City, and no other officer, employee, or agent of the City who exercises any functions or responsibilities in connection with the carrying out of this Agreement, shall have any personal interest, direct or indirect, in this Agreement.
19. **Prohibition against Gratuities and Kickbacks.**
 - 19.1. No person shall offer, give, or agree to give any current or former public official, employee or member of a board or commission, or for such current or former public official, employee or member of a board or commission to solicit, demand, accept or agree to accept from another person a gratuity or an offer of employment in connection with any: decision; approval; disapproval; recommendation; preparation of any part of a program requirement or a requisition; influencing the content of any specification or procurement standard; or rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter pertaining to any program requirement or a contract or purchase order, or to any solicitation or proposal therefore.
 - 19.2. No person shall make any payment, gratuity, or offer of employment as an inducement for the award of a subcontract or order, by or on behalf of a subcontractor, the prime contractor or higher tier subcontractor or any person associated therewith, under contract or purchase order to the City.
 - 19.3. Upon showing that a subcontractor made a kickback to the City, a prime contractor or a higher tier subcontractor in connection with the award of a subcontract or order thereunder, it shall be conclusively presumed that the amount thereof was included in the price of the subcontract or order and ultimately borne by the City and will be recoverable hereunder from the recipient. In addition, said value may also be recovered from the

subcontractor making such kickbacks. Recovery from one offending party shall not preclude recovery from other offending parties.

19.4. The value of anything transferred or received in violation of the provisions of this Chapter or regulations promulgated hereunder by any person subject to this Chapter may be recovered by the City.

19.5. The Contractor, and all subcontractors if applicable, shall perform the work in accordance with all applicable laws and requirements, whether or not covered by the contract documents forming a part of this Agreement, including but not limited to the following City Ordinances: prohibition against gratuities (§39.042(A) of the Ethics Ordinance) and prohibition against kickbacks (§39.042(B) of the Ethics Ordinance). The value of anything transferred or received in violation of the provisions of this Chapter or regulations promulgated hereunder by any person subject to this Chapter may be recovered by the City. Upon showing that a subcontractor made a kickback to the City, a prime contractor or a higher tier subcontractor in connection with the award of a subcontract or order thereunder, it shall be conclusively presumed that the amount thereof was included in the price of the subcontractor order and ultimately borne by the City and will be recoverable hereunder from the recipient. In addition, said value may also be recovered from the subcontractor making such kickbacks. Recovery from one offending party shall not preclude recovery from other offending parties.

- 20. Prohibition Against Contingency Fees.** The Contractor hereby represents that it has not retained anyone to solicit or secure a contract with the City upon an agreement or understanding for a commission, percentage, brokerage or contingency fee.
- 21. City of Waterbury's Ethics Code Ordinance.** The Contractor hereby acknowledges receipt of the City of Waterbury's Ordinance regarding Ethics and Conflicts of Interest and has familiarized itself with said Code.
- 22. Entire Agreement.** This Agreement shall constitute the complete and exclusive statement of the contract between the parties as it relates to this transaction and supersedes all previous agreements and understandings, whether written or oral, relating to such subject matter. Any amendment to this Agreement must be in writing and agreed to by the City and Contractor.
- 23. Independent Contractor Relationship.** The relationship between the City and Contractor is that of client and independent Contractor. No agent, employee, or servant of Contractor shall be deemed to be an employee, agent or servant of the City. Contractor shall be solely and entirely responsible for its acts and the acts of its agents, employees, servants and subcontractors during the performance of this Agreement.
- 24. Severability.** Whenever possible, each provision of this Agreement shall be interpreted in such a manner as to be effective and valid under applicable law. If any provision of this Agreement, however, is held to be prohibited or invalid under applicable law, such provision shall be deemed restated to reflect the original intentions of the parties, as nearly

as possible in accordance with applicable law, and if capable of substantial performance, the remaining provisions of this Agreement shall be enforced as if this Agreement was entered into without an invalid provision.

25. **Survival.** Any provisions of this Agreement that impose continuing obligations on the parties shall survive the expiration or termination of this Agreement for any reason.
26. **Disputes; Legal Proceedings and Continued Performance.** Notwithstanding any such claim, dispute or legal action, Contractor shall continue to perform services under this Agreement in a timely manner, unless otherwise directed by the City.
27. **Binding Agreement.** The City and Contractor each bind themselves and their successors, assigns and legal representatives to the other party to this Agreement and to the successors, assigns and legal representatives of such other party with respect to all covenants of this Agreement.
28. **Waiver.** Any waiver of the terms and conditions of this Agreement by either of the parties hereto shall not be construed to be a waiver of any other term or condition of this Agreement.
29. **Governing Laws.** This Agreement, its terms and conditions and any claims arising therefrom shall be governed by the laws of the State of Connecticut.

[Signature Page to Follow]

IN WITNESS WHEREOF, the parties hereto execute this Agreement on the dates signed below.

WITNESSES:

CITY OF WATERBURY

Print name

By: _____
Neil M. O’Leary
Mayor, City of Waterbury, Duly authorized

Print name

Date: _____

**YALE UNIVERSITY, ON BEHALF OF
ITS CEDARHURST SCHOOL**

CEDARHUST SCHOOL

By: _____
Arnim E. Dontes
Deputy Dean, Finance & Administration
Yale School of Medicine

By: _____
Katharine Clemens
Administrative Officer

Date: _____

SCHEDULE “A”



Waterbury Public Schools

Office of Competitive Grants

Louise Allen Brown, J.D., M.P.A., Grant Writer

January 26, 2023

Honorable Board of Education
City of Waterbury
236 Grand Street
Waterbury, CT 06702

Re: PEGPETIA Grant 2023– CT DEEP/PURA

Dear President Sweeney and Board of Education Commissioners:

The Connecticut Department of Energy and Environmental Protection (DEEP), Public Utilities Regulatory Authority (PURA), has announced a new round of Public Educational and Governmental Programming and Education Technology Investment Account (PEGPETIA) Grants. The proposals selected by DEEP for funding must address the State's educational technology goals.

The school district will seek grant funding to upgrade the fiber backbone at the Waterbury Arts Magnet School (WAMS). While the district has upgraded the school's network equipment to support 10GB+, it has not upgraded the fiber backbone at WAMS. According to the district's Management, Information & Technology Supervisor (W. Zhuta), "...While the installed network equipment could support faster speeds, the communications infrastructure cabling supporting the equipment could not. The benefits of the upgraded network equipment would only be achieved by having the backbone cabling upgraded to support 10GB..." The new fiber optic cable will meet or exceed network upgrades for many years. For this reason, the fiber optic cable is a good investment. "With faster internet speeds and more reliable connectivity, students will have access to a broader range of educational resources and can complete assignments and participate in online classes [and testing] more efficiently."

Waterbury proposes to install fiber optic cable at WAMS, thereby improving both access and high speed connectivity for students and teachers. The total amount of the grant application request will be approximately \$45,000. No matching funds are required.

The grant application must be submitted within the application window which is open now, and closes February 28, 2023. I respectfully request your permission to apply for this PEGPETIA grant.

Very truly yours,

Louise Allen Brown

Louise Allen Brown, Grant Writer

cc: Dr. Verna D. Ruffin
Rosh Maghfour
Doreen Biolo
Will Zhuta

**Public Educational and Governmental Programming and Education Technology
Investment Account (PEGPETIA) Grant Program
CT Dept. of Energy & Environmental Protection, Public Utilities Regulatory Authority (PURA)
January 27, 2023
Louise Allen Brown**

Grant Highlights

Program Purpose: The purpose of the PEGPETIA grant is “to promote and improve public, educational and governmental (PEG) access programming in Connecticut....The PEGPETIA account is funded exclusively through a tax on the gross earnings of television and video service providers in Connecticut. The Authority was directed to make available fifty percent of the funds in the PEGPETIA account to local community antenna television and video advisory councils; the state-wide video advisory council; PEG programmers and PEG studio operators to subsidize capital and equipment costs related to PEG programming. The Authority was further directed to make the other fifty percent available to boards of education and other education entities for education technology initiatives....” [RFP]

Eligible Applicants: Eligible applicants for “education technology initiative grants” include “a. Board of Education; b. Public library; or c. Other education entity.

Grant Amount: up to \$150,000. (or larger for “large capital equipment investments or initiatives that will have a substantial impact on a broad segment of subscribers and/or students.”) [RFP]

Matching Funds: none required

Application Window: November 1, 2022 to February 28, 2023

Program Requirement:

Guidance issued by the CT PURA since the release of the grant RFP requires that applicants must indicate how their project satisfies one or more of the State education technology goals articulated in CGS Sec. 4d-80(c)(2) and the State Education Technology Goals (2017).

Proposed Project:

The Waterbury proposed project addresses CGS Sec. 4d-80(c)(2)(B): “Wiring all school classrooms and connecting them to the Internet and to the state-wide high speed network through wired, wireless, or any other digital transmission technology providing high speed connectivity.”

Specifically, Waterbury will upgrade the fiber optic backbone at Waterbury Arts Magnet School (WAMS), to support 10GB. According to the WPS Supervisor of Management Information, & Technology (W. Zhuta), the proposed project will facilitate full utilization of network equipment already upgraded to support 10GB+. Users at the school will gain a better experience through a better performing network. This project will improve educational technology at the school which supports personalized learning, collaboration, and communication—vital factors in improving student outcomes. Investing in this upgrade will be critical in ensuring that the school district provides students with the best possible education and prepares them for success in the digital age.

Budget: The budget for the proposal will approximate \$45,000. No matching funds are required. The project costs are estimated below:

Proposal Cost Estimate*	\$44,822.
<p><u>Materials</u></p> <ul style="list-style-type: none">• 2000' - 24 strand 10gig om4 armored fiber• 8 - fiber trays for each closet• 8 - 6 pack termination strips• 1 - fiber tray in main closet too house all 8 closets• 4 - 12 pack termination strips for main closet (to house all closets)• 96 - LC fiber connectors• hangers and misc. parts/any fire caulk/sleeves• labor to run fiber to all closets, including O/T (60)• labor to terminate test, label fiber on both ends (48) <p><u>Labor</u></p> <p>24 strand 10gig om4 armored fiber / run from main data room to 4 closets on either side of campus/fiber to loop through closets with 6 strand dropping off at each closet. Terminated with LC connectors and housed in fiber tray / tested and labeled.</p>	
<p>*Bid process will be followed upon grant award. Materials and Labor needed for the project will be finalized at the time the procurement process is initiated.</p>	

Memorandum

To: Board of Aldermen

From: Will Zhuta, Director of Technology, Department of Education
Dan Barry, Director of Security, Department of Education

Date: January 23, 2023

Re: Board of Education and Board of Aldermen Approval Request /
Executive Summary - *Contract Amendment for School Security Video
Surveillance and Access Control*

The Department of Education Computer Technology Center respectfully requests your approval of the above-referenced contract amendment for School Security Video Surveillance and Access Control between the City of Waterbury and Environmental Systems Corporation. The contract amendment request is to expand the scope of service to provide additional measures to increase safety and security on the school grounds by adding cameras in areas of need.

Environmental Systems Group was awarded an initial \$1,868,892.76 contract on May 13, 2022. The total amendment compensation is \$576,134.00. For a revised total contract amount of \$2,445,026.76.

This contract was initiated under the Request for Proposal (RFP #7221).

This amendment will allow the Waterbury Public Schools to continue to work with an experienced certified integrator who can meet the complex requirements of the current school security system for the following 14 schools: Walsh Elementary, Bunker Hill Elementary, Wilby High School, Crosby High School, Reed Pre-K- 8 School, Bucks Hill-Annex, Duggan Pre-K- 8 School, Regan Elementary, State Street School, Wallace M.S., West Side M.S., Washington Elementary, Chase Elementary, and Hopeville Elementary.

Accordingly, attached for your review and consideration are 6 copies of the proposed contract, plus the Vendor Award letter as prepared by the Purchasing Department, the Successful Bidder's Bid Form and Disclosure and Certification of Obligations Affidavit Regarding Outstanding Obligation, plus a copy of the Tax Clearance issued by the Office of Tax Collections.

Please note that one complete set of Documents, including Contracts, Plans, and Specifications, has been placed on file with the City Clerk's Office.

Thank you.

AMENDMENT #3
to the
CONTRACT (RFP #7221)
for
School Security Video Surveillance &
Access Control System Expansions and Upgrades
between
City of Waterbury
and
Environmental Systems Corp.

THIS AMENDMENT (“Amendment #3”) effective on the date signed by the Mayor, is by and between the CITY OF WATERBURY (the “City”), located at City Hall, 235 Grand Street, Waterbury, Connecticut 06702 and Environmental Systems Corp. (“Contractor” or “ESC”) with a principal business location at 18 Jansen Court, West Hartford, Connecticut 06110, a State of Connecticut duly registered domestic corporation (jointly referred to as the “Parties” to the Agreement).

WHEREAS, the City applied for, and was awarded, grant funding under the “School Security Competitive Grant Program” (DEMHS Grant # 018S151A) from the State of Connecticut Department of Emergency Services and Public Protection, Division of Emergency Management and Homeland Security; and

WHEREAS, the Contractor submitted a proposal to the City in response to Request for Proposal (“RFP”) Number 7221 for School Security Video Surveillance & Access Control System Expansions and Upgrades and the City selected the Contractor; and

WHEREAS, the City and Contractor entered into an Agreement on May 13, 2022, to perform the services regarding RFP No. 7221 (the “Agreement” or “Contract”); and

WHEREAS, the City and Contractor amended the Agreement effective August 10, 2022, (“Amendment #1”) to extend the completion of the services to October 1, 2022; and

WHEREAS, the City and Contractor amended the Agreement for a second time effective September 29, 2022 (“Amendment #2”) to extend the completion of the services to February 28, 2023; and

WHEREAS, in accordance with Section 23 of the Agreement, the Parties agree to amend the Agreement for a third time to provide for an extension of time and equipment for additional schools and additional compensation, accordingly; and

NOW THEREFORE, it is mutually agreed to amend the Agreement as follows:

- 1. Section 1.1 of the Agreement under “Scope of Services” (not including subsections thereto) shall be amended to include Phase 3 & 4 Camera Addition for card access and cameras to**

14 schools. Therefore, Section 1.1 shall be deleted in its entirety and replaced with the following:

1.1. The Project consists of, and the Contractor shall provide, all materials, equipment, labor, installation, and services for the School Security Video Surveillance & Access Control System Expansions and Upgrades Project, including for Phase 3 & 4 Camera Addition, at the following Waterbury Public Schools (WPS):

SCHOOL	ADDRESS	Type
Adult Education	11 Draher Street	Pre-K - 8 School
Bucks Hill School*	330 Bucks Hill Road	Elementary School
Bunker Hill School*	170 Bunker Hill Avenue	Elementary School
Crosby High School*	300 Pierpont Rd	High School
Chase School*	40 Woodtick Road	Elementary School
Duggan School*	38 W Porter Street	Middle School
Enlightenment School	58 Griggs Street	Special Program
Generali School	3196 East Main Street	Elementary School
Gilmartin School	94 Spring Lake Road	Pre-K - 8 School
Hopeville School*	2 Cypress Street	Elementary School
Maloney School	233 South Elm Street	Elementary School
Reed School*	33 Griggs Street	Pre-K - 8 School
Regan School*	2780 N Main Street	Elementary School
Sprague School	1448 Thomaston Avenue	Elementary School
State Street School*	30A Church Street	Alternative School
Tinker School	809 Highland Avenue	Elementary School
Walsh School*	55 Dikeman Street	Elementary School
Wallace School*	3465 E Main Street	Middle School
Washington School*	685 Baldwin Street	Elementary School
West Side School*	483 Chase Parkway	Middle School
Wilby High School*	460 Bucks Hill Road	High School
Wilson School	235 Birch Street	Elementary School
Waterbury Arts Magnet School	16 South Elm Street	Middle/High School

**Schools part of Phase 3 & 4 Camera Addition, dated January 22, 2023*

The Project consists of, but is not limited to, Training of Central Office and the Administration of each school on the use of each security and camera system. The Contractor will also furnish Milestone Video Surveillance Systems, S2 Access Control Systems, and Phase 3 & 4 Camera Additions including all required cabling, testing, system configuration and work within data rooms, door modifications, installation, coring, and cabling for security, and cameras, programming of pathways, warranties, etc., and all necessary work, services, and parts to be provided and supplied as detailed and described in the RFP/Proposal Documents, including the Phase 3 & 4 Proposal dated January 22, 2023, in Attachment A and are hereby made material provisions of this Contract. Attachment A shall consist of the following, which are attached

hereto, are acknowledged by the Contractor as having been received, or otherwise hereby incorporated by reference as noted below, and all are made a part hereof.

2. **Section 5 of the Agreement “Contract Time” (not including subsections thereto) shall be amended to extend the Contract Time from February 28, 2023 to June 30, 2023. Therefore, Section 5 shall be deleted in its entirety and replaced with the following:**

5. Contract Time. The Contractor shall Substantially Complete all work and services required under this Contract within Ninety (90) consecutive calendar days of the City's written Notice to Proceed and shall reach Final Completion on or before **June 30, 2023** ("Contract Time").

3. **Section 6.1. of the Agreement “Fee Schedule” shall be amended to include \$576,134.00 in additional compensation. Therefore, Section 6.1. shall be deleted in its entirety and replaced with the following:**

6.1. Fee Schedule. Subject to retainage, limitations, etc. set forth below in this Section 6, the fee payable to the Contractor shall not exceed **Two Million Four Hundred Forty-Five Twenty Six Dollars and Seventy-Six Cents (\$2,445,026.76)** (hereafter referred to as "Total Compensation") with the basis for payment being Contractor's Price Proposal, dated March 31, 2022 and Contractor's Phase 3 & 4 Camera Addition Proposal, dated January 22, 2023, as set forth in Attachment A, and as summarized below:

6.1.1	VSS and ACS system furnished and installed, including all upgrades and expansions, in all schools, Amount not to exceed.....	\$1,683,052.00
6.1.2	City Controlled Contingency* Amount not to exceed.....	\$185,840.76
6.1.3	Phase 3 & 4 Camera Addition for card access and cameras for 14 schools as specified in the Phase 3 & 4 Proposal dated January 22, 2023, Amount not to exceed.....	\$576,134.00
Total Compensation.....		\$2,445,026.76

**The City Controlled Contingency, set forth above, shall only be used upon prior written approval from the City/Using Agency.*

4. **Attachment A to this Amendment shall be fully incorporated herein and made part of this Amendment and includes the following:**
1. Contractor's Phase 3 & 4 Camera Addition Proposal, dated January 22, 2023, consisting of 36 pages (excluding Investment and Terms and Conditions), attached hereto.

5. All other terms, conditions, and provisions not specifically amended herein of the Agreement executed on May 13, 2022, as amended, shall remain in full force and effect and binding on the Parties hereto.
6. This Agreement may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the Parties hereto execute this Contract on the dates signed below.

WITNESSES:

CITY OF WATERBURY

Sign: _____
Print name: _____


By: _____
Neil M. O'Leary, Mayor


Sign: _____
Print name: _____

Date: _____

WITNESSES:

ENVIRONMENTAL SYSTEM CORP.

Sign: 
Print name: Ben Denelsky

By:  Michael Mullin
Its: Chief Operating Officer

Sign: _____
Print name: _____

Date: 1.30.2023

ATTACHMENT A to Amendment #3

1. Contractor's Phase 3 & 4 Camera Addition Proposal, dated January 22, 2023, consisting of 36 pages (excluding Investment and Terms and Conditions), attached hereto.



MEMORANDUM

DATE: January 24, 2023

TO: Honorable Board of Aldermen

FROM: Rosh Maghfour, Interim Education Building & Facilities Project Manager

RE: Executive Summary for RFP #77473 Washington and Bunker Hill Elevator Additions with JA Rosa Construction, LLC.

The Education Department respectfully requests your review and approval of a contract for Washington and Bunker Hill Elevator Additions. The contract was initiated under RFP#7473 and JA Rosa was the most qualified responsible bidder.

The total contract amount is \$2,435,667.00 for the two elevator additions. The amount for each school is as follows:

- Bunker Hill Elementary School- \$ 1,330,073.00
- Washington Elevator School- \$1,105,594.00

The project consists of furnishing and installing a new exterior five-stop hydraulic elevator hoist way and a vestibule at Bunker Hill Elementary School and a new three- stop traction hoist way and a vestibule at Washington Elementary School.

The contractor is required to substantially complete the jobs in 220 days and final completion is required in 250 consecutive calendar days of the City's written Notice to Proceed.

Vendor's Disclosure and Tax Clearance are attached. The Education Department will have a representative present at your upcoming meeting to answer any questions you may have regarding this matter.

Thank you for your consideration.

Attachments (3)
c: Mike Konopka, Jerry Gay

**CONSTRUCTION CONTRACT
for**

Washington and Bunker Hill Elevator Additions

between

City of Waterbury

and

J.A. ROSA CONSTRUCTION, LLC

THIS CONTRACT, effective on the date signed by the Mayor, is by and between the CITY OF WATERBURY, City Hall, 235 Grand Street, Waterbury, Connecticut (the "City") and J.A. ROSA CONSTRUCTION, LLC located at 17 TOWN LINE RD, WOLCOTT, CT 06716, a State of Connecticut duly registered domestic limited liability company (the "Contractor").

WHEREAS, the Contractor submitted a Proposal to the City in response to **Request for Proposal ("RFP") Number 7473 for Washington and Bunker Hill Elevator Additions**; and,

WHEREAS, the City accepted the Contractor's Proposal (as subsequently negotiated and revised) for **RFP Number 7473**; and,

WHEREAS, the City desires to obtain the Contractor's services for **Washington and Bunker Hill Elevator Additions** pursuant to the terms set forth in this Contract (the "Project").

NOW THEREFORE, THE PARTIES AGREE AND COVENANT AS FOLLOWS:

1. Scope of Services. The Contractor shall furnish all of the labor, services, equipment, materials, supplies, transportation, and incidentals necessary to complete the Project as specified in this agreement (also referred to herein as "Contract") and such shall be completed in a satisfactory manner, as reasonably determined by the City. All labor, services, equipment, materials, supplies, transportation, and incidentals shall comply with (i) any and all applicable local, state and federal laws, statutes, ordinances, rules and regulations, including without limitation all notice requirements thereunder, and (ii) generally accepted professional standards.

1.1. The Project consists of **Washington and Bunker Hill Elevator Additions** as detailed and described in the Proposal Documents in **Attachment A** and are hereby made material provisions of this Contract. **Attachment A** shall consist of the following, which are

attached hereto, are acknowledged by the Contractor as having been received, or otherwise hereby incorporated by reference as noted below, and all are made a part hereof:

- 1.1.1 RFP Number 7473** (acknowledged by the Contractor as having been received and incorporated by reference);
- 1.1.2 RFP Number 7473 Addendum #1**, dated December 13, 2022 and consisting of 26 pages (attached hereto);
- 1.1.3 RFP Number 7473 Addendum #2**, dated December 14, 2022 and consisting of 1 page (attached hereto);
- 1.1.4 Contractor's Proposal**, dated December 19, 2022 and consisting of 45 pages, submitted in response to **RFP Number 7473** and Contractor's Revised Price Proposal, dated January 17, 2023 and consisting of 1 page (all attached hereto);
- 1.1.5 Annual Statement of Financial Interests; Disclosure and Affidavit Re: Outstanding Obligations to the City; Debarment Certification; Corporate Resolution, Non-Collusive Affidavit** (incorporated by reference);
- 1.1.6 Certificates of Insurance** (attached hereto);
- 1.1.7 Performance Bond and Payment Bond** (attached hereto);
- 1.1.8 Technical Specifications** consisting of 595 pages (attached hereto);
 - 1.1.8.1 June 17, 2022 letter from Facility Support Services to Rosh Mangfour consisting of 3 pages re: Bunker Hill;
 - 1.1.8.1.1 Attachment A – Asbestos Inspection Certificate consisting of 2 pages;
 - 1.1.8.1.2 Attachment B – Laboratory Analytical Results consisting of 8 pages;
 - 1.1.8.2 June 17, 2022 letter from Facility Support Services to Rosh Mangfour consisting of 3 pages re: Washington School;
 - 1.1.8.2.1 Attachment A – Asbestos Inspection Certificate consisting of 2 pages;
 - 1.1.8.2.2 Attachment B – Laboratory Analytical Results consisting of 8 pages;
 - 1.1.8.3 August 22, 2022 letter from Welti Geotechnical P.C. to Friar Architecture consisting of 4 pages re: Bunker Hill School;
 - 1.1.8.3.1 Appendix Boring Log Plan and Test Boring log consisting of 3 pages;
 - 1.1.8.4 August 22, 2022 letter from Welti Geotechnical P.C. to Friar

Architecture consisting of 4 pages re: Washington School;

1.1.8.4.1 Appendix Boring Log Plan and Test Boring log consisting of 3 pages;

1.1.9 Drawings consisting of “Washington Elementary School”, prepared by CES Engineering Svcs, LLC, dated September 1, 2022 and consisting of 49 sheets; and “Bunker Hill Elementary School”, prepared by CES Engineering Svcs, LLC, dated September 1, 2022 and consisting of 51 sheets (attached hereto);

1.1.10 Special Conditions (Article 1 – Article 20) consisting of 6 pages (attached hereto);

1.1.11 General Conditions (Article 1 – Article 114) consisting of 36 pages (attached hereto);

1.1.12 State Wage Rate Documentation (attached hereto);

1.1.13 Any and all amendment(s) and Change Orders issued by the City after execution of Contract (incorporated by reference);

1.1.14 All applicable Federal, State and local statutes, regulations, charter and ordinances (incorporated by reference), and

1.1.15 All permits (including, but not limited to, City of Waterbury Building permit(s)) and licenses (incorporated by reference).

1.2. The entirety of **Attachment A** plus this executed instrument are together deemed the Contract Documents (hereinafter collectively referred to as "Contract Documents"). The City's record copy of the Contract Documents shall control and shall be effective and binding on the Contractor. In the event that any provision in the Contract Documents conflict with any other provision therein, the provision in the component part of the Contract Document first enumerated below shall govern over any other component part which follows it numerically.

1.2.1 Federal laws and regulations

1.2.2 State, and local laws, regulations, charter and ordinances

1.2.3 Contract Amendment(s) and Change Orders

1.2.4 Contract

1.2.5 Contractor's Revised Price Proposal

1.2.6 Special Conditions

1.2.7 General Conditions

1.2.8 Technical Specifications

1.2.9 Drawings

2. Representations Regarding Qualification and Accreditation. The Contractor represents that its employees are licensed to perform the scope of work set forth in this Contract. The Contractor further represents that its employees have the requisite skill, expertise and knowledge necessary to perform the scope of work required under the terms of this Contract, including any supplementary work and the City relies upon Contractor's representations.

2.1. Representations regarding Personnel. The Contractor represents that it has, or will secure at its own expense, all personnel required to perform the services under this Contract. Such personnel shall not be employees of or have any contractual relationship with the City, unless use of City employees or of personnel having a contractual relationship with the City is approved in writing. As set forth above, all the services required hereunder shall be performed by the Contractor or under its supervision and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under state or local law to perform such services.

2.2. Representations regarding Qualifications. The Consultant hereby represents that, to the extent required by Federal, State and Local statutes, regulations, codes, ordinances, and policies that the Consultant and/or its employees be licensed, certified, registered, or otherwise qualified, the Consultant and all employees providing services under this Contract, are in full compliance with those statutes, regulations and ordinances. Upon City request, the Consultant shall provide to the City a copy of the Consultant's licenses, certifications, registrations, etc.

3. Responsibilities of the Contractor. The Contractor agrees to properly implement the services required in the manner herein provided. The Contractor shall, in addition to any other responsibilities set forth in this Contract and the Schedules and Attachments hereto, perform the following coincident with the performance of this Contract:

3.1. Due Diligence Obligation. The Contractor acknowledges its responsibilities to examine and to be thoroughly familiar with the City's bid document, including, but not limited to the plans, specifications, drawings and any addenda thereto. The Contractor hereby warrants and represents that prior to the submission of its proposal during the bid process it reviewed or was afforded opportunity, by the City, to review all physical items, facilities, services and functions essential to the satisfactory performance of the services required ("Due Diligence") and thereby certifies that all such items facilities, services and functions are included in this Contract and thereby warrants that:

3.1.1 it conducted or had opportunity to conduct all due diligence prior to the submission of its bid and, accordingly, any additional costs, services or products resulting from the failure of the Contractor to complete Due Diligence prior to submission of its bid proposal shall be borne by the Contractor. Furthermore,

the Contractor had the opportunity during the bid process to ask questions it saw fit and to review the responses from the City;

3.1.2 its failure or omission to make investigation and verification of data shall, in no way, be cause for future claim of ignorance of such data or conditions nor shall such failure to investigate and verify be the basis for any claim whatsoever, monetary or otherwise;

3.1.3 it is solely responsible for resolving any issues resulting from its failure to conduct due diligence and it shall assume any and all resulting costs it incurs during the Project;

3.1.4 it was responsible for specifying any changes and disclosing any associated new costs prior to submittal of its bid. In the event the Contractor failed to disclose any such new cost prior to the submittal of its bid, the Contractor hereby covenants that it shall remain solely responsible for, and shall absorb, those non-disclosed costs;

3.1.5 it has familiarized itself with the nature and extent of the Contract Documents, Project, locality, and with all local conditions and Federal, State and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Project;

3.1.6 it has given the City written notice of any conflict, error or discrepancy that the Contractor discovered in the City's proposal documents and other documents for **RFP Number 7473** (collectively "Proposal Documents");

3.1.7. it agrees that the Proposal Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Project;

3.1.8. it has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Scope of Services which were utilized in the preparation of the plans and specifications;

3.1.9 it has made or caused to be made examinations, investigations, measurements and tests and studies of any applicable reports and related data as it deems necessary for ensuring performance of the Scope of Services at the Contract Price within the Contract Time and in accordance with the other terms and conditions of the Contracts; and certifies no additional examinations, investigations, tests, reports or similar data are or will be required by Contractor for such purposes; and

3.1.10 The Contractor shall not take advantage of any obvious error or apparent discrepancy in the Contract. Notice of any error or discrepancy discovered shall be given immediately in writing to the City, who shall make such corrections and interpretations as it may deem necessary for the completion of the Project in a satisfactory and acceptable manner.

3.2. Safety. Contractor shall perform all work in a safe manner in full compliance with local, state and federal health and safety regulations. Contractor shall immediately correct any dangerous condition caused by or resulting from its work. If it fails to correct, or to act diligently to correct, any condition which the City reasonably believes to be a hazard to persons or property, then immediately upon oral or written notice to any supervisory or similar personnel of Contractor, City may, but shall not be required to, correct same at Contractor's expense. City shall confirm in writing any oral notice given within five (5) business days thereafter.

3.3. Storage. In the event the Project site has insufficient, inadequate, and/or improper storage space, it shall be the responsibility of the Contractor to secure, provide and maintain at the Contractor's sole cost and expense (i) adequate off-site storage space for equipment, materials, incidentals, etc., and (ii) all associated delivery and transportation services. In either event, the Contractor shall assume full responsibility for equipment, materials, incidentals, etc. until both title and risk of loss pass to the City pursuant to Section 8 of this Contract.

3.4. Working Hours. To the extent the Contractor is required to be on City property to render the Contractor's services hereunder, the Contractor shall coordinate its schedule so that work on and at the Project site is performed during the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday and 9:00 a.m. to 6:00 p.m. on Saturday, Sunday and legal holidays unless more exactly specified elsewhere in this Contract or **Attachment A** or unless prior written permission is obtained from the City to work during other times. This provision shall not excuse the Contractor from timely performance under the Contract.

3.5. Cleaning Up. The Contractor shall at all times keep the Project site free from accumulation of waste materials or rubbish caused by Contractor's employees or subcontractors, and at the completion of the work shall remove all rubbish from and about the Project and all tools, scaffolding and surplus materials and shall leave the Project site "broom clean" or its equivalent, unless more exactly specified. In case of dispute, the City may remove the rubbish and charge the cost to the Contractor.

3.6. Publicity. Contractor agrees not to deliberately disclose the fact that the City has entered into or terminated this Contract or disclose any of the terms of the Contract or use the City's name in connection with any publicity, unless the City gives prior written consent to such use of the City's name in each instance.

3.7. Standard of Performance. All Contractor labor, materials, supplies, components, equipment, reports, plans, specifications, drawings, deliverables, incidentals, etc., required to be furnished or delivered under this Contract shall conform in all respects with the requirements set forth in this Contract and shall meet or exceed those standards generally recognized in the Contractor's craft and trade in the State of Connecticut. City specified manufacturer and/or brand name substitution desired by the Contractor shall be made only with the prior written consent of an authorized representative of the City's Using Agency.

3.7.1 In carrying out the Project, the Contractor must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor, nor with the normal routine of the institution or agency operating at the Project site.

3.8. Contractor's Employees. The Contractor shall at all times enforce strict discipline and good order among its employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned. The Contractor shall not, without the prior written approval of the City's Using Agency, substitute, terminate, replace or otherwise remove any Contractor employee expressly named, identified or required in this Contract.

3.9. Subsurface/Unknown Site Conditions. If Project site conditions are encountered which are (i) subsurface or otherwise concealed physical conditions or other conditions which differ materially from those indicated in the Contract Documents, or (ii) unknown conditions of an unusual nature which differ materially from those ordinarily found to exist and generally recognized as inherent or common in construction activities of the character provided for in this Contract, then prompt notice by the observing party shall be given to the other party to this Contract before Project site conditions may be disturbed. The Contractor shall thereafter wait for written instructions from the City before proceeding with regard to such conditions.

3.10. Surveys. All surveys required under this Contract shall be performed by a State of Connecticut duly licensed land surveyor. Unless expressly stated to the contrary in Section 1 of this Contract and **Attachment A**, the Contractor shall perform all layout work, all field measurements and all construction staking required, necessary or prudent for the satisfactory prosecution of the Contractor's obligations under this Contract.

3.11. Permits and Licenses. Unless expressly stated to the contrary in Section 1 of this Contract and **Attachment A**, the Contractor shall secure and obtain all permits and all licenses required, or necessary, or prudent for the performance of the Contractor's obligations under this Contract and for the City's occupancy, use, and operation of the Project.

3.12. Manufacturer's Directions. Where it is required in this Contract that materials, products, processes, equipment or the like be installed or applied in accord with manufacturer's directions, specifications or instructions, it shall be construed to mean that the said application or installation by the Contractor shall be in strict accord with printed instructions furnished by the manufacturer of the material concerned for use under conditions similar to those at the Project site. One (1) copy of such instructions shall be furnished to the City.

3.13. Review by the City. The Contractor shall permit the City and the City's duly authorized representatives and agents to review, at any time, all work performed under the terms of this Contract at any stage of the Project.

3.14. Records Maintenance. The Contractor shall maintain or cause to be maintained all records, books or other documents relative to charges, costs, expenses, fees, alleged breaches of the Contract, settlement of claims or any other matter pertaining to the Contractor's demand for payment.

3.15. Contractor shall comply with any and all statutory and regulatory school construction requirements in the State of Connecticut, and specifically for **State Project No. 151-0304 CV and State Project No. 151-0305 CV.**

4. Responsibilities of the City and City Reservation of Rights. Upon the City's receipt of Contractor's written request for specific information, the City will provide the Contractor with existing documents, data and other materials the City agrees are necessary and appropriate to the services to be performed by the Contractor hereunder and the City will endeavor to secure, where feasible and where the City agrees it is necessary and appropriate, materials or information from other sources requested by the Contractor for the purpose of carrying out the services under this Contract.

4.1. The City may, in its sole discretion, designate person(s) to act as the City's Project Engineer(s) and/or Manager(s) and the City may, in its sole discretion, define such person(s) authority and responsibilities.

4.2. The City reserves the right to (i) perform work related or unrelated to the Project with the City's own forces adjoining, adjacent to, or in the vicinity of, the Project site and/or (ii) let separate contracts related or unrelated to the Project for work and services adjoining, adjacent to, or in the vicinity of, the Project site. In such event, the Contractor shall afford all such parties reasonable opportunity for storage of materials and equipment and for the uninterrupted provision and delivery of such parties' work and/or services. The Contractor shall cooperate with such parties and in the case of a dispute, the decision of the City shall be complied with by all.

5. Contract Time. The Contractor shall Substantially Complete all work and services required under this Contract within **Two Hundred Twenty (220)** consecutive calendar days of

the City's written Notice to Proceed and shall reach Final Completion within **Two Hundred Fifty (250)** consecutive calendar days of the City's written Notice to Proceed ("Contract Time").

5.1. Within one (1) week of the City's issuance of its written notice to proceed, and prior to the commencement of any work on the Project site, the Contractor shall submit for the City's written approval a construction progress schedule. On a monthly basis, the Contractor shall deliver to the City a written status report setting forth an analysis and critique of the Contractor's compliance with said schedule.

5.2. Delay Damages

5.2.1 Time is and shall be of the essence for all Project Phase Completion Dates, Milestones, Substantial and Final Completion Date. The Contractor further agrees that the Project shall be prosecuted regularly, diligently and uninterruptedly and at such rate of progress as will insure full completion thereof within the Contract time stated above. It is expressly understood and agreed, by and between the Contractor and City, that the Phase Completion Dates, Milestones, Substantial and Final Completion Date are reasonable for the completion of the Project.

5.2.1.1 The Contractor shall pay to the City the sum of the greater of **SEVEN HUNDRED FIFTY DOLLARS AND ZERO CENTS (\$750.00)** per calendar day for each and every calendar day for which the Contractor is in default in completing the work beyond the Final Completion Date, Substantial Completion Date, Milestones and Phase Completion Dates, as set forth in Section 5, or the actual damages incurred by the City caused by the delay. The preceding sum is hereby agreed upon not as a penalty, but as delay damages for the delay that the City shall suffer due to such default.

5.2.1.2 The City shall have the right to recover all damages pursuant to any remedy at law or equity including but not limited to deducting the amount of any such damages from any monies due the Contractor under this Contract. The Contractor understands that if the entire Work or of any portion of the Work that the City has agreed to accept separately, if any, is not attained by the applicable completion dates as set forth in the entire Section 5, the City will suffer damages, which are difficult to specify accurately and ascertain. Delay damages based upon delay shall be assessed to compensate the City for all actual loss sustained by the delay, including, but not limited to, loss of use, increased cost of material or services to complete the project, loss of State funding, all other another actual expense, and all other damages allowed by law, including attorney's fees.

5.3 No Damage for Delay

In no event shall the Contractor be entitled to any compensation or recovery of any damages in connection with any Delay, including, without limitation, consequential damages, lost opportunity damages, attorney's fees or other, similar remuneration. The City's exercise of any of its rights or remedies under the Contract Documents, including without limitation, ordering changes in the Work, or directing suspension, rescheduling or correction of the Work, regardless of the extent or frequency of the City's exercise of these rights has been contemplated by the parties and shall not be construed as an exception.

6. Compensation. The City shall compensate the Contractor for satisfactory provision of all of the goods and services set forth in this Contract as follows in this Section 6. No claims for additional compensation will be considered for conditions made known to the Contractor prior to bidding. No claims for additional compensation will be considered on account of failure of the Contractor to completely inform itself as required herein above.

6.1. Fee Schedule. Subject to retainage, limitations, etc. set forth below in this Section 6, the fee payable to the Contractor shall not exceed **TWO MILLION FOUR HUNDRED THIRTY-FIVE THOUSAND SIX HUNDRED SIXTY-SEVEN DOLLARS AND ZERO CENTS (\$2,435,667.00)** (hereafter referred to as "Total Compensation") with the basis for payment being Contractor's Proposal, dated December 19, 2022 and consisting of 2 pages, as modified by Contractor's Revised Proposal, dated January 17, 2023, and consisting of 1 page, which is summarized below:

- i. **\$1,175,406.00 (Bunker Hill Elementary School Base Bid)**
- ii. **\$ 154,667.00 (Bunker Hill Elementary School – Alternate #1 – Site Paving and Regrading)**
- iii. **\$1,105,594.00 (Washington Elementary School Base Bid)**

6.2. Retainage. At the City's sole discretion, it hereby reserves the right to withhold as retainage five percent (5.0 %) of any payment (or monetary sum otherwise required by law) owed to the Contractor to be withheld from payments to the Contractor otherwise payable to the Contractor until such time as the Contractor's work and services to be provided under this Contract are fully completed and accepted in writing by the City. The retainage does not include additional sums that the City may withhold due to the Contractor's failure to comply with provisions of this Contract.

6.3. Limitation of Payment. Compensation to the Contractor is limited to those fees set forth in Section 6.1. of this Contract and is further limited to work (i) performed in fact, (ii) conforming with this Contract, and (iii) accepted in writing by a duly authorized City employee. Such compensation shall be paid by the City upon its review and approval of the Contractor's invoices for payment and review of the Contractor's work.

6.3.1 Funding. In the event this Contract is funded, in whole or in part, by Federal and/or State monies, grants, loans, etc, all City payment(s) shall fully comply with all relevant Federal and State statutes and regulations. In the event this Contract is 100% funded by Federal and/or State monies, grants, loans, etc., the aggregate sum of all City payments shall not exceed the aggregate sum of such funding.

6.3.2 The Contractor and its affiliates are hereby provided with notice that the City reserves the right, in the City's sole discretion, to offset, withhold, or otherwise reduce City payment(s) to the Contractor, in an amount equaling the sum or sums of money the Contractor and/or its affiliates is/are, or become delinquent or in arrears on, regarding the Vendor's and/or its affiliates real and personal property taxes and other payment obligations to the City.

6.3.3 No Payment for Lost Profits. In no event shall the City be obligated to pay or otherwise compensate the Contractor for any lost or expected future profits.

6.4. Proposal Costs. All costs of the Contractor in preparing its bid for **RFP Number 7473** shall be solely borne by the Contractor and are not included in the compensation to be paid by the City to the Contractor under this Contract or any other agreement.

6.5. Payment for Services, Materials, Appliances, Employees. The Contractor shall be responsible to the City for the suitability of services, materials and equipment furnished to comply fully with the requirements set forth in this Contract. The Contractor shall promptly pay all employees as their pay falls due, shall pay promptly as they fall due all bills for subcontractors, materials, supplies and services going into the work, and all bills for insurance, bonds, Worker's Compensation coverage, Federal and State Unemployment Compensation, and Social Security charges applicable to this Project. Before final City payment is made, the Contractor shall furnish to the City a sworn, notarized, affidavit stating that all of the foregoing payment obligations have been fully completed.

6.6. Liens. Neither the City's final payment nor any part of the retained percentage, if any, shall become due until the Contractor, if required by the City, shall deliver to the City a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof, and, if required, in either case, an affidavit that so far as the Contractor has knowledge or information, the releases and receipts include all the labor and material for which a lien could be filed; but the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the City, to indemnify it against any lien. If any lien remains unsatisfied after all payments are made, the

Contractor shall refund to the City all moneys that the City may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

6.7. Contractor's Certificate of Completion. Upon the Contractor's (i) completion of all Project milestones, and (ii) Substantial Completion of the Project, and (iii) Final Completion of the Project, the Contractor shall, in each instance, file with the City a written, notarized affidavit setting forth the amount of Project work performed. The City reserves the right to verify or challenge by any reasonable means the accuracy of said affidavit.

6.8. Final Payment. All prior estimates and City payments, including those relating to extra or additional work, retainage(s), and holdback(s), shall be subject to correction by this final payment which is throughout this Contract called "Final Payment". No payment, final or partial, shall act as a release to the Contractor or its surety from any Contractor obligation(s) under this Contract.

6.9. Clean Water Fund Project Requirements. In the event this Contract is funded in whole or in part, is reliant upon, or falls within the jurisdiction of the Clean Water Fund and its statutes, regulations and rules, the Contractor shall:

6.9.1 submit Applications for Payment in accordance with the following:

The City must receive the Contractor's Application for Payment by the City's or its designee's, review and recommendation for payment, by the fifteenth calendar day of the month to receive payment within the next 50 days. If not received by the fifteenth calendar day of the month, payment can not be made until 50 days after the fifteenth calendar day of the subsequent month. The Contractor shall provide at the City's request, reasonable documentation to substantiate Contractor's Application for Payment.

6.9.2 Progress and Final Payments

The City will make progress payments on account of the Contract Price on the basis of the Contractor's Applications for Payment, monthly during construction as provided below. All progress payments will be on the basis of the progress of the Scope of Services as determined by the City, according to the schedule of values provided for in the Contract Documents, and approved by the City. Prior to Substantial Completion, progress payments will be limited to an amount equal to 95 percent of the value of the Scope of Services completed. Upon Substantial Completion, the City will pay the amount as specified in the Contract Documents.

7. Warranty of the Contractor. The Contractor warrants to the City that all materials, supplies, components, equipment, etc. furnished under this Contract shall be new and of good

quality, except as otherwise expressly stated and permitted by the City elsewhere in this Contract. The Contractor warrants that none of its work shall be defective. The Contractor shall be liable to repair and install and/or replace without charge any service, component, equipment or part thereof which is defective or does not conform with this Contract within the greater of **(i) three hundred sixty-five (365)** calendar days after the City delivers its written notice of its acceptance of the Project and statement therein establishing the final completion date, or **(ii)** that time period or date expressly stated elsewhere in this Contract or **Attachment A**.

7.1. The Contractor further warrants that all materials, supplies, services, components, equipment, reports, plans, drawings, deliverables, incidentals, etc., shall be free from any and all defects caused by faulty design, faulty material or poor workmanship. The Contractor shall supply to the City copies of any written manufacturer's warranties and guarantees. The Contractor's foregoing warranty obligations are in addition to, and not a limitation of, all manufacturer's warranties and guarantees, and any other remedy stated in this contract or otherwise available to the City under applicable law.

8. Passing of Title and Risk of Loss.

8.1. City beneficial use of Project equipment, materials, site-work, etc. prior to the Contractor's final completion of the Project or prior to the City's final payment for the Project shall neither act to vest title in the City nor act to transfer risk of loss from the Contractor to the City. Said title and risk shall pass to the City upon the City's final payment for the Project.

8.2. Contractor and its insurer shall assume the risks of loss or damage to the equipment up to and including the date title passes, except that City shall be responsible for loss or damage caused by City's gross negligence.

8.3. After Project equipment, materials, etc. are delivered to the Project work-site and become operable or functional, the Contractor shall not thereafter remove any such equipment, materials, etc. from the Project work-site without securing the prior written consent of an authorized City Using Agency employee.

9. Indemnification.

9.1. The Contractor shall indemnify, defend, and hold harmless the City, City's Boards, and Board of Education, commissions, agents, officials and employees from and against all claims, suits, damages, losses, judgments, costs and expenses including attorney's fees arising out of or resulting from the delivery of the labor, services, equipment, materials, reports, plans, specifications, design, drawings, deliverables, incidentals, etc. provided that any such claims, suits, damages, losses, judgments, costs or expenses **(i)** are attributable to bodily injury, sickness, disease or death, or to injury

to or destruction of tangible property, including the loss of use resulting there from, **(ii)** are alleged to be caused in whole or in part by any willful, intentional, negligent, or reckless act or omission of the Contractor, its employees, any subcontractor or consultant, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder; **(iii)** enforcement action or any claim for breach of the Contractor's duties hereunder or **(iv)** claim for intangible loss(es) including but not limited to business losses, lost profits or revenue, regardless of whether or not it is caused in part by a party indemnified hereunder.

9.2. In any and all claims against the City, Board of Education or any of City's boards, agents, employees or officers by the Contractor or any employee of the Contractor, any subcontractor or consultant, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 9 above, shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under Worker's Compensation Acts, disability benefit acts or other employee benefit acts.

9.3. The Contractor understands and agrees that any insurance required by this Contract, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify, defend, keep and hold harmless the City, the Board of Education, any of City's boards, agents, employees as provided in this Contract.

9.4. The Contractor expressly understands and agrees that any performance bond or insurance protection required by this Contract, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify, keep and save harmless and defend the City and the City's boards, agents, employees or officers as provided herein.

9.5. Royalties and Patents. The Contractor shall, for all time, secure to the City the free and undisputed right to the use of any and all patented articles and methods used in the work and shall defend at Contractor's own expense any and all suits for infringement or alleged infringement of such patents, and in the event of adverse award under patent suits, the Contractor shall pay such awards and hold the City harmless in connection with any patent suits that may arise as a result of installations made by the Contractor and as to any award made thereunder.

9.6. In the event this Contract and/or the Contractor's, or its subcontractor, work and services provisioned hereunder is/are subject to the provisions of any Federal or State statute or regulations, or the City Charter or City Ordinance, the Contractor shall indemnify, defend and hold harmless the City from any fine, penalty or other amounts imposed on the City under said statutes, regulations, Charter or Ordinances, if caused by Contractor, or its subcontractor, omission or commission.

10. Contract Bonds. The Contractor shall furnish to the City, prior to the execution of this Contract by the City, both a performance bond and a payment bond, each bond written for a penal sum equaling the Section 6 "Total Compensation" amount in a form and with a surety acceptable to the City. The bonds shall continue in effect for the greater of (i) the warranty period set forth in Section 7 of this Contract, or (ii) three hundred sixty-five (365) calendar days after the City delivers its written notice of its acceptance of the Project.

11. Contractor's Insurance.

11.1. The Contractor shall not commence work under this Contract until all insurance required under this Section 11 has been obtained by the Contractor and such insurance has been approved by the City. The Contractor shall not allow any subcontractor to commence work on any subcontract until all insurance required of any such subcontractor has been so obtained and approved by the City. Insurance shall be provided by insurers, satisfactory to the City and authorized to do business in the State of Connecticut, an "A-" Best's Rating and at least a Class V3 or better financial size category as shown in the most current A.M. Best Company ratings.

11.2. At no additional cost to the City, the Contractor shall purchase and maintain the insurance coverages set forth below which shall protect the City from claims which may arise out of or result from the Contractor's obligation under this Contract, whether such obligations are the Contractor's or subcontractor or person or entity directly or indirectly employed by said Contractor or subcontractor, or by any person or entity for whose acts said Contractor or subcontractor may be liable.

11.3. Each insurance policy shall state that the insurance company shall agree to investigate and defend the insured against all claims for damages, even if groundless. If any insurance required herein is to be issued or renewed on a claims made form as opposed to an occurrence form, the retroactive date for coverage shall be no later than the commencement date of this Contract and shall provide that in the event of cancellation or non-renewal, the discovery period for insurance claims ("Tail Coverage") shall be available for at least 60 months.

11.4. The following policies with stated limits shall be maintained, in full force and effect, at all times during which the services are to be performed by the Contractor:

11.4.1 General Liability Insurance:

\$1,000,000.00 each Occurrence

\$2,000,000.00 General Aggregate

\$2,000,000.00 Products/Completed Operations Aggregate

Providing coverage to protect the City for all damages arising out of bodily injuries, sickness or death of all persons in any one accident or occurrence and for all damages arising out of destruction of property in any one accident or occurrence.

11.4.2 Automobile Liability Insurance:

\$1,000,000.00 Combined Single Limit Each Accident

Any Auto, All Owned and Hired Autos

Providing coverage to protect the City with respect to claims for damage for bodily injury and or property damage arising out of ownership, maintenance, operation, use or loading and unloading of any auto including hired & non-owned autos.

11.4.3 Workers' Compensation: Statutory Limits within the State of Connecticut: Employer Liability (EL):

EL Each Accident **\$1,000,000.00**

EL Disease Each Employee **\$1,000,000.00**

EL Disease Policy Limit **\$1,000,000.00**

Contractor shall comply with all State of Connecticut statutes as it relates to workers' compensation.

11.4.4 Excess/Umbrella Liability Insurance:

\$1,000,000.00 each Occurrence

\$1,000,000.00 Aggregate

Excess or Umbrella insurance coverage that follows form or sits over General Liability, Automobile Liability and Workers Compensation insurances.

11.4.5 Builder's Risk/Installation Floater Insurance

\$1,000,000.00 each Occurrence or Limits Equaling the Value of the Project (whichever is greater)

11.4.6 Contractor Pollution Liability Insurance:

\$1,000,000.00 each Occurrence/Claim

\$1,000,000.00 Aggregate

There will be no exclusion for Hazardous materials, including Asbestos and Lead

11.4.7 Abuse/Molestation Liability Insurance:

\$1,000,000.00 each Occurrence/Claim

\$1,000,000.00 Aggregate

(Applicable to Contractors working directly with Youth/Minors)

11.5. Failure to Maintain Insurance: In the event the Contractor fails to maintain the minimum required coverage as set forth herein, the City may at its option purchase same, and offset the Contractor's invoices for the cost of said insurance.

11.6. Cancellation: The City of Waterbury shall receive written notice of cancellation from the Contractor at least thirty (30) calendar days prior to the date of actual cancellation, regardless of the reason for such cancellation.

11.7. Certificates of Insurance: All Contractor's Insurance except Workers' Compensation and Professional Liability shall be endorsed to add the City of Waterbury and its Board of Education, as additional insured and provide waiver of subrogation on all policies except Builders Risk. The insurance afforded the additional insured shall be primary and non-contributory insurance and the coverage and limits provided under the Contractor's policies shall not be reduced or prorated by the existence of any other insurance applicable to any loss the additional insured may have suffered. Prior to the execution of this Contract by the City, the Contractor shall furnish to the City, subject to City approval, certificate(s) of insurance and Additional Insured Endorsement and Waiver of Subrogation Endorsement verifying the above coverages, including the naming of the City of Waterbury, as follows: **"The City of Waterbury and its Board of Education are listed as Additional Insured on a primary and non-contributory basis on all policies except Workers' Compensation and Professional Liability. All policies shall include a Waiver of Subrogation except Builders Risk"**. The City's Request for Proposal Number must be shown on the certificate of insurance to assure correct filing. The Contractor must supply replacement/renewal certificates at least 30 days prior to the expiration of the policy(ies).

11.8. If any policy is written on a "Claims Made" basis, the policy must be continually renewed for a minimum of two (2) years from the completion date of this contract. If the policy is replaced and/or the retroactive date is changed, then the expiring policy must be endorsed to extend the reporting period for claims for the policy in effect during the contract for two (2) years from the completion date.

11.9 Original, completed Certificates of Insurance must be presented to the City of Waterbury prior to contract issuance. Contractor agrees to provide replacement/renewal certificates at least thirty (30) calendar days prior to the expiration date of the policies. Should any of the above described policies be cancelled, limits reduced or coverage altered, thirty (30) calendar days written notice must be given to the City of Waterbury.

12. Conformance with Federal, State and Other Jurisdictional Requirements. By executing this Contract, the Contractor represents and warrants that, at all pertinent and relevant times to the Contract, it has been, is and will continue to be in full compliance with all applicable statutes, acts, ordinances, guidelines, resolutions, orders, judgments, decrees, injunctions, rules, and regulations of all government authorities applicable to performance by the Contractor of services hereunder, including those having jurisdiction over its registration and licensing to perform services hereunder; including, but not limited to, the following: EQUAL EMPLOYMENT OPPORTUNITY; COPELAND ANTI-KICKBACK ACT, as supplemented in the Department of Labor Regulations (29 CFR, Part 3); DAVIS BACON

ACT as supplemented by Department of Labor Regulations (29 CFR Part 5); Section 103 and 107 of the Contract Work Hours and Safety Standards Act, as supplemented by the Department of Labor Regulations (29 CFR Part 5); the HOUSING and COMMUNITY DEVELOPMENT ACT of 1974, as amended; TITLE 31 and Section 12-430(7) of the State of Connecticut General Statutes. All applicable sections of the City Charter and Code of Ordinances are incorporated by reference made a part hereof.

12.1. Taxes-Federal, State and Local. The City is exempt from Federal Excise and Transportation, State and Local Sales and Use Taxes, including without limitation, taxes that would otherwise be imposed upon the Contractor for transactions required or necessitated hereunder between it and its subcontractors, suppliers, etc. The Contractor remains liable, however, for any applicable tax obligations it incurs. Moreover, the Contractor represents that the bid and pricing contained in this Contract do not include the amount payable for said taxes.

12.2. Labor and Wages-Federal and State. The Contractor and its subcontractors shall conform to Federal and State of Connecticut labor laws, and all other laws, ordinances, and legal requirements affecting the work in Connecticut.

12.2.1 The Contractor is aware of, and shall comply with, the provisions of Title 31, §53 of the Connecticut General Statutes, latest revision (the "Act"), concerning the payment of minimum wages for work on public facilities. The provisions of the Act are hereby incorporated by reference and made a part of this Contract. The Act provides that the Connecticut prevailing wage law applies to certain remodeling, refurbishing, alteration, repair and new construction. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in Conn.Gen.Statute 31-53(i), shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

12.2.2 The Contractor is aware of, and shall comply with, the provisions of both the Federal Davis-Bacon Act and the Federal American Recovery and Reinvestment Act of 2009, the provisions of both acts hereby incorporated by reference and made a part of this Contract. The Federal Davis-Bacon Act provides that Federal wage rate laws apply to certain federally funded contracts. The American Recovery and Reinvestment Act ("ARRA") provides that Federal

wage rate laws apply to all ARRA funded contracts regardless of the contract's dollar value.

12.3. Compliance with Chapters 34, 38, and 39 of the Code of Ordinances of the City. By executing this Contract, the Contractor represents and warrants that, at all pertinent and relevant times to the Contract, it has been, is and will continue to be in full compliance with the provisions of Chapters 34, 38, and 39 of the Code of Ordinances of the City and well as any other relevant provisions of the Charter and the Code of Ordinances.

12.4. Compliance with CONN. GEN. STAT. § 4a-60g, as amended by June 2015 Special Session Public Act 15-5.

12.4.1 Definitions – For purposes of this paragraph:

i. "Small contractor" means any contractor, subcontractor, manufacturer, service company or nonprofit corporation (A) that maintains its principal place of business in the state, (B) that had gross revenues not exceeding fifteen million dollars in the most recently completed fiscal year prior to such application, and (C) that is independent. "Small contractor" does not include any person who is affiliated with another person if both persons considered together have a gross revenue exceeding fifteen million dollars.

ii. "Minority business enterprise" means any small contractor (A) fifty-one per cent or more of the capital stock, if any, or assets of which are owned by a person or persons who (i) exercise operational authority over the daily affairs of the enterprise, (ii) have the power to direct the management and policies and receive the beneficial interest of the enterprise, (iii) possess managerial and technical competence and experience directly related to the principal business activities of the enterprise, and (iv) are members of a minority, as such term is defined in subsection (a) of section 32-9n, or are individuals with a disability, or (B) which is a nonprofit corporation in which fifty-one per cent or more of the persons who (i) exercise operational authority over the enterprise, (ii) possess managerial and technical competence and experience directly related to the principal business activities of the enterprise, (iii) have the power to direct the management and policies of the enterprise, and (iv) are members of a minority, as defined in this subsection, or are individuals with a disability.

iii. "Municipal public works contract" means that portion of an agreement entered into on or after October 1, 2015, between any individual, Contractor or corporation and a municipality for the construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, which is financed in whole or in part by the state, including, but not limited to, matching

expenditures, grants, loans, insurance or guarantees but excluding any project of an alliance district, as defined in section 10-262u, as amended by this act, financed by state funding in an amount equal to fifty thousand dollars or less.

12.4.2 The Contractor and subcontractor shall comply with the specific requirements of the State of Connecticut Set Aside Program, CONN. GEN. STAT. § 4a-60g, as amended by June 2015 Special Session Public Act 15-5, if the municipal public works contract awarded to the Contractor is funded in whole or in part by state funds.

12.4.3 The Contractor shall be subject to the following set-aside requirements if the municipal public works contract, is funded in whole or in part by the State of Connecticut, and is in excess of FIFTY THOUSAND DOLLARS (\$50,000.00), for the construction, rehabilitation, conversion, extension, demolition, or repairing of a public building or highway, or other changes or improvements in real property.

12.4.4 Set-Aside requirements – Any contractor awarded a municipal public works contract, on the basis of competitive bidding procedures, shall comply with the following Set –Aside requirements:

- i. set aside at least twenty-five per cent (25%) of the total value of the state's financial assistance for such contract for award to subcontractors who are small contractors, and
- ii. of that portion to be set aside in accordance with Subparagraph i. of this subdivision, reserve a portion equivalent to twenty-five per cent (25%) of the total value of the contract or portion thereof to be set aside for awards to subcontractors who are minority business enterprises.

12.4.5 Failure of the Contractor or subcontractor to comply with the State of Connecticut Set-Aside requirements shall be a material breach of this Contract.

13. Discriminatory Practices. In performing this Contract, the Contractor shall not discriminate against any employee or applicant for employment, with respect to his or her hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, sex, age, religious creed, disability, national origin or ancestry, marital status, family status, prior psychiatric treatment, health care, military status or source of income or because of a handicap that is unrelated to the employee's or the applicant's ability to perform the duties of a particular job or position. Subcontracts with each subcontractor shall contain a provision requiring non-discrimination in employment as herein specified. This covenant is required pursuant to §93.04 of the Code of Ordinances of the City and any breach thereof may be regarded as a material breach of this Contract. Said provisions with subcontractors shall require conformity and compliance with all local, state and federal laws, rules and regulations and Executive orders pertaining to discrimination and equal opportunity requirements.

13.1. Discrimination Because of Certain Labor Matters. No person employed on the work covered by this Contract shall be discharged or in any way discriminated against because such person has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or related to the labor standards applicable hereunder to its employer.

13.2. Equal Opportunity. In its execution of the performance of this Contract, the Contractor shall not discriminate and shall comply with applicable laws prohibiting discrimination on the grounds of race, color, religion, sex, national origin or citizenship status, age or handicap. The Contractor agrees to comply with all local, state and federal laws, rules and regulations and Executive orders pertaining to discrimination and equal opportunity requirements, and will require the same of all subcontractors

13.3. Affirmative Action.

13.3.1. Pursuant to CONN. GEN. STAT. § 4a-60, as amended by June 2015 Special Session Public Act 15-5, the following are required for every Municipal Public Works Contract:

(a) Every contract to which an awarding agency is a party, every quasi-public agency project contract and every municipal public works contract shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the state of Connecticut; and the contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved;

(2) The contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission on Human Rights and Opportunities;

(3) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or

other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(4) The contractor agrees to comply with each provision of this section and sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to sections 46a-56, as amended by this act, 46a-68e, 46a-68f and 46a-86; and

(5) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of this section and section 46a-56, as amended by this act.

(b) If the contract is a public works contract, municipal public works contract or contract for a quasi-public agency project, the contractor agrees and warrants that he or she will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works or quasi-public agency project.

13.3.2. Pursuant to CONN. GEN. STAT. § 4a-60a, as amended by June 2015 Special Session Public Act 15-5, the following are required for every Municipal Public Works Contract:

(a) Every contract to which an awarding agency is a party, every contract for a quasi-public agency project and every municipal public works contract shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or of the state of Connecticut, and that employees are treated when employed without regard to their sexual orientation;

(2) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(3) The contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said commission pursuant to section 46a-56; and

(4) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor which relate to the provisions of this section and section 46a-56.

14. Good Jobs Ordinance

14.1. Conformance With An Ordinance Concerning The Hiring Of Waterbury Residents On Certain Publicly-Funded Construction Projects.

14.1.1 The Contractors and its Subcontractors shall comply with the specific requirements of “An Ordinance Concerning the Hiring of Waterbury Residents on Certain Publicly-Funded Construction Projects” (the “Good Jobs Ordinance”), as may be amended from time to time and as set forth in Chapter 34 of the Code of Ordinances of the City. While the principal provisions of the ordinance are summarized as set forth in paragraphs C-H below, the Contractor does hereby acknowledge that it has reviewed a copy of the Good Jobs Ordinance and that it has read the Ordinance and that Contractor is familiar with the obligations imposed on the Contractor and each Subcontractor by the Good Jobs Ordinance.

14.1.2 Failure of the Contractor or its Subcontractors to comply with the Good Jobs Ordinance shall be a material breach of this Agreement.

14.1.3 This paragraph shall apply to a Covered Project, as that term is defined in the Good Jobs Ordinance, in the City with a value of \$500,000.00 or greater and only to the extent permitted by federal and state law.

14.1.4 Definitions. For purposes of this paragraph:

- i.** “Administrator” shall be defined as it is in the Good Jobs Ordinance.
- ii.** “Apprentice” shall be defined as it is in the Good Jobs Ordinance.
- iii.** “Basic Skilled Worker” shall be defined as it is in the Good Jobs Ordinance.

- iv. "Contractor" shall be defined as it is in the Good Jobs Ordinance.
- v. "Covered Project" shall be defined as it is in the Good Jobs Ordinance.
- vi. "Hiring Goal" shall be defined as it is in the Good Jobs Ordinance.
- vii. "Resident" shall be defined as it is in the Good Jobs Ordinance.
- viii. "Subcontractor" shall be defined as it is in the Good Jobs Ordinance and shall include the Contractor's direct subcontractor providing construction work and all lower tiered (level) providers of construction work.

14.1.5 Hiring Goals. If this Agreement requires the Contractor to perform work on a Covered Project, the Contractor and each Subcontractor shall have as its hiring goals:

- i. at least thirty percent (30%) of its total worker hours performed by City Residents, and
- ii. at least twenty-five percent (25%) of construction trade jobs shall go to Apprentices and/or Basic Skilled Workers, and
- iii. at least seventy percent (70%) of all "new hires" (as that term is defined in the Good Jobs Ordinance) shall be "economically disadvantaged" individuals (as that term is defined in the Good Jobs Ordinance), and
- iv. a minimum of five percent (5%) of the construction workforce labor hours will be local resident, minority artisans, and
- v. a minimum of five percent (5%) of the construction workforce labor hours will be women, and
- vi. a minimum of ten percent (10%) of the total work hours shall be allocated for minorities, or
- vii. as may otherwise be required by any superseding Federal or State employment discrimination prohibition laws.

14.1.6 Good Faith Efforts. The Contractor and each Subcontractor shall

engage in Good Faith Efforts to comply with the Hiring Goals. For the purposes of this paragraph, the term “Good Faith Efforts” shall have the same meaning as it does in the Good Jobs Ordinance.

The Contractor and each Subcontractor shall individually implement Good Faith efforts to satisfy the Hiring Goals.

14.1.7 Action Plan and Pre-Construction Meeting. Not later than fourteen (14) business days prior to the scheduled commencement date for construction, the Contractor shall submit a written plan-of-action to the City and to the Administrator of the Good Jobs Ordinance defining how the Contractor, and each Subcontractor, shall implement Good Faith Efforts to fulfill the Hiring Goals. Each plan-of-action shall include the anticipated number of job positions required for the Work. Not later than five (5) business day prior to the commencement date of construction, the Contractor must attend a mandatory "pre-construction" meeting with the City to review all plans-of-action and other relevant materials. No construction work shall proceed absent this pre-construction meeting.

14.1.8 Other Contractor Obligations. In addition to the foregoing, the Contractor shall ensure that all Subcontractor contracts and agreements expressly set forth and state as binding obligations therein, subject to appropriate party name change, the above Hiring Goals and Good Faith Efforts. The Contractor shall be accountable for, and liable to the City for, Contractor and each Subcontractor compliance with Hiring Goals and Good Faith efforts.

- i.** The Contractor shall meet with the Administrator no less than four (4) weeks prior to the commencement of construction on a Covered Project and provide the Administrator with the number of job positions to be created by the project by trade and the qualifications by job tile.
- ii.** The Contractor shall be required to produce Contractor and Subcontractor documentation that may be required under the provisions of the Good Jobs Ordinance or that the City or the Administrator reasonably believes will assist the City or the Administrator with their evaluation of Hiring Goals and Good Faith Efforts.
- iii.** The Contractor shall deliver weekly certified payroll records to the City within five (5) working days of the end of each payroll period. Moreover, the Contractor shall require each Subcontractor to create weekly certified payroll records.
- iv.** The Contractor’s and each Subcontractor’s payroll records shall include the person-hours, the residential address, race, gender, hiring

date, and apprentice (job) classification of all personnel employed under this Agreement and all Contracts and Sub-Contracts thereunder. The Contractor and each Subcontractor shall mark their respective final payroll period records as being final and be signed by an authorized officer or employee.

14.2 Liquidated Damages Applicable To Section 14.1

14.2.1 If the City finds that the Contractor, or a Subcontractor, has failed to achieve Hiring Goals during any five (5) day work period (Monday through Friday), the City shall:

- i.** issue a written notice to the Contractor specifying the matters constituting such failure and the time period within which Good Faith Efforts documentation must be delivered to the City for its evaluation.
- ii.** if the Good Faith documentation is not provided or, if provided, it fails to demonstrate compliance with Good Faith Efforts, the Contractor shall, for each failure by the Contractor or a Subcontractor to achieve the Hiring Goals during a full five day work period, pay to the City one thousand dollars (\$1,000.00) as liquidated damages.

14.2.2 If the City finds that the Contractor, or a Subcontractor, has failed to deliver weekly certified payroll records to the City within five (5) working days of the end of each payroll period the Contractor shall, as liquidated damages pay one thousand dollars (\$1,000.00) to the City for each week of ongoing violation.

14.2.3 The City shall provide the Contractor with an invoice identifying all sums due the City, as liquidated damages, as a result of the Contractor or a Subcontractor's failure to comply with the Good Jobs Ordinance as set forth above.

14.2.4 No portion of any invoice submitted by a Contractor that is subject to liquidated damages shall be paid by the City until such time as all liquidated damages relating to that invoice have been paid to the City.

14.2.5 The foregoing liquidated damages provisions shall be expressly set forth, subject to appropriate party name adjustments, as material provisions in all Contracts that the Contractor has with Subcontractors and the Contractor is obligated hereunder to enforce compliance in such Contracts with Subcontractors.

14.2.6 Any payment of liquidated damages hereunder shall not preclude a later claim, nor any later finding of a breach, or any payment of additional damages related to such later claim.

15. Housing and Urban Development Section 3 Clause. In the event this Contract is funded, in whole or in part, through Housing and Urban Development assistance, 24 C.F.R. §135.38 may apply and the Contractor shall then be required to comply with the following (referred to as the "Section 3 clause"):

15.1. The work to be performed under this Contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. § 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted Projects covered by Section 3, shall, to the greatest extent feasible, be directed to low and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

15.2. The parties to this Contract agree to comply with HUD's regulations in 24 C.F.R. part 135, which implement Section 3. As evidenced by their execution of this Contract, the parties to this Contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

15.3. The Contractor agrees to send to each labor organization or representative of workers with which the Contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the Contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

15.4. The Contractor agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 C.F.R. part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 C.F.R. part 135. The Contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 C.F.R. part 135.

15.5. The Contractor will certify that any vacant employment positions, including training positions, that are filled (i) after the Contractor is selected but before the Contract is executed, and (ii) with persons other than those to whom the regulations of

24 C.F.R. part 135 require employment opportunities to be directed, were not filled to circumvent the Contractor's obligations under 24 C.F.R. part 135.

15.6. Noncompliance with HUD's regulations in 24 C.F.R. part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

15.7. With respect to work performed in connection with Section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. § 450e) also applies to the work to be performed under this Contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this Contract that are subject to the provisions of Section 3 and section 7(b) agree to comply with Section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

16. Termination.

16.1. Termination of Contract for Cause. If, through any cause, the Contractor shall fail to fulfill in a timely and proper manner its obligations under this Contract, or if the Contractor shall violate any of the covenants, agreements, or stipulations of this Contract, the City shall thereupon have the right to terminate this Contract by either (i) giving written notice to the Contractor of a date certain by which Contractor shall, to the written satisfaction of the City, cure after which and without further action by any party, such termination shall automatically become effective and binding, or (ii) giving written notice to the Contractor specifying the effective date of such termination at least five (5) business days before the effective date of such termination.

16.1.1 In the event of a termination, all finished or unfinished documents, data, studies, reports, plans, specifications, drawings, supplies, services, etc. prepared by the Contractor under this Contract shall, at the option of the City, become the City's property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed for such.

16.1.2 Notwithstanding the above, the Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any breach of this Contract by the Contractor, and the City may withhold any payments to the Contractor for the purpose of setoff until such time as the exact amount of damages due the City from the Contractor is determined.

16.2. Termination for Convenience of the City. The City may terminate this Contract at any time for the convenience of the City, by a notice in writing from the City to the Contractor. If this Contract is terminated by the City as provided herein, the

Contractor will be paid an amount which bears the same ratio to the total compensation as the services actually performed bear to the total services of the Contractor covered by this Contract, less payments of compensation previously made.

16.3. Termination for Non-Appropriation or Lack of Funding. The Contractor acknowledges that the City is a municipal corporation and that this Contract is subject to the appropriation and disbursement of funds by the City sufficient for this Contract for each budget year in which this Contract is in effect. The Contractor therefore agrees that the City shall have the right to terminate this Contract in whole or in part without penalty to the City in the event that sufficient funds to provide for City payment(s) under this Contract is not appropriated, not authorized, or not made available, or such funding has been reduced. In the event this Contract is subject, in whole or in part, to the appropriation and disbursement of Federal and/or State funds and those Federal and/or State funds are not appropriated or are not disbursed to the City, the Contractor hereby agrees that the City shall have the right to terminate this Contract in whole or in part without penalty to the City.

16.3.1 Effects of Non-Appropriation. If funds to enable the City to effect continued payment under this Contract are not appropriated, authorized or otherwise made available by law, the City shall have the right to terminate this Contract without penalty at the end of the last period for which funds have been appropriated, authorized or otherwise made available by law by giving written notice of termination to the Contractor.

16.3.2 Effects of Reduced Levels of Funding. If funding is reduced by law, or funds to pay the Contractor for the agreed to level of the products, services and functions to be provided by the Contractor under this Contract are not appropriated, authorized or otherwise made available by law, the City may, upon seven (7) business days written notice to the Contractor, reduce the level of the products, services or functions in such manner and for such periods of time as the City may elect. The charges payable under this Contract shall be equitably adjusted to reflect such reduced level of products, services or functions and the parties shall be afforded the rights set forth in this Contract.

16.3.3 No Payment for Lost Profits. In no event shall the City be obligated to pay or otherwise compensate the Contractor for any lost or expected future profits.

16.4. Rights Upon Termination.

16.4.1 Termination for Cause. In the event the City terminates this Contract for cause, the Contractor shall relinquish to the City any applicable interest, title and ownership including, but not limited to, perpetual use of any proprietary rights in and to the products and deliverables delivered to, in possession of and

properly invoiced and paid for by (except to the extent such invoiced amount is disputed) the City. With regard to third party products, the Contractor shall transfer all licenses which it is permitted to transfer in accordance with the applicable third party license. The City shall have no financial obligation to compensate the Contractor for such terminated products unless payment is otherwise approved by the City prior to such termination. The Contractor shall be liable for costs incurred by the City, including but not limited to reasonable attorney fees and all court awarded fees and costs incurred in terminating this Contract in whole or in part.

16.4.2 Termination for Lack of Funding or Convenience. In the event of termination by the City for lack of funding or convenience, the City shall pay the Contractor for all labor, services, equipment, materials, reports, plans, specifications, drawings, deliverables, incidentals, etc.(including any holdbacks) installed and delivered to the City as of the Termination Date and the Contractor shall relinquish to the City any applicable interest, title and ownership including, but not limited to perpetual use of any proprietary rights in and to said labor, services, equipment, materials, reports, plans, specifications, drawings, deliverables, incidentals, etc. delivered to, in possession of and paid for by the City (except to the extent any invoiced amount is disputed). The Contractor shall be required to exercise commercially reasonable efforts to mitigate damages. In the event of a termination for Lack of Funding or Convenience the City and the Contractor may negotiate a mutually acceptable payment to the Contractor for reasonable demobilization expenses. Said demobilization expenses, if any, shall be handled in accordance with the provision of this Contract pertaining to changes in the Project.

16.4.3 Assumption of Subcontracts. In the event of termination, the City shall have the right to assume, at its option, any and all subcontracts for products, services and functions provided exclusively under this Contract.

16.4.4 Delivery of Documents. In the event of termination, (i) the Contractor shall promptly deliver to the City, in a manner reasonably specified by the City, all documents and other tangible items furnished by, or owned, leased, or licensed by, the City, and (ii) the City shall pay the Contractor for all services performed and deliverables completed and accepted (pro-rated for deliverables partially completed) prior to the effective date of the termination (except to the extent any invoice amount is disputed).

17. Force Majeure. Contractor shall not be held responsible for delays nor be subject to liquidated damages when such delays are caused by conditions beyond its control, including without limitation:

17.1. Acts of God, fire, explosion, epidemic, cyclone, flood, war, strikes, revolution, civil commotion, or acts of public enemies; and

17.2. Change of law and order, proclamation, regulation, ordinance, or governmental requirement.

Upon cessation of work for reason of force majeure delays, Contractor shall use its best efforts to meet the schedule set forth in Section 5 of this Contract.

18. Subcontracting. The Contractor shall not, without the prior written approval of the City's Using Agency, subcontract, in whole or in part, any of the Contractor's services. Any subcontractor so approved shall be required to secure and maintain insurance coverage equal to or better than that required of the Contractor and shall name the City as an additional insured party and said subcontractors shall deliver to the City a certificate of insurance evidencing such coverages. All subcontractors shall comply with all federal, state and local, laws, regulations and ordinances but such requirement shall not relieve the Contractor from its requirement that all services provided hereunder shall comply with all Federal, State and local, laws, regulations and ordinances.

18.1. The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by the Contractor.

18.2. The Contractor is responsible for and shall control activities of its subcontractors, and the subcontractors shall consult and cooperate with one another and other contractors working on the Project site. Each subcontractor shall furnish all necessary information to other subcontractors and shall lay out and install its own work so as to avoid any delays or interferences with the work of another. Any cost for changes, cutting and/or repairing, made necessary by failure to observe the above requirements shall be borne by the Contractor or subcontractor responsible for such failure or neglect.

18.3. The Contractor shall not, without the prior written approval of the City's Using Agency, substitute, terminate, replace or otherwise remove a subcontractor.

19. Assignability. The Contractor shall not assign any interest in this Contract, and shall not transfer any interest in the same (whether by assignment or novation) without the prior written approval of the City; provided, however, that claims for money due or to become due the Contractor from the City under this Contract may be assigned to a bank, trust, company, or other financial institution, or to a Trustee in Bankruptcy, without such approval. Notice of any such assignment or transfer shall be furnished promptly to the City.

20. Audit. The City reserves the right to audit the Contractor's books of account in relation to this Contract any time during the period of this Contract or at any time during the

twelve month period immediately following the closing or termination of this Contract. In the event the City elects to make such an audit, the Contractor shall immediately make available to the City all records pertaining to this Contract, including, but not limited to, payroll records, bank statements and canceled checks.

21. Interest of City Officials. No member of the governing bodies of the City, and no other officer, employee, or agent of the City who exercises any functions or responsibilities in connection with the carrying out of the Project to which this Contract pertains, shall have any personal interest, direct or indirect, in this Contract.

22. Interest of Contractor. The Contractor covenants that it presently has no interest and shall not acquire any interest, direct or indirect, in the Project or any parcel of land therein or any other interest which would conflict in any manner or degree with the performance of its services hereunder. The Contractor further covenants that in the performance of this Contract no person having any such interest shall be employed.

23. Entire Contract. This Contract shall constitute the complete and exclusive statement of the contract between the parties as it relates to this transaction and supersedes all previous agreements and understandings, whether written or oral, relating to such subject matter. Any amendment to this Contract must be in writing and agreed to and executed by the City and the Contractor, and must comply with the City's Charter and Code of Ordinances.

24. Independent Contractor Relationship. The relationship between the City and the Contractor is that of client and independent contractor. No agent, employee, or servant of the Contractor shall be deemed to be an employee, agent or servant of the City. The Contractor shall be solely and entirely responsible for its acts and the acts of its agents, employees, servants and subcontractors during the performance of this Contract.

25. Severability. Whenever possible, each provision of this Contract shall be interpreted in such a manner as to be effective and valid under applicable law. If any provision of this Contract, however, is held to be prohibited or invalid under applicable law, such provision shall be deemed restated to reflect the original intentions of the parties, as nearly as possible in accordance with applicable law, and if capable of substantial performance, the remaining provisions of this Contract shall be enforced as if this Contract was entered into without an invalid provision. If the ruling and/or controlling principle of law or equity leading to the ruling is subsequently overruled, modified or amended by legislation, judicial or administrative action, then the provision(s) in question as originally set forth in this Contract shall be deemed valid and enforceable to the maximum extent permitted by the new controlling principal of law or equity.

26. Survival. Any provisions of this Contract that impose continuing obligations on the parties shall survive the expiration or termination of this Contract for any reason.

27. Changes in the Project: Change Orders.

27.1. Requests for Change Orders. The City reserves the right on its own volition, or based upon a proposal for a Change Order submitted in written form with a thorough explanation by the Contractor, to request from time to time any changes to the requirements and specifications of this Contract and the products to be provided and the functions and services to be performed by the Contractor under this Contract. Such changes must be authorized by the City. The City will not approve of any change orders, deletions, additions, or additional work items to the Scope of Services or any change in the terms and conditions of this Contract except by means of a City authorized amended Scope of Services, applicable and restricted to those items set forth in §1, above, or Change Order issued as set forth in this section, except in the event of an emergency endangering life or property.

27.2. Procedures.

27.2.1 The Contractor's Response to a Change Request.

i. Within thirty (30) calendar days after receipt of a request by the City for any such change or such other period of time as the Parties may mutually agree to in writing, the Contractor shall submit to the City a proposal describing any changes in Contract Milestones or Contract completion dates, products, functions, timing of delivery, assignment of personnel, and the like, and any associated price adjustment. The Contractor's proposal shall describe, in detail, the basis for the proposed price adjustment, including the charges for any products required to implement the change request.

ii. To the extent that additional cost or cost savings result from a change in required products, the Contractor shall obtain any additional products and provide them to the City at a negotiated price acceptable to the City and the Contractor. Similarly, if the change request is expected to result in a reduction in products required to perform the services, the Contractor's charges shall be reduced by the cost savings resulting from the products eliminated by the change request.

27.2.2 City's Acceptance of Change Request. If the City accepts the Contractor's proposal, the City shall issue a change order referencing the Contractor's proposal and both parties shall sign the change order. The Contractor shall not implement any change request until the City has issued a valid, properly executed, change order.

27.2.3 City's Rejection of Change Request. If the City does not accept the Contractor's proposal, the City may within two weeks of such non-acceptance: (i) withdraw its change request; or, (ii) modify its change request, in which case

the procedures set forth above shall apply to the Contractor's response to the modified change request.

27.3. City Discretion. The City may, in its sole discretion, approve the proposed Change Order and shall forward same for additional signatures under the following conditions: **(i)** If it conforms to provisions of applicable laws, and **(ii)** if it is consistent with this Contract, and **(iii)** if the time of performance of this Contract will not be unreasonably delayed, **(iv)** the Final Completion date is not changed, **(v)** if the Change Order requires a change to the Final Completion date, such change has been authorized by an approved, executed, written Amendment to this Contract, and **(vii)** if the Change Order requires an increase in the price of the Contract, the City **(1)** has sufficient funds, and **(2)** if a budget transfer is required to cover the cost of the proposed Change Order, such transfer has secured the written approval of the Board of Aldermen and other required regulatory agencies.

27.4. Change Orders Governed by the Provisions of this Contract. All work performed under a Change Order is governed by the provisions of this Contract.

28. Conflicts or Disputes. This Contract represents the concurrence between the City and the Contractor and governs all disputes between them. In the instance of a conflict or dispute over issues not specifically referenced within the Contract, the following documents shall be used as historical documents, without regard to the order of precedence, to resolve such conflicts or disputes, as follows: **(i)** the City's **RFP Number 7473**, and **(ii)** the Contractor's response to **RFP Number 7473**. Said historical documents are attached hereto as part of **Attachment A**.

28.1. Procedure. This procedure supersedes all statements to the contrary occurring either in proposals or other prior agreements, oral or written, and all other communications between the parties relating to this subject.

28.2. Presumption. This Contract or any section thereof shall not be construed against any party due to the fact that the Contract or any section thereof was drafted by such party.

29. Disputes; Legal Proceedings; Waiver of Trial by Jury and Continued Performance. The Contractor agrees that it waives a trial by jury as to any and all claims, causes of action or disputes arising out of this Contract or services to be provided pursuant to this Contract. Notwithstanding any such claim, dispute or legal action, the Contractor shall continue to perform services under this Contract in a timely manner, unless otherwise directed by the City.

30. Binding Contract. The City and the Contractor each bind themselves, and their successors, assigns and legal representatives to the other party to this Contract and to the

successors, assigns and legal representatives of such other party with respect to all covenants of this Contract.

31. Waiver. Any waiver of the terms and conditions of this Contract by either of the parties hereto shall not be construed to be a waiver of any other term or condition of this Contract.

32. Governing Laws. This Contract, its terms and conditions and any claims arising there from shall be governed by the laws of the State of Connecticut.

33. Notice. Except as otherwise specifically prohibited in this Contract, whenever under this Contract approvals, authorizations, determinations, notices, satisfactions or waivers are required or permitted, such items shall be effective and valid only when given in writing signed by a duly authorized officer of the City or the Contractor, and delivered in hand or sent by mail, postage prepaid, to the party to whom it is directed, which until changed by written notice, are as follows:

Contractor: J.A. Rosa Construction, LLC
17 Town Line Rd
Wolcott, CT 06716

City: Rosh Maghfour
Interim Chief Operating Officer
Waterbury Public Schools
236 Grand Street
Waterbury, CT 06702

With copy to:
City of Waterbury
Office of the Corporation Counsel
City Hall Municipal Building - 3rd Floor
235 Grand Street
Waterbury, CT 06702

34. City Code of Ordinances, Ethics and Conflict of Interest Code, Provisions.

The Person (the term "Person" shall herein be as defined in Section 38 of the City's Code of Ordinances) supplying the labor, services, equipment, materials, reports, plans, specifications, drawings, deliverables, incidentals, etc. under this Contract shall comply with all applicable Federal, State and Municipal statutes, regulations, charters, ordinances, rules, etc, whether or not they are expressly stated in this Contract, including but not limited to the following:

34.1. It shall be a material breach of this Contract, and, except as may be permitted by regulations or rulings of the City of Waterbury Board of Ethics it shall be a violation of

the City's Code of Ordinances, for any Public Official, City Employee or Member of a Board or Commission who is participating directly or indirectly in the procurement process as set forth in the City's Code of Ordinances, including those participating in exempt transactions, to become or be the employee of any person contracting with the governmental body by whom the Official, Employee, or Board or Commission member is employed or is a member.

34.2. It shall be a material breach of this Contract, and it shall be a violation of the City's Code of Ordinances for any Person to offer, give, or agree to give any current or former Public Official, Employee or Member of a Board or Commission, or for such current or former Public Official, Employee or Member of a Board or Commission to solicit, demand, accept or agree to accept from another Person, a gratuity or an offer of employment in connection with any: decision; approval; disapproval; recommendation; preparation of any part of a program requirement or a requisition; influencing the content of any specification or procurement standard; or rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a Contract or Purchase Order, or to any solicitation or proposal therefore.

34.3. It shall be a material breach of this Contract and it shall be a violation of the City's Code of Ordinances for any payment, Gratuity, or offer of employment to be made as an inducement for the award of a subcontract or order, by or on behalf of a subcontractor, the prime Contractor or higher tier subcontractor or any Person associated therewith, under a Contract or Purchase Order to the City.

34.4. The value of anything transferred or received in violation of the City's Charter, Code of Ordinances, and/or regulations promulgated there under, by any Person subject to said Charter and/or Ordinances may be recovered by the City.

34.5. Upon a showing that a subcontractor made a kickback to the City, a prime Contractor or a higher tier subcontractor in connection with the award of a subcontract or order there under, it shall be conclusively presumed that the amount thereof was included in the price of the subcontract or order and ultimately borne by the City and will be recoverable hereunder from the recipient. In addition, said value may also be recovered from the subcontractor making such kickbacks. Recovery from one offending party shall not preclude recovery from other offending parties.

34.6. It shall be a material breach of this Contract and it shall be a violation of the City's Code of Ordinances for a Person to be retained, or to retain a Person, to solicit or secure a contract with the City upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee; and every Person, before being awarded a City Contract, shall deliver to the City, on a City authored form, a representation that such Person has not retained anyone in violation of this subsection 34.6, the failure to

deliver said form being a material breach of this Contract and a violation of the City's Code of Ordinances. Note, however, this subsection 34.6 shall not apply to full-time Employees who, as a condition of their employment, may be entitled to bonuses or other fees in accordance with their employment relationship.

34.7. The Person hereby expressly represents that he/she/it has complied with those sections of the City's Code of Ordinances requiring that said Person has **(i)** delivered to the City an affidavit, on a City authored form, stating that the Person and its affiliates have no delinquent taxes or other financial obligations owed to the City; **(ii)** filed the City authored financial disclosure statement form as set forth in the City's Code of Ordinances regarding disclosure of financial interests; **(iii)** delivered to the City a written acknowledgement, on a City authored form, evidencing receipt of a copy of the "Ethics and Conflict of Interest" ordinance for the City of Waterbury and hereby expressly represents that said Person is in full compliance with the entirety of said Code of Ordinances; and **(iv)** filed a current list of all taxable personal and real property as required by the State of Connecticut General Statutes. Any violation of this subsection 34.7 shall be deemed a material breach of this Contract and shall be a violation of the City's Code of Ordinances.

34.8. The definitions set forth in the City's Code of Ordinances shall be the primary source for interpretation of the forgoing subsections 34.1-34.7.

34.9. The Contractor is hereby charged with the requirement that it shall have knowledge of, and shall fully comply with, all relevant provisions of the City's Charter and all relevant provisions of the City's Code of Ordinances, including without limitation Chapters 93, titled "Discriminatory Practices", Chapter 38 titled "Centralized Procurement System", and Chapter 39 titled "Ethics and Conflict of Interest", of said Code as may be amended from time to time.

34.10 The Contractor hereby acknowledges receipt of a copy of the Chapters 38 and 39 of City's Ordinance regarding Procurement, Ethics, and Conflicts of Interest and has familiarized itself with said Code and hereby agrees to adhere to said Code. The text of Chapters 38 and 39 of said Code may be obtained from the Office of the City Clerk of the City and on the internet at the City Clerk's web site: <http://www.waterburyct.org/content/458/539/default.aspx> [click link titled "The City of Waterbury Code of Ordinances Passed 8/24/2009". For Chapter 38, click on "TITLE III: ADMINISTRATION", then click on "CHAPTER 38: CENTRALIZED PROCUREMENT SYSTEM". For Chapter 39, click on "TITLE III: ADMINISTRATION", then click on "CHAPTER 39: ETHICS AND CONFLICTS OF INTEREST"]].

34.11. The Contractor is hereby charged with the requirement that it shall have knowledge of, and shall fully comply with, the City's Ordinance Sections 34.15 through 34.99 entitled, "Ordinance Concerning the Hiring of Waterbury Residents on Certain

Publicly-Funded Construction Projects," and the State of Connecticut Legislature's Special Act No. 01-1.

34.12. Every Person who conducts business with, contracts, with or provides commodities or services to the City, is charged with notice of the extent of the powers and authority, and the limitations thereon, of the Public Officials and Employees of the City, as set forth in the charter of the City, the Code of Ordinances and any Regulations or Policies pertaining thereto. In particular, and without implying any limitation as to its applicability, it applies to all Persons who participate in the procedures pertaining to the Centralized Procurement System as set forth in Chapter 38, and the Ethics and Conflict of Interest provisions set forth in Chapter 39 of the Code of Ordinances.

34.13. INTEREST OF CITY OFFICIALS. No member of the governing body of the City, and no other officer, employee, or agent of the City who exercises any functions or responsibilities in connection with the carrying out of the project, to which this agreement pertains, shall have any personal interest, direct or indirect, in this agreement.

34.14. PROHIBITION AGAINST CONTINGENCY FEES. The Contractor hereby represents that it has not retained anyone to solicit or secure a contract with the City upon an agreement or understanding for a commission, percentage, brokerage or contingency fee.

34.15. FREEDOM OF INFORMATION ACT NOTICE. Pursuant to State statute, in the event the total compensation payable to the Contractor set forth in Section 6 of this Contract is greater than \$2,500,000.00, the City is entitled to receive a copy of any and all Contractor records and files related to the performance of this Contract and those records and files are subject to the Freedom of Information Act ("the Act") and may be disclosed by the City pursuant to the Act.

35. Definitions. Whenever the following, words, terms, etc. appear in this Contract, the intent and meaning shall be as follows:

35.1 Additional Work: Work required by the City that involves a substantial addition to, deduction from or modification of the Contract Documents.

35.2 Bid or Proposal: The form on which the bidder is to submit a bid for the Work contemplated.

35.3 Bidder or Proposer: A person, partnership, corporation or other business organization submitting a bid or proposal on the form for the Work contemplated.

- 35.4** City: The City of Waterbury, acting directly or through specifically authorized personnel.
- 35.5** Construction Supervisor: An employee of the City of Waterbury, or other City duly authorized person.
- 35.6** Contract Time: The number of days as stated in the Contract to: (i) achieve Substantial Completion (ii) Final Completion and any other identified Project Milestone.
- 35.7** Equal: The recognized equivalent in substance and function; considering quality, workmanship, economy of operation, durability and suitability for purposes intended, and not constituting a change in the Work specified. Whenever the words "equal" or "equals" or words of like import are used, it shall be understood they mean "equal" in the opinion of the City.
- 35.8** Final Completion: The time at which the Project has progressed to the point where, in the opinion of the City, the Project is complete such that it is ready for final payment as evidenced by the City's, or its duly authorized City representative's, written recommendation of final payment. The terms "finally complete" and "finally completed" as applied to the Project refer to Final Completion.
- 35.9** Notice to Proceed: A letter from the City which shall state the date of execution of the Contract and specifically advise the Contractor to begin work on the Contract.
- 35.10** Plans: All drawings or reproductions of drawings pertaining to the construction of the work contemplated and its appurtenances.
- 35.11** Project Engineer or Manager: **Friar Architecture Inc.**
- 35.12** Shop Drawings: Drawings, diagrams, schedules, performance charts, brochures and other materials prepared by the Contractor or subcontractors, manufacturers or distributors which illustrate some portion of the work.
- 35.13** Specifications or Technical Specifications: The description, provisions and other requirements pertaining to the materials, methods and manner of performing the Project.
- 35.14** Subcontractor: A person, partnership, corporation or other business organization supplying labor and/or materials for work at the site of the Project to and under agreement with the Contractor.

- 35.15** Substantial Completion: The time at which, in the opinion of the Project Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work mean Substantial Completion thereof.
- 35.16** Substitution: A replacement of specified material, device or equipment which is sufficiently different in substance, function, quality or workmanship to become the subject of a Change Order.
- 35.17** Supplementary General Conditions (also known as Special Conditions): An extension to the terms, conditions, and provisions set forth in this document as additional, material, provisions of this Contract.
- 35.18** Work: All plant, labor, materials, services, supplies, equipment and other facilities and items necessary for, or incidental to, the completion of the terms of the Contract.
- 35.19** Using Agency: **City of Waterbury Department of Education.**

[Signature page follows]

IN WITNESS WHEREOF, the parties hereto execute this Contract on the dates signed below.

WITNESSES:

CITY OF WATERBURY

Sign: _____
Print name: _____


By: _____
Neil M. O'Leary, Mayor

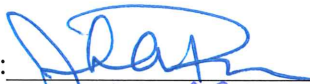
Sign: _____
Print name: _____

Date: _____

WITNESSES:

J.A. ROSA CONSTRUCTION, LLC

Sign: 
Print name: Abigail Darin

By: 
Print name: John A. Rosa
Its Sole Managing Member

Sign: 
Print name: Peter Cappellino

Date: 1/25/2023

ATTACHMENT A

Attachment A shall consist of the following, which are attached hereto, are acknowledged by the Contractor as having been received, or otherwise hereby incorporated by reference as noted below, and all are made a part hereof:

- 1.1.1 RFP Number 7473** (acknowledged by the Contractor as having been received and incorporated by reference);
- 1.1.2 RFP Number 7473 Addendum #1**, dated December 13, 2022 and consisting of 26 pages (attached hereto);
- 1.1.3 RFP Number 7473 Addendum #2**, dated December 14, 2022 and consisting of 1 pages (attached hereto);
- 1.1.4 Contractor's Proposal**, dated December 19, 2022 and consisting of 45 pages, submitted in response to **RFP Number 7473** and Contractor's Revised Price Proposal, dated January 17, 2023 and consisting of 1 page (all attached hereto);
- 1.1.5 Annual Statement of Financial Interests; Disclosure and Affidavit Re: Outstanding Obligations to the City; Debarment Certification; Corporate Resolution, Non-Collusive Affidavit** (incorporated by reference);
- 1.1.6 Certificates of Insurance** (attached hereto);
- 1.1.7 Performance Bond and Payment Bond** (attached hereto);
- 1.1.8 Technical Specifications** consisting of 595 pages (attached hereto);
 - 1.1.8.1 June 17, 2022 letter from Facility Support Services to Rosh Mangfour consisting of 3 pages re: Bunker Hill;
 - 1.1.8.1.1 Attachment A – Asbestos Inspection Certificate consisting of 2 pages;
 - 1.1.8.1.2 Attachment B – Laboratory Analytical Results consisting of 8 pages;
 - 1.1.8.2 June 17, 2022 letter from Facility Support Services to Rosh Mangfour consisting of 3 pages re: Washington School;
 - 1.1.8.2.1 Attachment A – Asbestos Inspection Certificate consisting of 2 pages;
 - 1.1.8.2.2 Attachment B – Laboratory Analytical Results consisting of 8 pages;

- 1.1.8.3 August 22, 2022 letter from Welti Geotechnical P.C. to Friar Architecture consisting of 4 pages re: Bunker Hill School;
- 1.1.8.3.1 Appendix Boring Log Plan and Test Boring log consisting of 3 pages;
- 1.1.8.4 August 22, 2022 letter from Welti Geotechnical P.C. to Friar Architecture consisting of 4 pages re: Washington School;
- 1.1.8.4.1 Appendix Boring Log Plan and Test Boring log consisting of 3 pages;
- 1.1.9** Drawings consisting of “Washington Elementary School”, prepared by CES Engineering Svcs, LLC, dated September 1, 2022 and consisting of 49 sheets; and “Bunker Hill Elementary School”, prepared by CES Engineering Svcs, LLC, dated September 1, 2022 and consisting of 51 sheets (attached hereto);
- 1.1.10** Special Conditions (Article 1 – Article 20) consisting of 6 pages (attached hereto);
- 1.1.11** General Conditions (Article 1 – Article 114) consisting of 36 pages (attached hereto);
- 1.1.12** State Wage Rate Documentation (attached hereto);
- 1.1.13** Any and all amendment(s) and Change Orders issued by the City after execution of Contract (incorporated by reference);
- 1.1.14** All applicable Federal, State and local statutes, regulations, charter and ordinances (incorporated by reference), and
- 1.1.15** All permits (including, but not limited to, City of Waterbury Building permit(s)) and licenses (incorporated by reference).

**OPERATING AGREEMENT
OF
J.A. ROSA CONSTRUCTION, LLC
(SOLE MANAGING MEMBER MANAGED)**

This Operating Agreement of **J.A. ROSA CONSTRUCTION, L.L.C.** limited liability company organized pursuant to the Connecticut Limited Liability Company Act, is entered into and shall be effective as of the Effective Date, by and between the persons executing this Agreement as Members.

**ARTICLE I
DEFINITIONS**

For purposes of this Company Agreement (as defined below), unless the context clearly indicates otherwise, the following terms shall have the following meanings:

1.1 Act. The Connecticut Limited Liability Company Act and all amendments to the Act.

1.2 Additional Member. A Member other than an Initial Member or a Substitute Member who has acquired a Membership Interest from the Company.

1.3 Admission Agreement. The Agreement between an Additional Member and the Company described in Article XIII.

1.4 Articles. The Articles of Organization of the Company as properly adopted and amended from time to time by the Members and filed with the Secretary of State.

1.5 Assignee. A transferee of a Membership Interest who has not been admitted as a Substitute Member.

1.6 Bankrupt Member. A Member who: (1) has become the subject of an Order for Relief under the United States Bankruptcy Code, (2) has initiated, either in an original Proceeding or by way of answer in any state insolvency or receivership proceeding, an action for liquidation, arrangement, composition, readjustment, dissolution, or similar relief.

1.7 Business Day. Any day other than Saturday, Sunday or any legal holiday observed in the State of Connecticut.

1.8 Capital Account. The account maintained for a Member or Assignee determined in accordance with Article VIII.

1.9 Capital Contribution. Any contribution of Property, services or the obligation to contribute Property or services made by or on behalf of a Member or Assignee.

1.10 Code. The United States Internal Revenue Code of 1986 as amended from time to time.

1.11 Commitment. The Capital Contributions of a member as set forth on Exhibit A hereto, and any additional Capital Contribution that a member or Assignee has agreed to make.

1.12 Company. **J.A. ROSA CONSTRUCTION, LLC**, a limited liability company formed under the laws of the State of Connecticut, and any successor limited liability company.

1.13 Company Agreement. This Operating Agreement, including all Admission Agreements and amendments adopted in accordance with the Company Agreement and the Act.

1.14 Company Liability. Any enforceable debt or obligation for which the Company is liable or which is secured by any Company Property.

1.15 Company Minimum Gain. An amount determined by first computing for each Company Nonrecourse Liability any gain the Company would realize if it disposed of the Company Property subject to that liability for no consideration other than full satisfaction of the liability, and then aggregating the separately computed gains. The amount of Company Minimum Gain includes such minimum gain arising from a conversion, refinancing, or other change to a debt instrument, only to the extent a Member is allocated a share of that minimum gain. For any Taxable Year, the net increase or decrease in Company minimum Gain is determined by comparing the Company Minimum Gain on the last day of the immediately preceding Taxable Year with the Minimum Gain on the last day of the current Taxable Year. Notwithstanding any provision to the contrary contained herein, Company Minimum Gain and increases and decreases in Company Minimum Gain are intended to be computed in accordance with Sec. 704 of the Code and the Regulations issued thereunder, as the same may be issued and interpreted from time to time. A Member's share of Company minimum Gain at the end of any Taxable Year equals: the sum of Nonrecourse Deductions allocated to that Member (and to that Member's predecessors in interest) up to that time and the distributions made to that Member (and to that Member's predecessors in interest) up to that time of proceeds of a

nonrecourse liability allocable to an increase in Company Minimum Gain minus the sum of that Member's (and that Member's predecessors in interest) aggregate share of the net decreases in Company Minimum Gain plus their aggregate share of decreases resulting from revaluations of Company Property subject to one or more Company Nonrecourse Liabilities.

1.16 Company Nonrecourse Liability. A Company Liability to the extent that no Member or Related Person bears the economic risk of loss (as defined in Sec. 1.752-2 of the Regulations) with respect to the liability.

1.17 Company Property. Any Property owned by the Company.

1.18 Contributing Members. Those members making contributions as a result of the failure of a Delinquent Member to make the contributions required by the Commitment as described in Article VIII.

1.19 Default Interest Rate. The higher of the legal rate or the then-current prime rate of Citibank, N.A., New York, New York.

1.20 Delinquent Member. A Member or Assignee who has failed to meet the Commitment of that Member or Assignee.

1.21 Distribution. A transfer of Property to a member on account of a Membership Interest as described in Article IX.

1.22 Disposition (Dispose). Any sale, assignment, transfer, exchange, mortgage, pledge, grant, hypothecation, or other transfer, absolute or as security or encumbrance (including dispositions by operation of law).

1.23 Dissociation (Dissociate). Any action which causes a Person to cease to be a Member as described in Article XII hereof.

1.24 Dissolution Event. An event, the occurrence of which will result in the dissolution of the Company under Article XIV unless the Members agree to the contrary.

1.25 Effective Date. The Effective Date shall be as set forth in Article II, Section 4 of this Agreement.

1.26 Immediate Family. A Member's Immediate Family includes the Member's spouse, children (including natural, adopted and stepchildren), grandchildren, and parents.

1.27 Initial Capital Contribution. The Capital Contribution agreed to be made by the Initial members as described in Article VIII.

1.28 Initial Members. Those persons identified on Exhibit A attached hereto and made a part hereof by this reference who have executed the Company Agreement.

1.29 Majority. The affirmative vote or consent of Members described as a "Majority" in Article VI hereof.

1.30 Management Right. The right of a Member to participate in the management of the Company, including the rights to information and to consent or approve actions of the Company.

1.31 Managing Member. The Member selected to manage the affairs of the Company under Article VII hereof.

1.32 Member. Initial Member, Substituted Member or Additional Member, and unless the context expressly indicates to the contrary, includes the Managing Member and Assignees.

1.33 Member Minimum Gain. An amount determined by first computing for each Member Nonrecourse Liability any gain the Company would realize if it disposed of the Company Property subject to that liability for no consideration other than full satisfaction of the liability, and then aggregating the separately computed gains. The amount of Member Minimum Gain includes such minimum gain arising from a conversion, refinancing, or other change to a debt instrument, only to the extent a Member is allocated a share of that minimum gain. For any Taxable Year, the net increase or decrease in Member Minimum Gain is determined by comparing the Member Minimum Gain on the last day of the immediately preceding Taxable Year with the Minimum Gain on the last day of the current Taxable Year. Notwithstanding any provision to the contrary contained herein, Member Minimum Gain and increases and decreases in Member Minimum Gain are intended to be computed in accordance with Sec. 704 of the Code and the Regulations issued thereunder, as the same may be issued and interpreted from time to time.

1.34 Member Nonrecourse Liability. Any Company Liability to the extent the liability is nonrecourse under state law, and on which a Member or Related Person bears the economic risk of loss under Sec. 1.752-2 of the Code because, for example, the Member or Related Person is the creditor or a guarantor.

1.35 Membership Interest. The rights of a Member or, in the case of an Assignee, the rights of the assigning Member in Distributions (liquidating or otherwise)

and allocations of the profits, losses, gains, deductions, and credits of the Company.

1.36 Money. Cash or other legal tender of the United States, or any obligation that is immediately reducible to legal tender without delay or discount. Money shall be considered to have a fair market value equal to its face amount.

1.37 Net Losses. The losses and deductions of the Company determined in accordance with accounting principles consistently applied from year to year employed under the method of accounting adopted by the Company and as reported separately or in the aggregate, as appropriate, on the tax return of the Company filed for federal income tax purposes.

1.38 Net Profits. The income and gains of the Company determined in accordance with accounting principles consistently applied from year to year employed under the method of accounting adopted by the Company and as reported separately or in the aggregate, as appropriate, on the tax return of the Company filed for federal income tax purposes.

1.39 Nonrecourse Liabilities. Nonrecourse liabilities include Company Nonrecourse Liabilities and Member Nonrecourse Liabilities.

1.40 Notice. Notice shall be in writing. Notice to the Company shall be considered given when mailed by first class mail postage prepaid addressed to the Managing Member in care of the Company at the address of Principal Office. Notice to a Member shall be considered given when mailed by first class mail postage prepaid addressed to the Member at the address reflected in the Company Agreement unless the Member has given the Company a Notice of a different address.

1.41 Offsettable Decrease. Any allocation that unexpectedly causes or increases a deficit in a Member's Capital Account as of the end of the taxable year to which the allocation relates attributable to depletion allowances under Sec. 1.704(b)(2)(iv)(k) of the Regulations, allocations of loss and deductions under Sec. 704(e)(2) or 706 of the Code or under Sec. 1.751-1 of the Regulations, or distributions that, as of the end of the year are reasonably expected to be made to the extent they exceed the offsetting increases to such Member's Capital Account that reasonably are expected to occur during (or prior to) the taxable years in which the such distributions are expected to be made (other than increases pursuant to a minimum gain chargeback).

1.42 Organization. A Person other than a natural person. Organization includes, without limitation, corporations (both stock and nonstock corporations), partnerships (both limited and general), joint ventures, limited liability companies, and unincorporated associations, but the term does not include joint tenancies and tenancies by the entirety.

1.43 Organization Expenses. Those expenses incurred in the organization of the Company including the costs of preparation of the Company Agreement and Articles.

1.44 Permitted Transferee. Any member of the Member's Immediate Family, or an Organization controlled by such Member or by members of the Member's Immediate Family.

1.45 Person. An individual, trust, estate, or any incorporated or unincorporated organization permitted to be a member of a limited liability company under the laws of the State of Connecticut.

1.46 Proceeding. Any judicial or administrative trial, hearing or other activity, civil, criminal, or investigative, the result of which may be that a court, arbitrator, mediator or governmental agency may enter a judgment, order, decree, or other determination which, if not appealed and reversed, would be binding upon the Company, a Member or other person subject to the jurisdiction of such court, arbitrator, mediator, or governmental agency.

1.47 Property. Any property, real or personal, tangible or intangible, including money and any legal or equitable interest in such property, but excluding services and promises to perform services in the future.

1.48 Regulations. Except where the context indicates otherwise, the permanent, temporary, proposed, or proposed and temporary regulations of Department of the Treasury under the Code as such regulations may be lawfully changed from time to time.

1.49 Related Person. A person having a relationship to a Member that is described in Sec. 1.752-4(b) of the Regulations.

1.50 Resignation. The act by which the Managing Member ceases to be the Managing Member.

1.51 Sharing Ratio. With respect to any Member, the percentage set forth as the Member's Sharing Ratio on Exhibit A.

1.52 Substitute Member. An Assignee who has been admitted to all of the rights of membership pursuant to the Company Agreement.

1.53 Taxable Year. The taxable year of the Company as determined pursuant to Sec. 706 of the Code.

1.54 Taxing Jurisdiction. Any state, local, or foreign government that collects tax, interest or penalties, however, designated, on any Member's share of the income or gain attributable to the Company.

ARTICLE II FORMATION

2.1 Organization. The Members hereby organize the Company as a Connecticut limited liability company pursuant to the provisions of the Act.

2.2 Agreement. For and in consideration of the mutual covenants herein contained and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Members executing the Company Agreement hereby agree to the terms and conditions of the Company Agreement, as it may from time to time be amended according to its terms. It is the express intention of the Members that the Company Agreement shall be the sole source of agreement of the parties, and, except to the extent a provision of the Company Agreement expressly incorporates federal income tax rules by reference to sections of the Code or Regulations or is expressly prohibited or ineffective under the Act, the Company Agreement shall govern, even when inconsistent with, or different than, the provisions of the Act or any other law or rule. To the extent any provision of the Company Agreement is prohibited or ineffective under the Act, the Company Agreement shall be considered amended to the smallest degree possible in order to make the agreement effective under the Act. In the event the Act is subsequently amended or interpreted in such a way to make any provision of the Company Agreement that was formerly invalid valid, such provision shall be considered to be valid from the effective date of such interpretation or amendment.

2.3 Name. The Company's name at the time of organization shall be **J.A. ROSA CONSTRUCTION, LLC** and all business of the Company shall be conducted under that name or under any other name, but in any case, only to the extent permitted by applicable law.

2.4 Effective Date. The Company Agreement shall become effective upon the filing and acceptance of the Articles of Organization of the Company with the Secretary of the State of Connecticut.

2.5 Term. The Company shall be dissolved and its affairs wound up in accordance with the Act and the Company Agreement on **December 10, 2029**, unless the term shall be extended by amendment to the Company Agreement and the Articles of Organization, or unless the Company shall be sooner dissolved and its affairs wound up in accordance with the Act or the Company Agreement.

2.6 Registered Agent and Office. The registered agent for the service of process and the registered office shall be that Person and location reflected in the Articles as filed in the office of the Secretary of the State. The Managing Member may, from time to time, change the registered agent or office through appropriate filings with the Secretary of the State. In the event the registered agent ceases to act as such for any reason or the registered office shall change, the Managing Member shall promptly designate a replacement registered agent or file a notice of change of address as the case may be. If the Managing Member shall fail to designate a replacement registered agent or change of address of the registered office, any Member may designate a replacement registered agent or file a notice of change of address.

2.7 Principal Office. The "Principal Office" of the Company shall be located at **109 Ransom Hall Road, Wolcott, CT 06716**.

ARTICLE III NATURE OF BUSINESS

The nature of the business to be transacted or the purposes to be promoted or carried out by the Company shall be to engage in any lawful act or activity for which limited liability companies may be formed under the Act. The Company shall have the authority to do all things necessary or convenient to accomplish its purpose and operate its business as described in this Article III. The authority granted to the Managing Member hereunder to bind the Company shall be limited to actions necessary or convenient to this business.

ARTICLE IV ACCOUNTING AND RECORDS

4.1 Records to be Maintained. The Company shall maintain the following records at the Principal Office:

4.1.1 A current list of the full name and last known business address of each Member set forth;

4.1.2 A copy of the articles of organization and all amendments thereto, together with executed copies of any powers of attorney pursuant to which any articles have been executed;

4.1.3 Copies of the Company's federal, foreign, state and local income tax returns and reports, if any, for the three most recent years;

4.1.4 Copies of the Company Agreement including all amendments thereto;
and

4.1.5 Any financial statements of the Company for the three most recent years.

4.2 Reports to Member.

4.2.1 The Managing Member shall provide reports at least annually to the Member other than Assignees at such time and in such manner as the Managing Member may determine reasonable.

4.2.2 The Managing Member shall provide all Members with those information returns required by the Code and the laws of any state.

4.3 Accounts. The Managing Member shall maintain a record of Capital Account for each Member in accordance with Article VIII.

ARTICLE V NAMES AND ADDRESSES OF MEMBERS

The names and addresses of the Initial Members are as reflected on Exhibit A attached hereto and by this reference made a part hereof as if set forth fully herein.

ARTICLE VI RIGHTS AND DUTIES OF MEMBERS

6.1 Management Rights. All Members (other than Assignees) who have not Dissociated shall be entitled to vote or any matter submitted to a vote of the Members. Notwithstanding the foregoing, the following actions require the consent of a Majority of the Members:

6.1.1 any amendment to this Company Agreement,

6.1.2 the admission of Assignees to Management Rights,

6.1.3 the continuation of the Company after a Dissolution Event.

6.2 Majority. Whenever any matter is required or allowed to be approved by a Majority of the Members or a Majority of the remaining members under the Act or the Company Agreement, such matter shall be considered approved or consented to upon the receipt of the affirmative approval or consent, either in writing or at a meeting of the Members, of Members having Sharing Ratios in excess of one half of the Sharing Ratios of all the Members entitled to vote on a particular matter. Assignees and, in the case of approvals to withdrawal where consent of the remaining Members is required, dissociating Members shall not be considered Members entitled to vote for the purpose of determining a Majority. In the case of a Member who has Disposed of that Member's entire Membership Interest to an Assignee, but has not been removed as provided below, the Sharing Ratio of such Assignee shall be considered in determining a Majority and such Member's vote or consent shall be determined by such Sharing Ratio.

6.3 Liability of Member. No Member (including the Managing Member) shall be liable, solely by reason of being a Member or managing Member, under a judgment, decree or order of a court, or in any other manner, for a debt, obligation or liability of the Company, whether arising in contract, tort or otherwise or for the acts or omissions of any other member, manager, agent or employee of the Company. The failure of the Company to observe any formalities or requirements relating to the exercise of its powers or management of its business or affairs under this agreement or the Act shall not be grounds for imposing personal liability on the Members or managers for liabilities of the Company.

6.4 Indemnification. The Company shall indemnify the Members and the Managing Member for all judgments, settlements, penalties, fines or expenses incurred in a proceeding to which an individual or entity is a party because such individual or entity is or was a Member or Managing Member.

6.5 Representations and Warranties. Each Member, and in the case of an organization, the person(s) executing the Company Agreement on behalf of the organization, hereby represents and warrants to the Company and each other Member that: (a) if that Member is an organization, that it is duly organized, validly existing, and in good standing under the law of its state of organization and that it has full organizational power to execute and agree to the Company Agreement to perform its obligations hereunder; (b) that the Member is acquiring its interest in the Company for the Member's own account as an investment and without an intent to distribute the interest; (c) the Member acknowledges that the interests have not been registered under the Securities Act of 1933 or any state securities laws, and may not be resold or transferred by the Member without appropriate registration or the availability of an exemption from such requirements.

6.6 Conflicts of Interest.

6.6.1 Subject to the provisions of Article VII, Subsection 6.5, a Member, including the Managing Member, shall be entitled to enter into transactions that may be considered to be competitive with, or a business opportunity that may be beneficial to, the Company, it being expressly understood that some of the Members may enter into transactions that are similar to the transactions into which the Company may enter.

6.6.2 A Member, including the Managing Member, does not violate a duty or obligation to the Company merely because the Member's conduct furthers the Member's own interest. A Member may lend money to and transact other business with the Company. The rights and obligations of a Member who lends money to or transacts business with the Company are the same as those of a person who is not a Member, subject to other applicable law. No transaction with the Company shall be voidable solely because a Member has a direct or indirect interest in the transaction if either the transaction is fair to the Company or the Managing Member (if disinterested) or disinterested Members, in either case knowing the material facts of the transaction and the Member's interest, authorize, approve, or ratify the transaction.

ARTICLE VII THE MANAGING MEMBER

7.1 Original Managing Member. The ordinary and usual decisions concerning the business affairs of the Company shall be made by the Managing Member. There shall be one Managing Member who must be a Member of the Company. The initial Managing Member shall be **John A. Rosa**.

7.2 Term of Office as Managing Member. The Managing Member shall have no contractual right to such position. The Managing Member shall serve until the earliest of:

7.2.1 the Dissociation of the Managing Member;

7.2.2 removal of the Managing Member; or

7.2.3 the resignation of the Member from the position of Managing Member.

7.3 Authority of Managing Member to Bind the Company. The Members hereby agree that only the Managing Member and authorized agents of the Company shall have the authority to bind the Company. No Member other than the Managing Member shall take any action as a Member to bind the Company, and shall indemnify the Company for any costs or damages incurred by the Company as a result of the unauthorized action of such Member. The Managing Member has the power, on

behalf of the Company, to do all things necessary or convenient to carry out the business and affairs of the Company, including, without limitation:

7.3.1 the institution, prosecution and defense of any Proceeding in the Company's name;

7.3.2 the purchase, receipt, lease or other acquisition, ownership, holding, improvement, use and other dealing with, Property, wherever located;

7.3.3 the sale, conveyance, mortgage, pledge, lease, exchange, and other disposition of Property;

7.3.4 the entering into contracts and guaranties; incurring of liabilities, borrowing money, issuance of notes, bonds, and other obligations; and the securing of any of its obligations by mortgage or pledge of any of its Property or income;

7.3.5 the lending of money, investment and reinvestment of the Company's funds, and receipt and holding of Property as security for repayment, including, without limitation, the loaning money to, and otherwise helping Members, officers, employees, and agents;

7.3.6 the conduct of the Company's business, the establishment of Company offices, and the exercise of the powers of the Company within or without the State;

7.3.7 the appointment of employees and agents of the Company, the defining of their duties, the establishment of their compensation;

7.3.8 the payment of pensions and establishment of pension plans, pension trusts, profit sharing plans, and benefit and incentive plans for all or any of the current or former Members, employees, and agents of the Company;

7.3.9 the making of donations to the public welfare or for religious, charitable, scientific, literary or educational purposes;

7.3.10 any other act that furthers the business and affairs of the Company;

7.3.11 the payment of compensation, or additional compensation to any or all Members, and employees on account of services previously rendered to the limited liability company, whether or not an agreement to pay such compensation was made before such services were rendered;

7.3.12 the purchase of insurance on the life of any of its Members or employees for the benefit of the Company;

7.3.13 the participation in partnership agreements, joint ventures, or other associations of any kind with any person or persons;

7.3.14 the indemnification of Members or any other Person.

7.4 Action of Members and Managing Member.

7.4.1 No Member, solely by reason of being a Member, is an agent of the Company.

7.4.2 The Managing Member is an agent of the Company for the purpose of its business or affairs, and the act of the Managing member, including, but not limited to, the execution in the name of the Company of any instrument, for apparently carrying on in the usual way the business or affairs of the Company, binds the Company, unless the Managing Member so acting has, in fact, no authority to act for the Company in the particular matter, and the person with whom he is dealing has knowledge of the fact that the Managing Member has no such authority.

7.4.3 An act of the Managing Member or Member which is not apparently for the carrying on in the usual way the business or affairs of the Company does not bind the Company unless authorized in accordance with the Company Agreement, at the time of the transaction or at any other time.

7.4.4 An act of the Managing Member or Member in contravention of a restriction on authority shall not bind the Company to persons having knowledge of the restriction.

7.5 Compensation of Managing Member. The Managing Member shall be reimbursed all reasonable expenses incurred in managing the Company and shall be entitled to compensation, in an amount to be determined from time to time by the affirmative vote of a Majority of the Members (including the Managing Member).

7.6 Managing Member's Standard of Care.

7.6.1 The Managing Member shall discharge his duties under the Act and the Company Agreement, in good faith, with the care an ordinary prudent person in a like position would exercise under similar circumstances, and in the manner he reasonably believes to be in the best interests of the Company, and shall not be liable for any action taken as the Managing Member, or any failure to take such action, if he performs such duties in compliance with the provisions of this section.

7.6.2 In discharging his duties under the Act and the Company Agreement, the Managing Member is entitled to rely on information, opinions, reports or statements, including, but not limited to, financial statements or other financial data, if prepared or presented by: (1) One or more employees of the Company whom he reasonably believes to be reliable and competent in the matter presented; (2) legal counsel, public accountants or other persons, as to matters he reasonably believes are within the person's professional or expert competence; or (3) a committee of Members of which he is not a constituent if he reasonably believes the committee merits confidence.

7.6.3 The Managing Member is not acting in good faith if he has knowledge concerning the matter in question that makes any reliance otherwise permitted by subsection 6.2 of this section unwarranted.

7.6.4 In discharging his duties under the Act and the Company Agreement, the Managing Member shall not be liable to the Company or to any other member for actions or failures to act based on his good faith reliance on the provisions of the Company Agreement.

7.6.5 Every Member and the Managing Member must account to the Company and hold as trustee for it any profit or benefit derived by that person, without the consent of more than one-half by number of the disinterested Members, from (1) any transaction, connected with the conduct or winding up of the Company or (2) any use by the Member or Managing Member of its property, including, but not limited to, confidential or proprietary information of the Company or other matters entrusted to the person as a result of his status as a Member or Managing Member.

7.7 Limitation of Liability of Managing Member. A Managing Member's liability to the Company or the Members for monetary damages for breach of any duty provided for in Section 22 of the Act shall be eliminated to the fullest extent permitted by Section 24 of the Act.

7.8 Removal of Managing Member. The Managing Member may be removed by the affirmative vote of a Majority of the Members.

7.9 Vacancy. In the event that there is no Managing Member at a particular time, such vacancy or vacancies shall be filled by the affirmative vote of a Majority of the Members.

ARTICLE VIII CONTRIBUTIONS AND CAPITAL ACCOUNTS

8.1 Initial Contributions. Each Initial Member shall make the Capital Contribution described for that Member on Exhibit A at the time and on the terms specified on Exhibit A and shall perform that Member's Commitment. If no time for contributions is specified, the Capital Contributions shall be made upon the filing of the Articles of Organization with the Secretary of the State. The value of the Capital Contributions shall be as set forth on Exhibit A. No interest shall accrue on any Capital Contribution and no Member shall have the right to withdraw or be repaid any Capital Contribution except as provided in this Company Agreement. Each Additional Member shall make the Initial Capital Contribution described in the Admission Agreement. The value of the Additional Member's Initial Capital Contribution and the time for making such contribution shall be set forth in the Admission Agreement.

8.2 Additional Contributions. In addition to the Initial Capital Contributions and Commitments, the Managing Member may determine from time to time that additional contributions are needed to enable the Company to conduct its business. Upon making such a determination, the Managing Member shall give Notice to all Members in writing at least ten Business Days prior to the date on which such contribution is due. Such Notice shall set forth the amount of additional contribution needed, the purpose for which the contribution is needed, and the date by which the Members should contribute. Each Member shall be entitled to contribute a proportionate share of such additional contribution. Except to the extent of a Member's unpaid Commitment, no Member shall be obligated to make any such additional contributions. In the event any one or more Members do not make their additional contribution, the other members shall be given the opportunity to make the contributions. Each Additional Member shall make the Capital Contribution to which such Member has agreed, at the time or times and upon the terms to which the Managing Member and the Additional Member agree.

8.3 Enforcement of Commitments. The Managing Member shall give any Delinquent Member a Notice of any failure by Delinquent Member to meet the Member's Commitment. If the Delinquent Member fails to perform the Commitment (including any costs associated with the failure to demand compliance with the Commitment and interest on such obligation at the Default Interest Rate) within ten Business Days of the giving of Notice, the Managing Member may take such action, including but not limited to enforcing the Commitment in the court of appropriate jurisdiction in the State of Connecticut, the state in which the Principal Office is located or the state of the Delinquent Member's address as reflected in the Company Agreement. Each Member expressly agrees to the jurisdiction of such courts but only for the enforcement of Commitments. The Managing Member may elect to allow the other Members to contribute the amount of the Commitment in proportion to such

Members' Sharing Ratios, with those Members who contribute (the "Contributing Members") to contribute additional amounts equal to any amount of the Commitment not contributed. The Contributing Members shall be entitled to treat the amounts contributed pursuant to this section as a loan from the Contributing Members bearing interest at the Default Interest Rate secured by the Delinquent Member's interest in the Company. Until they are fully repaid the Contributing Members shall be entitled to all Distributions to which the Delinquent Member would have been entitled. Notwithstanding the foregoing, no Commitment or other obligation to make an additional contribution may be enforced by a creditor of the Company unless the Member expressly consents to such enforcement or to the assignment of the obligation to such creditor.

8.4 Maintenance of Capital Accounts. The Company shall establish and maintain Capital Accounts for each Member and Assignee. Each Member's Capital Account shall be increased by (1) the amount of any Money actually contributed by the Member to the capital of the Company, (2) the fair market value of any Property contributed, as determined by the Company and the Contributing Member at arm's length at the time of contribution (net of liabilities assumed by the Company or subject to which the Company takes such Property, within the meaning of Sec. 752 of the Code), and (3) the Member's share of Net Profits and of any separately allocated items of income or gain except adjustments of the Code (including any gain and income from unrealized income with respect to accounts receivable allocated to the Member to reflect the difference between the book value and tax basis of assets contributed by the Member). Each Member's Capital Account shall be decreased by (1) the amount of any Money actually distributed to the Member by the Company, (2) the fair market value of any Property distributed to the Member, as determined by the Company and the Contributing Member at arm's length at the time of Contribution (net of liabilities of the Company assumed by the Member or subject to which the Member takes such Property within the meaning of Sec. 752 of the Code), and (3) the Member's share of Net Losses and of any separately allocated items of deduction or loss (including any loss or deduction allocated to the Member to reflect the difference between the book value and tax basis of assets contributed by the Member).

8.5 Distribution of Assets. If the Company at any time distributes any of its assets in-kind to any Member, the Capital Account of each Member shall be adjusted to account for that Member's allocable share (as determined under Article IX below) of the Net Profits or Net Losses that would have been realized by the Company had it sold the assets that were distributed at their respective fair market values immediately prior to their distribution.

8.6 Sale or Exchange of Interest. In the event of a sale or exchange of some or all of a Membership Interest in the Company, the Capital Account of the

transferring Member shall become the capital account of the Assignee, to the extent it relates to the portion of the Interest transferred.

8.7 Compliance with Section 704(b) of the Code. The provisions of this Article VIII as they relate to the maintenance of Capital Accounts are intended, and shall be construed, and, if necessary, modified to cause the allocations of profits, losses, income, gain and credit pursuant to Article IX to have substantial economic effect under the Regulations promulgated under Sec. 704(b) of the Code, in light of the distributions made pursuant to Articles IX and XIV and the Capital Contributions made pursuant to this Article VIII. Notwithstanding anything herein to the contrary, this Company Agreement shall not be construed as creating a deficit restoration obligation or otherwise personally obligate any Member to make a Capital Contribution in excess of the Initial Contribution.

ARTICLE IX ALLOCATIONS AND DISTRIBUTIONS

9.1 Allocations of Net Profits and Net Losses from Operations. Except as may be required by Sec. 704(c) of the Code, and Sec. 2, 3, and 4 of this Article IX, Net Profits, Net Losses, and other items of income, gain, loss, deduction and credit shall be apportioned among the Members in proportion to their Sharing Ratios.

9.2 Company Minimum Gain Chargeback. If there is a net decrease in Company Minimum Gain for a Taxable Year, each Member must be allocated items of income and gain for that Taxable Year equal to that Member's share of the net decrease in Company Minimum Gain. A Member's share of the net decrease in Company Minimum Gain is the amount of the total net decrease multiplied by the Member's percentage share of the Company Minimum Gain at the end of the immediately preceding Taxable Year. A Member's share of any decrease in Company Minimum Gain resulting from a revaluation of Company Property equals the increase in the Member's Capital Account attributable to the revaluation to the extent the reduction in minimum gain is caused by the revaluations. A Member is not subject to the Company Minimum Gain Chargeback requirement to the extent the Member's share of the net decrease in Company Minimum Gain is caused by a guarantee, refinancing, or other change in the debt instrument causing it to become partially or wholly a Recourse Liability or a Member Nonrecourse Liability, and the Member bears the economic risk of loss (within the meaning of Sec. 1.752-2 of the Regulations) for the newly guaranteed, refinanced, or otherwise changed liability.

9.3 Member Minimum Gain Chargeback. If during a Taxable Year there is a net decrease in Member Minimum Gain, any Member with a share of that Member Minimum Gain (as determined under Sec. 1.704-2(i)(5) of the Regulations) as of the beginning of that Taxable Year must be allocated items of income and gain for that

Taxable Year (and, if necessary, for succeeding Taxable Years) equal to that Member's share of the net decrease in the Company Minimum Gain. A Member's share of the net decrease in Member Minimum Gain is determined in a manner consistent with the provisions of Paragraph (g)(2) of this section. A Member is not subject to this Member Minimum Gain Chargeback, however, to the extent the net decrease in Member Minimum Gain arises because the liability ceases to be Member Nonrecourse Liability due to a conversion, refinancing, or other change in the debt instrument that causes it to become partially or wholly a Company Nonrecourse Liability. The amount that would otherwise be subject to the Member Minimum Gain Chargeback is added to the Member's share of Company Minimum Gain. In addition, rules consistent with those applicable to Company Minimum Gain shall be applied to determine the shares of Member Minimum Gain and Member Minimum Gain chargeback to the extent provided under the Regulations issued pursuant to Sec. 704(b) of the Code.

9.4 Qualified Income Offset. In the event any Member, in such capacity, unexpectedly receives an Offsettable Decrease, such Member will be allocated items of income and gain (consisting of a pro rata portion of each item of partnership income and gain for such year) in an amount and manner sufficient to offset such Offsettable Decrease as quickly as possible.

9.5 Interim Distributions. From time to time, the Managing Member shall determine in his reasonable judgment to what extent, if any, the Company's cash on hand exceeds the current and anticipated needs, including, without limitation, needs for operating expenses, debt service, acquisitions, reserves, and mandatory distributions, if any. To the extent such excess exists, the Managing Member may make distributions to the Members in accordance with their Sharing Ratios. Such distributions shall be in cash or Property (which need not be distributed proportionately) or partly in both, as determined by the Managing Member.

9.6 Limitations on Distributions. No distribution shall be declared and paid unless, after the distribution is made, the assets of the Company are in excess of all liabilities of the Company, except liabilities to Members on account of their Capital Accounts.

ARTICLE X TAXES

10.1 Elections. The Managing Member may make any tax elections for the Company allowed under the Code or the tax laws of any state or other jurisdiction having taxing jurisdiction over the Company.

10.2 Taxes of Jurisdictions. To the extent that the laws of any Taxing Jurisdiction require, each Member requested to do so by the Managing Member will submit an agreement indicating that the Member will make timely income tax payments to the Taxing Jurisdiction and that the Member accepts personal jurisdiction of the Taxing Jurisdiction with regard to the collection of income taxes attributable to the Member's income, and interest, and penalties assessed on such income. If the Member fails to provide such agreement, the Company may withhold and pay over to such Taxing Jurisdiction the amount of tax, penalty and interest determined under the laws of the Taxing Jurisdiction with respect to such income. Any such payments with respect to the income of a Member shall be treated as a distribution for purposes of Article IX. The Managing Member may, where permitted by the rules of any Taxing Jurisdiction, file a composite, combined or aggregate tax return reflecting the income of the Company and pay the tax, interest and penalties of some or all of the Members on such income to the Taxing Jurisdiction, in which case the Company shall inform the Members of the amount of such tax interest and penalties so paid.

10.3 Tax Matters Partner. The Managing Member shall serve as the tax matters Partner of the Company pursuant to Sec. 6231(a)(7) of the Code. Any Member designated as tax matters partner shall take such action as may be necessary to cause each other Member to become a notice Partner within the meaning of Sec. 6223 of the Code. No Member, including the tax matters partner, may take any action contemplated by Sec. 6222 through 6232 of the Code without the consent of the Managing Member.

10.4 Cash Method of Accounting. The records of the Company shall be maintained on a cash receipts and disbursements method of accounting.

ARTICLE XI DISPOSITION OF MEMBERSHIP INTERESTS

11.1 Disposition. Any Member or Assignee may dispose of all or a portion of the Member's or Assignee's Membership Interest upon compliance with this Section

1. No Membership Interest shall be Disposed of:

11.1.1 if such disposition, alone or when combined with other transactions, would result in a termination of the Company within the meaning of Sec. 708 of the Code;

11.1.2 without an opinion of counsel satisfactory to the Managing Member that such assignment is subject to an effective registration under, or exempt from the registration requirements of, the applicable state and federal securities laws;

11.1.3 unless and until the Company receives from the Assignee the information and agreements that the Managing member may reasonably require, including but not limited to any taxpayer identification number and any agreement that may be required by any Taxing Jurisdiction.

11.2 Dispositions not in Compliance with this Article Void. Any attempted Disposition of a Membership Interest, or any part thereof, not in compliance with this Article is null and void ab initio.

ARTICLE XII DISSOCIATION OF A MEMBER

12.1 Dissociation. A Person shall cease to be a Member upon the happening of any of the following events:

12.1.1 the withdrawal of the Member;

12.1.2 the bankruptcy of the Member;

12.1.3 in the case of a Member who is a natural person, the death of the Member or the entry of an order by a court of competent jurisdiction adjudicating the Member incompetent to manage the Member's personal estate;

12.1.4 in the case of a Member who is acting as a Member by virtue of being a trustee of a trust, the termination of the trust (but not merely the substitution of a new trustee);

12.1.5 in the case of a Member that is a separate Organization other than a corporation, the dissolution and commencement of winding up of the separate Organization;

12.1.6 in the case of a Member that is a corporation, the filing of a certificate of dissolution, or its equivalent, for the corporation or the revocation of its charter; or

12.1.7 in the case of an estate, the distribution by the fiduciary of the estate's entire interest in the Company.

12.2 Rights of Dissociating Member. In the event any Member dissociates prior to the expiration of the Term:

12.2.1 if the dissociation causes a dissolution and winding up of the Company under Article XIV, the Member shall be entitled to participate in the winding up of the Company to the same extent as any other Member except that any Distributions to which the Member would have been entitled shall be reduced by the damages sustained by the Company as a result of the Dissolution and winding up;

12.2.2 except as set forth in subparagraph 12.2.1, anything in this Agreement or in Section 30 of the Act to the contrary notwithstanding, no Member shall be entitled to receive any distribution of money or other property in excess of \$1.00 by reason of such person's ceasing to be a Member, except upon affirmative vote or written consent of a Majority of the Members.

ARTICLE XIII

ADMISSION OF ASSIGNEES AND ADDITIONAL MEMBERS

13.1 Rights of Assignees. The Assignee of a Membership Interest has no right to participate in the management and affairs of the Company or to become or exercise any rights of a Member. The Assignee is only entitled to receive the Distributions and return of capital, and to be allocated the Net Profits and Net Losses attributable to the Membership Interest.

13.2 Admission of Substitute Members. An Assignee of a Membership Interest shall be admitted as a Substitute Member and admitted to all the rights of the Member who initially assigned the Membership Interest only (a) if the assigning Member has granted the Assignee all of said rights, and (b) with the approval of the Managing Member and a Majority of the disinterested Members. The Managing Member may grant or withhold the approval of such admission in his sole and absolute discretion. If so admitted, the Substitute Member has all the rights and powers and is subject to all the restrictions and liabilities of the Member originally assigning the Membership Interest. The admission of a Substitute Member, without more, shall not release the Member originally assigning the Membership Interest from any liability to Company that may have existed prior to the approval.

13.3 Admission of Permitted Transferees. Notwithstanding Section 2 hereof, the Membership Interest of any Member shall be transferable without the consent of the Managing Member or any of the Members if (i) the transfer occurs by reason of or incident to the death, dissolution, divorce, liquidation, merger or termination of the transferor Member, and (ii) the Transferee is a Permitted Transferee.

13.4 Admission of Additional Manager. The Managing Member may permit the admission of Additional Members and determine the Capital Contributions of such Additional Members. Notwithstanding the foregoing, the Additional Members may not become the Managing Member unless and until selected to such position as provided in Article VII, Section 9 hereof.

ARTICLE XIV DISSOLUTION AND WINDING UP

14.1 Dissolution. The Company shall be dissolved and its affairs shall be wound up upon the happening of the first to occur of the following (which shall constitute Dissolution Events):

14.1.1 the expiration of the Term;

14.1.2 written consent of at least a Majority of the Members;

14.1.3 an event of Dissociation of a Member, unless there are at least two remaining members and the business of the Company is continued by the consent of at least a Majority of the remaining members within ninety days following the occurrence of any such event; or

14.1.4 entry of a decree of judicial dissolution under Section 43 of the Act.

14.2 Effect of Dissolution. Upon dissolution, the Company shall cease carrying on as distinguished from the winding up of the Company business, but the Company is not terminated, but continues until the winding up of the affairs of the Company is completed and the Certificate of Dissolution has been issued by the Secretary of the State.

14.3 Distribution of Assets on Dissolution. Upon the winding up of the Company, the assets shall be distributed as follows:

14.3.1 Payment, or adequate provision for payment, shall be made to creditors, including, to the extent permitted by law, Members who are creditors, in satisfaction of Company Liabilities;

14.3.2 to Members in accordance with positive Capital Account balances taking into account all Capital Account adjustments for the Company's taxable year in which the liquidation occurs. Liquidation proceeds shall be paid within 60 days of the end of the Company's taxable year or, if later, within 90 days after the date of liquidation. Such distributions shall be in cash or Property (which need not be distributed proportionately) or partly in both, as determined by the Managing Member.

14.4 Winding Up and Certificate of Dissolution. The winding up of the Company shall be completed when all debts, liabilities, and obligations of the Company have been paid and discharged or reasonably adequate provision therefor has been made, and all of the remaining property and assets of the Company have been distributed to the Members. Upon the completion of winding up of the Company, a certificate of dissolution shall be delivered to the Secretary of the State for filing. The certificate of dissolution shall set forth the information required by the Act.

ARTICLE XV AMENDMENT

15.1 Company Agreement may be Modified. The Company Agreement may be modified as provided in this Article XV (as the same may, from time to time be amended). No Member or Managing Member shall have any vested rights in the Company Agreement which may not be modified through an amendment to the Company Agreement.

15.2 Amendment or Modification of Company Agreement. The Company Agreement may be amended or modified from time to time only by a written instrument executed by a Majority of the Members.

ARTICLE XVI MISCELLANEOUS PROVISIONS

16.1 No Partnership Intended for Nontax Purposes. The Members have formed the Company under the Act, and expressly do not intend hereby to form a partnership under either the Connecticut Uniform Partnership Act nor the Connecticut Uniform Limited Partnership Act. The Members do not intend to be partners one to another, or partners as to any third party. To the extent any Member, by word or action, represents to another person that any other Member is a partner or that the Company is a partnership, the Member making such wrongful representation shall be liable to any other Member who incurs personal liability by reason of such wrongful representation.

16.2 Rights of Creditors and Third Parties under Company Agreement. The Company Agreement is entered into among the Company and the Members for the exclusive benefit of the Company, its Members, and their successors and assignees. The Company Agreement is expressly not intended for the benefit of any creditor of the Company or any other person or entity. Except and only to the extent provided by applicable statute, no such creditor or third party shall have any rights under the Company Agreement or any agreement between the Company and any Member with respect to any Capital Contribution or otherwise.

16.3 Governing Law. This Company Agreement shall be governed by and interpreted according to the laws of the State of Connecticut.

16.4 Binding Effect. This Company Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective heirs, successors and assigns.

16.5 Partial Invalidity. In the event that any provision hereof shall be declared invalid or unenforceable by any court, such invalidity shall not affect the validity or enforceability of the remainder of this Agreement.

16.6 Rules of Construction. Whenever the context of this Agreement requires, references to the singular shall include the plural, references to the plural shall include the singular, and references to the masculine or feminine gender shall include the opposite or neuter gender. No ambiguity in the interpretation of this Company Agreement shall be resolved against a party hereto merely because that party prepared this Company Agreement or that portion thereof which is claimed to be ambiguous.

16.7 Counterparts. This Company Agreement may be executed in two or more counterparts which, taken together, shall constitute one document.

16.8 Survival of Representations and Warranties. All representations and warranties set forth herein shall survive the execution of this Company Agreement.

16.9 Title or Headings. The titles or headings used in this Company Agreement are included as a matter of convenience and shall not be given substantive effect.

16.10 Entire Agreement. This Company Agreement, and the supporting agreements and documentation attached hereto, embody the entire agreement of the parties and supersede any and all prior agreements, arrangements and understandings relative to the subject matter hereof. No amendment, no waiver of compliance with any provision or conditions hereof and no consent provided for herein will be effective unless evidenced by a written instrument executed by the parties hereto or by the party whose waiver or consent is requested or required.

IN WITNESS WHEREOF, we have hereunto set our hands and seals on the date set forth beside our names.

MEMBERS

Dated: JANUARY 14, 2000



JOHN A. ROSA

EXHIBIT A
(as required by Article VIII)

Initial Members and Addresses	Initial Capital Contribution and Value	Sharing Ratio
John A. Rosa 109 Ransom Hill Road Wolcott, CT 06716	\$1,000.00	100%

LIMITED LIABILITY COMPANY RESOLUTION

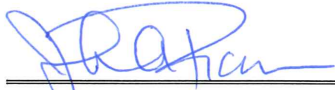
I, John A. Rosa, hereby certify that I am the duly authorized and acting Member / Manager (circle one) of J. A. Rosa Construction, a limited liability company organized and existing under the laws of the State of Connecticut, do hereby certify that the following facts are true and were taken from the records of said LLC.

The following resolution was adopted at a meeting of the LLC duly held on the 14th day of January, 2000.

“It is hereby resolved that John A. Rosa is authorized to make, execute and approve, on behalf of this LLC, any and all contracts or amendments thereof”.

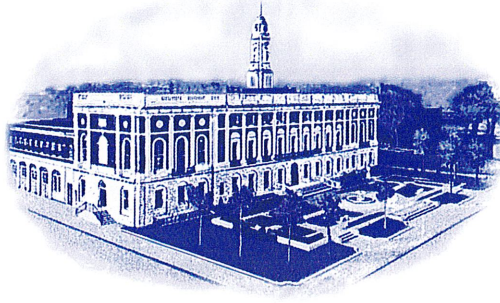
And I do further certify that the above resolution has not been in any way altered, amended, repealed and is now in full force and effect.

IN WITNESS WHEREOF, I hereunto set my hand and affix the company seal of said J. A. Rosa Construction, LLC this 24th day of January, 2023.



Manager/Member

KEVIN McCaffery
DIRECTOR OF PURCHASING



OFFICE OF THE DIRECTOR OF PURCHASING
THE CITY OF WATERBURY
CONNECTICUT

January 17, 2023

John A. Rosa
J.A. Rosa Construction, LLC
17 Town Line Road
Wolcott, CT 06716

RFP# 7473
Project: Waterbury Elementary School Elevator Additions

Dear Mr. Rosa,

On behalf of the City of Waterbury I want to inform you that your firm has been selected for the above-mentioned City project. In order to contract with the City of Waterbury a written contract must be approved by the Corporation Counsel and all required City Boards.

You will be contacted in the immediate future by a member of our Legal Department.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Kevin McCaffery', is written over the printed name and title.

Kevin McCaffery
Director of Purchasing

Document A310™ – 2010

Conforms with The American Institute of Architects AIA Document 310

Bid Bond

CONTRACTOR:

(Name, legal status and address)

J. A. Rosa Construction, LLC
17 Town Line Road
Wolcott, CT 06716

SURETY:

(Name, legal status and principal place of business)

Philadelphia Indemnity Insurance Company
One Bala Plaza, Suite 100
Bala Cynwyd, PA 19004-0950
Mailing Address for Notices

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

OWNER:

(Name, legal status and address)

The City of Waterbury
235 Grand St
Waterbury, CT 06702

BOND AMOUNT: 10%

Ten Percent of Amount Bid

PROJECT:

(Name, location or address, and Project number, if any)

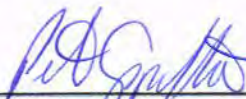
#151-0305 CV Bunker Hill Elementary School Elevator Hoistway Addition, #151-0304 CV Washington Elementary School Elevator Hoistway Addition

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 19th day of December, 2022.


(Witness)

J. A. Rosa Construction, LLC

(Principal)

(Seal)

By: 

(Title) Managing member
John A. Rosa

Philadelphia Indemnity Insurance Company

(Surety)

(Seal)

By: 

(Title) Craig H. Meeker, Attorney-in-Fact



PHILADELPHIA INDEMNITY INSURANCE COMPANY

One Bala Plaza, Suite 100
Bala Cynwyd, PA 19004-0950

Power of Attorney

Surety Bond Number: **Bid Bond**
Principal: **J. A. Rosa Construction, LLC**
Obligee: **The City of Waterbury**

KNOW ALL PERSONS BY THESE PRESENTS: That **PHILADELPHIA INDEMNITY INSURANCE COMPANY** (the Company), a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, does hereby constitute and appoint **Craig H. Meeker** its true and lawful Attorney-in-fact with full authority to execute on its behalf bonds, undertakings, recognizances and other contracts of indemnity and writings obligatory in the nature thereof, issued in the course of its business and to bind the Company thereby, in an amount not to exceed **\$75,000,000**.

This Power of Attorney is granted and is signed and sealed by facsimile under and by the authority of the following Resolution adopted by the Board of Directors of **PHILADELPHIA INDEMNITY INSURANCE COMPANY** on the 14th of November, 2016.

RESOLVED: That the Board of Directors hereby authorizes the President or any Vice President of the Company: (1) Appoint Attorney(s) in Fact and authorize the Attorney(s) in Fact to execute on behalf of the Company bonds and undertakings, contracts of indemnity and other writings obligatory in the nature thereof and to attach the seal of the Company thereto; and (2) to remove, at any time, any such Attorney-in-Fact and revoke the authority given. And, be it

FURTHER RESOLVED: That the signatures of such officers and the seal of the Company may be affixed to any such Power of Attorney or certificate relating thereto by facsimile, and any such Power of Attorney so executed and certified by facsimile signatures and facsimile seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

IN TESTIMONY WHEREOF, **PHILADELPHIA INDEMNITY INSURANCE COMPANY** HAS CAUSED THIS INSTRUMENT TO BE SIGNED AND ITS CORPORATE SEAL TO BE AFFIXED BY ITS AUTHORIZED OFFICE THIS 5TH DAY OF MARCH, 2021.

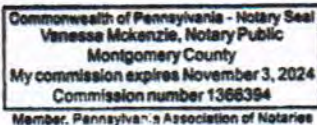
(Seal)



John Glomb, President & CEO
Philadelphia Indemnity Insurance Company

On this 5th day of March, 2021 before me came the individual who executed the preceding instrument, to me personally known, and being by me duly sworn said that he is the therein described and authorized officer of the **PHILADELPHIA INDEMNITY INSURANCE COMPANY**; that the seal affixed to said instrument is the Corporate seal of said Company; that the said Corporate Seal and his signature were duly affixed.

Notary Public:



residing at:

Bala Cynwyd, PA

My commission expires:

November 3, 2024

I, Edward Sayago, Corporate Secretary of **PHILADELPHIA INDEMNITY INSURANCE COMPANY**, do hereby certify that the foregoing resolution of the Board of Directors and the Power of Attorney issued pursuant thereto on the 5th day March, 2021 are true and correct and are still in full force and effect. I do further certify that John Glomb, who executed the Power of Attorney as President, was on the date of execution of the attached Power of Attorney the duly elected President of **PHILADELPHIA INDEMNITY INSURANCE COMPANY**.

In Testimony Whereof I have subscribed my name and affixed the facsimile seal of each Company this 19th day of December, 2022



Edward Sayago, Corporate Secretary
PHILADELPHIA INDEMNITY INSURANCE COMPANY

ATTACHMENT C

KEVIN MCCAFFERY
DIRECTOR OF PURCHASING
235 GRAND STREET
WATERBURY, CT 06702

The undersigned declares that the only persons or parties interested in this Proposal as principals are as stated; that the Proposal is made without any collusion with other persons, firms, or corporations; that Proposer has carefully examined the entire Request for Proposal; that Proposer has informed itself fully in regard to all conditions pertaining to the Work and the place where it is to be performed; and that with this representation, the undersigned makes this Proposal. These prices shall cover all expenses incurred in performing the Work required under the Contract Documents, of which this Proposal and Form are a part.

The undersigned agrees and covenants that the Contract Time shall commence on delivery of the City of Waterbury's written notice to proceed, which shall occur after contract execution by both parties.

The undersigned acknowledges receipt of addenda numbered: (insert date)

1 December 13, 2022 4 _____
2 December 14, 2022 5 _____
3 _____ 6 _____

All Work for this Project shall be performed at the Proposal Prices as described in the Proposal Documents.

The undersigned hereby certifies under the penalties of perjury that this Proposal is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this section, the work "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

061566170
Social Security Number
or Federal Identification Number

J.A. Rosa Construction, LLC
Signature of Individual or Corporate Name

Corporate Officer John A Rosa Managing Member
(if applicable)

City notice of acceptance should be mailed, telegraphed or delivered to the undersigned Proposer at the following address:

Name John A Rosa
By: [Signature]
(Title) Managing Member
Business Address: 17 Town Line Rd
(City, State, Zip Code)
Wolcott, CT 06716
Phone: 203-879-3495

Date: December 19, 2022

Note: If the Proposer is a corporation, indicate State of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses, if different from business address.

CITY OF WATERBURY
ANNUAL STATEMENT OF FINANCIAL INTERESTS (Calendar Year 2021)
Persons or Entities Conducting Business with the City

I. Outstanding Purchase Orders of Contracts with the City

A. Contracts

No Contracts with the City

☐

Collections Building Exterior Repairs Water Pollution Control Facility

(Service or Commodity Covered by Contract)

330 days NTP 11/9/21

(Term of Contract)

Water Pollution Control Facility Service Building Replacement

(Service or Commodity Covered by Contract)

270 days contract signed 5/5/22

(Term of Contract)

RFP 7140 Department of Public Works for Elevator Modernization

(Service or Commodity Covered by Contract)

420 days contract signed 4/14/22

(Term of Contract)

Naugatuck Valley Regional Development Corporation
Time Expo - Interior Building Renovations
180 days contract signed 4/28/22

CITY OF WATERBURY
ANNUAL STATEMENT OF FINANCIAL INTERESTS (Calendar Year 2021)
Persons or Entities Conducting Business with the City

B. Purchase Order(s).

No Purchase Order(s) with the City

☒

(Service or Commodity Covered by Purchase Order)

(Date of Purchase Order)

(Service or Commodity Covered by Purchase Order)

(Date of Purchase Order)

(Service or Commodity Covered by Purchase Order)

(Date of Purchase Order)

CITY OF WATERBURY

ANNUAL STATEMENT OF FINANCIAL INTERESTS (Calendar Year 2021)

Persons or Entities Conducting Business with the City

II. Financial Interest Disclosure

(Public Officials, Employees or Board and Commission Members with interest in
Person or Entity Conducting Business with the City)

**No Officials, Employees or Board and Commission Members with
Financial Interest**

☒

(Name of Official)

(Position with City)

(Nature of Business Interest)
(e.g. Owner, Director etc...)

Interest Held By:

Self ☐ Spouse ☐ Joint ☐ Child ☐

(Name of Official)

(Position with City)

(Nature of Business Interest)
(e.g. Owner, Director etc...)

Interest Held By:

Self ☐ Spouse ☐ Joint ☐ Child ☐

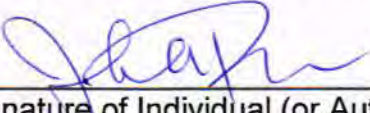
1. I certify that this Annual Statement of Financial Interests is a complete and accurate statement of those matter required to be disclosed by me pursuant to §40.51 of the Code of Ordinances.

2. I understand that if I fail to file an Annual Statement (or amendment thereto) or an inaccurate Statement I will be in violation with Chapter 40 of the Code of Ordinance and, thereby, subject to the remedies set forth in §§38.71 and 40.81 of said Code.

3. I understand that I must file with the City Clerk, within fifteen (15) days following any reportable occurrence, any amendments to the Annual Statement.

I have read and agree to the above certification.

J.A. Rosa Construction, LLC
(Name of Company, if applicable)


Signature of Individual (or Authorized Signatory)

December 19, 2022
Date

John A Rosa Managing Member
Print or Type Name and Title (if applicable)

DELIVERED | By Mail ☐ Hand-Delivered ☒

**City of Waterbury Certification
Regarding
Debarment, Suspension, Ineligibility and Exclusion**

If the transaction is Federally funded, in whole or in part (including pass through grants to state and/or municipal government), this certification is required by the regulations implementing one or more Presidential Executive Orders. If this transaction is funded by the State of Connecticut, in whole or in part, this certification is required in accordance with one or more State of Connecticut general statutes.

1. By signing and submitting the attached proposal and/or this document, the prospective lower tier participant, vendor, or contractor is providing the certification set out below.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant, vendor, or contractor knowingly rendered an erroneous certification, in addition to other remedies available to the Federal, State, or City government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant, vendor or contractor shall provide immediate written notice to the person to which the attached proposal and/or this document is submitted if at any time the prospective lower tier participant, vendor or contractor learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction", "debarred", "suspended", "ineligible", "lower tier covered transaction", "participant", "person", "primary covered transaction", "principal", "proposal", and "voluntarily excluded", as used herein, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 and/or State of Connecticut statutes and regulations. You may contact the person to which this proposal and/or this document is submitted for assistance in obtaining a copy of the foregoing.
5. The prospective lower tier participant, vendor or contractor agrees by submitting the attached proposal and/or this document that, should the proposed covered transaction be entered into, it shall not knowingly enter into any covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction

unless authorized by the department or agency with which this transaction originated.

6. The prospective lower tier participant, vendor or contractor further agrees by submitting the attached proposal and/or this document that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion-Lower Tier Covered Transactions", without modification, in all covered transaction and in all solicitations for covered transactions.

7. A participant in a covered transaction may rely upon the certification of a prospective participant in a covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may but is not required to, check the Non-procurement List.

8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required herein. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under paragraph 5 herein, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal, State or Municipal government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification

- (1) The prospective recipient of monies hereby certifies, by submission of its attached proposal and/or by execution of this document, that neither it nor its principles are presently debarred, suspended, proposed for debarment, declared ineligible, disqualified, or voluntarily excluded from bidding or participation in the proposed transaction by any Federal, State, or Municipal department or agency or by the statutes, regulations or ordinances of the foregoing departments and agencies.
- (2) Where the prospective recipient of monies is unable to certify to any of the statements in this certification, such prospective participant shall attach a written explanation hereto.

Full Legal Name and address of Recipient, Vendor, or Contractor:

J.A. Rosa Construction, LLC
17 Town Line Rd
Wolcott, CT 06716

Print Name and Title of Authorized Representative:

John A Rosa Managing Member

Signature of Authorized Representative:



Date: December 19, 2022

CITY OF WATERBURY
DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING
OBLIGATIONS TO THE CITY OF WATERBURY

For the purposes of this Disclosure of Outstanding Financial Obligations, the following definitions apply:

- (a) "Contract" means any Public Contract as defined below.
- (b) "Person" means one (1) or more individuals, partnerships, corporations, associations, or joint ventures.
- (c) "Public Contract" means any agreement or formal commitment entered into by the city to expend funds in return for work, labor, services, supplies, equipment, materials or any combination of the foregoing, or any lease, lease by way of concession, concession agreement, permit, or per agreement whereby the city leases, grants or demises property belonging to the city, or otherwise grants a right of privilege to occupy or to use said property of the city.
- (d) "City" means any official agency, board, authority, department office, or other subdivision of the City of Waterbury.

State of Connecticut

SS: Wolcott

County of New Haven

John A Rosa, being first duly
sworn, deposes and says that:

1. I am the **owner, partner, officer, representative, agent or**
Managing Member of J.A. Rosa Construction, LLC (Contractor's Name), the
Contractor that has submitted the attached agreement.

2. I am fully informed respecting the preparation and contents of the attached
Agreement and of all pertinent circumstances respecting such Agreement;

3. That as a person desiring to contract with the City (check all that apply):

 The Contractor and each owner, partner, officer, representative, agent or
affiliate of the Contractor has filed a list of taxable personal property with
the City of Waterbury for the most recent grand list, as required by Conn.
Gen. Stat. §12-42.

X Neither the Contractor nor any owner, partner, officer, representative,
agent or affiliate of the Contractor are required to file a list of taxable
personal property with the City of Waterbury for the most recent grand list,
as required by Conn. Gen. Stat. §12-42.

X Neither the Contractor nor any owner, partner, officer, representative,
agent or affiliate of the Contractor either directly or through a lease
agreement, owes back taxes to the City of Waterbury

CITY OF WATERBURY

DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING OBLIGATIONS TO THE CITY OF WATERBURY

 X Neither the Contractor nor any owner, partner, officer, representative, agent or affiliate of the Contractor either directly or through a lease agreement, has any other outstanding obligations to the City of Waterbury

4. The following list is a list of the names of all persons affiliated with the business of the Contractor, if none state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Name	Title	Affiliated Company (if none state NONE)	Service or Material	DOB
1		none		
2				
3				
4				

5. That as a person desiring to contract with the City:

(a) The Contractor or an owner, partner, officer, representative, agent or affiliate of the Contractor provides, or has provided, services or materials to the City within one (1) year prior to the date of this disclosure, if none, state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Name	Title	Affiliated Company (if none state NONE)	Service or Material	DOB
1		none		
2				
3				
4				

(b) The Contractor possesses an ownership interest in the following business organizations, if none, state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Organization Name	Address	Type of Ownership
1 none		
2		
3		
4		

(c) The following persons possess an ownership interest in the Contractor. If the Contractor is a corporation, list all of the officers of the corporation and the names of each stockholder whose shares exceed twenty-five

CITY OF WATERBURY
DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING
OBLIGATIONS TO THE CITY OF WATERBURY

(25) percent of the outstanding stock, if none, state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

	Name	Title	DOB	Stock %
1	none			
2				
3				
4				

(d) Of the following of the affiliates, individuals or business entities identified in this affidavit, list each that owns, owned, or within one (1) year prior to the date of this disclosure has owned, taxable property situated in the City of Waterbury, if none state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

	Name	Title	Affiliated Company (if none state NONE)	Address	DOB
1			none		
2					
3					
4					

(e) If the Contractor conducts business under a trade name, the following additional information is required: the place where such entity is incorporated or is registered to conduct such business; and the address of its principal place of business, if none, state none:

	TRADE NAME	PLACE OF INCORPORATION/REGISTRY	PRINCIPAL PLACE OF BUSINESS
1	none		
2			
3			
4			

I hereby certify that the statements set forth above are true and complete, and I understand that any incorrect information or omission of information from this affidavit may result in the immediate termination of the Contractor's agreement with the City of Waterbury.

**CITY OF WATERBURY
DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING
OBLIGATIONS TO THE CITY OF WATERBURY**

For Partnership or LLC

In presence of:

Attest (Witness Signature)

(Witness Printed Name)

n/a

(Name of Partnership)

By:

(Name of General Partner)

(Business Address)

For Corporation LLC

Attest (Witness)

John A Rosa

(Corporate Principal – Printed Name)

17 Town Line Rd. Wolcott, Ct 06716

(Business Address)

Affix
Corporate
Seal

J.A. Rosa Construction, LLC

(Name of Corporation)

By:

(Signature of Authorized Corporate Officer) John A Rosa

Its: Managing Member

(Title)

State of Connecticut)

Wolcott

) SS (Date) 12/19/22

County of New Haven)

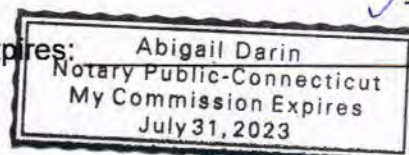
John A Rosa

being duly sworn,

deposes and says that he/she is Managing Member of J.A. Rosa Construction, LLC and that he/she answers to the foregoing questions and all statements therein are true and correct.

Subscribed and sworn to before me this 19th day of December, 2022.

My Commission Expires:



(Notary Public)

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM
Construction Manager at Risk/General Contractor/Prime Contractor

I, John A Rosa of J.A. Rosa Construction, LLC
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the J.A. Rosa Construction, LLC
Company Name
17 Town Line Rd
Street
Wolcott
City

and all of its subcontractors will pay all workers on the
7473 Waterbury Elementary School Elevator Additions
Project Name and Number
Bunker Hill Ave & Baldwin Ave Waterbury
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

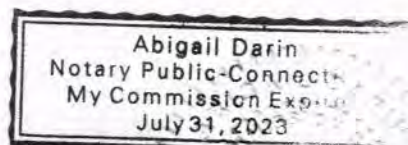
[Signature]
Signed

Subscribed and sworn to before me this 19th day of December, 22.

[Signature]
Notary Public

Return to:
Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): 11/18/22



COMMISSION ON HUMAN RIGHTS AND OPPORTUNITIES
CONTRACT COMPLIANCE REGULATIONS
NOTIFICATION TO BIDDERS

(Revised 09/3/15)

The contract to be awarded is subject to contract compliance requirements mandated by Sections 4a-60 and 4a-60a of the Connecticut General Statutes; and, when the awarding agency is the State, Sections 46a-71(d) and 46a-81i(d) of the Connecticut General Statutes. There are Contract Compliance Regulations codified at Section 46a-68j-21 through 43 of the Regulations of Connecticut State Agencies, which establish a procedure for awarding all contracts covered by Sections 4a-60 and 46a-71(d) of the Connecticut General Statutes.

According to Section 46a-68j-30(9) of the Contract Compliance Regulations, every agency awarding a contract subject to the contract compliance requirements has an obligation to “aggressively solicit the participation of legitimate minority business enterprises as bidders, contractors, subcontractors and suppliers of materials.” “Minority business enterprise” is defined in Section 4a-60 of the Connecticut General Statutes as a business wherein fifty-one percent or more of the capital stock, or assets belong to a person or persons: “(1) Who are active in daily affairs of the enterprise; (2) who have the power to direct the management and policies of the enterprise; and (3) who are members of a minority, as such term is defined in subsection (a) of Section 32-9n.” “Minority” groups are defined in Section 32-9n of the Connecticut General Statutes as “(1) Black Americans . . . (2) Hispanic Americans . . . (3) persons who have origins in the Iberian Peninsula . . . (4) Women . . . (5) Asian Pacific Americans and Pacific Islanders; (6) American Indians . . .” An individual with a disability is also a minority business enterprise as provided by Section 4a-60g of the Connecticut General Statutes. The above definitions apply to the contract compliance requirements by virtue of Section 46a-68j-21(11) of the Contract Compliance Regulations.

The awarding agency will consider the following factors when reviewing the bidder’s qualifications under the contract compliance requirements:

- (a) the bidder’s success in implementing an affirmative action plan;
- (b) the bidder’s success in developing an apprenticeship program complying with Sections 46a-68-1 to 46a-68-17 of the Administrative Regulations of Connecticut State Agencies, inclusive;
- (c) the bidder’s promise to develop and implement a successful affirmative action plan;
- (d) the bidder’s submission of employment statistics contained in the “Employment Information Form”, indicating that the composition of its workforce is at or near parity when compared to the racial and sexual composition of the workforce in the relevant labor market area; and
- (e) the bidder’s promise to set aside a portion of the contract for legitimate minority business enterprises. See Section 46a-68j-30(10)(E) of the Contract Compliance Regulations.

INSTRUCTIONS AND OTHER INFORMATION

The following BIDDER CONTRACT COMPLIANCE MONITORING REPORT must be completed in full, signed, and submitted with the bid for this contract. The contract awarding agency and the Commission on Human Rights and Opportunities will use the information contained thereon to determine the bidders compliance to Sections 4a-60 and 4a-60a CONN. GEN. STAT., and Sections 46a-68j-23 of the Regulations of Connecticut State Agencies regarding equal employment opportunity, and the bidder’s good faith efforts to include minority business enterprises as subcontractors and suppliers for the work of the contract.

1) Definition of Small Contractor

Section 4a-60g CONN. GEN. STAT. defines a small contractor as a company that has been doing business under the same management and control and has maintained its principal place of business in Connecticut for a one year period immediately prior to its application for certification under this section, had gross revenues not exceeding fifteen million dollars in the most recently completed fiscal year, and at least fifty-one percent of the ownership of which is held by a person or persons who are active in the daily affairs of the company, and have the power to direct the management and policies of the company, except that a nonprofit corporation shall be construed to be a small contractor if such nonprofit corporation meets the requirements of subparagraphs (A) and (B) of subdivision 4a-60g CONN. GEN. STAT.

2) Description of Job Categories (as used in Part IV Bidder Employment Information) (Page 2)

MANAGEMENT: Managers plan, organize, direct, and control the major functions of an organization through subordinates who are at the managerial or supervisory level. They make policy decisions and set objectives for the company or departments. They are not usually directly involved in production or providing services. Examples include top executives, public relations managers, managers of operations specialties (such as financial, human resources, or purchasing managers), and construction and engineering managers.

BUSINESS AND FINANCIAL OPERATIONS: These occupations include managers and professionals who work with the financial aspects of the business. These occupations include accountants and auditors, purchasing agents, management analysts, labor relations specialists, and budget, credit, and financial analysts.

MARKETING AND SALES: Occupations related to the act or process of buying and selling products and/or services such as sales engineer, retail sales workers and sales representatives including wholesale.

LEGAL OCCUPATIONS: In-House Counsel who is charged with providing legal advice and services in regards to legal issues that may arise during the course of standard business practices. This category also includes assistive legal occupations such as paralegals, legal assistants.

COMPUTER SPECIALISTS: Professionals responsible for the computer operations within a company are grouped in this category. Examples of job titles in this category include computer programmers, software engineers, database administrators, computer scientists, systems analysts, and computer support specialists.

ARCHITECTURE AND ENGINEERING: Occupations related to architecture, surveying, engineering, and drafting are included in this category. Some of the job titles in this category include electrical and electronic engineers, surveyors, architects, drafters, mechanical engineers, materials engineers, mapping technicians, and civil engineers.

OFFICE AND ADMINISTRATIVE SUPPORT: All clerical-type work is included in this category. These jobs involve the preparing, transcribing, and preserving of written communications and records; collecting accounts; gathering and distributing information; operating office machines and electronic data processing equipment; and distributing mail. Job titles listed in this category include telephone operators, bill and account collectors, customer service representatives, dispatchers, secretaries and administrative assistants, computer operators and clerks (such as payroll, shipping, stock, mail and file).

BUILDING AND GROUNDS CLEANING AND MAINTENANCE: This category includes occupations involving landscaping, housekeeping, and janitorial services. Job titles found in this category include supervisors of landscaping or housekeeping, janitors, maids, grounds maintenance workers, and pest control workers.

CONSTRUCTION AND EXTRACTION: This category includes construction trades and related occupations. Job titles found in this category include boilermakers, masons (all types), carpenters, construction laborers, electricians, plumbers (and related trades), roofers, sheet metal workers, elevator installers, hazardous materials removal workers, paperhangers, and painters. Paving, surfacing, and tamping equipment operators; drywall and ceiling tile installers; and carpet, floor and tile installers and finishers are also included in this category. First line supervisors, foremen, and helpers in these trades are also grouped in this category..

INSTALLATION, MAINTENANCE AND REPAIR: Occupations involving the installation, maintenance, and repair of equipment are included in this group. Examples of job titles found here are heating, ac, and refrigeration mechanics and installers; telecommunication line installers and repairers; heavy vehicle and mobile equipment service technicians and mechanics; small engine mechanics; security and fire alarm systems installers; electric/electronic repair, industrial, utility and transportation equipment; millwrights; riggers; and manufactured building and mobile home installers. First line supervisors, foremen, and helpers for these jobs are also included in the category.

MATERIAL MOVING WORKERS: The job titles included in this group are Crane and tower operators; dredge, excavating, and lading machine operators; hoist and winch operators; industrial truck and tractor operators; cleaners of vehicles and equipment; laborers and freight, stock, and material movers, hand; machine feeders and offbearers; packers and packagers, hand; pumping station operators; refuse and recyclable material collectors; and miscellaneous material moving workers.

PRODUCTION WORKERS: The job titles included in this category are chemical production machine setters, operators and tenders; crushing/grinding workers; cutting workers; inspectors, testers sorters, samplers, weighers; precious stone/metal workers; painting workers; cementing/gluing machine operators and tenders; etchers/engravers; molders, shapers and casters except for metal and plastic; and production workers.

White (not of Hispanic Origin)- All persons having origins in any of the original peoples of Europe, North Africa, or the Middle East.

Black(not of Hispanic Origin)- All persons having origins in any of the Black racial groups of Africa.

Hispanic- All persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race.

Asian or Pacific Islander- All persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands. This area includes China, India, Japan, Korea, the Philippine Islands, and Samoa.

American Indian or Alaskan Native- All persons having origins in any of the original peoples of North America, and who maintain cultural identification through tribal affiliation or community recognition.

BIDDER CONTRACT COMPLIANCE MONITORING REPORT

PART I - Bidder Information

Company Name <u>J. A. Rosa Construction, LLC</u> Street Address <u>17 Town Line Rd</u> City & State <u>Wolcott, CT</u> Chief Executive <u>John A Rosa</u>	Bidder Federal Employer Identification Number <u>061566170</u> Or Social Security Number _____
Major Business Activity <u>General Contractor Group C</u> <small>(Brief description)</small> <u>We selfperform sitework, Demo,</u> <u>Concrete, Masonry, Carpentry,</u> <u>gyp board assemblies</u>	Bidder Identification (response optional/definitions on page 1) -Bidder is a small contractor. Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> -Bidder is a minority business enterprise Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> (If yes, check ownership category) Black <input type="checkbox"/> Hispanic <input type="checkbox"/> Asian American <input type="checkbox"/> American Indian/Alaskan Native <input type="checkbox"/> Iberian Peninsula <input type="checkbox"/> Individual(s) with a Physical Disability <input type="checkbox"/> Female <input type="checkbox"/> - Bidder is certified as above by State of CT Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Bidder Parent Company (If any) <u>n/a</u>	
Other Locations in Ct. (If any) <u>n/a</u>	

PART II - Bidder Nondiscrimination Policies and Procedures

1. Does your company have a written Affirmative Action/Equal Employment Opportunity statement posted on company bulletin boards? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	7. Do all of your company contracts and purchase orders contain non-discrimination statements as required by Sections 4a-60 & 4a-60a Conn. Gen. Stat.? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. Does your company have the state-mandated sexual harassment prevention in the workplace policy posted on company bulletin boards? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	8. Do you, upon request, provide reasonable accommodation to employees, or applicants for employment, who have physical or mental disability? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
3. Do you notify all recruitment sources in writing of your company's Affirmative Action/Equal Employment Opportunity employment policy? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	9. Does your company have a mandatory retirement age for all employees? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
4. Do your company advertisements contain a written statement that you are an Affirmative Action/Equal Opportunity Employer? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	10. If your company has 50 or more employees, have you provided at least two (2) hours of sexual harassment training to all of your supervisors? Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
5. Do you notify the Ct. State Employment Service of all employment openings with your company? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	11. If your company has apprenticeship programs, do they meet the Affirmative Action/Equal Employment Opportunity requirements of the apprenticeship standards of the Ct. Dept. of Labor? Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
6. Does your company have a collective bargaining agreement with workers? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> 6a. If yes, do the collective bargaining agreements contain non-discrimination clauses covering all workers? Yes <input type="checkbox"/> No <input type="checkbox"/> 6b. Have you notified each union in writing of your commitments under the nondiscrimination requirements of contracts with the state of Ct? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	12. Does your company have a written affirmative action Plan? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If no, please explain. 13. Is there a person in your company who is responsible for equal employment opportunity? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> If yes, give name and phone number. <u>John A Rosa 203-879-3495</u>

Part III - Bidder Subcontracting Practices

(Page 4)

1. Will the work of this contract include subcontractors or suppliers? Yes ☒ No ☐

1a. If yes, please list all subcontractors and suppliers and report if they are a small contractor and/or a minority business enterprise. (defined on page 1 / use additional sheet if necessary)

Eagle Fence SBE

Brothers Environmental MBE

Park City steel SBE

Quality Roofing SBE

Spectrum Floor SBE

Superior Painting SBE

Hope Plumbing WBE

Fire Rated MBE

Collier Electrical SBE

1b. Will the work of this contract require additional subcontractors or suppliers other than those identified in 1a. above?

Yes ☒ No ☐

PART IV - Bidder Employment Information

Date: 06/29/2022

JOB CATEGORY *	OVERALL TOTALS	WHITE (not of Hispanic origin)		BLACK (not of Hispanic origin)		HISPANIC		ASIAN or PACIFIC ISLANDER		AMERICAN INDIAN or ALASKAN NATIVE	
		Male	Female	Male	Female	Male	Female	Male	Female	male	female
Management	1	1									
Business & Financial Ops											
Marketing & Sales	1	1									
Legal Occupations											
Computer Specialists											
Architecture/Engineering											
Office & Admin Support	4		2		1				1		
Bldg/ Grounds Cleaning/Maintenance											
Construction & Extraction	19	17		2							
Installation, Maintenance & Repair											
Material Moving Workers											
Production Occupations											
TOTALS ABOVE	25	12	2	2	1				1		
Total One Year Ago	18	14	2	1		1			1		
FORMAL ON THE JOB TRAINEES (ENTER FIGURES FOR THE SAME CATEGORIES AS ARE SHOWN ABOVE)											
Apprentices	0										
Trainees	0										

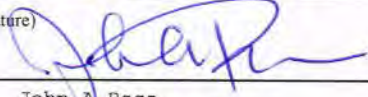
*NOTE: JOB CATEGORIES CAN BE CHANGED OR ADDED TO (EX. SALES CAN BE ADDED OR REPLACE A CATEGORY NOT USED IN YOUR COMPANY)

PART V - Bidder Hiring and Recruitment Practices

(Page 5)

1. Which of the following recruitment sources are used by you? (Check yes or no, and report percent used)				2. Check (X) any of the below listed requirements that you use as a hiring qualification		3. Describe below any other practices or actions that you take which show that you hire, train, and promote employees without discrimination We are open to hire anyone that is willing to work hard. We continuously train our employees. We do promote from within. If a position needs to be filled we ask our employees for referrals.
SOURCE	YES	NO	% of applicants provided by source	(X)		
State Employment Service		X		X	Work Experience	
Private Employment Agencies	X		20		Ability to Speak or Write English	
Schools and Colleges	X		5		Written Tests	
Newspaper Advertisement	X		15		High School Diploma	
Walk Ins	X		5		College Degree	
Present Employees	X		45		Union Membership	
Labor Organizations		X			Personal Recommendation	
Minority/Community Organizations	X		10		Height or Weight	
Others (please identify)					Car Ownership	
					Arrest Record	
					Wage Garnishments	

Certification (Read this form and check your statements on it CAREFULLY before signing). I certify that the statements made by me on this BIDDER CONTRACT COMPLIANCE MONITORING REPORT are complete and true to the best of my knowledge and belief, and are made in good faith. I understand that if I knowingly make any misstatements of facts, I am subject to be declared in non-compliance with Section 4a-60, 4a-60a, and related sections of the CONN. GEN. STAT.

(Signature) 	(Title) Managing Member	(Date Signed) 06/29/2022	(Telephone) 203-879-3495
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John A. Rosa

State of Connecticut
Department of Administrative Services (DAS) Contractor Prequalification
Update Statement
(Statement to be included with the bid)

Connecticut General Statute §4a-100 and Connecticut General Statute §4b-91

Each bid submitted for a contract shall include an update statement in such form as the Commissioner of Administrative Services prescribes and, if required by the public agency soliciting such bid, a copy of a prequalification certificate issued by the Commissioner of Administrative Services. The form for such update statement shall provide space for information regarding all projects completed by the bidder since the date the bidder's prequalification certificate was issued or renewed, all projects the bidder currently has under contract, including the percentage of work on such projects not completed, the names and qualifications of the personnel who will have supervisory responsibility for the performance of the contract, any significant changes in the bidder's financial position or corporate structure since the date the certificate was issued or renewed, any change in the contractor's qualification status as determined by the provisions of subdivision (6) of subsection (c) of 4a-100 of the Connecticut General Statutes, and such other relevant information as the Commissioner of Administrative Services prescribes. Any public agency that accepts a bid submitted without a copy of such prequalification certificate, if required by such public agency soliciting such bid, and an update statement, may become ineligible for the receipt of funds related to such bid, except the public agency soliciting such bids may allow bidders no more than two business days after the opening of bids to submit a copy of the prequalification certificate, if required by such public agency, and an update statement.

PROJECT THAT COMPANY IS BIDDING ON

PROJECT NAME	Waterbury Elementary School Elevator Additions
PROJECT NUMBER	151-0304 CV, 151-0305 CV

COMPANY INFORMATION

LEGAL BUSINESS NAME	J. A. Rosa Construction, LLC		
DBA			
TAXPAYER ID	061566170		
BUSINESS ADDRESS	17 Town Line Road		
BUSINESS CITY, STATE, ZIP	Wolcott CT 06716		
PREQUALIFICATION CONTACT	Abby Darin	(203) 879-3495 ext. 17 Tow	
	John A Rosa	(203) 879-3495 ext.	
	Pete Cappellino	2038793495 ext. 17 Tow	

PREQUALIFICATION INFORMATION

EXPIRATION DATE	2/20/2023
SINGLE LIMIT	\$10,000,000.00
AGGREGATE WORK CAPACITY (AWC)	\$20,000,000.00
REMAINING AGGREGATE WORK CAPACITY *	\$14,071,513.35

* The Remaining Aggregate Work Capacity equals your company's AWC minus the Total \$ Amount of Work Remaining

BONDED PROJECTS (BOTH PUBLIC AND PRIVATE) CURRENTLY UNDER CONTRACT

Project Name	Project Owner	% Completed	Total Contract Amount	Work Remaining
Elevator Modernization	State of Ct Judicial Branch	70	\$788,583.00	\$236,574.90

State of Connecticut
Department of Administrative Services (DAS) Contractor Prequalification
Update Statement

(Statement to be included with the bid)

Design/Build of a New Health Department Annex at the New Britain Senior Center	City of New Britain	75	\$1,272,770.00	\$318,192.50
Water Pollution Control Service Building Replacement	City of Waterbury	25	\$4,515,272.00	\$3,386,454.00
Time Expo	Naugatuck Valley Regional Development Corporation	85	\$509,232.00	\$76,384.80
Department of Public Works Elevator Modernization	City of Waterbury	30	\$1,439,786.00	\$1,007,850.20
Door Replacement at Bugbee ES & King Philip MS	Town of West Hartford	90	\$583,030.00	\$58,303.00
Re-Bid Renovation to Existing Bathroom at Quinnipiac park	Town of Cheshire	75	\$103,633.00	\$25,908.25
Schoolhouse Apartments Elevator Addition & Replacement	Schoolhouse Apartments c/o Town of New Canaan	0	\$818,819.00	\$818,819.00

Total Amount of Work Remaining

\$5,928,486.65

BONDED PROJECTS (BOTH PUBLIC AND PRIVATE) WHICH WERE AWARDED AND 100% COMPLETED SINCE THE DATE OF YOUR INITIAL PREQUALIFICATION OR YOUR LAST RENEWAL

Project Name	Project Owner	Date Completed	Total Contract Amount
Superior Court Elevator Modernization & Maintenance	State of CT Judicial Branch	5/8/2019	\$1,151,126.00
#08-054 Elevators 24 & 25 Sill Replacement & Modernization	University of Connecticut Health Center	7/18/2019	\$1,075,344.56
Toquam Elementary School	Town of Stamford	8/22/2018	\$434,655.00
Municipal Stadium Locker Room and Rest Room Facility	City of Waterbury	7/30/2019	\$3,776,915.00
Chase, Hopeville, Kingsbury & Sprague Elementary Schools Elevator Additions	City of Waterbury	7/27/2020	\$3,325,425.60
Community Partners in Action Kitchen Renovation	Community Partners in Action	3/31/2020	\$136,500.00
Western Hills Toilet Room Improvements	City of Waterbury	4/24/2020	\$292,140.00
Office Suite Renovations-Alcott School	Wolcott Building Committee	4/30/2020	\$132,577.00
Waterbury Public Schools New Central Commissary Fitout	City of Waterbury	12/22/2020	\$1,680,746.00
Ellsworth Central Office Elevator Installation	South Windsor Board of Education	2/1/2021	\$396,004.00
Norwalk Transit District Fuel Island, Tank Replacement & Service Lane Upgrades	Norwalk Transit District	6/15/2021	\$2,653,686.00
Bathroom Accessibility & Finish Renovations-New Britain Public Library	City of New Britain	2/19/2021	\$177,478.00
Sump & Drainage Installation at WPC Electrical Substation Building	City of Waterbury	1/7/2020	\$156,114.00

State of Connecticut
Department of Administrative Services (DAS) Contractor Prequalification
Update Statement

(Statement to be included with the bid)

Fire Pump & Vestibule Upgrades at George Crawford manor	Housing Authority of the City of New Haven	3/9/2022	\$386,674.00
Additions & Alterations to the Jonathan Trumbull Library	Town of Lebanon	8/25/2022	\$3,215,281.00
Ellsworth Avenue School Addition	City of Danbury	8/26/2022	\$8,532,415.00
Melissa Jones Elementary School Elevator Replacement	Town of Guilford	3/4/2022	\$307,650.00
Kent Center School Security Vestibule	Kent Board of Education	8/20/2021	\$150,862.00
Vestibule Renovations at Stillmeadow Elementary School	City of Stamford	8/25/2022	\$90,576.00
Collections Building Exterior Repairs	City of Waterbury	10/17/2022	\$1,054,463.00
BI-T-618 Dinosaur St Park HVAC Upgrades	St of CT DAS Construction Services	10/17/2022	\$1,329,166.00
21-056 Replacement of Existing 2 Stop Hydraulic Elevator-Wallingford Public Library	Town of Wallingford	8/23/2022	\$224,398.00

PERSONNEL WHO WILL HAVE SUPERVISORY RESPONSIBILITY FOR THE PERFORMANCE OF THE CONTRACT BEING BID ON

No Records Found For Supervisor

CHANGES IN YOUR COMPANY'S FINANCIAL CONDITION OR BUSINESS ORGANIZATION WHICH MIGHT AFFECT YOUR COMPANY'S ABILITY TO SUCCESSFULLY COMPLETE THIS CONTRACT

HAVE THERE BEEN ANY CHANGES? NO

IF YES, EXPLAIN

I CERTIFY UNDER PENALTY OF LAW THAT ALL OF THE INFORMATION CONTAINED IN THIS UPDATE STATEMENT IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AS OF THE DATE BELOW.


Signature John A Rosa

December 19, 2022

Date

It is the responsibility of the Awarding Authority to determine if any of the information provided above will impact the contractor's performance on this project.

The DAS' Contractor Prequalification Program can be reached at DAS.Prequalification@ct.gov



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

11/29/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Chittenden Group 327 Church St P O Box 859 Naugatuck CT 06770		CONTACT NAME: Sheri Ciaffi PHONE (A/C, No, Ext): (203) 723-7447 E-MAIL ADDRESS: sheri@chittendengroup.com FAX (A/C, No): (203) 723-4148	
INSURED Ja Rosa Construction LLC 17 Town Line Rd Wolcott CT 06716-2680		INSURER(S) AFFORDING COVERAGE INSURER A: The Cincinnati Insurance Company INSURER B: Crum & Forster Specialty Ins Co INSURER C: INSURER D: INSURER E: INSURER F:	

COVERAGES**CERTIFICATE NUMBER:** 2022-2023 Master Poll EO**REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> BLANKET ADDITIONAL INSURED PER FORM GA472 GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:	Y	Y	EPP 0640166	01/01/2022	01/01/2023	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 500,000 MED EXP (Any one person) \$ 10,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMP/OP AGG \$ 2,000,000
	<input checked="" type="checkbox"/> AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY	Y	Y	EPP 0640166	01/01/2022	01/01/2023	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$
	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$	Y	Y	EPP 0640166	01/01/2022	01/01/2023	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
	<input checked="" type="checkbox"/> WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N Y	N/A	EWC 0640172	01/01/2022	01/01/2023	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
B	Pollution & Professional Liability	Y		PKC-112754	04/01/2022	04/01/2023	Pollution Liability 5,000,000 Errors & Omissions Liab 2,000,000 deductible 10,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Project: Washington and Bunker Hill Elevator Additions
City of Waterbury and its Board of Education are included as additional insured if required by contract. Waiver of subrogation applies in favor of additional insureds.

CERTIFICATE HOLDER**CANCELLATION**

City of Waterbury 235 Grand Street Waterbury CT 06702	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS. AUTHORIZED REPRESENTATIVE
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ELEVATOR PROJECTS UNDER CONTRACT AND NOT YET COMPLETED

Name of Project	Address of Project	Owner	Architect/Engineer	Contract Value	% Own Forces
Department of Public Works Elevator Modernization	255 East Main St 185 South Main St	City of Waterbury	Salamone & Associates	\$1,583,764.60	15%
Connecticut Convention Center	100 Columbus Blvd Hartford Ct	State of Connecticut	Design/Build Kone Engineering	\$120,547.73	50%
Middletown Courthouse- 3 Elevators	1 Court St Middletown, CT	State of CT Judicial Branch	Clohesy, Harris & Kaiser	\$788,583.00	10%
Long Brook Condo Elevator Modernization	925 Long Brook Ave Stratford CT	Long Brook Condos	Design/Build Otis Engineering	\$62,002.00	50%
California Condos Elevator Modernization	40 California St Stratford, CT	California Condos	Design/Build Otis Engineering	\$88,251.00	50%
Dunbar Davenport Residence	125 Putnam Ave Hamden, CT	Davenport Residence, Inc.	Design/Build Kone Engineering	\$376,116.00	40%
Academy of Our Lady of Mercy Laurelton Hall Elevator Mod	200 High St Milford, CT	Academy of Our Lady of Mercy	Design/Build Otis Engineering	\$61,630.00	50%
Fish Mart	28 Richards St West Haven, CT	Fish Mart Inc	Design/Build Otis Engineering	\$63,313.00	50%
Wallingford Library	220 North Main St Wallingford, CT	Town of Wallingford	Design/Build Kone Engineering	\$224,398.00	10%
999 Asylum	999 Asylum Hartford, CT	City of Hartford	Design/Build Otis Engineering	\$170,200.00	75%

COMPLETED ELEVATOR PROJECTS

Name of Project	Address of Project	Owner	Architect/Engineer	Contract Value	% Own Forces
Edith Johnson	114 Bristol St New Haven, CT	New Haven Housing Authority	Design/Build Otis Engineering	\$103,180.00	50%
Melissa Jones Elementary School Elevator	181 Ledge Rd Guilford, CT	Town of Guilford	Silver Petrucci & Associates	\$307,650.00	10%
Wellmore Behavioral Health	402 East Main Street Waterbury, CT	Wellmore Inc. Robert Gugliotti	AE Design Group, LLC	\$474,317.00	30%
WWE Freight Elevator	677 Washington Blvd Stamford, CT	George Comfort & Sons, Inc	Perkins Eastman/BSquared Engineering	\$1,450,980.00	75%
New Britain Courthouse ElevatorModernization-2 Elevators	20 Franklin Square New Britain, CT	State of Connecticut	Silver Petrucci & Associates	\$739,560.00	15%
Temple Beth El Elevator	350 Roxbury Stamford, CT	Temple Beth El	Brawer & Hauptman	\$254,896.00	30%
New Britain Housing Authority Jane Johnson	18 Armistice St New Britain, CT	Housing Authority of the City of New Britain	Silver Petrucci & Associates	\$178,440.00	15%
Fairfield Woods Branch Library	1147 Fairfield Rd Fairfield, CT 06824	Town of Fairfield	Silver Petrucci & Associates	\$278,803.00	35%
Pearson School ElevatorModernization	2 Wetmore Ave Winsted, CT	Winchester Public Schools	Design/Build Otis Engineering	\$34,788.00	30%
10 Columbus Blvd-7 Elevators	10 Columbus Blvd, Hartford, CT 06106	Hartford Square North Condominium Assoc.	Design/ Build TKE Engineering	\$214,108.00	75%
Shippan landing-16 Elevators	208 Harbor Drive Stamford, CT	Shippan Landing	Design/Build Kone Engineering	\$977,557.25	75%
Huntington Apartments	120 Huntington Turnpike Bridgeport, CT	Chris Galli	Design/Build Otis Engineering	\$89,991.24	25%
Ellsworth Board of Ed	South Windsor	Town Of South Windsor	Drummev Rosanne Anderson Inc	\$396,004.00	75%
Waterbury Board of Education Four School Elevator Additions	Waterbury, CT	Waterbury Board of Education	Friar Associates	\$3,325,425.60	75%
Stamford High School Elevator Modernization	1147 Fairfield Rd Fairfield, CT	Town of Fairfield	Silver Petrucci	\$278,503.00	20%

Westport Town Hall Elevator/Modernization	110 Myrtle Ave Westport CT	Town of Westport	Design/Build Bay State Elevator Engineering	\$182,632.00	10%
Norwalk High School Elevator Modernization	55 County St Norwalk, CT	City of Norwalk	Silver/Petrucelli & Associates	\$248,182.00	10%
Osborn Correctional Institute	335 Bilton Road Somers CT	State of ConnecticutDAS	Salamone & Associates	\$847,668.00	10%
Bridgeport Superior Court Elevator/Modifications	1061 Main St. Bridgeport, CT	State of CT Judicial Branch	Silver Petrucelli and Associates	\$1,151,126.00	10%
Torrington High School Elevator Addition	Major Besse Drive Torrington, CT	Torrington Board of Education	Joseph S. Alicata	\$483,532.00	15%
UConn Health Center	263 Farmington Ave Farmington, CT	University of Connecticut Health Center	Salamone & Associates	\$1,075,344.56	15%
Parent's FoundationElevator Upgrade	100 Broadway New Haven, CT	Parent's Foundation for Traditional Living	Design/Build Kone Engineering	\$274,283.00	35%
YaleMedical Building Elevator Upgrade	40 Temple St New Haven, CT	Fusco Management	Otis Engineering	\$45,960.00	20%
John B Pierce labs Elevator Upgrade	290 Congress Ave New Haven, CT	John B Pierce Laboratories	Design/Build Eagle Elevator	\$18,211.00	100%
Department of Corrections Elevator Upgrades	24 Wolcott Hill Rd Wethersfield, CT	DAS State of Connecticut	Fuss & O'Neill Kone Engineering	\$667,010.00	35%
Trumbull Police Department Elevator Modernization	158 Edison Rd. Trumbull, CT	Town of Trumbull	Antinozzi AssociatesOtis Engineering	\$169,227.00	15%
Ora Mason Branch Library Elevator Addition and Renovation	260 Benham Hill Rd West Haven, CT	City of West Haven	Sapienza Architects	\$687,792.00	45%
Myrtle Stevens Elementary School Elevator Addition and Renovation	322 Orchard St Rocky Hill, CT	City of Rocky Hill	Friar Associates Farmington Ct-Otis	\$901,581.00	30%
Elevator & Lobby Upgrades	51 Elm St. New Haven, CT	51 Elm St. Association	Design/Build Kone Engineering	\$52,431.00	30%
DeMaio Gardens Elevator Upgrades	75 DeMaio Drive Milford, CT	Milford Redevelopment & Housing Partnership	Quisenberry and Arcari Architects Kone Engineering	\$350,499.00	10%
Plastic Surgery Center Elevator Modernization	South Orange Center Rd Orange, CT	JBC	Design/Build Kone Engineering	\$11,950	40%
450 Church Street Elevator Masonry and Structural Modifications	450 Church Street Hartford, CT	Van Horst Construction	Design/Build Kone Engineering	\$50,000	100%
120 Dwight Street Structural Work, Finishes and Related Construction Management	120 Dwight Street New Haven, CT	C. A. White	Michael Horton Structural EngineerKone Engineering	\$80,506.95	85%
5 Lafayette Structural Work, Finishes and Related Construction Management	5 Lafayette New Haven, CT	Kone Elevator Contracted by Owner	Kone Engineering	\$35,784.00	85%

Cheshire Senior Center	240 Maple Ave Cheshire, CT	Town of Cheshire	Salamone and Associates Otis Engineering	\$173,000.11	25%
Augustus Manor	101 Main Street Stamford, CT	Augustus Manor	Otis Elevator	\$34,000.00	25%
Avalon Glenn - Two Elevator Modernization	96-100 Glenbrook Rd. Stamford, CT	Avalon Communities	Kone Engineering JAR Coordination	\$146,000.00	75%

Name of Project	Address of Project	Owner	Architect/Engineer	Contract Value	% Own Forces
Town Hall Elevator Removal and Replacement	5866 Main Street Trumbull, CT	Town of Trumbull	Antinozzi Associates/Kone Engineering	\$193,300.00	20%
Modernization of Elevator Systems at Domus School, Scofield Manor, and Smith House/Health Care Center (3 Elevators)	Various Locations Stamford, CT	City of Stamford	Sterling Elevator Consultants, LLC	\$562,109.00	20%
Elevator Renovations, Site Lighting and Security Upgrades at Matthew Ruoppolo Manor	480 Ferry Street New Haven, CT	New Haven Housing Authority	Salamone & Associates/Otis Engineering	\$168,512.24	25%
SCSU CT Hall Hydraulic Elevator Renovation (2 Elevators)	Corner of Farnham and Wintergreen Avenue New Haven, CT	State of Connecticut	SCSU Otis Engineering	\$263,737.60	25%
Bergin Apartments Elevator Modification (2 Elevators)	70 Lakewood Road Waterbury, CT	City of Waterbury Housing Authority	Salamone and Associates Quisenberry Architects Otis Engineering	\$384,149.05	25%
Sbona Towers Elevator Modification and Generator Installation (2 Elevators)	40 Broad Street Middletown, CT	City of Middletown Housing Authority	Salamone and Associates Schindler Engineering	\$463,830.31	40%
Lincoln Lewis Housing Elevator Addition and Generator Installation (2 Elevators)	43 Academy Street Southington, CT	Town of Southington Housing Authority	Salamone and Associates Otis Engineering	\$620,172.00	50%
Thompson Elementary Elevator and ADA Renovations	165 Richards Street West Haven, CT	City of West Haven Board of Education	Sapienza and Lessig Thyssen Krupp Engineering	\$560,066.00	50%

J.A. Rosa Construction, LLC

Contact Information

Design Professionals		
Dean Petrucelli, Architect	Silver – Petrucelli & Associates	1-203-230-9007
Bill Silver, Architect	Silver – Petrucelli & Associates	1-203-230-9007
Tom Arcari, Architect	Quisenberry and Arcari Architects	1-860-677-4594
Joseph Salamone, Engineer	Salamone & Associates	1-203-281-6895
Stephen Kasle, Engineer	Jacobs Engineering	1-203-574-8265

Owner's Representatives		
Rich Clavet, Facilities Director	Cheshire Public Schools	1-203-250-2576
Jim Croteau, Facilities Director	Regional School District 13	1-860-349-7238
George Noewatne, Director of Public Works	Town of Cheshire	1-203-271-6650
Deb Levesque, Program Manager Facilities Designer	State of Connecticut Judicial Branch	1-860-706-5263
Luda Fuks, Project Manager	City of Stamford	1-203-977-4135
Jeff Pelletier, Director of Facilities	American School for the Deaf	1-860-570-2357

17 Town Line Rd.
Wolcott, CT 06716

www.jarosa.com
e-mail john@jarosa.com

CT Reg. #: 565782

Tel. 1-203-879-3495
Fax not in use

07/17/2020 https://biznet.ct.gov/SDSearch/Certificate.aspx?recno=43693

State of Connecticut

Department of Administrative Services
Supplier Diversity Program

This Certifies

J. A. Rosa Construction, LLC

17 Town Line Road Wolcott CT 06716

As a

Small Business Enterprise
August 22,2020 through August 22,2022

Owner(s): John A. Rosa

Contact: John A Rosa

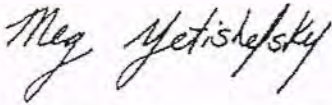
E-Mail: john@jarosa.com

Telephone: (203) 879-3495 Ext:

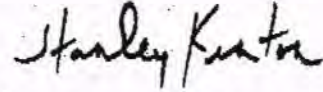
FAX: (203) 879-0760

Web Address: www.jarosa.com

**Affiliate Companies:



Supplier Diversity Director



Supplier Diversity Specialist

** A contractor awarded a contract or a portion of a contract under the set-aside program shall not subcontract with any person(s) with whom the contractor is affiliated.

State of Connecticut

Department of Administrative Services
Construction Contractor Prequalification Program

This certifies

J. A. Rosa Construction, LLC

17 Town Line Road, Wolcott, CT 06716

As of

Prequalification Construction Contractor

February 21, 2022 through February 20, 2023

CONTACT INFORMATION

Name: John A. Rosa
Phone: (203) 879-3495
Fax: (203) 879-0760
Email: john@jarosa.com

Name: Lynn Rich
Phone: 203-879-3495
Fax: 203-879-0760
Email: lynn@jarosa.com

Effective Date	Aggregate Work Capacity (AWC)	Single Limit (SL)
2/21/2022	\$20,000,000.00	\$10,000,000.00

Classifications

CARPENTRY/MILLWORK,
CONCRETE, CONCRETE, PRECAST
STRUCTURAL AND ARCHITECTURAL,
GENERAL BUILDING
CONSTRUCTION (GROUP C),
GENERAL TRADES, MASONRY,
SITEWORK

This certificate prequalifies the named company to bid. It is not a statement of the Contractor's capacity to perform a specific project. That responsibility lies with the awarding authority.
Company Licenses/Registrations: It is the Contractor's responsibility to update their license information by editing their electronic application. Licenses are confirmed by the Department of Administrative Services (DAS) at the time of initial application and at each renewal.
For information regarding the DAS Contractor Prequalification Program visit <http://portal.ct.gov/dasprequal> or call (860) 713-5280.

Name: Maya Hadley
Phone: (203) 879-3495 ext. 104
Fax:
Email: maya@jarosa.com

Classification Name	Description
CARPENTRY/MILLWORK	This classification includes: Carpentry: the cutting, framing and joining pieces of timber in the construction of wood structures. Millwork: the manufacture and installation of generally all building materials made of finished wood and/or plastic and manufactured in millwork plants and in planing mills, such as doors, window and door frames, sash, blinds, porch work, mantels, panel work, stairways and special woodwork. Does not include flooring, ceilings or siding.
CONCRETE	Installation, renovation, repair and maintenance of cast in place concrete structures including foundations and structural concrete components including such incidental or related work as is customarily performed by those in the concrete trade.
CONCRETE: PRECAST STRUCTURAL AND ARCHITECTURAL	Design, factory manufacture and field install precast concrete structural and architectural components for total precast concrete building systems. The types of structures would include parking garages, multi-unit housing, stadiums, office buildings, commercial buildings, schools, nursing homes, bridges and other concrete precast products.
GENERAL BUILDING CONSTRUCTION (GROUP C)	The undertaking of general contracts for the construction of buildings i.e. new construction, renovation, rehabilitation, alteration, addition, etc. The contract must include a variety of construction practices and supervision of a minimum of three sub-trades. Includes buildings that are truly custom, requiring extensive detailing, or that have large amounts of integrated scientific or complex mechanical/electrical equipment in order for them to function. Examples include hospitals, chemistry buildings, special collections buildings, historic preservation to a landmark structure, and/or any other structure that is truly one of a kind within the State's inventory. Note: If you are prequalified for General Building Construction under Group C, you are automatically prequalified for Group A and Group B. Also if you are prequalified for General Building Group C you will automatically be prequalified for General Trades. Note: For the purposes of DAS Construction Contractor Prequalification, contractors in this classification are not required to be registered as a major contractor with the Department of Consumer Protection. However, there may be specific projects within this classification that require a major contractor registration from the Department of Consumer Protection. Projects that are threshold buildings may require a Major Contractor Registration.

GENERAL TRADES

The undertaking of general contracts for the construction and/or supervision of several sub-trades but not the construction of buildings as described in General Building Construction. The contract must include a variety of construction practices and supervision of a minimum of three sub-trades. The work of this category is intended for the interior finishes of a building.

MASONRY

Installation, renovation, repair and maintenance of masonry units composed of concrete, stone, brick and the like, including such incidental or related work as is customarily performed by those in the masonry trade.

SITEWORK

Work customarily performed by this industry, including earthwork activities (excluding tunneling and mining, special foundations and load bearing elements); utility systems including installation of drainage systems; exterior improvements (excluding plantings) including horizontal paving work not requiring mortar; site preparation and site remediation.

This certificate prequalifies the named company to bid. It is not a statement of the Contractor's capacity to perform a specific project. That responsibility lies with the awarding authority.

Company Licenses/Registrations: It is the Contractor's responsibility to update their license information by editing their electronic application. Licenses are confirmed by the Department of Administrative Services (DAS) at the time of initial application and at each renewal.

For information regarding the DAS Contractor Prequalification Program visit <http://portal.ci.gov/dasprequal> or call (866) 713-5280.

STATE OF CONNECTICUT
DEPARTMENT OF CONSUMER PROTECTION

This is your Major Contractor registration certificate for your records. Such registration shall be shown to any properly interested person on request. Do not attempt to make any changes or alter this certificate in any way. This registration is not transferable. Questions regarding this registration can be emailed to the Occupational & Professional Licensing Division at dcp.occupationalprofessional@ct.gov.

In an effort to be more efficient and Go Green, the department asks that you keep your email information with our office current to receive correspondence. You can update your email address or print a duplicate certificate by logging into your account with your User ID and Password at www.elicense.ct.gov.

Mailing address:

J A ROSA CONSTRUCTION LLC
17 TOWN LINE RD
WOLCOTT, CT 06716-2625

Email on file to be used for receiving all notices from this office:

lynn@jarosa.com

STATE OF CONNECTICUT ♦ DEPARTMENT OF CONSUMER PROTECTION

Be it known that

J A ROSA CONSTRUCTION LLC

17 TOWN LINE RD
WOLCOTT, CT 06716-2625

has satisfied the qualifications required by law and is hereby registered as a

MAJOR CONTRACTOR

Registration #: MCO.0901983

Effective Date: 07/01/2022

Expiration Date: 06/30/2023

verify online at www.elicense.ct.gov

Michelle Seagull

Michelle Seagull, Commissioner



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)

01/03/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER Chittenden Group 327 Church St P O Box 859 Naugatuck CT 06770	CONTACT NAME: Sheri Claff PHONE (A/C, No, Ext): (203) 723-7447 E-MAIL: sherl@chittendengroup.com ADDRESS: INSURER(S) AFFORDING COVERAGE INSURER A: The Cincinnati Insurance Company INSURER B: INSURER C: INSURER D: INSURER E: INSURER F: NAIC # 10677
INSURED JA Rosa Construction LLC 17 Town Line Rd Wolcott CT 06716	

COVERAGES

CERTIFICATE NUMBER: 2022-2023 Master

REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> BLANKET ADDITIONAL INSURED PER FORM GA472 GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input checked="" type="checkbox"/> PROJECT <input type="checkbox"/> LOC OTHER:			EPP0640166	01/01/2022	01/01/2023	EACH OCCURRENCE \$ 1,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$ 1,000,000 MED EXP (Any one person) \$ 5,000 PERSONAL & ADV INJURY \$ 1,000,000 GENERAL AGGREGATE \$ 2,000,000 PRODUCTS - COMPI/OP AGG \$ 2,000,000
A	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> NON-OWNED AUTOS ONLY			EPP0640166	01/01/2022	01/01/2023	COMBINED SINGLE LIMIT (Ea accident) \$ 1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ Uninsured motorist \$ 1,000,000
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED RETENTION \$			EPP0640166	01/01/2022	01/01/2023	EACH OCCURRENCE \$ 5,000,000 AGGREGATE \$ 5,000,000
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N Y	N/A	EW0640172	01/01/2022	01/01/2023	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$ 1,000,000 E.L. DISEASE - EA EMPLOYEE \$ 1,000,000 E.L. DISEASE - POLICY LIMIT \$ 1,000,000
A	Inland Marine			EPP0640166	01/01/2022	01/01/2023	Leased & Rented Equipm 300,000 Deductible 1,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

PROOF OF INSURANCE

CERTIFICATE HOLDER

JA ROSA CONSTRUCTION LLC
17 TOWN LINE RD

WOLCOTT

CT 06716

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

JOHN A. ROSA

4 CLUB DRIVE, NEW MILFORD, CT 06776

EDUCATION

1982 - 1986 Bentley College, Waltham, MA
Bachelor of Science - Business Management

PROFESSIONAL EXPERIENCE

1999 - J. A. Rosa Construction, LLC, Wolcott, CT
Managing Member

1979 - 1999 Rosa Home Improvement, Wolcott, CT
Partner 1987 - 1999

1982 - 1984 Honeywell Electro Optics Division, Lexington, MA
Industrial Engineering Assistant

ADDITIONAL PROFESSIONAL EXPERIENCE

AutoCAD and Autodesk Revit Architectural Design
Class A Connecticut Driver's License

COMMUNITY ACTIVITIES

Member – New Milford Riverfront Revitalization Committee, New Milford, CT 2020 -
Member – New Milford Municipal Building Committee, New Milford, CT 2019 -
Chairman - Land Committee, Candlewood Trails Association, New Milford, CT 2018 -
Chairman - Official Board, Mill Plain Union Church, Waterbury, CT 2009-2011
Chairman - Board of Trustees, Mill Plain Union Church, Waterbury, CT, 1997
Pastoral Search Committee, Mill Plain Union Church, Waterbury, CT 2006
Varsity Boys Soccer Coach, Wolcott High School, Wolcott, CT, 1995-1999

CHRIS LAVORNA

69 Brook Lane, Cheshire, CT 06410

EDUCATION

2009-2013

W. F. Kaynor Technical High School, Waterbury, CT

*W.F. Kaynor High School, Carpentry Apprentice Program, 2010
Areas of Expertise: Framing and Construction o Roofing, Siding,
Walls and Partitions, Trim, Wood Appliance, Cabinets,
Toolboxes, Chairs*

PROFESSIONAL EXPERIENCE

2015-Present

J. A. Rosa Construction, LLC

Elevator Construction Manager/ Site Superintendent

2013-2013

Golden Nail Builders, Colebrook, CT

Carpenter

2012-2013

Custom Carpentry Service, Wolcott, CT

Carpenter

ADDITIONAL PROFESSIONAL EXPERIENCE

OSHA 30 Certificate, 2017

Ladder and Fall Protection, 2016

American Scaffold and Access Industry Associates Scaffold Frame, 2019

Sunbelt Rentals Forklift Operator, 2018

Sunbelt Rentals Aerial Work Platform Operator, 2018

Preventing Discrimination & Harassment in Construction: CT Employee, 2020

Project management training seminar

PETER A. CAPPELLINO

232 TRUMBULL AVE., PLAINVILLE, CT

EDUCATION

1972-1976	Horace C. Wilcox Technical High School , Meriden, CT <i>Graphic Communications</i>
1976-1978	Johnson & Wales University, Providence, RI
1978-1980	University of New Haven, New Haven, CT

PROFESSIONAL EXPERIENCE

2011- Present	J. A. Rosa Construction, LLC <i>Estimator</i>
2009-2011	J. A. Rosa Construction, LLC <i>Residential Sales- Supervising Carpenter</i>
2007-2009	Heritage Woodcrafters <i>Trim Carpenter</i>
2005-2007	P & J Caruso Construction, <i>Carpenter</i>
1986-1991	Rosa Home Improvement <i>Carpenter</i>

ADDITIONAL PROFESSIONAL EXPERIENCE

OSHA 10
Lead Certified Training
Preventing Discrimination & Harassment in Construction: CT Employee 2020
Project management training seminar

ADDITIONAL SKILLS

General computer knowledge
Strong organizational skills
Analytical thinking skills
Advocate of teamwork
Ability to work well under pressure.
Self-starter

KEVIN SLADE

405 SHARON RD, CHESHIRE, CT 06410

EDUCATION

1978-1982 Horace C. Wilcox Technical High School, Meriden, CT

Wilcox Technical High School, Carpentry Apprentice Program, 1982

Wilcox Technical High School, Welding Apprentice Program, 1982

PROFESSIONAL EXPERIENCE

2000 – Present	J. A. Rosa Construction, LLC <i>Foreman/Site Superintendent</i>
1998 – 2000	Ultimate Construction, Cheshire, CT <i>Self-employed</i>
1994 – 1998	Mott Corporation, Farmington, CT <i>Production Lead Person</i>
1982 – 1994	Holtz Construction, Cheshire, CT <i>Carpenter</i>

ADDITIONAL PROFESSIONAL EXPERIENCE

Greater New Haven State Technical College, Blueprint Reading, 1989
American Management Association Training Seminars, 1994-1998
Techniques of Supervision
Assertiveness Skills for Managers and Supervisors
Interpersonal Communication Skills in the Workplace
First Line Supervision
CPR Certification
Preventing Discrimination & Harassment in Construction: CT Employee, 2020

ADDITIONAL SKILLS

General computer knowledge
Strong organizational skills
Advocate of teamwork
Ability to work well under pressure.
Self-starter

JAMES V. SITA

229 EAST MAIN STREET, WOLCOTT, CT 06716

EDUCATION

-
- 2005-2009 Central Connecticut State University, New Britain, CT
Bachelor of Science- Construction Management, Major GPA: 3.5
Course Highlights: Construction Superintendency, Construction Project Management, Construction Safety, Building Construction Estimating, Construction Planning, Construction Business Principles
- 2001-2005 Horace C. Wilcox Technical High School, Meriden, CT
Wilcox Technical High School, Carpentry Apprentices Program

PROFESSIONAL EXPERIENCE

-
- 2014- Present J. A. Rosa Construction, LLC
Site Superintendent
- 2011- 2014 Robinson Construction, Inc., Wallingford, CT
Carpenter
- 2005-2011 CAS Construction Company, Inc., Berlin, CT
Carpenter

ADDITIONAL PROFESSIONAL EXPERIENCE

-
- OSHA Certified 30, 2008
Sunbelt Rentals Forklift Operator, 2018
Sunbelt Rentals Aerial Work Platform Operator, 2018
Scaffold & Access Industry Association Frame Scaffold , 2019
OSHA Confined Space Safety Operations Training, 2020
Preventing Discrimination & Harassment in Construction: CT Employee, 2020

NOTABLE PROJECTS

2020	Waterbury Schools Central Kitchen Commissary,	Construction of 9,050 Square Foot Central Kitchen \$1,731,622.44
2020	Waterbury Elementary School Elevator Additions	Simultaneous Construction of Four Elevator Additions \$3,259,103
2019	Municipal Stadium Locker Restroom Building	Design/Build 8,500 Square Foot Ground Up New Construction - \$3,919,106

JENNIFER D. LOWE

65 E. ROBBINS AVE., NEWINGTON, CT 06111

EDUCATION

2016	Post University, Waterbury <i>Completion of Accounting I and II</i>
2018	Norwalk Community College, Norwalk, CT <i>Completion of Forensic Accounting</i>

PROFESSIONAL EXPERIENCE

2016- Present	J. A. Rosa Construction, LLC <i>Financial Accounts Lead</i>
2007-2007	A Tax Service Plus, Inc <i>Office Manager</i>
2006-2007	Water Tite Plumbing, Inc <i>Office Manager</i>
2004-2006	Frontier Builders, Inc <i>Executive Administration to Vice-President</i>

ADDITIONAL PROFESSIONAL EXPERIENCE

OSHA 10, 2018
Preventing Discrimination & Harassment in Construction: CT Employee, 2020
CPE Tax Certificate, PPP Part I & Part II, 2020
American Red Cross, Adult First Aid/CPR/AED, 2021
American Bloodborne Pathogens Training, 2021
Project Management Training Seminar

ADDITIONAL SKILLS

Manage Human Resources including Pension Fund
Manage Insurance and Surety Bond Program
In-depth knowledge of QuickBooks data entry and reporting
Proficient with Microsoft Applications and Quantum Project Management Software

Abigail Darin

Education

1997-2001	Fairfield High School, Fairfield, CT <i>High School Diploma</i>
2001-2005	American University, Washington, CT <i>Bachelor of Arts</i>

Professional Experience

<i>Current</i>	J.A. Rosa Construction, LLC <i>Project Manager</i>
<i>2022</i>	Acoustic Blueprint, LLC <i>Office Manager</i>
<i>2020-2022</i>	All Electric Construction & Communication <i>Project Coordinator</i>
<i>2019-2020</i>	1 st Light Energy <i>Project Coordinator</i>
<i>2018-2019</i>	Scholar Painting, LLC <i>Project Coordinator</i>
<i>2016-2018</i>	CTEC Solar, LLC <i>Project Coordinator</i>

Additional Skills

Smartsheet	Thorough knowledge of Microsoft systems, Google Suite, Salesforce &
	Thorough knowledge of Adobe systems
	Proficient in AIA billing, Invoicing & Procurement
	Notary Public

Elevator Construction Services

ELEVATOR TECHNOLOGY

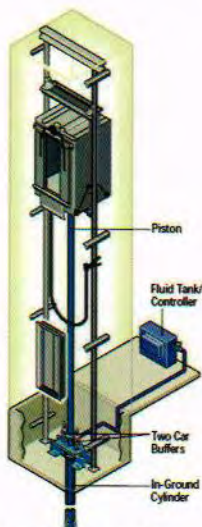
Elevator technology is advancing at a swift pace. The equipment is becoming more advanced and is utilizing less building space for the machines and controllers. Coordinating this work and meeting building owner needs remains a critical component of a successful elevator project. We have worked with the largest and best elevator contractors in the world and have earned their respect by completing our work efficiently.

WORK BY OTHERS

As a part of every elevator modernization and/or construction project there is a list of services that the elevator industry refers to "work by others". This "work by others" includes everything related to the building that the elevator contractor needs completed to accomplish their installation. Our firm has carpenters, masons, laborers, painters, drywall installers, flooring installers on our staff. In addition to our staff we have subcontractors who have the specific experience related to the elevator industry to perform the licensed trades, such as electrical, fire alarm and HVAC. Our resources provide the building owner and the elevator contractor with the ability to have the work progress on schedule and on budget.

PROJECT COORDINATION

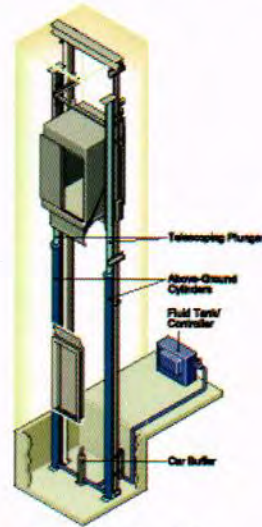
The coordination of an elevator project can be challenging for building owners. Our firm specializes helping building owners reduce the stress related to replacing or installing a new elevator. Beyond our very qualified field personnel and subcontractors we have the office support of highly trained project managers and accounting staff to maintain accurate and efficient control of the project.



Holed Hydraulic Elevator



Overhead Traction Elevator



Hole-Less Hydraulic Elevator



Machine Room-Less Elevator

THE CITY OF WATERBURY

Bunker Hill and Washington ES – Elevator Additions

SECTION 00400

Date: December 19, 2022

Director of Purchasing
City of Waterbury
235 Grand Street
Waterbury, CT 06702

Sir:

Pursuant to and in compliance with the Invitation to Bid, the Undersigned:

J.A. Rosa Construction, LLC

(Print or Type Business Name of Bidder)

having carefully examined all the Bid Documents, together with all Addenda, as acknowledged on the Addendum Acknowledgment Form, and having informed itself fully in regard to all conditions pertaining to the providing of the specified Bid Items and the place where the Work, Services and/or Items are to be delivered, constructed, installed and/or performed; and that with this representation, the undersigned makes this Bid.

Further, the undersigned proposes to provide the specified Bid Items, to perform all Services and/or to furnish all equipment, labor and materials, etc. and to complete the Work in its entirety in the manner and under the conditions required by the Bid Documents at the prices listed as follows:

[Bid Items set out on following page]

BID ITEMS

Bunker Hill Elementary School		
BID ITEM	AMOUNT BID IN WORDS	AMOUNT BID IN NUMBERS
1.0	Base Bid One million one hundred eighty six thousand sixty six and 00/100 _____ Lump Sum	1,186,066 \$ _____ .00
2.0	Alternate #1 – Site Paving and Regrading (see drawing C1.0) One hundred fifty four thousand six hundred sixty seven and 00/100 _____ Lump Sum	154,667 \$ _____ .00

<u>TOTAL BID PRICE ITEMS 1.0 – 2.0 (in words)</u> One million three hundred forty thousand seven hundred thirty three and 00/100 _____		\$ <u>1,340,733</u> .00
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Washington Elementary School		
BID ITEM	AMOUNT BID IN WORDS	AMOUNT BID IN NUMBERS
1.0	Base Bid One million one hundred eighteen thousand seven hundred seventy four and 00/100 _____ Lump Sum	1,118,774 \$ _____ .00

<u>TOTAL BID PRICE ITEMS 1.0 – 2.0 (in words)</u> One million one hundred eighteen thousand seven hundred seventy four and 00/100 _____		\$ <u>1,118,774</u> .00
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January 17, 2023

City of Waterbury
Kevin McCaffery
235 Grand St
Waterbury, Ct. 06702

Mr. McCaffery

Re: Waterbury Elementary School Elevator Additions

We offer below the cost savings. Scope of work is unchanged from the bid documents.

The original bid we submitted for Bunker Hill Elementary School was \$1,186,066.00

Proposed cost savings \$10,660.00

The revised bid is \$1,175,406.00

The original bid we submitted Washington Elementary School was \$1,118,774.00

Proposed cost savings \$13,180.00

The revised bid is \$1,105,594.00

Regards,

John A Rosa

John A Rosa

Waterbury Elementary School Elevator Addition

Bunker Hill Elementary School (State Project No. 151-0305 CV) – 170 Bunker Hill Ave.
Washington Elementary School (State Project No. 151-0304 CV) – 685 Baldwin Street

Waterbury, Connecticut

Project Specifications

September 1, 2022

Issued For Bid 11/28/2022

Architect

Friar Architecture, Inc.
21 Talcott Notch Road
Farmington, CT 06032

Structural Engineer

RZ Design Associates, Inc
750 Old Main Street
Suite 202
Rocky Hill, CT 06067

Mechanical and Electrical Engineer

Consulting Engineering
Services
811 Middle Street
Middletown, CT 06457

Civil Engineer

Benesch
120 Hebron Avenue
Glastonbury, CT 06033

Division	Section Title
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	Table of Contents
--	-------------------

	List of Drawings
--	------------------

DIVISION 00 – BIDDING AND CONTRACT REQUIREMENTS, BID PACKAGES

	Request for Proposal
	Annual Statement of Financial Interests
	Corporate or LLC Resolution
	Debarment Certification
	Financial Disclosure Affidavit
	General Conditions
	Special Conditions
	Construction Contract (SAMPLE)
	Supplementary Conditions of the Contract (SAMPLE)
	Non-Collusive Affidavit
	Insurance Requirements
	Bid Form
	Prevailing Wage Rates
	Good Jobs Ordinance
	ACM Results – Bunker Hill Elementary School
	ACM Results - Washington Elementary School
	Geotechnical Report - Bunker Hill Elementary School
	Geotechnical Report - Washington Elementary School

DIVISION 01 – GENERAL REQUIREMENTS

011000	Summary
012300	Alternates
012600	Contract Modification Procedures
012900	Payment Procedures
013100	Project Management and Coordination
013200	Construction Progress Documentation
013300	Submittal Procedures
013800	Health and Safety Plan
014000	Quality Requirements
014200	References
015000	Temporary Facilities and Controls
015700	Environmental Protection
015713	Temporary Erosion and Sedimentation Controls
015714	Temporary Dust Control
016000	Product Requirements
017300	Execution

017419	Construction Waste Management and Disposal
017700	Closeout Procedures
017823	Operation and Maintenance Data
017839	Project Record Documents
017900	Demonstration and Training

DIVISION 02 – EXISTING CONDITIONS

020100	Abatement - General Requirements
020160	Abatement – Scheduling and Phasing
020260	Abatement – Unit Prices
020700	Abatement – Contract Closeout
020740	Abatement – Special Conditions
020750	Selective Demolition – Asbestos Removal
020800	Asbestos Removal
020850	Abatement – Certificate of Worker’s Acknowledgement
Attachment 1	Abatement - Demolition Plans
029000	PCB Remediation Technical Specifications
024119	Selective Demolition
024123	Site Demolition

DIVISION 03 – CONCRETE

035416	Hydraulic Cement Underlayment
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DIVISION 04 – MASONRY

042000	Unit Masonry
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DIVISION 05 – METALS

054000	Cold-Formed Metal Framing
055000	Metal Fabrications
055213	Pipe and Tube Railings

DIVISION 06 – WOOD, PLASTICS AND COMPOSITES

061053	Miscellaneous Rough Carpentry
061600	Sheathing

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

071326	Self-Adhering Sheet Waterproofing
072100	Thermal Insulation
072727	Self-Adhering Water-Resistive Air Barrier Membrane
074213.13	Formed Metal Wall Panels
075323	Ethylene-Propylene-Diene-Monomer (EPDM) Roofing

076200	Sheet Metal Flashing and Trim
077100	Roof Specialties
077129	Manufactured Roof Expansion Joints
078413	Penetration Firestopping
078443	Joint Firestopping
079200	Joint Sealants
079201	Spray-Foam Sealants
079513.13	Interior Expansion Joint Cover Assemblies
079513.16	Exterior Expansion Joint Cover Assemblies

DIVISION 08 – OPENINGS

084113	Aluminum-Framed Entrances and Storefronts
087100	Door Hardware
088000	Glazing

DIVISION 09 – FINISHES

092216	Non-Structural Metal Framing
092900	Gypsum Board
095113	Acoustical Panel Ceilings
096513	Resilient Base and Accessories
096813	Tile Carpeting
099113	Exterior Painting
099123	Interior Painting

DIVISION 10 – SPECIALTIES

101423	Interior Signage
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DIVISION 14 – CONVENIENCY EQUIPMENT

142123.16	Machine Room-less Electric Traction Elevator – Bunker Hill E.S.
142400	Machine Room-less Hydraulic Traction Elevator – Washington E.S.
144200	Wheelchair Lift – Washington E.S.

DIVISION 27 – COMMUNICATIONS

275129	Emergency 2-Way Communication System
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DIVISION 31 – EARTHWORK

312000	Earth Moving
312310	Earthwork

312319	Dewatering
314143	Sheeting and Staybracing

DIVISION 32 – EXTERIOR IMPROVEMENTS

321216	Bituminous Concrete Pavement
321313	Concrete Paving
321373	Concrete Paving Joint Sealants
321723	Pavement Markings
323113	Chain Link Fences and Gates
323300	Bollards
329200	Turf and Grasses

DIVISION 33 – SITE UTILITIES

334000	Storm Drainage System
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WASHINGTON ELEMENTARY SCHOOL DRAWING LIST

COVER SHEET

- R1.1 NOTES, LEGENDS & REFERENCE INFORMATION
- R1.2 CODE INFORMATION, WALL TYPES, UL RATINGS
- R1.3 EGRESS PLANS

CIVIL

- C1.0 SITE PLAN
- C2.0 SITE DETAILS

ARCHITECTURAL

- D1.1 DEMOLITION PLANS
- A1.1 CONSTRUCTION FLOOR PLANS
- A2.1 ROOF PLAN & DETAILS
- A3.1 EXTERIOR BUILDING ELEVATIONS
- A4.1 ELEVATOR SECTIONS
- A5.1 SECTION DETAILS
- A6.1 ENLARGED FLOOR PLANS
- A8.1 DOOR & WINDOW ELEVATIONS & DETAILS
- A9.1 REFLECTED CEILING PLANS
- A12.1 FINISH PLANS & SCHEDULE

STRUCTURAL

- S0.1 STRUCTURAL NOTES & SPECIFICATIONS
- S1.0 STRUCTURAL FOUNDATION PLAN
- S1.1 STRUCTURAL LOW ROOF FRAMING
- S1.2 STRUCTURAL HIGH ROOF FRAMING
- S2.0 STRUCTURAL DETAILS
- S2.1 STRUCTURAL BUILDING SECTIONS
- S2.2 STRUCTURAL WALL SECTIONS
- SD1.0 STRUCTURAL DEMOLITION PLAN

FIRE PROTECTION

- FP0.0 FIRE PROTECTION ABBREVIATIONS, NOTES AND SYMBOLS
- FP0.1 FIRE PROTECTION SPECIFICATIONS
- FPD1.0 FIRE PROTECTION BASEMENT DEMOLITION PLAN
- FP1.0 FIRE PROTECTION BASEMENT PLAN

MECHANICAL

- M0.0 MECHANICAL ABBREVIATIONS, NOTES AND SYMBOLS
- M0.1 MECHANICAL SPECIFICATIONS
- MD1.0 MECHANICAL BASEMENT DEMOLITION PLAN
- MD1.1 MECHANICAL FIRST FLOOR DEMOLITION PLAN
- MD1.2 MECHANICAL SECOND FLOOR DEMOLITION PLAN

M1.0	MECHANICAL BASEMENT FLOOR PLAN
M1.1	MECHANICAL FIRST FLOOR PLAN
M1.2	MECHANICAL SECOND FLOOR PLAN

ELECTRICAL

E0.0	ELECTRICAL ABBREVIATIONS, NOTES AND SYMBOLS
E0.1	ELECTRICAL SPECIFICATIONS
ED1.0	ELECTRICAL BASEMENT DEMOLITION PLAN
ED1.1	ELECTRICAL FIRST FLOOR DEMOLITION PLAN
ED1.2	ELECTRICAL SECOND FLOOR DEMOLITION PLAN
EL1.0	ELECTRICAL LIGHTING BASEMENT FLOOR PLAN
EL1.1	ELECTRICAL LIGHTING FIRST FLOOR PLAN
EL1.2	ELECTRICAL LIGHTING SECOND FLOOR PLAN
EP1.0	ELECTRICAL POWER BASEMENT FLOOR PLAN
EP1.1	ELECTRICAL POWER FIRST FLOOR PLAN
EP1.2	ELECTRICAL POWER SECOND FLOOR PLAN
E5.0	ELECTRICAL DETAILS
E6.0	ELECTRICAL SCHEDULES AND DIAGRAMS

BUNKER HILL ELEMENTARY SCHOOL DRAWING LIST

COVER SHEET

R1.1	NOTES, LEGENDS & REFERENCE INFORMATION
R1.2	CODE INFORMATION, WALL TYPES, UL RATINGS
R1.3	BASEMENT EGRESS PLAN
R1.4	FIRST FLOOR EGRESS PLAN
R1.5	SECOND FLOOR EGRESS PLAN
R1.6	THIRD FLOOR EGRESS PLAN

CIVIL

C1.0	SITE PLAN
C2.0	SITE DETAILS

ARCHITECTURAL

D1.1	DEMOLITION FLOOR PLANS
A1.1	CONSTRUCTION FLOOR PLANS
A2.1	ROOF PLAN & DETAILS
A3.1	EXTERIOR BUILDING ELEVATIONS
A4.1	BUILDING SECTIONS
A4.2	BUILDING SECTIONS
A5.1	SECTION DETAILS
A6.1	ENLARGED FLOOR PLANS
A7.1	PLAN DETAILS
A8.1	DOOR & WINDOW ELEVATIONS & DETAILS
A9.1	REFLECTED CEILING PLANS
A12.1	FINISH FLOOR PLANS AND SCHEDULE

STRUCTURAL

S0.1	STRUCTURAL NOTES & SPECIFICATIONS
S1.0	STRUCTURAL FOUNDATION PLAN
S1.1	STRUCTURAL LOW ROOF FRAMING
S1.2	STRUCTURAL HIGH ROOF FRAMING
S2.0	STRUCTURAL DETAILS
S2.1	STRUCTURAL BUILDING SECTIONS
S2.2	STRUCTURAL WALL SECTIONS
SD1.0	STRUCTURAL DEMOLITION PLAN

FIRE PROTECTION

FP0.0	FIRE PROTECTION ABBREVIATIONS, NOTES AND SYMBOLS
FP0.1	FIRE PROTECTION SPECIFICATIONS
FPD1.0	FIRE PROTECTION BASEMENT AND FIRST FLOOR DEMOLITION PLANS
FPD1.1	FIRE PROTECTION SECOND AND THIRD FLOOR DEMOLITION PLANS
FP1.0	FIRE PROTECTION BASEMENT AND FIRST FLOOR PLANS
FP1.1	FIRE PROTECTION SECOND AND THIRD FLOOR PLANS

MECHANICAL

M0.0	MECHANICAL ABBREVIATIONS, NOTES AND SYMBOLS
M0.1	MECHANICAL SPECIFICATIONS
MD1.0	MECHANICAL BASEMENT AND FIRST FLOOR DEMOLITION PLANS
MD1.1	MECHANICAL SECOND AND THIRD FLOOR DEMOLITION PLANS
M1.0	MECHANICAL BASEMENT FLOOR PLAN

ELECTRICAL

E0.0	ELECTRICAL ABBREVIATIONS, NOTES AND SYMBOLS
E0.1	ELECTRICAL SPECIFICATIONS
ED1.0	ELECTRICAL BASEMENT AND FIRST FLOOR DEMOLITION PLANS
ED1.1	ELECTRICAL SECOND AND THIRD FLOOR DEMOLITION PLANS
EL1.0	ELECTRICAL LIGHTING BASEMENT AND FIRST FLOOR PLANS
EL1.1	ELECTRICAL LIGHTING SECOND AND THIRD FLOOR PLANS
EP1.0	ELECTRICAL POWER BASEMENT AND FIRST FLOOR PLANS
EP1.1	ELECTRICAL POWER SECOND AND THIRD FLOOR PLANS
EP1.2	ELECTRICAL POWER FIRST FLOOR OVERALL PLAN
E5.0	ELECTRICAL DETAILS
E6.0	ELECTRICAL SCHEDULES AND DIAGRAMS

**REQUEST FOR PROPOSAL
BY
THE CITY OF WATERBURY
DEPARTMENT OF EDUCATION
For
TWO ELEVATOR HOISTWAY ADDITIONS
RFP #7473**

The City of Waterbury, Department of Education (hereinafter "City"), is seeking a Proposals for the construction of new elevator hoistway additions at Bunker Hill and Washington Elementary Schools (hereinafter "Project") with the intention of entering into a contract for the furnishing of all labor, materials, tools, and equipment necessary to execute and properly finish the Project, as detailed and described herein.

A. Background and Intent

The Waterbury Board of Education is seeking to engage one qualified vendor to provide new elevator hoistway additions and all associated components required to ensure proper installation and integration with supporting building systems for the Bunker Hill and Washington Elementary Schools located at 170 Bunker Hill Avenue and 685 Baldwin Street (respectively) in Waterbury, CT. Waterbury Public Schools plans to award (1) contract for requested services as detailed in this RFP.

B. Qualifications

Eligible proposers will be those consultants, businesses, and institutions that have the following qualifications:

1. Experience and expertise in regard to providing the types of, or similar services, as those set forth in the Scope of Services. Provide a minimum of three (3) examples of projects by which the proposer believes satisfies this qualification.
2. Experience on school construction projects of similar scope and technical requirements within the last five (5) years. Specifically, experience working with the CT Department of Administrative Services, Office of School Construction Grants and Review (OSCG&R) and a thorough understanding of policies and procedures with school construction grants.
3. A proven track record in providing these types of or similar services in the Connecticut municipal market and understanding of standards and requirements typical for such services.
4. Adequate staff/employees to perform/complete the work in a timely manner.
5. Knowledge of, and compliant with, all applicable federal and state laws and regulations governing the services to be provided under this RFP.
6. At the time of contract award has or will have sufficient capacity, facilities, equipment, labor, financial capability, and experience to provide all services

required hereunder throughout the Contract Term, plus any extensions thereof, and to conduct all such services in a regulatory-compliant and reliable manner.

7. Provide a minimum of three (3) examples of projects by which the proposer believes satisfies the above qualifications.

C. Scope of Services

- 1) Selective demolition, removal and legal disposal of existing building components as indicated in the drawings and specifications including but not limited to the following:
 - a) Existing metal fire escapes
 - b) Masonry veneer and backup
 - c) Window systems
 - d) Interior partitions and finishes
 - e) Site elements
- 2) Procure, deliver and install new elevators and associated components as indicated in the drawings and specifications included but not limited to the following:
 - a) Elevator equipment
 - b) Concrete foundations, slabs and exterior pads
 - c) Masonry cavity wall construction for hoistway enclosure
 - d) Roofing materials
 - e) Storefront entry systems
 - f) Prefinished metal siding systems
 - g) Storm drainage components
 - h) Asphalt paving and associated line striping

D. Agreement Period

The agreement period for any contract or purchase order resulting from this RFP is anticipated to be two hundred twenty (220) consecutive days from the written notice to proceed to Substantial Completion and two hundred and fifty (250) consecutive calendar days from the written notice to proceed to final completion.

E. Insurance

The respondent shall provide insurance as set for in **Attachment D** provided by insurers, satisfactory to the City and authorized to do business in the State of Connecticut, an "A-" Best's Rating and at least a Class V3 or better financial category as shown in the most current A.M. Best Company ratings.

F. General Information

1. The City is an Equal Opportunity and Affirmative Action employer and does not discriminate in its hiring, employment, or business practices. The City is

committed to complying with the Americans with Disabilities Act of 1990 (ADA) and does not discriminate on the basis of disability, in admission to, access to, or operation of its programs, services, or activities.

2. There will be a mandatory Information Session with respect to this RFP on 12/7/22. The session will begin at Bunker Hill Elementary School at 9:00 AM and continue to Washington Elementary School. **THOSE NOT ATTENDING THE Information Session WILL NOT BE ELIGIBLE TO SUBMIT A PROPOSAL.**
3. Proposers must sign the items and any forms included in Attachment A. (Contract Compliance Packet).
4. All questions and communications about this request for Proposal and submission requirements must be directed to the City of Waterbury ProcureWare website and must be received by 2:00 PM on 12/10/22. Prospective proposers must limit their contact regarding this RFP to the Purchasing Director or such other person otherwise designated by the Purchasing Director. Responses to questions submitted by the above date or identified at any Information Session to be held in regard to this RFP, along with any changes or amendments to this RFP, will be available via the City of Waterbury ProcureWare website by 12/13/22, 2:00 PM. It shall be the responsibility of the proposer to download this information. If you have any procedural questions in this regard, please call the Purchasing Director at (203) 574-6748.

G. Management

Any contract or purchase order resulting from this RFP will be managed by The School Inspector's Office.

H. Conditions

All those submitting proposals must be willing to adhere to the following conditions and must positively state this in the proposal:

1. All proposals in response to this RFP are to be the sole property of the City. Proposers are encouraged **not** to include in their proposals any information which is proprietary. All materials associated with this procurement process are subject to the terms of state laws defining freedom of information and privacy and all rules, regulations and interpretations resulting from those laws.
2. Any product, whether acceptable or unacceptable, developed under a contract awarded as a result of the RFP is to be the sole property of the City.

3. The timing and sequence of events resulting from this RFP will ultimately be determined by the City.
4. The proposer agrees that the proposal will remain valid for a period of **90** days after the closing date for the submission and may be extended beyond that time by mutual agreement.
5. The City may amend the terms or cancel this RFP any time prior to the execution of a contract or purchase order for these services if the City deems it to be necessary, appropriate or otherwise in the best interests of the City. Failure to acknowledge receipt of amendments, in accordance with the instructions contained in the amendments, may result in a proposal not being considered. At his option, the City's Director of Purchasing may provide all proposers with a limited opportunity to remedy any technical deficiencies identified by the City in their initial review of proposals.
6. The proposer must certify that the personnel identified in its response to this RFP will be the persons actually assigned to the project. Any additions, deletions or changes in personnel from the proposal during the course of the agreement period must be approved by the City, with the exception of personnel who have terminated employment. Replacements for personnel who have terminated employment are subject to approval by the City. At its discretion, the City may require the removal and replacement of any of the proposer's personnel who do not perform adequately, regardless of whether they were previously approved by the City.
7. All subcontractors hired by the proposer awarded a contract or purchase order as a result of this RFP must have prior approval of the City prior to and during the agreement period.
8. Any costs and expenses incurred by proposers in preparing or submitting proposals are the sole responsibility of the proposer.
9. A proposer must be prepared to present evidence of experience, ability, financial standing, and any other information deemed necessary by the City to satisfactorily meet the requirements set forth or implied in the proposal.
10. No additions or changes to the original proposal will be allowed after submittal, except as may be allowed by the City, at its option, in accordance with Section H.5. of this RFP. While changes are not permitted, clarification of proposals may be required by the City at the proposer's sole cost and expense. The final price and scope of services of any contract or purchase order resulting from this RFP may be negotiated with responsible proposers.
11. The proposer may be required to give presentations to the extent necessary to satisfy the City's requirements or needs. In some cases, proposers may have to give presentations or further explanation to any RFP selection committee established by the City.

12. The proposer represents and warrants that the proposal is not made in connection with any other proposer and is in all respects fair and without collusion or fraud. The proposer further represents and warrants that it did not participate in any part of the RFP development process, had no knowledge of the specific contents of the RFP prior to its issuance, and that no agent, representative or employee of the City participated directly in the proposer's proposal preparation.
13. All responses to the RFP must conform to instruction. Failure to include any required signatures, provide the required number of copies, to meet deadlines, answer all questions, follow the requested format, or failure to comply with any other requirements of this RFP may be considered appropriate cause for rejection of the response.
14. The proposer must accept the City's standard agreement language. See Attachment B.
15. Any contract or purchase order resulting from this RFP process will represent the entire agreement between the proposer and the City and will supersede all prior negotiations, representations or agreements, alleged or made, between the parties. The City shall assume no liability for payment of services under the terms of the contract or purchase order until the successful proposer is notified that the contract or purchase order has been accepted and approved by the City. Any contract resulting from this RFP may be amended only by means of a written instrument signed by the proposer and signed by the Mayor.

I. Proposal Requirements & Required Format

One original (clearly identified as such) and five (5) paper copies of the proposal, as well as a copy of the original proposal in pdf format on a CD or flash drive, must be received at the following address no later than 11:00 AM on 12/19/22.

Mr. Kevin McCaffery
Director of Purchasing
City of Waterbury
235 Grand Street
Room 103
Waterbury, CT 06702

Proposals submitted must be bound, paginated, indexed and numbered consecutively. Proposers shall complete Attachment C addressed to Mr. McCaffery, which, in part, includes a statement by the proposer accepting all terms and conditions and requirements contained in the RFP, and which shall be signed by a duly authorized

official of the organization submitting the proposal. Proposers shall also, as indicated in Attachment C, identify the name of a contact person, along with their telephone number, email address, if applicable, and address, who can be contacted for the purpose of clarifying the information contained in their response to this RFP. In addition to any other information required in Attachment C, proposers shall provide their firm's authorization and a request to any persons, firm, or corporation to furnish any information requested by the City of Waterbury in verification of the recitals included in its response to this RFP.

Proposals must set forth accurate and complete information for each of the items listed below. At the City's discretion, failure to do so could result in disqualification.

1. Proposer Information: Please provide the following information:

- a. Firm Name
- b. Permanent main office address
- c. Date firm organized.
- d. Legal Form of ownership. If a corporation, indicate where incorporated.
- e. How many years have you been engaged in services you provide under your present name?
- f. Names, titles, reporting relationships, and background and experience of the principal members of your organization, including officers.

2. Experience, Expertise and Capabilities

- a. Philosophy Statement and Business Focus. A statement of the proposer's philosophy and approach in undertaking the services of the nature outlined in the RFP, as well as a description of its primary business focus.
- b. Summary of Relevant Experience. A listing of all projects that the proposer has completed within the last three (3) years must be provided, as well as all projects of a similar nature to those included in the Scope of Services in this RFP. The following information shall be provided for each organization listed under this subsection:

- Organization name and the name, title, address and telephone number of a responsible contact person.
- Nature of services provided and dates services started and actually completed. Please indicate, for each assignment, if it was completed within the original contract timeframe and budget. If not, please explain.
- For each project done for a municipality or other government agency, please indicate the gross cost of the agreement.

Additionally, please list any contracts or purchase orders in the last three (3) years between the proposer and any agency of the City of Waterbury.

- c. Personnel Listing. A complete listing of the staff identified in the work plan by job classification, along with their resumes. Each resume shall include the individual's qualifications and experience in the subject area.

- d. Conflict of Interest. Disclose any current (within the last 3 years) business, financial, personal or other types of relationships which may pose a conflict of interest.

3. Statement of Qualifications and Work Plan

- a. Qualifications. Please describe your firm's qualifications, experience and capabilities as they pertain to each of the areas of qualifications listed, as well as those of the personnel to be assigned to this project.
 - b. Work Plan. Please describe the approach that would be generally followed in undertaking the Scope of Services in Section C above.
 - c. Services Expected of the City. Identify the nature and scope of the services that would be generally required of the City in undertaking these projects.
4. Cost Schedule. Proposals shall include a single price for work to be performed in accordance with this RFP, inclusive of all personnel and non-personnel expenses. This price should encompass the entire Scope of Services in this RFP. The City reserves the right to negotiate costs, scope of services, and key personnel based on provider proposals. In order for the City to evaluate the proposed cost, proposers must include for each element in the Work Plan outlined in Section I.3.b. above, the staff, hours, hourly rates and the total cost. Include details generally associated with non-personnel costs as an additional cost section.

Since the City may desire to consider the proposer's experience, qualifications, statement of work, and other aspects of the RFP prior to the Cost Proposal, the Cost Proposal shall be sealed in a separate envelope marked "Confidential: Cost Proposal".

Note: The City is exempt from the payment of excise, transportation and sales taxes imposed by the Federal Government and/or the State. Such taxes must not be included in prices.

5. Information Regarding: Failure to Complete Work, Default and Litigation.

Please respond to the following questions:

- a. Have you ever failed to complete any work awarded to you? If so, where and why?
- b. Have you ever defaulted on a contract? If so, where and why?
- c. Is there any pending litigation which could affect your organization's ability to perform this agreement? If so, please describe.
- d. Has your firm ever had a contract terminated for cause within the past five years? If yes, provide details.
- e. Has your firm been named in a lawsuit related to errors and omissions within the past five years? If yes, provide details.
- f. During the past seven years, has your firm ever filed for protection under the Federal bankruptcy laws? If yes, provide details.

- g. Are there any other factors or information that could affect your firm's ability to provide the services being sought about which the City should be aware?
- 6. Exceptions and Alternatives. Proposers wishing to take any exceptions to any requirement in the RFP shall state and explain such exceptions. The City may accept proposals which take exception to any requirements in this RFP, or which offer any alternative to a requirement herein, as well as consider such exceptions and alternatives in evaluating responses. Any exception or alternative must be clearly delineated and cannot materially affect the substance of this Request for Proposals.
- 7. Additional Data. Any additional information which the proposer wishes to bring to the attention of the City that is relevant to this RFP.

J. Evaluation of Proposals; Selection Process

1. Evaluation Criteria

The following criteria are expected to be among those utilized in the selection process. They are presented as a guide for the proposer in understanding the City's requirements and expectations for this project and are not necessarily all inclusive or presented in order of importance.

- a. Proposed statement of work. Emphasis will be on grasp of the issues involved, soundness of approach and the quality of the overall proposal.
- b. Proposed cost schedule.
- c. Experience, expertise, and capabilities of the proposer. Background, qualifications, and previous experience of personnel to be assigned to the project and their demonstrated competence, experience and expertise in the type of work to be performed. The type of experience, expertise, capabilities, and qualifications desired are outlined in Section B. - Qualifications of this RFP. The City may contact one or more of the organization references listed in Section I.2.b. of this RFP as part of assessing the experience, expertise and capabilities of the proposers or those selected as the finalist(s).
- d. Time, Project and Cost Schedule. Emphasis will be on the proposer's record with completing tasks and producing the necessary products within required time frames and within budget.

2. Selection Process

The City of Waterbury may elect to have the proposals evaluated by a committee as part of making a selection. If deemed necessary, the City reserves the right to arrange for interviews/oral presentations as part of the

selection process, which invitations for interviews may involve a short-listing of the proposals received.

K.Rights Reserved To The City

The City reserves the right to award in part, to reject any and all proposals in whole or in part for misrepresentation or if the proposer is in default of any prior City contract, or if the proposal limits or modifies any of the terms and conditions and/or specifications of the RFP. The City also reserves the right to waive technical defects, irregularities and omissions if, in its judgment, the best interest of the City will be served.

L.Federal, State and Local Employment Requirements

Contractors, if applicable, shall be obligated to fully comply with the attached Hiring of Waterbury Residents on Certain Publicly-Funded Construction Projects, i.e. City of Waterbury Ordinances Chapter 34 ("Good Jobs Ordinance"), Federal Davis- Bacon Act, Federal American Recovery and Reinvestment Act of 2009, and the Housing and Urban Development Section 3 Clause, all as further specified in the attached City of Waterbury Contract form. Also attached hereto, is a full copy of the aforesaid City of Waterbury Ordinance, commonly referred to as the "Good Jobs Ordinance".

M.State Set-Aside Requirements

The contractor who is selected to perform this municipal public works project, funded in whole or part by the State, must comply with CONN. GEN. STAT. §§ 4a-60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5. An Affirmative Action Plan must be filed with and approved by the Commission on Human Rights and Opportunities prior to the commencement of construction.

State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract for award to subcontractors holding current certification from the Connecticut Department of Administrative Services ("DAS") under the provisions of CONN. GEN. STAT. § 4a-60g, as amended. (25% of the work with DAS certified Small and Minority owned businesses and 25% of that work with DAS certified Minority, Women and/or Disabled owned businesses.) The contractor must demonstrate good faith effort to meet the 25% set-aside goals.

For municipal public works contracts, the contractor must file a written or electronic non-discrimination certification with the Commission on Human Rights and Opportunities.

Forms can be found at

http://www.ct.gov/opm/cwp/view.asp?a=2982&q=390928&opmNav_GID=1806.

N. State DAS Requirements for Construction Projects

If applicable, Proposers shall submit with their Proposals their DAS Contractor Prequalification Certificate along with a current Updated Bid/Proposal Statement. In addition, any named

Subcontractor whose subcontract value is equal to or greater than \$500,000 shall hold a current DAS Contractor Prequalification Certificate in the closest applicable Classification of the work that the Subcontractor will complete in the contract. The proposer must submit with their proposal, all applicable Subcontractor DAS Prequalification certificates. Any Proposal submitted without a copy of the DAS Prequalification Certificate and an Updated Bid/Proposal Statement for the proposal and DAS Prequalification Certificates for Subcontractors whose subcontract value is equal to or greater than \$500,000 shall be invalid.

The Successful Proposer and each of its Subcontractors having subcontracts in value equal to or greater than \$500,000 shall maintain and keep current their respective DAS Contractor Prequalification Certificates at all times during the term of the Contract and any warranty period set forth in the Contract Documents.

O. Bid, Performance and Payment Bonds

Each Bid shall be submitted in accordance with the Instructions to Bidders and be accompanied by a Bid Security in the amount of ten (10) percent of the Total Bid Price.

The Bidder to whom a contract is offered, must furnish to the City, if that contract has a total cost greater than \$50,000.00, a 100 percent Performance Bond with a surety, and in a form, acceptable to the City. In the City's sole discretion, it may also require a 100 percent Payment Bond and/or other additional security with a surety, and in a form, acceptable to the City.

required hereunder throughout the Contract Term, plus any extensions thereof, and to conduct all such services in a regulatory-compliant and reliable manner.

7. Provide a minimum of three (3) examples of projects by which the proposer believes satisfies the above qualifications.

C. Scope of Services

- 1) Selective demolition, removal and legal disposal of existing building components as indicated in the drawings and specifications including but not limited to the following:
 - a) Existing metal fire escapes
 - b) Masonry veneer and backup
 - c) Window systems
 - d) Interior partitions and finishes
 - e) Site elements
- 2) Procure, deliver and install new elevators and associated components as indicated in the drawings and specifications included but not limited to the following:
 - a) Elevator equipment
 - b) Concrete foundations, slabs and exterior pads
 - c) Masonry cavity wall construction for hoistway enclosure
 - d) Roofing materials
 - e) Storefront entry systems
 - f) Prefinished metal siding systems
 - g) Storm drainage components
 - h) Asphalt paving and associated line striping

D. Agreement Period

The agreement period for any contract or purchase order resulting from this RFP is anticipated to be two hundred twenty (220) consecutive days from the written notice to proceed to Substantial Completion and two hundred and fifty (250) consecutive calendar days from the written notice to proceed to final completion.

E. Insurance

The respondent shall provide insurance as set for in **Attachment D** provided by insurers, satisfactory to the City and authorized to do business in the State of Connecticut, an "A-" Best's Rating and at least a Class V3 or better financial category as shown in the most current A.M. Best Company ratings.

F. General Information

1. The City is an Equal Opportunity and Affirmative Action employer and does not discriminate in its hiring, employment, or business practices. The City is

committed to complying with the Americans with Disabilities Act of 1990 (ADA) and does not discriminate on the basis of disability, in admission to, access to, or operation of its programs, services, or activities.

2. There will be a mandatory Information Session with respect to this RFP on 12/7/22. The session will begin at Bunker Hill Elementary School at 9:00 AM and continue to Washington Elementary School. THOSE NOT ATTENDING THE Information Session WILL NOT BE ELIGIBLE TO SUBMIT A PROPOSAL.
3. Proposers must sign the items and any forms included in Attachment A. (Contract Compliance Packet).
4. All questions and communications about this request for Proposal and submission requirements must be directed to the City of Waterbury ProcureWare website and must be received by 2:00 PM on 12/10/22. Prospective proposers must limit their contact regarding this RFP to the Purchasing Director or such other person otherwise designated by the Purchasing Director. Responses to questions submitted by the above date or identified at any Information Session to be held in regard to this RFP, along with any changes or amendments to this RFP, will be available via the City of Waterbury ProcureWare website by 12/13/22, 2:00 PM. It shall be the responsibility of the proposer to download this information. If you have any procedural questions in this regard, please call the Purchasing Director at (203) 574-6748.

G. Management

Any contract or purchase order resulting from this RFP will be managed by The School Inspector's Office.

H. Conditions

All those submitting proposals must be willing to adhere to the following conditions and must positively state this in the proposal:

1. All proposals in response to this RFP are to be the sole property of the City. Proposers are encouraged **not** to include in their proposals any information which is proprietary. All materials associated with this procurement process are subject to the terms of state laws defining freedom of information and privacy and all rules, regulations and interpretations resulting from those laws.
2. Any product, whether acceptable or unacceptable, developed under a contract awarded as a result of the RFP is to be the sole property of the City.

3. The timing and sequence of events resulting from this RFP will ultimately be determined by the City.
4. The proposer agrees that the proposal will remain valid for a period of **90** days after the closing date for the submission and may be extended beyond that time by mutual agreement.
5. The City may amend the terms or cancel this RFP any time prior to the execution of a contract or purchase order for these services if the City deems it to be necessary, appropriate or otherwise in the best interests of the City. Failure to acknowledge receipt of amendments, in accordance with the instructions contained in the amendments, may result in a proposal not being considered. At his option, the City's Director of Purchasing may provide all proposers with a limited opportunity to remedy any technical deficiencies identified by the City in their initial review of proposals.
6. The proposer must certify that the personnel identified in its response to this RFP will be the persons actually assigned to the project. Any additions, deletions or changes in personnel from the proposal during the course of the agreement period must be approved by the City, with the exception of personnel who have terminated employment. Replacements for personnel who have terminated employment are subject to approval by the City. At its discretion, the City may require the removal and replacement of any of the proposer's personnel who do not perform adequately, regardless of whether they were previously approved by the City.
7. All subcontractors hired by the proposer awarded a contract or purchase order as a result of this RFP must have prior approval of the City prior to and during the agreement period.
8. Any costs and expenses incurred by proposers in preparing or submitting proposals are the sole responsibility of the proposer.
9. A proposer must be prepared to present evidence of experience, ability, financial standing, and any other information deemed necessary by the City to satisfactorily meet the requirements set forth or implied in the proposal.
10. No additions or changes to the original proposal will be allowed after submittal, except as may be allowed by the City, at its option, in accordance with Section H.5. of this RFP. While changes are not permitted, clarification of proposals may be required by the City at the proposer's sole cost and expense. The final price and scope of services of any contract or purchase order resulting from this RFP may be negotiated with responsible proposers.
11. The proposer may be required to give presentations to the extent necessary to satisfy the City's requirements or needs. In some cases, proposers may have to give presentations or further explanation to any RFP selection committee established by the City.

12. The proposer represents and warrants that the proposal is not made in connection with any other proposer and is in all respects fair and without collusion or fraud. The proposer further represents and warrants that it did not participate in any part of the RFP development process, had no knowledge of the specific contents of the RFP prior to its issuance, and that no agent, representative or employee of the City participated directly in the proposer's proposal preparation.
13. All responses to the RFP must conform to instruction. Failure to include any required signatures, provide the required number of copies, to meet deadlines, answer all questions, follow the requested format, or failure to comply with any other requirements of this RFP may be considered appropriate cause for rejection of the response.
14. The proposer must accept the City's standard agreement language. See Attachment B.
15. Any contract or purchase order resulting from this RFP process will represent the entire agreement between the proposer and the City and will supersede all prior negotiations, representations or agreements, alleged or made, between the parties. The City shall assume no liability for payment of services under the terms of the contract or purchase order until the successful proposer is notified that the contract or purchase order has been accepted and approved by the City. Any contract resulting from this RFP may be amended only by means of a written instrument signed by the proposer and signed by the Mayor.

I. Proposal Requirements & Required Format

One original (clearly identified as such) and five (5) paper copies of the proposal, as well as a copy of the original proposal in pdf format on a CD or flash drive, must be received at the following address no later than 11:00 AM on 12/19/22.

Mr. Kevin McCaffery
Director of Purchasing
City of Waterbury
235 Grand Street
Room 103
Waterbury, CT 06702

Proposals submitted must be bound, paginated, indexed and numbered consecutively. Proposers shall complete Attachment C addressed to Mr. McCaffery, which, in part, includes a statement by the proposer accepting all terms and conditions and requirements contained in the RFP, and which shall be signed by a duly authorized

official of the organization submitting the proposal. Proposers shall also, as indicated in Attachment C, identify the name of a contact person, along with their telephone number, email address, if applicable, and address, who can be contacted for the purpose of clarifying the information contained in their response to this RFP. In addition to any other information required in Attachment C, proposers shall provide their firm's authorization and a request to any persons, firm, or corporation to furnish any information requested by the City of Waterbury in verification of the recitals included in its response to this RFP.

Proposals must set forth accurate and complete information for each of the items listed below. At the City's discretion, failure to do so could result in disqualification.

1. Proposer Information: Please provide the following information:

- a. Firm Name
- b. Permanent main office address
- c. Date firm organized.
- d. Legal Form of ownership. If a corporation, indicate where incorporated.
- e. How many years have you been engaged in services you provide under your present name?
- f. Names, titles, reporting relationships, and background and experience of the principal members of your organization, including officers.

2. Experience, Expertise and Capabilities

- a. Philosophy Statement and Business Focus. A statement of the proposer's philosophy and approach in undertaking the services of the nature outlined in the RFP, as well as a description of its primary business focus.
- b. Summary of Relevant Experience. A listing of all projects that the proposer has completed within the last three (3) years must be provided, as well as all projects of a similar nature to those included in the Scope of Services in this RFP. The following information shall be provided for each organization listed under this subsection:

- Organization name and the name, title, address and telephone number of a responsible contact person.
- Nature of services provided and dates services started and actually completed. Please indicate, for each assignment, if it was completed within the original contract timeframe and budget. If not, please explain.
- For each project done for a municipality or other government agency, please indicate the gross cost of the agreement.

Additionally, please list any contracts or purchase orders in the last three (3) years between the proposer and any agency of the City of Waterbury.

- c. Personnel Listing. A complete listing of the staff identified in the work plan by job classification, along with their resumes. Each resume shall include the individual's qualifications and experience in the subject area.

- d. Conflict of Interest. Disclose any current (within the last 3 years) business, financial, personal or other types of relationships which may pose a conflict of interest.

3. Statement of Qualifications and Work Plan

- a. Qualifications. Please describe your firm's qualifications, experience and capabilities as they pertain to each of the areas of qualifications listed, as well as those of the personnel to be assigned to this project.
 - b. Work Plan. Please describe the approach that would be generally followed in undertaking the Scope of Services in Section C above.
 - c. Services Expected of the City. Identify the nature and scope of the services that would be generally required of the City in undertaking these projects.
4. Cost Schedule. Proposals shall include a single price for work to be performed in accordance with this RFP, inclusive of all personnel and non-personnel expenses. This price should encompass the entire Scope of Services in this RFP. The City reserves the right to negotiate costs, scope of services, and key personnel based on provider proposals. In order for the City to evaluate the proposed cost, proposers must include for each element in the Work Plan outlined in Section I.3.b. above, the staff, hours, hourly rates and the total cost. Include details generally associated with non-personnel costs as an additional cost section.

Since the City may desire to consider the proposer's experience, qualifications, statement of work, and other aspects of the RFP prior to the Cost Proposal, the Cost Proposal shall be sealed in a separate envelope marked "Confidential: Cost Proposal".

Note: The City is exempt from the payment of excise, transportation and sales taxes imposed by the Federal Government and/or the State. Such taxes must not be included in prices.

5. Information Regarding: Failure to Complete Work, Default and Litigation.

Please respond to the following questions:

- a. Have you ever failed to complete any work awarded to you? If so, where and why?
- b. Have you ever defaulted on a contract? If so, where and why?
- c. Is there any pending litigation which could affect your organization's ability to perform this agreement? If so, please describe.
- d. Has your firm ever had a contract terminated for cause within the past five years? If yes, provide details.
- e. Has your firm been named in a lawsuit related to errors and omissions within the past five years? If yes, provide details.
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- g. Are there any other factors or information that could affect your firm's ability to provide the services being sought about which the City should be aware?
- 6. Exceptions and Alternatives. Proposers wishing to take any exceptions to any requirement in the RFP shall state and explain such exceptions. The City may accept proposals which take exception to any requirements in this RFP, or which offer any alternative to a requirement herein, as well as consider such exceptions and alternatives in evaluating responses. Any exception or alternative must be clearly delineated and cannot materially affect the substance of this Request for Proposals.
- 7. Additional Data. Any additional information which the proposer wishes to bring to the attention of the City that is relevant to this RFP.

J. Evaluation of Proposals; Selection Process

1. Evaluation Criteria

The following criteria are expected to be among those utilized in the selection process. They are presented as a guide for the proposer in understanding the City's requirements and expectations for this project and are not necessarily all inclusive or presented in order of importance.

- a. Proposed statement of work. Emphasis will be on grasp of the issues involved, soundness of approach and the quality of the overall proposal.
- b. Proposed cost schedule.
- c. Experience, expertise, and capabilities of the proposer. Background, qualifications, and previous experience of personnel to be assigned to the project and their demonstrated competence, experience and expertise in the type of work to be performed. The type of experience, expertise, capabilities, and qualifications desired are outlined in Section B. - Qualifications of this RFP. The City may contact one or more of the organization references listed in Section 1.2.b. of this RFP as part of assessing the experience, expertise and capabilities of the proposers or those selected as the finalist(s).
- d. Time, Project and Cost Schedule. Emphasis will be on the proposer's record with completing tasks and producing the necessary products within required time frames and within budget.

2. Selection Process

The City of Waterbury may elect to have the proposals evaluated by a committee as part of making a selection. If deemed necessary, the City reserves the right to arrange for interviews/oral presentations as part of the

selection process, which invitations for interviews may involve a short-listing of the proposals received.

K.Rights Reserved To The City

The City reserves the right to award in part, to reject any and all proposals in whole or in part for misrepresentation or if the proposer is in default of any prior City contract, or if the proposal limits or modifies any of the terms and conditions and/or specifications of the RFP. The City also reserves the right to waive technical defects, irregularities and omissions if, in its judgment, the best interest of the City will be served.

L.Federal, State and Local Employment Requirements

Contractors, if applicable, shall be obligated to fully comply with the attached Hiring of Waterbury Residents on Certain Publicly-Funded Construction Projects, i.e. City of Waterbury Ordinances Chapter 34 ("Good Jobs Ordinance"), Federal Davis- Bacon Act, Federal American Recovery and Reinvestment Act of 2009, and the Housing and Urban Development Section 3 Clause, all as further specified in the attached City of Waterbury Contract form. Also attached hereto, is a full copy of the aforesaid City of Waterbury Ordinance, commonly referred to as the "Good Jobs Ordinance".

M.State Set-Aside Requirements

The contractor who is selected to perform this municipal public works project, funded in whole or part by the State, must comply with CONN. GEN. STAT. §§ 4a-60, 4a-60a, 4a-60g, and 46a-68b through 46a-68f, inclusive, as amended by June 2015 Special Session Public Act 15-5. An Affirmative Action Plan must be filed with and approved by the Commission on Human Rights and Opportunities prior to the commencement of construction.

State law requires a minimum of twenty-five (25%) percent of the state-funded portion of the contract for award to subcontractors holding current certification from the Connecticut Department of Administrative Services ("DAS") under the provisions of CONN. GEN. STAT. § 4a-60g, as amended. (25% of the work with DAS certified Small and Minority owned businesses and 25% of that work with DAS certified Minority, Women and/or Disabled owned businesses.) The contractor must demonstrate good faith effort to meet the 25% set-aside goals.

For municipal public works contracts, the contractor must file a written or electronic non-discrimination certification with the Commission on Human Rights and Opportunities.

Forms can be found at

http://www.ct.gov/opm/cwp/view.asp?a=2982&q=390928&opmNav_GID=1806.

N. State DAS Requirements for Construction Projects

If applicable, Proposers shall submit with their Proposals their DAS Contractor Prequalification Certificate along with a current Updated Bid/Proposal Statement. In addition, any named

Subcontractor whose subcontract value is equal to or greater than \$500,000 shall hold a current DAS Contractor Prequalification Certificate in the closest applicable Classification of the work that the Subcontractor will complete in the contract. The proposer must submit with their proposal, all applicable Subcontractor DAS Prequalification certificates. Any Proposal submitted without a copy of the DAS Prequalification Certificate and an Updated Bid/Proposal Statement for the proposal and DAS Prequalification Certificates for Subcontractors whose subcontract value is equal to or greater than \$500,000 shall be invalid.

The Successful Proposer and each of its Subcontractors having subcontracts in value equal to or greater than \$500,000 shall maintain and keep current their respective DAS Contractor Prequalification Certificates at all times during the term of the Contract and any warranty period set forth in the Contract Documents.

O. Bid, Performance and Payment Bonds

Each Bid shall be submitted in accordance with the Instructions to Bidders and be accompanied by a Bid Security in the amount of ten (10) percent of the Total Bid Price.

The Bidder to whom a contract is offered, must furnish to the City, if that contract has a total cost greater than \$50,000.00, a 100 percent Performance Bond with a surety, and in a form, acceptable to the City. In the City's sole discretion, it may also require a 100 percent Payment Bond and/or other additional security with a surety, and in a form, acceptable to the City.

ATTACHMENT A

- Annual Statement of Financial Interests
- Corporate or LLC Resolution
- Debarment Certification
- Financial Disclosure Affidavit

CITY OF WATERBURY
ANNUAL STATEMENT OF FINANCIAL INTERESTS (Calendar Year 2021)
Persons or Entities Conducting Business with the City

I. Outstanding Purchase Orders of Contracts with the City

A. Contracts

No Contracts with the City

☐

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(Service or Commodity Covered by Contract)

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(Term of Contract)

=====

--

(Service or Commodity Covered by Contract)

--

(Term of Contract)

=====

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(Service or Commodity Covered by Contract)

--

(Term of Contract)

CITY OF WATERBURY
ANNUAL STATEMENT OF FINANCIAL INTERESTS (Calendar Year 2021)
Persons or Entities Conducting Business with the City

B. Purchase Order(s).

No Purchase Order(s) with the City

☐

(Service or Commodity Covered by Purchase Order)

(Date of Purchase Order)

(Service or Commodity Covered by Purchase Order)

(Date of Purchase Order)

(Service or Commodity Covered by Purchase Order)

(Date of Purchase Order)

CITY OF WATERBURY

ANNUAL STATEMENT OF FINANCIAL INTERESTS (Calendar Year 2021)

Persons or Entities Conducting Business with the City

II. Financial Interest Disclosure

(Public Officials, Employees or Board and Commission Members with interest in
Person or Entity Conducting Business with the City)

**No Officials, Employees or Board and Commission Members with
Financial Interest**

☐

(Name of Official)

(Position with City)

(Nature of Business Interest)
(e.g. Owner, Director etc...)

Interest Held By:

Self

☐

Spouse

☐

Joint

☐

Child

☐

(Name of Official)

(Position with City)

(Nature of Business Interest)
(e.g. Owner, Director etc...)

Interest Held By:

Self

☐

Spouse

☐

Joint

☐

Child

☐

1. I certify that this Annual Statement of Financial Interests is a complete and accurate statement of those matter required to be disclosed by me pursuant to §40.51 of the Code of Ordinances.

2. I understand that if I fail to file an Annual Statement (or amendment thereto) or an inaccurate Statement I will be in violation with Chapter 40 of the Code of Ordinance and, thereby, subject to the remedies set forth in §§38.71 and 40.81 of said Code.

3. I understand that I must file with the City Clerk, within fifteen (15) days following any reportable occurrence, any amendments to the Annual Statement.

I have read and agree to the above certification.

(Name of Company, if applicable)

Signature of Individual (or Authorized Signatory)

Date

Print or Type Name and Title (if applicable)

DELIVERED

| By Mail

☐

Hand-Delivered

☐

CORPORATE RESOLUTION

I, _____, hereby certify that I am the duly elected and acting Secretary of _____ Corporation, a corporation organized and existing under the laws of the State of _____, do hereby certify that the following facts are true and were taken from the records of said corporation.

The following resolution was adopted at a meeting of the corporation duly held on the _____ day of _____, _____.

“It is hereby resolved that _____ is authorized to make, execute and approve, on behalf of this corporation, any and all contracts or amendments thereof”.

And I do further certify that the above resolution has not been in any way altered, amended, repealed and is now in full force and effect.

IN WITNESS WHEREOF, I hereunto set my hand and affix the corporate seal of said _____ corporation this _____ day of _____, 2022.

Secretary

LIMITED LIABILITY COMPANY RESOLUTION

I, _____, hereby certify that I am the duly authorized and acting Member / Manager (circle one) of _____, a limited liability company organized and existing under the laws of the State of _____ do hereby certify that the following facts are true and were taken from the records of said LLC.

The following resolution was adopted at a meeting of the LLC duly held on the _____ day of _____, _____.

“It is hereby resolved that _____ is authorized to make, execute and approve, on behalf of this LLC, any and all contracts or amendments thereof”.

And I do further certify that the above resolution has not been in any way altered, amended, repealed and is now in full force and effect.

IN WITNESS WHEREOF, I hereunto set my hand and affix the corporate seal of said _____, LLC this _____ day of _____, 2022.

Manager/Member

**City of Waterbury Certification
Regarding
Debarment, Suspension, Ineligibility and Exclusion**

If the transaction is Federally funded, in whole or in part (including pass through grants to state and/or municipal government), this certification is required by the regulations implementing one or more Presidential Executive Orders. If this transaction is funded by the State of Connecticut, in whole or in part, this certification is required in accordance with one or more State of Connecticut general statutes.

1. By signing and submitting the attached proposal and/or this document, the prospective lower tier participant, vendor, or contractor is providing the certification set out below.
2. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant, vendor, or contractor knowingly rendered an erroneous certification, in addition to other remedies available to the Federal, State, or City government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
3. The prospective lower tier participant, vendor or contractor shall provide immediate written notice to the person to which the attached proposal and/or this document is submitted if at any time the prospective lower tier participant, vendor or contractor learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
4. The terms "covered transaction", "debarred", "suspended", "ineligible", "lower tier covered transaction", "participant", "person", "primary covered transaction", "principal", "proposal", and "voluntarily excluded", as used herein, have the meanings set out in the Definitions and Coverage sections of rules implementing Executive Order 12549 and/or State of Connecticut statutes and regulations. You may contact the person to which this proposal and/or this document is submitted for assistance in obtaining a copy of the foregoing.
5. The prospective lower tier participant, vendor or contractor agrees by submitting the attached proposal and/or this document that, should the proposed covered transaction be entered into, it shall not knowingly enter into any covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction

unless authorized by the department or agency with which this transaction originated.

6. The prospective lower tier participant, vendor or contractor further agrees by submitting the attached proposal and/or this document that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion-Lower Tier Covered Transactions", without modification, in all covered transaction and in all solicitations for covered transactions.

7. A participant in a covered transaction may rely upon the certification of a prospective participant in a covered transaction that it is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may but is not required to, check the Non-procurement List.

8. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required herein. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

9. Except for transactions authorized under paragraph 5 herein, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal, State or Municipal government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

Certification

- (1) The prospective recipient of monies hereby certifies, by submission of its attached proposal and/or by execution of this document, that neither it nor its principles are presently debarred, suspended, proposed for debarment, declared ineligible, disqualified, or voluntarily excluded from bidding or participation in the proposed transaction by any Federal, State, or Municipal department or agency or by the statutes, regulations or ordinances of the foregoing departments and agencies.
- (2) Where the prospective recipient of monies is unable to certify to any of the statements in this certification, such prospective participant shall attach a written explanation hereto.

Full Legal Name and address of Recipient, Vendor, or Contractor:

Print Name and Title of Authorized Representative:

Signature of Authorized Representative:

Date:

CITY OF WATERBURY
DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING
OBLIGATIONS TO THE CITY OF WATERBURY

For the purposes of this Disclosure of Outstanding Financial Obligations, the following definitions apply:

- (a) "Contract" means any Public Contract as defined below.
- (b) "Person" means one (1) or more individuals, partnerships, corporations, associations, or joint ventures.
- (c) "Public Contract" means any agreement or formal commitment entered into by the city to expend funds in return for work, labor, services, supplies, equipment, materials or any combination of the foregoing, or any lease, lease by way of concession, concession agreement, permit, or per agreement whereby the city leases, grants or demises property belonging to the city, or otherwise grants a right of privilege to occupy or to use said property of the city.
- (d) "City" means any official agency, board, authority, department office, or other subdivision of the City of Waterbury.

State of _____

SS: _____

County of _____

_____, being first duly
sworn, deposes and says that:

1. I am the **owner, partner, officer, representative, agent or**
_____ of _____ (Contractor's Name), the
Contractor that has submitted the attached agreement.

2. I am fully informed respecting the preparation and contents of the attached Agreement and of all pertinent circumstances respecting such Agreement;

3. That as a person desiring to contract with the City (check all that apply):

_____ The Contractor and each owner, partner, officer, representative, agent or affiliate of the Contractor has filed a list of taxable personal property with the City of Waterbury for the most recent grand list, as required by Conn. Gen. Stat. §12-42.

_____ Neither the Contractor nor any owner, partner, officer, representative, agent or affiliate of the Contractor are required to file a list of taxable personal property with the City of Waterbury for the most recent grand list, as required by Conn. Gen. Stat. §12-42.

_____ Neither the Contractor nor any owner, partner, officer, representative, agent or affiliate of the Contractor either directly or through a lease agreement, owes back taxes to the City of Waterbury

CITY OF WATERBURY

DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING OBLIGATIONS TO THE CITY OF WATERBURY

_____ Neither the Contractor nor any owner, partner, officer, representative, agent or affiliate of the Contractor either directly or through a lease agreement, has any other outstanding obligations to the City of Waterbury

4. The following list is a list of the names of all persons affiliated with the business of the Contractor, if none state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Name	Title	Affiliated Company (if none state NONE)	Service or Material	DOB
1				
2				
3				
4				

5. That as a person desiring to contract with the City:

(a) The Contractor or an owner, partner, officer, representative, agent or affiliate of the Contractor provides, or has provided, services or materials to the City within one (1) year prior to the date of this disclosure, if none, state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Name	Title	Affiliated Company (if none state NONE)	Service or Material	DOB
1				
2				
3				
4				

(b) The Contractor possesses an ownership interest in the following business organizations, if none, state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Organization Name	Address	Type of Ownership
1		
2		
3		
4		

(c) The following persons possess an ownership interest in the Contractor. If the Contractor is a corporation, list all of the officers of the corporation and the names of each stockholder whose shares exceed twenty-five

CITY OF WATERBURY

DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING OBLIGATIONS TO THE CITY OF WATERBURY

(25) percent of the outstanding stock, if none, state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Name	Title	DOB	Stock %
1			
2			
3			
4			

(d) Of the following of the affiliates, individuals or business entities identified in this affidavit, list each that owns, owned, or within one (1) year prior to the date of this disclosure has owned, taxable property situated in the City of Waterbury, if none state none. Use additional sheet if necessary (Must be on company letterhead and notarized):

Name	Title	Affiliated Company (if none state NONE)	Address	DOB
1				
2				
3				
4				

(e) If the Contractor conducts business under a trade name, the following additional information is required: the place where such entity is incorporated or is registered to conduct such business; and the address of its principal place of business, if none, state none:

TRADE NAME	PLACE OF INCORPORATION/REGISTRY	PRINCIPAL PLACE OF BUSINESS
1		
2		
3		
4		

I hereby certify that the statements set forth above are true and complete, and I understand that any incorrect information or omission of information from this affidavit may result in the immediate termination of the Contractor's agreement with the City of Waterbury.

CITY OF WATERBURY
DISCLOSURE AND CERTIFICATION AFFIDAVIT REGARDING OUTSTANDING
OBLIGATIONS TO THE CITY OF WATERBURY

For Partnership or LLC

In presence of:

Attest (Witness Signature)

(Name of Partnership)

(Witness Printed Name)

By:

(Name of General Partner)

(Business Address)

For Corporation

Attest (Witness)

(Corporate Principal – Printed Name)

(Business Address)

Affix
Corporate
Seal

(Name of Corporation)

By:

(Signature of Authorized Corporate Officer)

Its:

(Title)

State of _____)

) SS (Date)

County of _____)

_____ being duly sworn,

deposes and says that he/she is _____ of _____ and
that he/she answers to the foregoing questions and all statements therein are true and
correct.

Subscribed and sworn to before me this _____ day of _____ 2022.

(Notary Public)

My Commission Expires: _____

GENERAL CONDITIONS

INDEX TO GENERAL CONDITIONS

ARTICLE	TITLE	PAGE
1.	PLANS AND SPECIFICATIONS AT THE SITE.....	GC-1
2.	CONSTRUCTION PROGRESS SCHEDULE	GC-1
3.	ESTIMATED QUANTITIES	GC-2
4.	SCHEDULE OF VALUES; APPLICATION FOR PAYMENT	GC-2
5.	PARTIAL PAYMENTS	GC-2
6.	INSPECTION AND TESTS.....	GC-3
7.	UTILITIES	GC-3
8.	SEDIMENTATION AND EROSION CONTROL.....	GC-3
9.	PROTECTION OF ENVIRONMENTAL RESOURCES	GC-4
10.	ENVIRONMENTAL PROTECTION PLAN	GC-5
11.	TEMPORARY UTILITIES	GC-5
12.	ABBREVIATIONS	GC-5
13.	SUBSURFACE EXPLORATION.....	GC-7
14.	CONTRACT AND CONTRACT DOCUMENTS	GC-7
15.	SHOP DRAWINGS, CATALOG CUTS AND SAMPLES	GC-7
16.	CONTRACTOR'S TITLE TO MATERIALS	GC-8
17.	"OR EQUAL" CLAUSES	GC-8
18.	REPRESENTATIONS OF THE CONTRACTOR	GC-8
19.	PROTECTION OF WORK AND PROPERTY (EMERGENCY)	GC-9
20.	WEATHER CONDITIONS.....	GC-9
21.	SUBLETTING	GC-9
22.	SUBSTITUTE BOND	GC-10
23.	RIGHT TO WITHHOLD PAYMENTS.....	GC-10
24.	PAYMENTS BY CONTRACTOR	GC-10
25.	NOTICE OF WARNING	GC-10
26.	PROGRESS MEETINGS.	GC-11
27.	PERMITS	GC-11
28.	RIGHT TO USE THE WORK	GC-11
29.	PROVISIONS REQUIRED BY LAW	GC-11
30.	WAIVER.....	GC-11
31.	USE OF PREMISES AND REMOVAL OF DEBRIS.....	GC-11
32.	RIGHT OF WAY AND SUSPENSION OF WORK.....	GC-12
33.	CONSTRUCTION EQUIPMENT AND MACHINERY	GC-12

INDEX TO GENERAL CONDITIONS

<u>ARTICLE</u>	<u>TITLE</u>	<u>PAGE</u>
34.	GENERAL GUARANTEE	GC-14
35.	PROCEDURE IN CONSTRUCTION	GC-13
36.	APPRENTICES	GC-13
37.	CONTROL OF WORK	GC-13
38.	CITY'S CONTROL NOT LIMITED.....	GC-13
39.	AUTHORITY AND DUTIES OF INSPECTORS	GC-14
40.	INSPECTION AND CORRECTION OF WORK	GC-14
41.	CONTRACTOR'S OBLIGATIONS	GC-14
42.	TOILET ACCOMMODATIONS AND DRINKING WATER.....	GC-15
43.	SAFETY AND HEALTH REGULATIONS	GC-15
44.	OWNERSHIP OF DRAWINGS AND SPECIFICATIONS.....	GC-15
45.	RESIDENTS' PREFERENCE IN WORK ON OTHER PUBLIC FACILITIES	GC-15
46.	LISTING OF EMPLOYMENT OPENINGS	GC-16
47.	SERVICE OF PROCESS	GC-16
48.	CITY OF WATERBURY ORDINANCE CHAPTER 34	GC-16
49.	WAGE RATES	GC-16
50.	SCHEDULE AND POSTING OF MINIMUM WAGE RATES.....	GC-16
51.	COMPUTATION OF WAGES AND OVERTIME COMPENSATION .	GC-17
52.	WAGE UNDERPAYMENTS AND ADJUSTMENTS.....	GC-17
53.	CONFORMANCE OF WORK	GC-17
54.	DIMENSIONS AND SCHEDULES	GC-17
55.	PROTECTION FROM STORM	GC-17
56.	PROTECTION OF WORK AND MATERIALS	GC-17
57.	FURTHER SAFEGUARDS	GC-18
58.	FIRST AID TO INJURED.....	GC-18
59.	CONFORMANCE WITH DIRECTIONS	GC-18
60.	COMPETENT HELP TO BE EMPLOYED	GC-18
61.	STREETS AND SIDEWALKS TO BE KEPT OPEN.....	GC-18
62.	LIGHTS, BARRIERS, FENCES, WATCHMEN & INDEMNITY	GC-18
63.	WORK OUTSIDE REGULAR HOURS.....	GC-19
64.	BUS LINE INERFERENCE.....	GC-19
65.	COLD WEATHER WORK.....	GC-19
66.	BLASTING AND EXPLOSIVES	GC-20

INDEX TO GENERAL CONDITIONS

<u>ARTICLE</u>	<u>TITLE</u>	<u>PAGE</u>
67.	TUNNELING.....	GC-20
68.	RESERVED MATERIALS/EXCAVATED MATERIALS	GC-20
69.	OBSTRUCTIONS AND CROSSTOVS.....	GC-20
70.	DIRECTIONAL SIGNS AND LIGHTS	GC-21
71.	MAINTENANCE OF WORKPLACE	GC-21
72.	OPERATIONS AT SEVERAL POINTS	GC-21
73.	INTERFERENCE WITH EXISTING STRUCTURES	GC-21
74.	TURF, TOPSOIL AND OTHER REPLACEMENT ITEMS	GC-22
75.	MATERIALS.....	GC-22
76.	DEFECTIVE MATERIALS.....	GC-22
77.	INSPECTION AND TESTING OF FURNISHED MATERIALS.....	GC-22
78.	SAMPLES AND ORDERING LISTS	GC-22
79.	SANITARY CONVENIENCES.....	GC-22
80.	FINISHING AND CLEANING UP	GC-22
81.	RIGHTS OF ACCESS	GC-23
82.	WORK BY OTHERS	GC-23
83.	WORK WITHIN THE LIMITS OF PRIVATE PROPERTY.....	GC-23
84.	LOADING.....	GC-24
85.	COMPLETION OF WORK	GC-24
86.	DUST AND SPILLAGE CONTROL	GC-24
87.	CARE OF THE WORK.....	GC-25
88.	EMERGENCY WORK	GC-25
89.	FIRE PREVENTION AND PROTECTION	GC-25
90.	PLANIMETER	GC-25
91.	SUPERINTENDENCE.....	GC-25
92.	CONTRACT ADMINISTRATION COSTS - OUTSIDE REGULAR HOURS	GC-25
93.	DAILY REPORTS.....	GC-26
94.	MATERIAL AND WORKMANSHIP.....	GC-26
95.	TEMPORARY WATER SUPPLY.....	GC-26
96.	FITTING AND COORDINATION OF WORK.....	GC-26
97.	ARCHEOLOGICAL FINDS	GC-26
98.	EXCAVATIONS NEAR UNDERGROUND UTILITIES	GC-27
99.	WATER QUALITY OF WELLS.....	GC-27

INDEX TO GENERAL CONDITIONS

<u>ARTICLE</u>	<u>TITLE</u>	<u>PAGE</u>
100.	WORK IN STATE HIGHWAYS.....	GC-27
101.	EXISTING INSPECTION REPORTS	GC-27
102.	TEST REPORTS; CERTIFICATES OF COMPLIANCE AND SHIPPING LISTS	GC-28
103.	CLEANING FINISHED WORK.....	GC-28
104.	COMPLIANCE TO ACTS AND EXECUTIVE ORDERS.....	GC-28
105.	SEMI-FINAL INSPECTION	GC-28
106.	CITY’S CERTIFICATE OF SUBSTANCIAL COMPLETION	GC-29
107.	FINAL INSPECTION	GC-29
108.	FINAL ESTIMATE	GC-30
109.	SEMI-FINAL PAYMENT.....	GC-30
110.	LIMITED ACCEPTANCE OF WORK	GC-30
111.	FINAL COMPLETION/ CITY’S CERTIFICATE OF FINAL COMPLETION.....	GC-30
112.	FINAL PAYMENT/PROJECT ACCEPTANCE.....	GC-30
113.	ACCEPTANCE OF FINAL PAYMENT.....	GC-30
114.	10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE	GC-31

GENERAL CONDITIONS

INTRODUCTORY NOTE:

These General Conditions supplement the provisions and requirements of Contract and modify all Contract Documents which follow it numerically, as set forth in Section 1.2 of the Contract. The General Conditions may be amended, revised or supplemented by the Special Conditions which are project specific. The Contractor's attention is directed to the attached Special Conditions for any amendments, revisions or supplements to the General Conditions for this project. The terms used in these General Conditions which are defined in the Contract have the meanings assigned to them in said Contract.

This section applies equally and specifically to all contractors supplying labor and/or equipment and/or materials for this Project and all drawings, specifications and general provisions of the Contract apply to these General Conditions. Where items of the Contract are repeated, it is intended to call particular attention to or qualify them; it is not intended that any other parts of the Contract shall be assumed to be omitted if not repeated herein.

Unless expressly provided for otherwise in the Contract Documents, all costs associated with any work/services required or necessary under the General Conditions shall be considered as included in the Contract Amount (also referred to as Total Compensation). No separate or additional payment will be made for this work and/or services.

ARTICLE 1. PLANS AND SPECIFICATIONS AT THE SITE / AS-BUILT DRAWINGS

- 1.01 The Contractor shall maintain at the Project site two (2) copies of all Plans, Specifications, Addenda, approved Shop Drawings, Change Orders and other Modifications, Schedules and Instructions, in good order. One copy is to be marked to record all changes made during construction. These shall be available at all times to the Project Engineer and the City or their authorized representatives. At the conclusion of construction, the Contractor is to turn one (1) corrected set of all documents over to the Project Engineer.

ARTICLE 2. CONSTRUCTION PROGRESS SCHEDULE

- 2.01 Within seven (7) consecutive calendar days of the written Notice to Proceed, and prior to commencement of any work on site, the Contractor shall prepare and submit for the approval of the City three (3) copies of a complete Construction Progress Schedule which shall be comprised of a critical path method network. (At the same time, the Contractor shall submit the Schedule of Values, Sedimentation and Erosion Control Measures, Water Control Plan and Environmental Protection Plan, as outlined in the various Articles of these General Conditions).
- 2.02 The critical path of the Project must be identified on the Construction Progress Schedule which shall provide a workable plan for monitoring the progress of all the elements of the Project, establish and clearly display the critical elements of the Work, on which each part or division of the Work is expected to be started and completed, forecast completion of the elements of the Project, and match the Contract duration in time. The Construction Progress Schedule shall also indicate the logic of the work for the major elements and components of work under the Contract, such as the planned mobilization of plant and equipment, sequences of operations, procurement of materials and equipment, duration of activities, type of relationship, lag time (if any), and such other information as it is necessary to present a clear statement of the intended activities.
- 2.03 The schedule shall indicate all subcontractors to be utilized on the Contract and the portions of the Contract that they will be performing. The Contractor shall evaluate the status of the Project at least monthly, comparing it to the original schedule, which shall be revised as required. The Contractor shall notify the Project Engineer immediately of any circumstances that may affect the current schedule.
- 2.04 The Contractor shall perform the work of this Contract to satisfy the Construction Progress Schedule as approved by the Project Engineer. However, the Project Engineer and City reserve the right to amend and alter the Construction Progress Schedule, as approved, at any time and in a manner which the Engineer deems to be in the best interests of the City.
- 2.05 The Contractor shall be required to execute his work in accordance with the Construction Progress Schedule as prepared and in accordance with any additional requirements specified herein and approved by the Project Engineer. The Construction Progress Schedule shall forecast the times for doing each portion of the work. The Contractor shall

City of Waterbury

arrange the work under this Contract to conform with the Construction Progress Schedule, as it may be revised by the Engineer from time to time, at no additional expense to the City.

- 2.06 The revised Construction Project Schedule shall take some or all of the following actions to demonstrate the manner in which an acceptable rate of progress will be regained, by the following methods:
- i. Increase construction manpower in such quantities and crafts as shall substantially eliminate the backlog of work and meet the current Contract completion date.
 - ii. Increase the number of working hours per shift, the number of shifts per day, the number of work days per week, or the amount of construction equipment, or any combination of the foregoing
 - iii. Reschedule work items to achieve concurrent accomplishment of work activities.
- 2.07 Under no circumstances will the adding of equipment or construction forces, increasing the working hours, or employing any other method, manner, or procedure to return to the contractually required completion dates be a justification for additional compensation to the Contractor.

ARTICLE 3. ESTIMATED QUANTITIES

- 3.01 Any Estimated Quantities for the Project furnished by the City, including those provided on the Bid Form, are approximate only and are: a) for procurement related comparison purposes only, ~~and~~ b) given as a basis for the pricing and c) are not represented to be actual quantities for completion of the Work. Within the limits of available funds, the Contractor will be required to complete the Work at the unit prices provided in the Bid Form/or Price Proposal whether it involves quantities greater or lesser than the estimate. The Contractor will be compensated only for the actual quantity of authorized, and actually performed, and/or materials furnished.

ARTICLE 4. SCHEDULE OF VALUES; APPLICATION FOR PAYMENT

- 4.01 Within seven (7) consecutive calendar days after the Notice to Proceed, as a basis for estimating partial payments, the Contractor shall submit for the approval of the City a certified Schedule of Values, broken down into quantities and unit costs for the various parts of the work, divided as may be directed and aggregating the total sum of the Contract; and if required, he shall submit evidence supporting this schedule.
- 4.02 The Contractor's requisition for payment shall be submitted on forms supplied by the Contractor and approved by the City and shall be in such numbers of copies as may be designated by the City. Sample forms are included in the Bid Documents. Alternate payment application forms may be utilized provided they are approved by the City, in writing, prior to submission by the Contractor.
- 4.03 If the Project is funded by multiple funding sources, the Contractor may be required to submit separate requisitions for payment to each source, on the forms provided by each source and in accord with all requirements of each individual funding source.
- 4.04 For Lump Sum projects, the requirements for the Schedule of Values are further defined as follows: a) the Schedule of Values shall delineate the various tasks that comprise the lump sum items. Each item in the Schedule of Values shall include its proper share of overhead and profit. This schedule, when accepted by Project Engineer, shall only be used as a basis for Contractor's periodic payment applications. No payment will be made to Contractor until such Schedule has been submitted and accepted by Project Engineer, and b) the lump sum item shall be broken down sufficiently to provide a convenient and realistic means for determining the amount of work done during various stages of progress.

ARTICLE 5. PARTIAL PAYMENTS

- 5.01 The City will review the Contractor's monthly requisitions for Partial Payments to arrive at what is, in its opinion, a fair and just estimate of the materials suitably stored on the site and the amount of work performed on the Contract. At its discretion, the City may allow to be included in the monthly requisitions materials stored off the site. In the event the City allows the Contractor to include in its requisitions payments for materials stored off the site, the Contractor shall also submit any additional bonds and/or insurance certificates relating to off-site stored material, and follow such other procedures as may be required by the City.

- 5.02 In making such Partial Payments for the Project, retainage shall be held in the amount of 5% of the value of work completed to date. The Retainage does not include additional sums that the City may withhold due to the Contractors failure to comply with construction plans, specifications etc. deemed provisions of this contract.
- 5.03 Where prices are not broken down sufficiently in the Schedule of Values to accurately determine the value of work completed, Project Engineer will estimate the value of work completed and will deduct some amount so as to arrive at a conservative value which will allow City to easily complete the Work with the unpaid balance. When the required detail in the Schedule of Values is not provided by Contractor, Contractor agrees to accept Project Engineer's determinations.

ARTICLE 6. INSPECTION AND TESTS

- 6.01 All material and workmanship shall be subject to inspection, examination and testing by the City and/or Project Engineer (in addition to that required by the Specifications) any and all times during manufacture and/or construction and at any and all places where such manufacture and/or construction is carried on. Notice of the time of all tests to be made at the site shall be given to all interested parties.
- 6.02 Contractor must obtain the Engineer's approval of any sources of materials to be incorporated into the Project before beginning to use them for the Project.
- 6.03 If, at any time before final acceptance of the Project, the City and/or Project Engineer considers it necessary or advisable to examine any portion of the Project already completed by removing or testing out the same, the Contractor shall upon request furnish promptly all necessary facilities, labor and materials. If such work is found to be defective in any material respect because of a fault of the Contractor or any of its subcontractors, or if any work shall have been covered over without the approval or consent of the City (whether or not it is found to be defective), the Contractor shall be liable for testing costs and all costs of correction, including labor, material, services of required consultants, additional supervision and administrative costs.
- 6.04 Unless expressly provided for otherwise, for Projects that include material testing to ensure compliance with the Technical Specifications, the Contractor shall be responsible for all testing as required in the relevant sections of the Technical Specifications.
- 6.05 Without additional charge, the Contractor shall promptly furnish all reasonable facilities, labor and materials necessary to make tests safe and convenient. Special, full size and performance tests shall be as described in the Specifications.

ARTICLE 7. UTILITIES

- 7.01 The accuracy and completeness of the utility information shown on the Plans and/or otherwise provided by the City is not guaranteed. The Contractor shall make its own investigation of the extent and location of utilities and of the possibility of relocation work by the utility companies, and shall plan its operations accordingly. No claim for any delays, damage or extra work occasioned thereby will be allowed.
- 7.02 The Contractor shall allow others access to the Project for the purpose of placing, relocating or maintaining utilities, and he shall cooperate in every way in the performance of this Project.
- 7.03 The Contractor shall notify the utility owners well in advance of the time the Contractor proposes to perform any work which would endanger utility installations, and the Contractor shall cooperate with the utility owners in relocating and/or protecting such installations during construction operations.
- 7.04 No payment will be made to the Contractor for locating, protecting and making arrangements for relocating public utilities or for any delays caused thereby. The Contractor shall include all costs of this Project in other scheduled items of the Contract.

ARTICLE 8. SEDIMENTATION AND EROSION CONTROL

- 8.01 All watercourses shall be protected from sedimentation, both during and after construction. The Contractor shall

City of Waterbury

control erosion and sedimentation problems in accordance with Connecticut Guidelines for Soil Erosion and Sediment Control prepared by the Connecticut Council on Soil and Water Conservation, dated 2002, as amended.

- 8.02 The Contractor shall submit the Sedimentation and Erosion Control Plan for the approval of the Project Engineer within seven (7) consecutive calendar days after the Notice to Proceed.
- 8.03 The Contractor shall be responsible for providing silt fences, staked haybales and other temporary erosion control measures which may be required to properly complete this Project. No extra compensation will be allowed, due to water or precipitation levels fluctuation.

ARTICLE 9. PROTECTION OF ENVIRONMENTAL RESOURCES

- 9.01 The environmental resources within the Project boundaries and those affected outside the limits of permanent work under this Contract shall be protected during the entire period of this Contract. The Contractor shall confine its activities to areas defined by the Plans and Specifications. Environmental protection shall be as stated in the following subparagraphs:
 - A. Prior to the beginning of any construction, the Contractor shall identify all land resources to be preserved within the work area. The Contractor shall not remove, cut, deface, injure or destroy land resources including trees, shrubs, vines, grasses, top soil and land forms without special written permission from the property owner. No ropes, cables or guys shall be fastened or attached to any trees for anchorage unless specifically authorized in writing by the Project Engineer. Where such special emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs.
 - B. Prior to any construction, the Contractor shall mark the areas that are not required to accomplish all work to be performed under the Contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor shall convey to its personnel the purpose of marking and/or protection of all necessary objects.
 - C. Trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the Plans to be preserved shall be clearly identified by marking, fencing or wrapping with boards, or any other approved techniques.
 - D. Earthwork brought to final grade shall be finished as indicated and specified. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earth work shall be planned and conducted to minimize the duration of exposure of unprotected soils. Except in instances where the constructed feature obscures borrow areas, quarries and waste material areas, these areas shall not initially be cleared in total. Clearing of such areas shall progress in reasonably sized increments as needed to use the areas developed as approved by the City and/or Project Engineer.
 - E. Runoff from the construction site shall be controlled by the construction of diversion ditches, benches and berms to retard and divert runoff to protected drainage courses, and any measures required by area wide plans approved under Paragraph 208 of the Clean Water Act, as amended.
 - F. The Contractor shall construct or install all temporary erosion control features as indicated in the submitted Sedimentation and Erosion Control Plans, or directed by the City and/or Project Engineer. Temporary erosion control measures such as berms, dikes, drains, grassing and mulching shall be maintained until construction of the Project is completed.
 - G. The Contractor's field offices, staging areas, stockpile storage and temporary buildings shall be placed in areas designated on the submitted Plan. Temporary movement or relocation of the Contractor's facilities shall be made only on approval by the City and/or Project Engineer.
 - H. Borrow areas shall be managed to minimize erosion and to prevent sediment from entering nearby watercourses.

- I. Spoil areas shall be managed and controlled to limit spoil areas and to prevent erosion of soil or sediment from entering nearby watercourses. Spoil areas shall be developed in accordance with the grading plan indicated on the Plans.

ARTICLE 10. ENVIRONMENTAL PROTECTION PLAN

- 10.01 Within seven (7) consecutive calendar days after the Notice to Proceed, and prior to commencement of any work on site, the Contractor shall submit an Environmental Protection Plan for the approval of the City in accordance with the provisions herein specified. The plan shall include but not be limited to the following:
- A. A list of Federal, State and Local laws and regulations concerning environmental protection, pollution control and abatement that are applicable to the Contractor's proposed operations and the requirements imposed by those laws and regulations.
 - B. Methods for protection of features to be preserved within authorized work areas. The Contractor shall prepare a listing of methods to protect resources needing protection, i.e., trees, shrubs, vines, grasses and groundcover, landscape features, air and water quality, fish and wildlife, soil, historical, archeological and cultural resources.
 - C. Procedures to be implemented by the Contractor to provide the required environmental protection and to comply with applicable laws and regulations. The Contractor shall set out the procedures to be followed to correct pollution of the environment due to accident, natural causes or failure to follow the procedures set out in accordance with the Environmental Protection Plan.
 - D. The location of the nearest suitable solid waste disposal area and a permit allowing the Contractor to use those facilities.
 - E. Drawing showing locations of any proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess' or spoil materials.
 - F. Environmental monitoring plans for the job site, including land, water, air and noise monitoring as necessary, and as required by the Project Engineer.
 - G. Environmental monitoring and management plans for the any endangered wildlife or plant species as determined by CT DEEP, City or Project Engineer.
 - H. Traffic control plan when necessary.
 - I. Methods of protecting surface and ground water during construction activities.
 - J. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. The plan should include measures for marking the limits of use areas.

ARTICLE 11. TEMPORARY UTILITIES

- 11.01 Unless expressly otherwise provided for in the Contract Documents the Contractor shall be responsible for determining and supplying at no cost to the City all temporary utilities of any nature whatsoever needed to complete the work. Unless otherwise provided for in the Bid Documents, all necessary temporary utilities shall be installed at the start of the Project.

ARTICLE 12. ABBREVIATIONS

- 12.01 Where one of the following abbreviations are used in the Contract Documents, it shall have the meaning set forth opposite each below:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute

City of Waterbury

AGA	American Gas Association
AIEE	American Institute of Electrical Project Engineers
AISC	American Institute of Steel Construction
API	American Petroleum Institute
ANSI	American National Standards Institute
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society of Testing and Materials
AWG	American (or Brown and Sharpe) Wire Gauge
AWWA	American Water Works Association
CONNDOT	Connecticut Department of Transportation
DEP	Department of Environmental Protection
EDR	Equivalent Direct Radiation
EPA	Environmental Protection Agency
FWQA	Federal Water Quality Administration
IBR	Institute of Radiator and Boiler Manufacturers
MCB	Master Car Builders
NBS	National Bureau of Standards
NEC	National Electrical Code (latest edition)
NEMA	National Electrical Manufacturers Association
NEWWA	New England Water Works Association
NFPA	National Fire Protection Agency
NPT	National Pipe Thread
SMACNA	Sheet Metal and Air Conditioning Association
OS&Y	Outside Screw and Yoke
STL.WG	United States Steel Wire, Washburn and Moen, American Steel And Wire Companies and Roebling Gauge
USS GAUGE	United States Standard Gauge
WOG	Water, Oil, Gas
WSP	Water Steam Pressure

"Federal Specification" A Federal specification issued by the Federal Supply Services Administration, Washington, D.C.

ARTICLE 13. SUBSURFACE EXPLORATION

- 13.01 Where applicable, and if provided by the City, boring logs, probes and related information contain data regarding subsurface conditions at the dates and location indicated. This information is shown for the convenience of the Contractor, but is not guaranteed to be correct or complete, and it is not warranted that it represents a true or approximately true picture of the actual subsurface conditions to be encountered.

ARTICLE 14. CONTRACT AND CONTRACT DOCUMENTS

- 14.01 Deleted.
- 14.02 The City's record copy of the Contract Documents shall control and shall be effective and binding on the Contractor. In the event that any provision in the Contract Documents conflict with any other provision therein, the priority of the documents shall be in accordance with Section 1.2 of the Contract.

ARTICLE 15. SHOP DRAWINGS, CATALOG CUTS AND SAMPLES

- 15.01 The Contractor shall promptly submit to the Project Engineer five copies of each submittal prepared in accordance with the approved schedule. After examination of such submittal by the Project Engineer and the return thereof, the Contractor shall make such corrections to the submittal as have been indicated and shall furnish the Project Engineer with five corrected copies. If requested by the Project Engineer, the Contractor must furnish additional copies. Regardless of corrections made on, or approvals given to, such submittal by the Project Engineer, the Contractor shall nevertheless be responsible for the accuracy of such submittal. The Contractor shall also be responsible for the submittal's conformity to the Submittal and Specifications, unless the Contractor notifies the Project Engineer in writing of any deviations at the time of submission of the submittal.
- 15.02 Submittal of all fabricated work shall be submitted to the Project Engineer and no work shall be fabricated unless it is done at the Contractor's own risk until approval has been given by the Project Engineer and City.
- 15.03 The Contractor shall submit all submittals on dates sufficiently in advance of requirements in order to enable the Project Engineer and City to properly review them. This period shall include time to correct, resubmit and recheck, if necessary, and no claim for delay will be granted to the Contractor because of the Contractor's failure in this respect. The Project Engineer and City will be given a minimum of fourteen (14) consecutive calendar days for the initial review of each submitted submittal.
- 15.04 All submitted submittals must bear the approval stamp of the Contractor and reference conformance to the applicable provisions of the Specifications as evidence that the Contractor has checked the drawings. Any drawings submitted without this stamp of approval will not be considered and will be returned to the Contractor for resubmission. If the submittals show variations from the requirements of the Contract Documents because of standard shop practice or other reason, the Contractor shall make specific mention of such variation in the letter of submission to the Project Engineer. If the variation is acceptable to the Project Engineer and City, suitable action may be taken for proper adjustment. If not acceptable, the Contractor shall not be relieved from the responsibility for executing the work in accordance with the Contract Documents, although such submittals had been approved.
- 15.05 Where submittals are submitted by the Contractor that indicate a departure from the Contract Drawings which the Project Engineer deems to be a minor adjustment and in the City's interest and not involving a change in the Contract price or an extension in time, then the Project Engineer may approve the drawings. Such approval will contain, in substance the following:

The modification shown on the attached drawings is approved in The interest of the City to effect an improvement for the project and is ordered with the understanding that it does not involve any change in the Contract price or time. The modification is generally subject to all Contract stipulations and covenants and it is without prejudice to any

and all rights of the City under the Contract.

The approval of submittals will be general and shall not relieve the Contractor from the responsibility for adherence to the Contract nor of the responsibility for any errors that may exist.

- 15.06 The Contractor agrees to hold the Project Engineer and the City harmless and to defend them against damage or claims for damages arising out of injury to others or to property of third parties which result from errors on shop or working drawings, whether or not they have been approved by the Project Engineer and/or the City.
- 15.07 Working Drawings. When required by the Contract or when ordered to do so by the City Representative, the Contractor shall prepare and submit 4 copies of the working drawings to the City Representative for review. These drawings shall be submitted sufficiently (at least 15 consecutive calendar days) in advance of the proposed use, to allow for their review, and any necessary revisions, without delay of the Project. No work covered by these working drawings shall be done until the drawings have been submitted to the City Representative for review and the City Representative's comments have been appropriately taken into account and implemented. The furnishing of the working drawings shall not serve to relieve the Contractor of any part of its responsibilities under the Contract.

ARTICLE 16. CONTRACTOR'S TITLE TO MATERIALS

- 16.01 No material, supplies or equipment for the work shall be purchased by the Contractor, or by any Subcontractor, subject to any chattel mortgage or under any conditional sale or other agreement by which an interest therein or in any part thereof is retained by the seller or supplier. The Contractor warrants good title to all material, supplies and equipment installed or incorporated in the work. The Contractor further warrants that, upon completion of all work, he will deliver the premises, together with all improvements and appurtenances constructed thereon, to the City free of any claims, liens, charges or encumbrances. The Contractor further warrants that neither the Contractor nor any person, firm or corporation furnishing any material, labor or equipment for any work covered by this Contract shall have a right to lien upon the premises or any improvement or appurtenance thereon.

ARTICLE 17. "OR EQUAL" CLAUSES

- 17.01 Unless otherwise provided for in the Bid Documents, the Contract will be on the basis of material and equipment described on the Bid Documents without consideration of possible substitute or "equal" items. However, subsequent to award of the Work, whenever a material or article required is specified or shown on the plans by using the name of a proprietary product or of a particular vendor or manufacturer, any materials or article which, in the sole discretion of the Project Engineer, is equal or superior to the specified item to material, may be considered an "equal." Requests for substitutions must be supported by evidence such as technical data, test results, or other pertinent information that demonstrate that the substitute offered is equal or better than the specification's requirements. Such items shall not be purchased or installed without the written approval of the Project Engineer. In all cases, only new materials shall be used for the work.

ARTICLE 18. REPRESENTATIONS OF THE CONTRACTOR

- 18.01 The Contractor represents and warrants:
- (a) That he is financially solvent and that he is experienced and competent to perform the type of work or to furnish the plant, material or equipment to be performed or furnished by him; and
 - (b) That he is familiar with all Federal, State and municipal laws, ordinances, orders and regulations which may in any way affect the work of those employed therein, including but not limited to any special acts relating to the work or to the project of which it is a part; and
 - (c) That such permanent and temporary work required by the Contract Documents to be done can be satisfactorily constructed and be used for the purpose for which it is intended, and that such construction will not injure any person nor damage any property; and
 - (d) That he has carefully examined the drawings, specifications and addendum (or addenda) if any, and the site of the work, and that, from his own investigations, he has satisfied himself as to the nature, quality

City of Waterbury

and quantity of surface and subsurface materials likely to be encountered; of the character of equipment required for the work; of other facilities needed for the performance of the work; of the general and local conditions and of all other materials which in any way may affect the work and its performance; and

- (e) That he is aware of the hazards involved in the work and the danger to life and property both evident and inherent and that he will conduct the work in a careful and safe manner without injury to persons or property; and that he can provide the necessary equipment, labor and materials to complete the contract work within the specified contract duration.

ARTICLE 19. PROTECTION OF WORK AND PROPERTY (EMERGENCY)

- 19.01 The Contractor shall at all times safely guard and protect the City's property from injury or loss in connection with this contract. He shall at all times safely guard and protect his own work and that of adjacent property from damage. The Contractor shall replace or make good any such damage, loss or injury unless such is caused directly by errors contained in the Contract or by the City or his duly authorized representatives.
- 19.02 In case of an emergency that threatens loss or injury of property and/or safety of life, the Contractor will be allowed to act in a diligent manner without previous instructions from the City. He shall notify the City immediately thereafter.
- 19.03 Where the Contractor has not taken action but has notified the City of an emergency threatening injury to persons or damage to the work or to any adjoining property, he shall act as instructed or as authorized by the City.
- 19.04 The amount of reimbursement claimed by the Contractor on account of any emergency action shall be determined in the manner provided elsewhere in the Contract Documents.

ARTICLE 20. WEATHER CONDITIONS

- 20.01 In case of temporary suspension of the work, or during inclement weather, or whenever the City shall direct, the Contractor shall carefully protect his work and materials against damage or injury from the weather. The Contractor shall cause all his subcontractors to provide the same protection for their portion of the work. If, in the opinion of the City, any work or material was damaged or injured by reason of failure on the part of the Contractor, or any of his subcontractors, so to protect his work, or otherwise damaged by the negligence of the Contractor or any of his subcontractors or their agents or servants, or is otherwise defective, such materials shall be removed and replaced at the expense of the Contractor.
- 20.02 For projects involving asphalt paving, all work shall be temporarily suspended, upon direction of the City, when the Contractor can no longer properly pave exposed areas in accordance with the plans and specifications during inclement weather or during winter months.

ARTICLE 21. SUBLETTING

- 21.01 The Contractor is not to assign, transfer or sublet the Contract in whole or in part to any other person or persons without written permission from the City. The Contractor cannot abridge the terms of the Contract in any way without written permission of the City. The Contractor must keep the Contract in his name and control until all work is completed and finally accepted by the City. The Contractor shall likewise not assign any of the money payable under this Contract. Approval by the City of the subletting of any part of the work shall not, under any circumstances, relieve the Contractor or his Surety of any liabilities or obligations under the terms of the Contract Documents.
- 21.02 The Contractor shall be as fully responsible to the City for the acts and omissions of his subcontractors, and of the persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him. Should any subcontractor violate any of the terms of these specifications, the City may, at its option, require the Contractor to end and terminate such subcontract.
- 21.03 The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind

subcontractors to the Contractor by the terms of the Contract and the General Conditions and other provisions of the Contract Documents. This language is to be applicable insofar as necessary to the work and is to give the Contractor the same power over as regards terminating any subcontract as the City may exercise over the Contractor under any provisions of the Contract Documents.

21.05 Nothing contained in this Contract shall create any contractual relation between the City and any subcontractor.

ARTICLE 22. SUBSTITUTE BOND

22.01 If, at any time, the Contractor's Surety or Sureties, or the carriers of other insurance herein specified to be written, become insolvent or, in a reasonable judgment of the City, become unsafe or unsound then, upon five days written notice from the City to the Contractor, the Contractor shall substitute such Performance and Labor and Material Bond or insurance with such other Surety or carrier in such form as shall be acceptable to the City. Any additional premium caused by such substitution shall be paid for by the Contractor. No further payments will be deemed due nor will be made until the new Surety or Sureties have furnished such an acceptable bond to the City.

ARTICLE 23. RIGHT TO WITHHOLD PAYMENTS

23.01 The City may withhold from the Contractor so much of any approved payments due as may in the judgment of the City be necessary to:

1. Assure the payment of any lien, stop notice or claim, filed with the City for work, labor, or materials done, performed or delivered and used in the prosecution of the work herein provided for (whether in strictly legal form or otherwise)
2. Protect the City from loss due to defective work not remedied or through any improper or defective machinery, implements or appliances used by the Contractor or for failure of the Contractor to fully comply with any requirements of the Contract
3. Protect the City from loss due to injury to persons or damage to work or property of other contractors, subcontractors or others caused by the act' or neglect of the Contractor or any subcontractors.

23.02 The City shall have the right, as agent for the Contractor, to apply any amounts so withheld in such manner as the City may deem proper to satisfy such claims or to secure such protection. Such applications of such money shall be deemed payments to the account of the Contractor.

23.02 Notwithstanding the above, the Contractor, in conformance with Section 49-41a of the Connecticut General Statutes, as revised, shall, within 30 consecutive calendar days after any given Contract payment to the Contractor by the City, pay any amounts due any subcontractor, whether for labor performed or materials furnished.

ARTICLE 24. PAYMENTS BY CONTRACTOR

24.01 The Contractor, in conformance with Section 49-41a of the Connecticut General Statutes, as revised, shall, within 30 consecutive calendar days after any given Contract payment to the Contractor by the City, pay any amounts due any subcontractor, whether for labor performed or materials.

ARTICLE 25. NOTICE OF WARNING

25.01 If the Contractor shall fail to make prompt payment to persons supplying labor or materials for the work; or refuse or fail to supply enough properly skilled workmen or proper materials; or refuse or fail to prosecute the work or any part thereof in accordance with the Contract Documents or with such diligence as will insure its completion within the period herein specified (or any duly authorized extension thereof); or fail to complete the work within said period; or refuse to regard laws ordinances, codes or instructions of the City then the City shall forward A Notice of Warning to the Contractor by registered mail at the address given in the Contract. In the event the Contractor fails to comply with said Notice of Warning within five (5) consecutive calendar days from receipt thereof, the City shall have the right to terminate the Contract.

ARTICLE 26. PROGRESS MEETINGS

26.01 Progress meetings will be held weekly at locations, dates and times selected by the City for the purpose of reviewing, scheduling and coordinating the Project's progress as well as other matters.

ARTICLE 27. PERMITS

27.01 The Contractor shall keep himself fully informed of all existing and current Municipal, State or Federal ordinances, regulations or laws in any way limiting or controlling the operations or actions of those engaged in the work or affecting the materials supplied to or by them. The Contractor shall at all times observe and comply with all such valid and binding ordinances, laws or regulations. The Contractor shall protect and indemnify the City and its representatives against any claims arising from, or based upon, any violation of the same.

ARTICLE 28. RIGHT TO USE THE WORK

28.01 The City may enter upon the use of the whole or of any portion of the work, which may be in condition to use, at any time before its final acceptance of the Project. Such use shall not constitute, or be evidence of, acceptance by the City or by the Project Engineer of the whole or any part of the material furnished or work performed under the Contract.

ARTICLE 29. PROVISIONS REQUIRED BY LAW

29.01 Each and every provision of law and clause required to be inserted in this Contract shall be deemed to be inserted herein and the Contract shall be read and enforced as though it were included herein. If, through mistake or otherwise, any such provision is not inserted, then, upon application of either party, the Contract shall forthwith be physically amended to make such insertion.

29.02 If this Contract contains any unlawful provisions not an essential part of the general structure of the Contract, and which shall not appear to have been a controlling or material inducement in the making thereof, the same shall be deemed stricken from the Contract without affecting the binding force of the remainder.

ARTICLE 30. WAIVER

30.01 Neither the inspection by the City or Project Engineer or by any of their employees; nor any order, measurement or certificate by the Project Engineer; nor any order by the City for the payment of any money; nor any payment for or acceptance of the whole or any of the work by the Project Engineer for the City; nor any extension of time; nor any possession taken by the City or its employees shall operate as a waiver of any provision of this Contract or of any power herein reserved to the City. Nor shall such action waive any right to damages herein provided. Nor shall any waiver of any breach of the Contract constitute a waiver of any other or subsequent breach. Any remedy provided in this Contract shall be construed as cumulative - i.e. in addition to each and every other remedy herein provided.

ARTICLE 31. USE OF PREMISES AND REMOVAL OF DEBRIS

31.01 The Contractor expressly undertakes at his/her own expense:

1. To take every precaution against injuries to persons or damage to property.
2. To store apparatus, materials, supplies and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of the work or the work of any other contractor.
3. To place upon the work or any portion thereof only such loads as are consistent with the safety of that portion of the work.
4. To frequently clean up all refuse, rubbish, scrap materials and debris caused by the Contractor's operations to the end that at all times the site of the work shall present a neat, orderly and work manlike appearance.
5. To remove all surplus material; falsework; temporary structures including foundations thereof; plant of any description and debris of any nature resulting from the Contractor's operations before final payment is made.
6. To put the site in a neat orderly condition, to remove all clean-up materials, to remove such materials from the construction site, and to deposit them in a refuse disposal site at his/her expense.

7. To effect all cutting, fitting or patching of work required to make the same conform to the Drawings and Specifications and, except with the consent of the City, not to cut or otherwise alter the work of any other contractor.

ARTICLE 32. RIGHT-OF-WAY AND SUSPENSION OF WORK

- 32.01 Land and rights-of-way for the purposes of this Contract will be furnished by the City to the extent shown on the Drawings. The City will use diligence in acquiring said land and rights-of-way as speedily as possible. However, it is possible that not all land and rights-of-way will be obtained as herein contemplated before construction commences. In such case the Contractor shall begin the work upon such land and rights of-way as the City may have previously acquired. No claim for damages whatsoever will be allowed by reasons of the delay in obtaining the remaining lands and/or rights-of-way. Should the City be prevented or enjoined from proceeding with the work, or from authorizing its prosecution, either before or after the commencement, by reason of litigation or by reason of its inability to procure any lands or rights-of-way for the said work, the Contractor shall not be entitled to withdraw from the Contract because of these occurrences. In the event of any of the above occurrences, the time for completion of the work may be extended in the manner provided elsewhere in the Contract Documents.

ARTICLE 33. CONSTRUCTION EQUIPMENT AND MACHINERY

- 33.01 The Contractor shall furnish and maintain, at its own cost and risk, all tools, apparatus and appliances, hoists and/or cranes and power for same, scaffolding, runways, ladders, temporary supports and bracing and all other similar work or material necessary to insure speed, convenience and safety in the execution of its Contract. All such items shall be subject to approval of the City, upon the Project Engineer's recommendation, as to general stability, type and location, but the responsibility for proper design, strength and safety shall remain with the Contractor. All such items shall comply with OSHA regulations and all other applicable codes, statutes, rules and regulations.
- 33.02 The Contractor shall provide all drains, drainage, ditches and pumping apparatus (including power and attendance for same) that may be necessary to keep all excavations and sub-grade work free from water.
- 33.03 All machines, equipment, trucks and vehicles used in the prosecution of the work, or in connection therewith, shall be in proper working condition at all times. Only gasoline, electric or diesel engines shall be used for the power in operating equipment.
- 33.04 The Contractor shall be responsible for curtailing noise, smoke, fumes or other nuisances resulting from the operations. The Contractor shall, upon written notification from the City or Project Engineer, make any repairs, replacements, adjustments or additions and furnish mufflers when necessary to fulfill requirements. No oil tanks for fueling equipment shall be stored less than one hundred (100) feet from any watercourse.
- 33.05 All costs involved in complying with the stipulations outlined shall be included in the various prices bid in the proposal.

ARTICLE 34. CONTRACTOR'S GENERAL WARRANTY PERIOD

- 34.01 The Contractor's General Warranty Period shall commence on the date of the written notice of final acceptance of the Project by the City and during such time Contractor shall guarantee his work is free from faulty materials and workmanship.
- 34.02 Within the Contractor's General Warranty Period, any portion of the Work shall, in the opinion of the City, require repairing, replacing or rebuilding, the Contractor shall start such repairs within five (5) consecutive calendar days after receipt of notice from the City. If the Contractor shall fail to or neglect to start the repairs within five (5) consecutive calendar days, the City may employ such other person or persons as it may deem proper to make such repairs. The City will charge the Contractor the cost thereby incurred. Nothing herein provided shall limit the liability of the Contractor or Surety to the City for non-performance of the Contractor's obligations at any time.
- 34.03 The Payment and Performance Bonds, and Material Bond, if required, shall remain in full force and effect through the Contractor's General Warranty Period.

City of Waterbury

- 34.04 Deficiencies in the Work discovered after the date of the written notice of final acceptance of the Project by the City shall be deemed General Warranty Work. Such deficiencies shall be corrected by Contractor under this Article.
- 34.05 The Contractor shall remedy any defects due to faulty materials or workmanship within thirty (30) consecutive calendar days of receiving notice thereof by the City. Should the Contractor fail to correct the deficiency within thirty (30) consecutive calendar days, the City may perform the corrective work and Contractor shall be responsible for all reasonable costs incurred by City in performing such correction.

ARTICLE 35. PROCEDURE IN CONSTRUCTION

- 35.01 The Contractor shall start work and carry it on at such point or points and in such order of precedence and at times and seasons as may be determined by the City. The Contractor shall complete the various portions of the work in accordance with the schedule approved by the City.
- 35.02 A complete organization, complement of equipment and ample materials shall be on hand before actual work commences. The Contractor shall so arrange his/her organization, plant, equipment and materials so that construction operations will be carried on continuously. The Contractor will not be permitted to reduce the force of workers or remove any equipment from the work if such reduction or removal impairs the progress of the work.
- 35.03 In the event that the City awards more than one contract to the Contractor, the Contractor shall be required to prosecute the work on each contract simultaneously. The Contractor will be required to maintain a separate and independent organization and staff, labor forces and machinery on each contract in order to complete the work within the time set forth for the respective contracts.

ARTICLE 36. APPRENTICES

- 36.01 Apprentices shall be permitted to work only under a bonafide apprenticeship program registered either with the State Apprenticeship Council or with the Bureau of Apprenticeship, United States Department of Labor.

ARTICLE 37. CONTROL OF WORK

- 37.01 The Contractor shall abide by all orders, directions and requirements of the Project Engineer in the performance of the work.
- 37.02 In the event the Contractor is not personally present at the project site, he/she shall have a superintendent present at the site that possesses more than adequate communication skills. The superintendent must have proper knowledge of all applicable project requirements and conditions and must have authority to fully represent the Contractor with power to act and to be the recipient of orders and to obey all the instructions of the Project Engineer and/or the City. If proper provision for the carrying out of this stipulation is not made, then the Contractor shall be held responsible for the execution of such orders and instructions which the Project Engineer and/or City may deem necessary to issue to any employee regarding the work. The City or Project Engineer may order the work stopped until a duly authorized representative of the Contractor appears and receives instructions. No claims for damages or for an extension time in which to complete the work because of such delay will be allowed the Contractor.
- 37.03 In all cases, the Project Engineer shall determine classifications, quantities, quality, acceptability and fitness of the several kinds of work that are to be paid for under the Contract. The Project Engineer and/or City shall interpret the Plans and Specifications and any extra work orders and shall determine all questions in relation to said work and to the construction thereof.
- 37.04 The Contractor shall not employ any plant, equipment, material, methods or workers to which the City objects. The Contractor shall not remove any plant, materials, equipment or other facilities from the site of the work without the City's permission.

ARTICLE 38. CITY'S CONTROL NOT LIMITED

- 38.01 The enumeration in this Contract of particular instances in which the opinion, judgment, discretion or

determination of the City shall control, and in which work shall be performed to the City's satisfaction and approval or inspection, shall not imply that only matters similar to those enumerated shall be so governed. Without exception all the work shall be so governed and performed.

ARTICLE 39. AUTHORITY AND DUTIES OF INSPECTORS

- 39.01 Inspectors shall be authorized to inspect all work done and all materials furnished. Such inspection may extend to all parts of the work and to the preparation or manufacture of the materials to be used. In the case of any dispute arising between the Contractor and an Inspector as to materials furnished, or as to the manner of performing the work, the Inspector shall have the authority to reject material or to suspend the work until the question at issue can be referred to, and decided by, the City.
- 39.02 The Inspector shall not be authorized to revoke, enlarge, relax or release any requirements of these Specifications nor to approve or accept any of the provisions of the Contract Documents. The Inspector shall in no case act as a foreman or perform other duties for the Contractor. The Inspector shall not interfere with the management of the work by the Contractor. Any advice, which the Inspector may give the Contractor, shall not be construed as binding the City or the Project Engineer in any way. Such advice will not release the Contractor from the fulfillment of the terms of the Contract.

ARTICLE 40. INSPECTION AND CORRECTION OF WORK

- 40.01 All material furnished and work done will be inspected by the Project Engineer. The Project Engineer shall condemn any work or materials not in accordance with the Contract Documents. All condemned work and materials shall be removed and other work and materials furnished in accordance therewith. All materials rejected by the Project Engineer as being unfit for the particular clause in the Specifications to which they refer shall be removed from the site. Removal shall be within twenty-four (24) hours or shorter if the Project Engineer so directs. Should the Contractor refuse to remove the work and materials as ordered, then the Project Engineer may stop the Contractor from proceeding with the work. The City may supply workers and materials to remove the condemned work and materials at the expense of the Contractor.
- 40.02 Failure on the part of the Project Engineer, or any authorized Inspectors, to detect inferior work or materials, and to condemn the same, shall not be construed to imply an acceptance of such work or materials. Such failure shall not be construed as barring the City, at any subsequent time, from the recovery of such sum of money from the Contractor which may be required to construct or to build anew all portions of the work in which fraud was practiced, improper work executed or improper material furnished and built into the work. The Contractor shall furnish all necessary facilities should it be desirable at any time to make an examination of the work already completed.
- 40.03 If any work is found defective in any respect, the expense of the examination must be borne by the Contractor. If all work is found satisfactory, the expense of the examination will be paid for in the manner provided for elsewhere in the Contract Documents. If all work is found satisfactory, the expense of the examination will be paid for in the manner provided elsewhere in the Contract Documents.
- 40.04 If, in the opinion of the City, it is undesirable to reconstruct or correct any portion of the work injured or not performed in accordance with the Contract Documents, the Contractor's compensation hereunder shall be reduced by such amount as may be equitable under all circumstances.

ARTICLE 41. CONTRACTOR'S OBLIGATIONS

- 41.01 The Contractor shall and will, in good workmanlike manner, do and perform all work and furnish all supplies and material, machinery, equipment, facilities and means, except as herein otherwise expressly specified, necessary or proper to perform and complete all work required by this Contract. All to be accomplished within the time specified; in accordance with the provisions of this Contract and Specifications; in accordance with the Plans and Drawings pertaining to this Contract; in accordance with any and all supplemental Plans and Specifications and in accordance with the directions of the City as given from time to time during the progress of the work. The Contractor shall furnish, erect, maintain and remove such construction plant and such temporary work as may be required. The Contractor alone shall be responsible for the safety, efficiency and adequacy of the plant, appliances and methods. The Contractor shall be responsible for any damage, which may result from their failure or from their improper construction, maintenance or operation. The Contractor shall

City of Waterbury

observe, comply with and be subject to all terms, conditions, requirements and limitations of the Contract and the Specifications. The Contractor shall do, carry on and complete the entire work to the satisfaction of the City.

- 41.02 The Contractor shall be solely responsible for all the work and shall provide all precautionary measures necessary for preventing injury to persons or damage to property. All injury or damage, of whatever nature, resulting from the work, or resulting to persons, from whatever cause, shall be the responsibility of, and shall be borne and sustained by, the Contractor. The Contractor shall hold the City and Project Engineer, or their agents, harmless and shall defend and indemnify the City and Project Engineer, or their agents, against damages, or claims for damages, due to injury to persons or to property arising out of the execution of work and for damages to material furnished for the work; for infringement of inventions, patents and patent rights used in doing the work; for damages arising out of the use of any improper material, equipment or labor used in the work and for any act of omission by any subcontractors therein. The Contractor shall bear all losses including, but not limited to, losses sustained on account of the character, quality or quantity of any part or all of the work, or because the nature of the land in or on which the work is done being different from what may have been estimated or indicated, or on account of the weather, elements or other causes, except for acts beyond the reasonable control of the Contractor.

ARTICLE 42. TOILET ACCOMMODATIONS AND DRINKING WATER

- 42.01 The Contractor shall provide necessary sanitary toilet accommodations and drinking water for the workers. Separate facilities shall be provided for female workers.

ARTICLE 43. SAFETY AND HEALTH REGULATIONS

- 43.01 These documents, and the joint and several phase of construction hereby contemplated are to be governed at all times by applicable provisions of the Federal law(s), including, but not limited to, the latest amendments of the following:

1. Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 91-956.
2. Part 1910 - Occupational Safety and Health Standards; Chapter XVII of Title 29, Code of Federal Regulations.
3. Part 1926 - Safety and Health Regulations for Construction, Chapter XVII of Title 29, Code of Federal Regulations.

- 43.02 This project is subject to all of the Safety and Health Regulations (see 29 CFR 1926m as amended) as promulgated by the U. S. Department of Labor on June 24, 1974. The Contractor shall thoroughly familiarize him/herself with the requirements of these regulations.

ARTICLE 44. OWNERSHIP OF DRAWINGS AND SPECIFICATIONS

- 44.01 Subsequent to award of the contract, with the exception of the Contractor's executed set, all drawings and specifications are the property of the City. The City shall furnish one (1) paper and one electronic set, in PDF Format, of the construction drawings and specifications to the Contractor without charge. No additional sets will be furnished ~~in~~ by the City. Such drawings and specifications are not to be used in other work.

ARTICLE 45. RESIDENTS' PREFERENCE IN WORK ON OTHER PUBLIC FACILITIES

- 45.01 Except to the extent prohibited by Federal or State statute, the Contractor shall comply with the provisions of Section 31-52a of the General Statutes of the State of Connecticut, Revision of 1967, a part of which is quoted as follows:

Section 2(b) each contract for any such project covered by this section under the supervision of the State or any of its agents shall contain the following provision:

"In the employment of mechanics, laborers or workmen to perform the work specified herein, preference shall be given to residents of the State who are and, continuously for at least six months prior to the date hereof, have been residents of the State, and if no such person is available, then to residents of other states."

ARTICLE 46. LISTING OF EMPLOYMENT OPENING

- 46.01 This Contract is executed subject to the Governor's Executive Orders No. 3 and No. 17, which are hereby made a part of this agreement. The Governor's Executive Order No. 17 requires, inter alia, that all contractors and subcontractors shall list all employment openings with the office of the Connecticut State Employment Service in the area in which the work is to be performed or where the services are to be rendered. Failure of the Contractor to conform to the requirements of the Governor's Executive Orders No. 3 and No. 17, and any orders, rules, or regulations issued pursuant thereto, shall be a basis for termination of this agreement by the City.

ARTICLE 47. SERVICE OF PROCESS

- 47.01 The Contractor, if not a resident of the State of Connecticut, or, in the case of a partnership, the partners, if not residents, hereby appoint(s) the Secretary of State of the State of Connecticut, and successors in office, agent for service of process. Such service, as arising out of, or because of, this Contract. Such appointment shall in effect throughout the life of this Contract and for a period of six (6) years thereafter.

ARTICLE 48. CITY OF WATERBURY ORDINANCE CHAPTER 34

- 48.01 For projects subject to the City's GOOD JOBS ORDINANCE (Code of Ordinances Chapter 34), the provisions thereof are in addition to any requirements of these General Conditions, and to any requirements of all funding sources for the Project, but only to the extent permitted by federal and state law.

ARTICLE 49. WAGE RATES

- 49.01 The wages paid on an hourly basis to any mechanic, laborer or workman employed upon the work herein, contracted to be done shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the City of Waterbury. The amount of payment or contribution paid or payable on behalf of each such employee to any employee welfare fund (as defined in Section 31-53 of the Connecticut General Statutes) shall also be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the City of Waterbury. If the Contractor is not obligated by agreement to make such payment or contribution on behalf of such employees to any such welfare fund, the Contractor shall pay to each employee the amount of payment of contribution for his classification on each payday as part of his wages.
- 49.02 For Prevailing Wage Rate projects, the Contractor shall furnish to the Project Engineer certified copies of payrolls showing the names of its employees working on the Project, the specific days and hours and number of hours that each of them has spent in doing so, and the amount paid to each person for said work.

ARTICLE 50. SCHEDULE AND POSTING OF MINIMUM WAGE RATES

- 50.01 Where applicable, the Contractor, and every subcontractor, shall post a legible copy of the Minimum Wage Rates and Classifications included in the Contract Documents. This posting shall be in a prominent and accessible place at the site of the work (See ARTICLE 49). The schedule shall show all determined minimum wage rates for the various classes of laborers and mechanics to be engaged to work on the project. The schedule shall also show all deductions, if any, required by law to be made from wages actually earned by the laborers and mechanics so engaged.
- 50.02 The rates established by each schedule are the minimum and all employees shall be paid no less than the established rate for each trade or occupation. In the case of a conflict between schedules in anyone trade or occupation, the higher rate listed shall control and such higher rate shall be considered to be the minimum.
- 50.03 State: Where applicable, the minimum rates of wages and schedule of supplements to be provided for the various trades shall be in accordance with the Prevailing Wage rate Schedule included herein. The rate of wages and schedule of supplements for any trade not appearing or mentioned in this schedule shall be in accordance with the prevailing rates established for that particular trade by the Connecticut Department of Labor or by the Comptroller or other analogous officer of the City of Waterbury. Minimum wages required to be paid shall include supplements for hospital, surgical, medical or other benefits as determined by all applicable section of the General Statutes of the State of Connecticut. The Contractor shall file a Wage Certification Form with the Labor Department of the State of Connecticut prior to beginning work on the site.

- 50.04 If for any reason and at any time, the Federal Government, the State of Connecticut, or the City of Waterbury, shall in any way supplement, change or amend the Prevailing Wage Rates Schedule, then the Contractor or subcontractor shall follow such Schedule as supplemented, changed or amended. In no case shall the Contractor or subcontractor be entitled to any additions, compensations or extras because of any supplement, change, amendment or predetermination of the Prevailing Wage Rate Schedule.
- 50.05 Federal Wage Rates, where applicable, shall be applied in any case where they exceed the State of Connecticut Minimum Wage rates or in any case where a rate has not been established by the State.

ARTICLE 51. COMPUTATION OF WAGES AND OVERTIME COMPENSATION

- 51.01 The Contractor and each subcontractor shall comply with all applicable Federal, State and local laws or ordinances with respect to the hours worked by laborers and mechanics engaged in work on the project. The Contractor and all subcontractors shall also comply with all applicable Federal, State and local ordinances with respect to compensation for overtime hours worked by laborers and mechanics engaged in work on the project.

ARTICLE 52. WAGE UNDERPAYMENTS AND ADJUSTMENTS

- 52.01 In addition to any applicable Federal or State regulations, the City may, in the case of underpayment of wages to any worker on the project under this Contract by the Contractor or by any subcontractor, withhold an amount from payments due the Contractor. Said amount to be sufficient to pay such worker the difference between the wages required to be paid the worker under this Contract and the amount actually paid the worker for the total number of hours worked. The City will disburse such amount so withheld by it for, and on behalf of, the Contractor to the employee to whom the amount is due. Such monies withheld pursuant to this article will be in addition to percentages to be retained pursuant to other provisions of the Contract.

ARTICLE 53. CONFORMANCE OF WORK

- 53.01 The work, during its progress and at its completion, shall conform to the work as shown on the drawings and to the directions given by the Project Engineer from time to time. The work shall be subject to such modifications or additions as the Project Engineer may deem necessary during the execution of the work. In no case will any work be paid for which is performed in excess of such requirements. The work shall also be accomplished in accordance with the Specifications.

ARTICLE 54. DIMENSIONS AND SCHEDULES

- 54.01 The Contractor will be required to check all dimensions and quantities shown on the drawings or schedules given to him by the Project Engineer. The Contractor shall notify the Project Engineer of all errors therein which he may discover by examining and checking the same. The Contractor shall not take advantage of any error or omission in these specifications, drawings and schedules. The Project Engineer will furnish all instructions should such error or omission be discovered and the Contractor shall carry out such instructions as if originally specified.

ARTICLE 55. PROTECTION FROM STORM

- 55.01 Should storm warnings be issued, the Contractor shall take every practicable precaution to minimize danger to persons, to the work and to adjacent property. These precautions shall include closing all openings; removing all loose materials, tools and/or equipment from exposed locations; and removing or securing scaffolding and other temporary work.
- 55.02 The Contractor shall provide measures to prevent stormwater runoff from entering excavation areas.

ARTICLE 56. PROTECTION OF WORK AND MATERIALS

- 56.01 The Contractor shall assume full responsibility for the protection of the work and materials during the progress of construction, and until final acceptance of the Project by the City, against loss or damage by any cause or agency. The Contractor shall, at his own expense, provide efficient means for such protection.

ARTICLE 57. FURTHER SAFEGUARDS

- 57.01 In case the City or the Project Engineer shall at any time be dissatisfied with the means provided by the Contractor for any aforesaid protection of the work or of any other properties, the City or the Project Engineer may order additional measures and precautions for that purpose. The Contractor, at his own expense, shall immediately comply with such orders and carry them out.

ARTICLE 58. FIRST AID TO INJURED

- 58.01 The Contractor shall keep on site, ready for immediate use, all articles necessary for giving first aid to injured employees. He shall also provide arrangements for the immediate removal and hospital treatment of any injured employee who may require such treatment.

ARTICLE 59. CONFORMANCE WITH DIRECTIONS

- 59.01 The Project Engineer may make alterations in the lines, grades, forms, dimensions or materials to be used in the project, or any part thereof, either before or after the commencement of construction. If such alterations diminish the quantity included in any item of work to be done and paid for at a unit price, the Contractor shall have no claim for damages or for anticipated profits on the work thus dispensed with. If the changes increase the quantity included in any such item, such increase shall be paid for at the stipulated unit price.

ARTICLE 60. COMPETENT HELP TO BE EMPLOYED

- 60.1 The Contractor shall employ an experienced foreman, craftsmen and other workmen competent in the work in which they are to be engaged. All work shall be accomplished by able, skilled and competent personnel. If any person employed on the work by the Contractor shall appear to be incompetent or unreliable in any way, he shall be discharged immediately upon the request of the Project Engineer and shall not be again employed upon the work.

ARTICLE 61. STREETS AND SIDEWALKS TO BE KEPT OPEN

- 61.01 The Contractor shall keep the street and sidewalks in which he may be working open at all times to pedestrian and vehicular traffic. If, in the opinion of the City or the Project Engineer, the interest of abutters and the public requires it, the Contractor shall bridge or construct plank crossings over trenches at street crossings, roads or private ways. The Contractor shall conduct his work for this project in such manner as the City or the Project Engineer may direct from time to time. No sidewalk shall be obstructed where it is possible to avoid it. No additional payment shall be made to the Contractor for such work.
- 61.02 The Contractor shall provide all necessary fire crossings at principal intersections or ways usually traveled by fire apparatus. The Contractor shall make provision for the passage of fire apparatus to the work area, including along the line of pipeline installations.
- 61.03 All work shall be conducted in such a manner as to create minimum interference with existing businesses and commercial establishments. Such establishments shall be allowed to conduct business at all times during the construction.
- 61.04 The Contractor shall be responsible for taking all steps necessary to minimize dust emanating from the project and for keeping the streets free of the accumulation of sand and other similar materials.

ARTICLE 62. LIGHTS, BARRIERS, FENCES, WATCHMEN AND INDEMNITY

- 62.01 The Contractor shall put up and maintain such barriers, fences, lighting, and warning lights, danger warning signals and signs as will prevent accidents during the construction. The Contractor will protect the work and will insure the safety of the personnel and of the public at all times and places. The Contractor shall defend, indemnify and save harmless the City its agents in every respect from any injury or damage whatsoever caused by any act, omission or neglect of the Contractor or his subcontractors, or their servants or agents. Such indemnification shall also include any claims arising out of failure to erect and maintain sufficient railing or fencing as required by Section 13a-111 of the Connecticut General Statutes. The fact that the City may retain

City of Waterbury

control of the premises, or that the City, or its agents, may take action to erect or maintain railings or fencing shall not relieve the Contractor's obligations hereunder.

- 62.02 The Contractor shall furnish, maintain and use all necessary safety devices; follow all such safety practices in the prosecution of the work and shall adopt, follow and maintain such additional safety measures as, in the opinion of the Project Engineer, are conducive to safe operation by the Contractor. The Contractor shall cause his subcontractor(s) to also adopt, follow and maintain these measures. All of this shall be done at the Contractor's or subcontractor's own expense. The City shall have the right to order any or all work suspended where, in the opinion of the City, such work is not being carried on in a safe and proper manner or where persons or property are not being properly protected or safeguarded. Such work shall not be resumed until the City's requirements have been met and the City or Project Engineer has directed that work be resumed. Any work so suspended shall be at the Contractor's expense.
- 62.03 In addition to the above, when as is necessary or when required by the City and/or the Project Engineer, the Contractor shall post signs and shall employ watchmen or flagmen for the direction of the traffic at the site and for excluding unauthorized persons from the site at all times. The Contractor will not be paid additional compensation for this work.
- 62.04 At all times the Contractor shall be responsible for excluding all persons from land within easement areas and all persons not directly connected with the work or authorized by the City and/or the Project Engineer to be within the project limits.

ARTICLE 63. WORK OUTSIDE REGULAR HOURS

- 63.01 Night work or work on Saturdays, Sundays or legal holidays requiring the presence of the City, Project Engineer or an Inspector will not be permissible except in the case of emergency and then only upon approval of the Project Engineer. Should it be desired or required for by the City or Project Engineer to operate an organization for continuous night work, the lighting, safety and other facilities that are deemed necessary for performing such night work shall be provided by the Contractor. For night work on Saturdays, Sundays or legal holidays, if any be performed, the Contractor will receive no extra payment. Compensation for such work shall be considered as having been included in the prices stipulated for the appropriate items of work as listed in the bid.

ARTICLE 64. BUS LINE INTERFERENCE

- 64.01 Whenever it may be necessary to interfere with any bus lines, notice shall be given to the corporation or agency owning the same. A reasonable amount of time shall be given to said organization in order to rearrange their schedule(s) as may be necessary.

ARTICLE 65. COLD WEATHER WORK

- 65.01 The Project Engineer will determine when low temperature conditions are unfavorable for work and may order the work, or any portions of it, suspended whenever, in his opinion, the conditions are not such as will insure first class work.
- 65.02 All methods and materials used in the performance and for the protection of the work in cold weather shall be subject to the approval of the Project Engineer. The Contractor shall take the necessary precautions to protect the work from damage and to remove ice and frost from materials. The removal shall include all necessary heating and the additional removal of any resultant water. The Contractor shall also supply any required sand and/or coarse aggregate required to prevent slipping on ice.
- 65.03 Except for specific work for which the City has issued a Certificate of Partial Acceptance, the Contractor shall be responsible for maintaining the project roadways, sidewalks, ramps, driveway aprons and asphalt pathways from the time of contract signing until final acceptance of the Project by the City. This responsibility will include snow and ice removal, sanding and mechanical sweeping, and patching with materials approved by the Project Engineer for all roadways, sidewalks, ramps, driveway aprons and asphalt pathways, etc. within the project limits.
- 65.04 The Contractor shall not continue road excavation after bituminous concrete plants have shut down for the

City of Waterbury

winter. At that time, the Contractor shall request a "winter shutdown". The Contractor shall receive no extra payment for any labor, apparatus, tools or materials necessary to comply with the above requirements, but compensation shall be construed items of work as listed in the bid proposal/form.

ARTICLE 66. BLASTING AND EXPLOSIVES

- 66.01 No blasting shall be allowed without the Contractor's securing of a permit and permission from the office of the Waterbury Fire Marshall. The Marshall's office is located at 185 South Main Street, Garden Level, (1 Jefferson Square), Waterbury, CT 06702 Phone: (203) 597-3452. The Marshall's office must be advised between 7:00 AM and 10:30 AM of each day's blasting schedule.
- 66.02 Explosives for blasting shall be stored, handled and used in accordance with the laws, ordinances and regulations of the State of Connecticut; with all local regulations and with such other additional regulations as the City Representative may require. Blasting shall be conducted so as not to endanger persons or property. The Contractor shall be responsible for, and shall make good any damages of whatever nature caused by blasting or accidental explosions.
- 66.03 The Contractor shall also adhere to any additional conditions imposed by the Fire Marshall's office. Additionally, the Contractor shall have a pre-blast survey conducted of the adjacent area(s) at no cost to the City.
- 66.04 Steel or rubber matting shall be used at all blast sites where required by the Bureau of Fire Prevention. Any blast or shot involving more than 99 pounds of explosives must be monitored by the use of seismographs. All seismographs are at the expense of the Contractor. Wire and debris must be cleared from all areas.
- 66.05 The Contractor shall notify each utility with facilities in proximity to the site of such blasting operations, and any other individuals and entities that may be affected thereby of the Contractor's intention to use explosives; and such notice shall be given sufficiently in advance of any blasting to enable such affected parties to take steps to prevent such blasting from injuring persons or property. Such notice shall not relieve the Contractor of responsibility for damage resulting from its blasting operations.
- 66.06 Where blasting is required subsequent to commencement of construction, insurance, as required by the City's Risk Manager shall be obtained by the Contractor, and approved by the City's Risk Manager.

ARTICLE 67. TUNNELING

- 67.01 Tunneling will not be permitted without the express written consent of the City.

ARTICLE 68. RESERVED MATERIALS/EXCAVATED MATERIALS

- 68.01 Materials excavated from trenches and excavations and those used in the construction of the work shall be deposited in such a manner so that they not endanger persons or the work. Materials shall also be deposited in such a manner that free access may be had at any time to all hydrants and gates near the work. The materials shall be kept trimmed-up so to be of as little inconvenience as possible to public travel or to adjoining tenants. All excavated materials not approved for backfill and/or fill; all surplus material; all rock and all boulders resulting from excavations shall be removed and satisfactorily disposed of off the site by the Contractor at no additional cost to the City.
- 68.02 Any excavated material not used in the installation of contracted items shall be removed from the site and legally disposed of by the contractor.

ARTICLE 69. OBSTRUCTIONS AND CROSSOVERS

- 69.01 Whenever any trench or other excavation obstructs pedestrian and/or vehicular traffic in or to any public street, private driveway or property entrance or to private property, the Contractor shall employ such means as may be necessary to maintain pedestrian and vehicular traffic and access. The Contractor shall construct and maintain suitable plank crossings and bridges to carry essential traffic in or to the street, driveway or property in question as specified or as directed. These crossings shall be maintained for as long as it is not expedient to backfill the excavation or until such time as sufficient, supportive backfill may be placed. No additional payment will be

made for this work.

- 69.02 Movement of construction equipment and all other vehicles and loads over and adjacent to any slotted drain pipe shall be done at the Contractor's risk. Any pipe or backfill which becomes damaged or disturbed through any cause shall be replaced or repaired as directed by the City at the expense of the Contractor and at no cost to the State. Suitable temporary crossovers consisting of steel plate or other materials approved by the City shall be employed for a minimum of 7 consecutive calendar days following concrete backfill operations in all areas where vehicular traffic must be maintained or until such time as the pipe installation will withstand loading without damage. All concrete surfaces shall receive a protective coating. End cap installation shall be as recommended by the manufacturer.

ARTICLE 70. DIRECTIONAL SIGNS AND LIGHTS

- 70.01 Suitable signs, lights and such required items to direct traffic shall be furnished and maintained by the Contractor. No additional payment shall be made for this work.

ARTICLE 71. MAINTENANCE OF WORKPLACE

- 71.01 The Contractor must keep streets and premises free from unnecessary obstructions, debris and all other materials. The City or Project Engineer may, at any time, order all equipment, materials and surplus from excavations to be removed from the work area. Debris and all other materials lying outside of the working area shall be promptly removed. Should the Contractor fail to remove such material within 24 hours of notice to remove, the City or Project Engineer may cause any or all of said materials to be removed by others. The cost of this removal shall be deducted from any monies, which may be, or may become, due the Contractor under the Contract. In special cases, the City or Project Engineer may cause such materials to be removed without prior notice.

ARTICLE 72. OPERATIONS AT SEVERAL POINTS

- 72.01 The Contractor may carry on the work simultaneously at more than one point only if, in the opinion of the City or Project Engineer, such action is acceptable and is necessary to insure completion of the work within the specified time.
- 72.02 The Contractor's Construction Progress Schedule shall be adjusted to provide for work being simultaneously conducted at more than one point (location) at the site or sites.

ARTICLE 73. INTERFERENCE WITH EXISTING STRUCTURES

- 73.01 Whenever it may be necessary to cross or to interfere with existing culverts, drains, sewers, water pipes or fixtures, guard rails, fences, gas pipes or fixtures or other structures needing special care, due notice shall be given to the City or Project Engineer. Work involving these items shall be done according to the City's or Project Engineer's directions. Whenever required, all objects shall be strengthened to meet any additional stress that the work herein specified may impose upon it. Any damages that may occur shall be thoroughly repaired. If so directed by the City or Project Engineer, the location of any existing work shall be changed to meet the requirements of the proposed work, if necessary, to leave all in good working order. The entire work shall be the responsibility of the Contractor and the work shall be done at no additional expense to the City.
- 73.02 The Contractor shall be responsible for repairing all broken or damaged mains or utilities, property markers, monitoring wells, and other existing structures to remain, or outside the Limit of Work, during the progress of the Work. The Contractor shall repair and shall be responsible for all damages to existing utilities and structures with no additional expense to the City. The Contractor shall contact the proper utility or authority to correct or make any changes due to utility or other obstructions during the prosecution of the work, but the entire responsibility and expense shall be with the Contractor.
- 73.03 All damaged items of work or items required to be removed and replaced due to construction shall be replaced or repaired by the Contractor to the complete satisfaction of the City and/or utility at no additional expense to the City.

ARTICLE 74. TURF, TOPSOIL AND OTHER REPLACEMENT ITEMS

- 74.01 Where the construction runs through cultivated or sodded lands, the Contractor shall stockpile the turf and topsoil separately and replace the same after the excavation is filled. The Contractor shall leave the land as nearly as possible in its original condition. Trees, fences, walls, walks and other items must not be damaged.

ARTICLE 75. MATERIALS

- 75.01 All materials furnished and used in the completed work shall be new, of best quality, workmanship, and design and shall be recognized as standard in good construction practices. Whenever a specification number or reference is given, the subsequent amendments (if any) shall be included. The standards set forth in the selection of materials and supplies are intended to conform to those standards adopted by the City. Preference in manufacture shall be given to familiarize the Contractor with the requirements of the Project Engineer when the occasion or choice of materials or supplies so demands.

ARTICLE 76. DEFECTIVE MATERIALS

- 76.01 No materials shall be laid, installed or used which are known to be, or which may be found to be, in any way defective. Notice shall be given to the Project Engineer of any defective or imperfect material. Defective or unfit material found to have been laid, installed or used shall be removed and replaced by the Contractor with unobjectionable material. This removal and replacement shall be made without additional expense to the City.

ARTICLE 77. INSPECTION AND TESTING OF FURNISHED MATERIALS

- 77.01 Unless herein provided otherwise, all materials furnished by the Contractor are subject to thorough inspections and tests by the Project Engineer. Any materials condemned or rejected by the Project Engineer as not conforming to the specifications may be branded or otherwise marked. Branded or marked material shall be, on demand, at once removed by the Contractor to a satisfactory distance from the site. Removed materials shall not again be brought upon or near to the work.

ARTICLE 78. SAMPLES AND ORDERING LISTS

- 78.01 Unless herein provided otherwise, the Contractor shall submit samples of the various materials used on the contract as required by the specifications for testing purposes. All ordering lists shall be submitted by the Contractor to the Project Engineer for approval and must be approved before the ordering of the materials.

ARTICLE 79. SANITARY CONVENIENCES

- 79.01 Adequate sanitary conveniences, properly secluded from public observation, for the use of workmen on the premises shall be provided and maintained by the Contractor in accordance with the requirements of local and State health authorities. These conveniences shall be maintained in such manner and at such points as shall be approved and their use shall be strictly enforced. Sanitary waste shall be treated and disposed of in a manner satisfactory to, and as directed by, the City and/or the local and State health authorities. Under no circumstances shall sanitary waste be allowed to flow on the surface of the ground or in the work area.
- 79.02 The cost of sanitary conveniences and the maintenance of same will not be paid for separately, but compensation will be considered to be included in the prices stipulated for the items of work as listed in the bid form.

ARTICLE 80. FINISHING AND CLEANING UP

- 80.01 In completing any backfilling operation, the Contractor shall replace all surface material to the satisfaction of the City. The Contractor shall then immediately remove all surplus material, all tools, and other property belonging to him. The Contractor shall leave the entire street or surrounding area free and clean, in good order and at no additional expense to the City. Backfilling and removal of surplus materials shall follow closely upon the completion of the work. The Contractor shall exercise special care in keeping rights-of-way and private and

public lands, upon which work is being performed, clean and free of debris at all times. The Contractor will remove tools and other property belonging to him when they are not being used.

- 80.02 In case the Contractor shall fail or neglect to promptly remove all surplus materials, tools and other incidentals after backfilling, or shall neglect to do required paving promptly, the City or Project Engineer may, after 24 hours notice, cause the work to be done and the cost thereof shall be deducted from any monies then or thereafter due the Contractor.

ARTICLE 81. RIGHTS OF ACCESS

- 81.01 Nothing herein contained or shown on the drawings shall be construed as giving the Contractor exclusive occupancy of the work area involved. The City or any other Contractor employed by the City, the various utility companies, contractors or sub-contractors employed by Federal, state or local government agencies involved in the general project or upon public rights-of-way, may enter upon or cross the area of work or occupy portions of it as directed or permitted. When the territory of one contract is the convenient means of access to the other, each contractor shall arrange his work in such manner as to permit such access and to prevent unnecessary delay in the work as a whole. Said access rights shall also include all Federal and state agencies and their representatives that have an interest in said project.

ARTICLE 82. WORK BY OTHERS

- 82.01 The City reserves the right to do any other work which may connect with, or become a part of, or be adjacent to the work embraced by this Contract, at any time, by contract work or otherwise. The Contractor shall not interfere with, nor obstruct in any way, the work of such other persons as the City may employ. The Contractor shall execute his own work in such a manner as to aid in the execution of work by others as may be required. No excavations or backfilling will be permitted if other work by the City will be affected.

ARTICLE 83. WORK WITHIN THE LIMITS OF PRIVATE PROPERTY

- 83.01 Particular attention is hereby directed to the fact that some of the work included under this Contract may have to be done within the limits of properties that are publicly or privately owned. The City, where necessary has, or will have, secured the necessary easements to these properties for construction purposes. The Contractor will be permitted to utilize the areas of the City's easements, subject to all of the conditions and requirements as they may affect the Contractor's operations. The Contractor shall conduct his operations and activities in the performance of the work with all such conditions and requirements as may be imposed by the City or Project Engineer.
- 83.02 All means and rights of ingress and egress to the work areas and all other areas required for work space, in addition to the City's easements, shall be the entire responsibility of the Contractor. All costs in connection therewith shall be considered to be included in the prices stipulated for the appropriate items of work as listed in the bid form.
- 83.03 The Contractor shall neither use nor occupy public or private lands outside the limits of the City's easements and rights-of-way unless written permission from the owner of the public or private lands have first been obtained. Copies of the written agreements shall be submitted to the Project Engineer prior to entering upon such lands. The Contractor shall be responsible for cooperating with, and for coordinating the prosecution of, the work of this Contract with the public and private property owner. Any abuse to the lands of the public and private property owner shall be immediately corrected by the Contractor, at the Contractor's expense, to the complete satisfaction of the property owner. The Contractor shall take such precautionary measure, as required by the City, to prevent further nuisances, interference or inconvenience to abutting property owners.
- 83.04 It shall be the Contractor's full responsibility to be familiar with the limitations imposed upon the work of construction within the various properties of public or private ownership and rights-of-way by existing occupancy or use. The Contractor will be required to make every effort to fully and satisfactorily protect trees, shrubs, lawns, gardens, fences, walks, driveways, structures and all and any other appurtenances of the property owners.

City of Waterbury

- 83.05 The Contractor shall provide adequate access to all walks, driveways, yards or structures: shall protect all work by the erection or placement of safety guards or barriers, lights and such other incidentals; and where required, shall construct temporary plank crossings or timbers to permit full use of private facilities at all times. All of these actions are to be performed at no additional expense to the City. All other applicable provisions for control of work within the areas of public travel set forth elsewhere herein shall also apply to work within the limits of private ownership.
- 83.06 The Contractor shall cooperate with the public and private property owners and shall also contact the City and Project Engineer for additional information regarding the requested (or required) length of time needed as a notice to be given to the public or private property owner before the Contractor enters their property to start the construction. In some cases, a certain time to start the work and a certain limited length of time may be required to complete the work on public and private property owners. Furthermore the contractor may be required to shutdown construction operations as necessary to prevent undo interference with the operation of private and public business within the project area.
- 83.07 Before proceeding with construction operations, the Contractor shall provide suitable and substantial gates or other approved forms of closing gap devices in every fence within the limits of the owner's easements through which the Contractor intends to move or pass equipment and materials. It is the responsibility of the Contractor to negotiate with the owner of each fence all of that owner's requirements, in addition to those specified above. It shall also be the responsibility of the Contractor to comply with all requirements as specified herein and as agreed to with the owner's in a manner satisfactory to the owner.
- 83.08 No separate payment will be made for the requirements specified under "WORK WITHIN THE LIMITS OF PRIVATE PROPERTY" and all cost in conjunction therewith shall be included in the prices stipulated for the appropriate items of work as listed in the bid form.

ARTICLE 84. LOADING

- 84.01 No part of the structures involved in this Contract shall be loaded during construction with a load greater than that calculated for the safety of the structure. Should any accidents or damage occur through any violation of this requirement, the Contractor will be held responsible. If necessary, the Contractor shall request, in writing, the allowable loading from the Project Engineer.

ARTICLE 85. COMPLETION OF WORK

- 85.01 In addition to the specified or described portions, all other work and all materials, equipment and labor of whatever description which are necessary or required to complete the work, or for carrying out the full intent of the drawings and specifications, as interpreted by the Project Engineer, shall be provided by the Contractor. Payment therefore shall be considered as having been included in the prices stipulated for the appropriate items of work as listed in the bid form.

ARTICLE 86. DUST AND SPILLAGE CONTROL

- 86.01 The Contractor shall exercise every precaution to prevent and to control dust arising out of all construction operations from becoming a nuisance. Water shall be provided and applied as required or as ordered by the Project Engineer for allaying dust conditions. Pavements adjoining excavations shall be kept swept and/or washed clean of excess excavated material wherever and whenever directed. Earth piles adjacent to excavations, earth stockpiles and surfaces of refilled excavations shall be kept moist at all times as directed. No extra payment will be made for providing the dust control measures and for conforming to the requirements specified above. Compensation therefor shall be considered included in the prices stipulated for the appropriate items of work as listed in the bid form.
- 86.02 The Contractor shall take appropriate measures to control the generation of dust from its activities. Water shall be provided and applied as required or as ordered by the Project Engineer for allaying dust conditions.
- 86.03 All vehicles utilized by the Contractor for delivery or removal of materials shall have appropriate covers to prevent spillage of material during transit.

ARTICLE 87. CARE OF THE WORK

- 87.01 The Contractor shall be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence concerning the prosecution of the work. The Contractor shall also be responsible for the proper care and protection of all material delivered and of all work performed until completion and final acceptance of the Project by the City, whether or not the same has been covered by partial payments authorized by the Project Engineer.

ARTICLE 88. EMERGENCY WORK

- 88.01 The Contractor shall file, with the City Engineer and the Project Engineer, if any, the name and telephone number of a person authorized by him who may be contacted regarding emergency work at the job site that may be required during non-working hours for reasons of public safety. This person shall be readily available and shall have full Authority to deal with any emergency that may occur.

ARTICLE 89. FIRE PREVENTION AND PROTECTION

- 89.01. All Federal laws (Occupational Safety and Health Act) and all state and municipal rules and regulations with respect to fire prevention, fire-resistant construction and fire protection shall be strictly adhered to by the Contractor. All work and facilities necessary therefore shall be provided and maintained by the Contractor in an approved manner.
- 89.02. All fire protection equipment (as per 89.01 above) shall be provided by the Contractor for the protection of the contract work including temporary work and adjacent property. Personnel experienced in the operation of the fire protection equipment and apparatus shall be available whenever work is in progress and at such other times as may be necessary for the safety of the public and of the work.
- 89.03. Open fires will not be permitted.

ARTICLE 90. PLANIMETER

- 90.01 For estimating quantities, where the computations of areas by analytic and geometric methods would be comparatively laborious, it is stipulated and agreed that the planimeter shall be considered an instrument of precision adapted to the measurement of such areas, as utilized by an engineer.

ARTICLE 91. SUPERINTENDENCE

- 91.01 During the entire duration of the project, the Contractor shall employ a competent superintendent in personal charge of the work. The superintendent shall be present during all phases of construction and shall have full authority to act for the Contractor. The superintendent shall be continued in this capacity full time for this project unless (1) the person ceases to be on the Contractor's payroll or (2) the person proves to be unacceptable to the City or Project Engineer. Instructions given to the superintendent and/or supervisory subordinates shall be considered as given to the Contractor. A chain-of-command listing shall be submitted by the Contractor to the City and Project Engineer and shall be adhered to in the temporary absence of the superintendent.

ARTICLE 92. CONTRACT ADMINISTRATION COSTS - OUTSIDE REGULAR HOURS

- 92.01 The working schedule shall be confined to a five (5) day week ending on Friday. The working day shall be any eight-hour period beginning no earlier than 7:00 AM and ending no later than 7:00 PM. Whenever the Contractor elects to perform work on Saturdays, Sundays or legal holidays observed by the City or to work in excess of the normal working hours stated above, the Contractor shall pay to the City the extra cost incurred by the City due to the increased cost of contract administration. Payment shall include all cost of inspection and administration for such Saturday, Sunday or legal holiday work or for work in excess of the normal working day, which the City is obligated to incur and for the extra expense involved in overtime work resulting from the performance of work on these days.

92.02 No work outside regular hours or overtime work shall be planned or executed without the approval of the City.

ARTICLE 93. DAILY REPORTS

93.01 The Contractor shall submit daily activity reports on an approved form for the duration of the project. The report shall indicate all personnel currently employed on the work, including each trade and every subcontractor; all equipment and whether that equipment was idle for the particular day; a general description of all work accomplished and any authorized extra work (time and material reports shall be submitted on separate forms).

ARTICLE 94. MATERIAL AND WORKMANSHIP

94.01 All materials and workmanship incorporated in the work covered by this Contract are to be of the highest grade of their respective kinds for the purpose intended. The Contractor shall furnish to the Project Engineer for approval the name of the manufacturer of machinery and mechanical or other equipment that the Contractor contemplates incorporating in the project together with their respective performance capacities and other pertinent information.

94.02 When required by the Specifications, or when called for by the City or Project Engineer, the Contractor shall furnish the required information for approval of all material that the Contractor contemplates incorporating in the work. Samples of material shall be submitted for approval to the Project Engineer when and as directed. Machinery, equipment and material installed or used without approval shall be at the risk of subsequent rejection.

ARTICLE 95. TEMPORARY WATER SUPPLY

95.01 In the event temporary water supply work is required, it shall be provided in accordance with the requirements of the Waterbury Water Bureau and all local and state health authorities. The Contractor shall provide and maintain facilities for an adequate supply of water suitable for use for construction purposes and for domestic use as required for the work of this Contract. The cost of all work, materials, equipment, appurtenances and accessories necessary for providing supplies of water at the site, including the cost of all water consumed, shall be borne by the Contractor.

95.02 Upon completion to the work of this Contract, and before final acceptance of the Project, the Contractor shall remove all temporary piping and appurtenant work used for the temporary water supply.

ARTICLE 96. FITTING AND COORDINATION OF WORK

96.01 The Contractor shall be responsible for the proper fitting of all work and for the coordination of operations of all trades, subcontractors or material suppliers engaged in the work. The Contractor shall be prepared to guarantee to each of his subcontractors the dimensions for which they may require for the fitting of their work to all surrounding work. The Contractor shall do, or shall cause his agents to do, all cutting, fitting, adjusting and patching necessary to make the several parts of the work come together satisfactorily and properly and to fit the work to receive, or to be received by, the work of other contractors.

ARTICLE 97. ARCHEOLOGICAL FINDS

97.01 During the life of this Contract, in the event that any articles such as "charcoal", "bone", "shell", "cultural objects", "fire-cracked stones", "stone flaking material." or any other such related items of historical significance are discovered on the project, the Contractor is required to notify:

- (1) The City
- (2) Project Engineer or Inspector

ARTICLE 98. EXCAVATIONS NEAR UNDERGROUND UTILITIES

- 98.01 In conformance with Section 16-345 of the Regulations of the Department of Public Utility Control, the Contractor shall not start any excavation and/or blasting of rock activity without first having ascertained the location of all such utilities in the area. The Contractor shall notify the Public Utilities Regulatory Authority (PURA) "CALL BEFORE YOU DIG" (Toll Free 1- 800-922-4455) at least two (2) full days in advance (excluding Saturday, Sunday and legal holidays), but no more than thirty (30) days before starting any such work. Such notice shall include the name, address and telephone number of the persons/agency performing the work, the date, location and type of excavation.
- 98.02 The PURA should immediately transmit such information to the utility companies whose facilities may be affected. Utility companies receiving notice should mark-up the locations of their facilities on the work site. If they have no facilities in the area, they shall so inform the Contractor. If the Contractor does not receive any information or marked-up locations on the work sites, the Contractor shall contact PURA again to verify that the utility companies have responded to the initial call. Under no circumstances will the Contractor be allowed to start any excavation and/or blasting work prior to obtaining all necessary information regarding the location of underground utilities at the site. It is the Contractor's responsibility to have all utilities marked on the work sites prior to starting the work.

ARTICLE 99. WATER QUALITY OF WELLS

- 99.01 The Contractor shall perform all tests required by the State Health Department on all water supply wells and reservoirs where directed by the City or Project Engineer before and after construction. All labor, materials and testing shall be paid by the Contractor at no cost to the City.

ARTICLE 100. WORK IN STATE HIGHWAYS

- 100.01 If any of the work under this Contract is in a state highway the Contractor shall obtain all required permits at his own expense. The Contractor shall perform the work in accordance with the terms and conditions stipulated by the Connecticut Department of Transportation (ConnDOT) and/or as required by ConnDOT inspectors. The Contractor must provide such bonds, security and insurance as may be required to obtain such permits.
- 100.02 In the event the City, or the City and the Contractor jointly, are required to obtain any permits, including detour permits, the Contractor shall be familiar with the conditions of the permits and shall be held responsible for compliance with all the requirements of the permits and all specifications attached thereto, as if the permits were held solely by the Contractor.
- 100.03 Whenever State inspectors, flagmen or other costs are incurred as a condition to obtaining permits, the Contractor shall be responsible for payment of these costs with no reimbursement from the City.
- 100.04 The Contractor shall conform to all ConnDOT requirements for materials and construction methods for all work within state highways. Sheeting or an adequate trench box may be required in all trenching operations to confine trench widths and to protect State facilities. Additional pavement replacement may be required to properly restore the roadway surface.
- 100.05 The cost of all labor, materials and equipment necessary to conform to CONNDOT requirements for work in, or adjacent to, state highways, including work not specifically stated in the Contract Plans and Specifications, shall be the sole responsibility of the Contractor and shall not be reimbursed by the City. Therefore, the Contractor is informed to evaluate all CONNDOT requirements for the project prior to submitting the Bid for the project and to include these costs in his bid prices.

ARTICLE 101. EXISTING INSPECTION REPORTS

- 101.01 Any existing inspection reports concerning the project which have been prepared by or for the City or Project Engineer will be made available for the Contractor's information.

ARTICLE 102. TEST REPORTS; CERTIFICATES OF COMPLIANCE AND SHIPPING LISTS

102.01 Except where expressly provided otherwise in the Contract Documents, the Contractor shall furnish to the Project Engineer the material manufacturer's notarized test reports and methods of testing by an approved independent laboratory in order to show compliance of all materials furnished with all specification requirements, the reports shall also contain manufacturer's notarized certificates of conformance stating that all materials furnished under these Specifications conform with all specification requirements; that each shipment of materials shall be accompanied by the manufacturer's notarized certificate of conformance and that a shipping list itemizing the amounts of each shipment shall accompany each shipment.

ARTICLE 103. CLEANING FINISHED WORK

103.01 After the work is completed, the sewers, manholes and structures shall be carefully cleaned free of dirt, broken masonry, mortar, construction and other debris and shall be left in first class condition, ready for use. All temporary or excess material shall be disposed of and the work left broom-clean to the satisfaction of the Project Engineer.

ARTICLE 104. COMPLIANCE TO ACTS AND EXECUTIVE ORDERS

104.01 If this Contract is federally assisted and the Contractor must comply with all applicable statutes, acts, executive orders and regulations, including without limitation:

- (a) **TITLE VI, CIVIL RIGHTS ACT OF 1964** Provides that no person in the United States shall on the grounds of race, color or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity, receiving Federal financial assistance.
- (b) **SECTION 3, HUD ACT OF 1968** Provides that, to the greatest extent feasible, opportunities for training and employment shall be given to lower income residents of HUD-assisted project areas, and that contracts for work in connection with such projects be awarded to business concerns which are located in, or are owned in substantial part by persons residing in the area of the project.
- (c) **LABOR STANDARDS** Compliance with Davis Bacon Act, as amended (40 U.S.C. 267a-5) Contract Work Hours and Safety Standards Act (40 U.S.C. 327-333) 13.0.

ARTICLE 105 SEMI-FINAL INSPECTION / SUBSTANTIAL COMPLETION

- 105.1 Contractor shall notify the Project Engineer when it believes the work (or a portion thereof) is Substantially Complete and shall file with the City a written, notarized "Contractor's Affidavit of Substantial Completion" and request a Semi-Final Inspection of the work.
- 105.2 Contractor, prior to requesting Semi-Final Inspection, shall complete and submit the following, listing known exceptions in its Affidavit of Substantial Completion:
- i. Include supporting documentation for Substantial Completion as indicated in these Contract Documents.
 - ii. Advise City of outstanding permit closure requirements. Submit certificates of inspections conducted, reports, and other documentation required by local or state authorities.
 - iii. Where required, submit photographs, specific warranties, final certifications, and similar documents.
 - iv. Provide Partial Waiver of Lien from each Subcontractor, supplier and the Contractor. All money due to Subcontractors and suppliers may be withheld from payment to the Contractor until Waivers of Lien indicate no money owed.
- 105.3 Subsequent to City's receipt of Contractor's Affidavit of Substantial Completion, Project Engineer will either proceed with Semi-Final Inspection or advise Contractor of prerequisites not fulfilled.
- 105.4 Following Semi-Final Inspection, Project Engineer will either inform the City to prepare a Certificate of Substantial Completion, or advise Contractor of work that must be performed prior to issuance of said certificate, and repeat the inspection when requested and assured that the work has been substantially completed in accordance with the Contract

Documents.

- 105.5 Contractor's payment requisition coincident with, or first following the date claimed as Substantially Complete, shall be processed in the same manner as a partial payment requisition and shall show either 100% completion for the work claimed as Substantially Complete, and/or list incomplete items, value of incompleteness, and reasons for being incomplete.

ARTICLE 106. CITY'S CERTIFICATE OF SUBSTANTIAL COMPLETION

- 106.1 For the portion of the work determined to be Substantially Complete, the City shall issue "City's Certificate of Substantial Completion" which shall establish the date of Substantial Completion by the Contractor.
- 106.2 Concurrently, the Project Engineer shall prepare a list (the "punchlist") of remaining items of work to be completed and/or deficiencies to be addressed.
- 106.3 Prior to Final Inspection, the Contractor shall address and complete all "punch list" items.
- 106.4 The City reserve the right to modify, amend and/or update the "punchlist," as it deems necessary.

ARTICLE 107. FINAL INSPECTION

- 107.1 Contractor shall notify the Project Engineer when it believes the Project is Finally Complete and shall file with the City a written, notarized "Contractor's Affidavit of Final Completion" and request a Final Inspection of the work by the Project Engineer.
- 107.2 Subsequent to receipt of Contractor's Affidavit of Final Completion, Project Engineer will either proceed with Final Inspection and/or advise Contractor of prerequisites not fulfilled.
- 107.3 At the time of submission of its Affidavit of Final Completion, Contractor, as required by the Contract Documents and/or required for completion of the Project as determined by the City, shall also provide and/or submit the following, listing known exceptions (if any), in its Affidavit of Final Completion:
- i. Supporting documentation required by the Contract Documents not previously submitted and accepted.
 - ii. Discontinue and remove, as appropriate, temporary facilities and services, along with construction tools and facilities, and similar elements.
 - iii. Evidence of final, continuing insurance coverage complying with insurance requirements, including certificates of insurance for products and completed operations where required.
 - iv. Reports and forms required by Federal and/or State funding sources, as required thereby.
 - v. A copy of City's final punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by the Project Engineer.
 - vi. Any final documents requested by Project Engineer.
 - vii. If applicable, submit final liquidated damages settlement statement, acceptable to City.
 - viii. Photographs, specific warranties, final certifications, and similar documents.
 - ix. All required As-Builts, Record Drawings and Documents and Surveys, in number and formats specified.
 - x. Provide Final Waiver of Lien from each Subcontractor, supplier and the Contractor. All money due to Subcontractors and suppliers shall be withheld from payment to the Contractor until Waivers of Lien indicate no money owed.
 - xi.

ARTICLE 108. FINAL ESTIMATE

- 108.01 If the Work is determined Finally Complete, a Final Estimate shall be prepared showing the total due Contractor under the Contract less the retainage held by the City. This Final Estimate shall show the final estimate of quantities. Should this estimate of quantities show a decrease from the approximate estimate of quantities, then such variations will be computed at the unit prices bid and reflected in the Final Estimate by adding or deducting said amounts from the gross sum bid.
- 108.02 The Final Estimate shall reflect the final Contract Amount, all prior City payments to the Contractor, all adjustments to the Contract Amount, all retainage held by the City, any liquidated damage amounts, all unused amounts of any Owner Controlled Allowances and of all Cash Allowances, all adjustments for Alternates accepted/declined by the City and

final amount of any holdback(s) by the City.

108.03 All certificates of payments and estimates, upon which partial payments may have been made being merely estimates, shall be subject to correction in this Final Estimate.

ARTICLE 109. SEMI-FINAL PAYMENT

109.01 Based upon the amounts and qualities set forth in the Final Estimate, the Contractor shall submit its Semi-Final Payment Application requesting the total due under the Contract, less all retainage held by the City.

109.02 This Semi-Final Payment Application shall be certified as to its correctness by the Project Engineer and will be processed in the same manner as the partial payment requests.

ARTICLE 110. LIMITED ACCEPTANCE OF WORK

110.01 Limited Acceptance of Portion(s) of the Work shall be at City's sole discretion and shall be subsequent to issuance of City's Certificate of Substantial Completion for such work and shall relieve Contractor of responsibility for the physical aspects of said portion of the work; however such termination of responsibility for the physical aspects of the work in no way affects or diminishes any other contractual requirements governing the work so accepted, or the acceptance of the Project as whole.

ARTICLE 111. FINAL COMPLETION / CITY'S CERTIFICATE OF FINAL COMPLETION

111.01 Final Completion of the Project by the City shall occur when:

- a. All deficiencies identified in its Affidavit of Final Completion have been corrected/addressed.
- b. All Project work and services have been completed to the satisfaction of the City; and Semi-Final Payment has been made to the Contractor.
- c. Contractor has submitted its Final Payment Application and Project Engineer has certified it as to correctness. Contractor's Final Payment Application shall be solely for release of all retainage held by the City.
- d. Upon issuance to Contractor by City of City's Certificate of Final Completion.

111.02 Issuance of City's Certificate of Final Completion shall establish the date of Final Completion by the Contractor and shall be a prerequisite to Project Acceptance and Final Payment by the City.

ARTICLE 112 FINAL PAYMENT / PROJECT ACCEPTANCE

112.01 Subsequent to issuance of the City's Certificate of Final Completion, the City shall process Contractor's Final Payment Application, which shall be solely for release of all retainage held by the City.

112.02 Contractor's Final Payment Application shall be certified as to its correctness by the Project Engineer and shall be based on City's Certification of Contractor's Final Payment Application.

112.03 If a Certificate of Compliance is required by the Contract Documents, Final Payment shall not be released until such certificate has been issued and delivered to the City.

112.04 Subsequent to issuance of Final Payment to the Contractor, the City shall issue its written notice of its Acceptance of the Project to the Contractor.

ARTICLE 113. ACCEPTANCE OF FINAL PAYMENT

113.01 The acceptance by the Contractor, or by anyone claiming by or through the Contractor, of Final Payment shall constitute and operate as a release for the City from any and all claims of any liability to the Contractor for anything, theretofore done or furnished for or relating to or arising out of the work done thereunder, and for any prior act of neglect, default on the part of the City or any of its officers, agents, or employees unless the Contractor serves a detailed and verified statement of claim upon the City not later than forty (40) consecutive calendar days after mailing of such Final Payment. Such statement shall specify the items claimed. Should the

Contractor refuse to accept the Final Payment as tendered, it shall constitute a waiver of any right of interest thereon.

ARTICLE 114. 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

114.01 The Contractor, or any subcontractors working on the project, shall provide written proof that any and all employees working on the project jobsite have successfully completed the 10-Hour OSHA Construction Safety and Health Course.

END OF SECTION

SPECIAL CONDITIONS

SC-i

INDEX TO SPECIAL CONDITIONS

ARTICLE	PAGE
1. SPECIAL NOTE	SC-1
2. PERMITS	SC-1
3. CONSTRUCTION STAKE OUT	SC-1
4. SITE RESTORATION	SC-1
5. CITY NOTIFICATION – BACKFILLING	SC-1
6. PUBLIC USE OF EXISTING PUBLIC FACILITIES	SC-1
7. ACCESS TO PRIVATE & PUBLIC PROPERTY	SC-2
8. WINTER SHUTDOWN	SC-2
9. CHANGES TO THE WORK	SC-2
10. LAYDOWN AREAS	SC-2
11. ADDENDUM TO GENERAL CONDITION ARTICLES 11 & 95	SC-3
12. ADDENDUM TO GENERAL CONDITION ARTICLE 1	SC-3
13. CITY DESIGN STANDARDS, SPECIFICATIONS AND DETAILS	SC-3
14. ADDENDUM TO GENERAL CONDITION ARTICLE 2	SC-3
15. ADDENDUM TO GENERAL CONDITION ARTICLE 8, 9, 10	SC-3
16. MOBILIZATION AND DEMOBILIZATION	SC-3
17. IMPROVEMENT LOCATION AND TOPOGRAPHICAL SURVEY	SC-3
18. ADDENDUM TO GENERAL CONDITION ARTICLE 93	SC-3
19. INTENT OF DRAWINGS	SC-3
20. ADDENDUM TO GENERAL CONDITION ARTICLES 31	SC-4

City of Waterbury

ARTICLE 1. SPECIAL NOTE

These Special Conditions shall be subject to all requirements of the Contract, amend or supplement the General Conditions, and modify all Contract Documents which follow them numerically, as set forth in Section 1.2 of the Contract. The terms used in these Special Conditions which are defined in the Contract or General Conditions have the meanings assigned to them in said documents. All provisions of the General Conditions which are not so amended or supplemented remain in full force and effect.

This section applies equally and specifically to all contractors supplying labor and/or equipment and/or materials for this Project; and to all of the Contract Documents. All Contract Documents apply to this Section. Where items of the Contract are repeated, it is intended to call particular attention to or qualify them; it is not intended that any other parts of the Contract shall be assumed to be omitted if not repeated herein.

Unless expressly provided for otherwise, and regardless if not expressly stated in each Article herein, the costs associated with all work and/or services required under the Special Conditions shall be considered as included in the overall cost of the Contract items. No separate or additional payment will be made for this work and/or services.

ARTICLE 2. PERMITS

The Contractor shall obtain all applicable Federal, State and local permits and registrations necessary to complete the project at no additional cost to the City. The cost of obtaining and maintaining the permits shall be included in the Contract Amount.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations including building and fire safety codes relating to the performance of the Work.

ARTICLE 3. CONSTRUCTION STAKE OUT

Construction stake out is not required for this Project.

ARTICLE 4. SITE RESTORATION

The Contractor will blend the new work into the existing ground surface and replace any adjacent disturbed materials that may have been damaged or irregular do to construction and/or new installations.

ARTICLE 5. CITY NOTIFICATION - BACKFILLING

Before backfilling any excavated area and after an improvement has been installed the contractor shall notify the City when a backfill operation is to occur. A City representative will make one observation for each excavated area.

ARTICLE 6. PUBLIC USE OF EXISTING PUBLIC FACILITIES

The Contractor shall limit his work area to the site of the construction and its immediate vicinity. No equipment or construction activities are allowed on the existing public facilities, such as athletic fields without prior written approval by the City. No equipment or storage is allowed outside of the designated construction area without prior written approval by the City. The number and location(s) of storage containers shall be approved by the City.

City of Waterbury

ARTICLE 7. ACCESS TO PRIVATE & PUBLIC PROPERTY

Throughout the duration of Construction, the Contractor shall maintain access to all businesses, places of worship, schools and private residences, etc. in the project area. Particular attention is noted for funeral processions, wedding processions, and other similar activities.

Where required by the City, Contractor shall also conduct regular coordination meetings with Residents, Owners and Operators of businesses and other operations to coordinate active work periods.

Contractor shall also provide and place temporary ramps at driveways or other locations where, in the opinion of the City, there is a need to provide safe access until the permanent handwork is completed.

ARTICLE 8. WINTER SHUTDOWN

No 'winter shutdown' will be permitted for this Project.

Any 'winter shutdown' authorized under this Article shall not change the "Contract Time" for the project. Any extension of the Contract Time must be by formal amendment to the Contract in accordance with the provisions of the Procurement Ordinance of the City of Waterbury.

ARTICLE 9. CHANGES TO THE WORK

If the City authorizes changes to the work, the following shall apply:

The cost for changes to the work shall be either on a firm proposal agreed to by the City or based on a cost-plus-fee basis agreeable to the City. In the event the work is to be performed on a cost plus basis, the Contractor will perform, or cause to be performed by his subcontractors, such work at direct cost, plus the percentages set out below:

1. For work performed by the Contractor's own forces, direct cost plus Ten Percent (10 %).
2. For work performed by a subcontractor, the cost to the City shall be subcontractor cost to the Contractor, plus 5 %.

ARTICLE 10. LAYDOWN AREAS / MATERIAL STORAGE

A Laydown Area shall not impede traffic flow within the City streets. The Contractor may use these areas during construction and shall be required to restore any disturbed areas to a condition as good as or better than existing conditions.

Contractor shall also be required to clean up, restore, and make safe and usable all Laydown Areas as directed by the Engineer. This may include removing equipment, materials, tools, etc., from the any Laydown Area for a period to be determined by the City of Waterbury.

The City will not provide any staging area for Construction and/or Contractor operations. The Contractor shall provide its own staging/storage area. Lay down areas within the project's limits are allowed but require pre-approval from the City. In all cases, the Contractor shall be responsible for the protection of all materials, tools, etc. Materials received on site which are not immediately installed shall be carefully and securely stored. All materials used throughout work shall be neatly stacked so as not to obstruct the progress of the work or endanger the public, adjacent property owners and tenants or the City.

The Contractor shall provide its own storage facilities and in all cases be responsible for the protection of all materials, tools, etc. The number and location(s) of storage containers shall be approved by the City. Materials received on site which are not immediately installed shall be carefully and securely stored. All materials used throughout work shall be neatly stacked so as not to obstruct the progress of the work or endanger the public or the City or City's employees or

City of Waterbury

tenants. All deliveries of material, equipment, etc., shall be made to the Contractor and accepted only by him/her and only during working hours. City personnel will not receive or accept any materials or equipment, etc. at any time.

ARTICLE 11. ADDENDUM TO GENERAL CONDITIONS 11 and 95

Reference is made to General Condition Articles 11 – Temporary Utilities, and 95 – Temporary Water Supply. The Contractor shall be responsible for determining and supplying at no cost to the City all temporary utilities needed to maintain utility service to all adjacent property owners/tenants.

ARTICLE 12. ADDENDUM TO GENERAL CONDITION 1

Reference is made to General Condition Article 1 – Plans and Specifications at the Site; Record Documents. Marked up drawings and/or As-Built drawings will not be required for this Project.

ARTICLE 13. CITY DESIGN STANDARDS, SPECIFICATIONS AND DETAILS

The Contractor shall comply with all City design standards, specifications and details. To the extent that Technical Specification or Drawings conflict with City design standards, specifications, or details, City design standards, specifications and details shall control.

ARTICLE 14. ADDENDUM TO GENERAL CONDITIONS 2

Reference is made to General Condition Article 2 – Construction Progress Schedule. Reference is made to General Condition Article 2 – Construction Progress Schedule. For this project, Contractor shall not be required to provide a Sedimentation and Erosion Control Plan, a Water Control Plan and/or Environmental Protection Plan as may be outlined or referenced in the various Articles of these General Conditions.

ARTICLE 15. ADDENDUM TO GENERAL CONDITIONS 8, 9 and 10

Reference is made to General Condition Article 8 – Sedimentation and Erosion Control, Article 9 – Protection of Environmental Resources and Article 10 - Environmental Protection Plan. The requirements of Articles 8, 9 and 10 shall not apply to this project; however, the Contractor shall be responsible for any such requirements to the extent set forth in the Technical Specifications or elsewhere in the Contract Documents.

ARTICLE 16. MOBILIZATION AND DEMOBILIZATION

The costs of Mobilization and Demobilization for the project shall be included in the contract bid amount. No separate payment shall be made for Mobilization and/or Demobilization.

ARTICLE 17. IMPROVEMENT LOCATION AND TOPOGRAPHICAL SURVEY

Completion of an Improvement Location Survey is not required for this Project.

ARTICLE 18. ADDENDUM TO GENERAL CONDITIONS 93

In lieu of the daily reports required in Article 93 of the general conditions, the contractor shall provide said reports weekly.

ARTICLE 19. INTENT OF DRAWINGS

It is the intent of the Invitation to Bid (the “ITB”), the Bid Documents and the Contract Documents, including but not limited to the Drawings and Specifications, to call for finished, completed work. Any material or work not shown on the Drawings but mentioned in the Specifications, or vice versa, or any incidental accessories necessary to make the work complete and perfect in all respects, even if not particularly specified, shall be furnished, delivered and installed without additional expense to the City. Where discrepancies or variances occur between the Drawings and Specifications or within either of the Documents, or with any of the Contract Documents, the item

City of Waterbury

or arrangement of better quality, greater quantity or higher cost shall be included in the Contract price. The City shall decide on the item(s) and the manner in which the item(s) and/or work shall be performed or installed.

ARTICLE 20. ADDENDUM TO GENERAL CONDITION 31

Reference is made to General Condition Article 31 – Use of Premises and Removal of Debris. During the progress of the work, the Contractor shall keep the construction areas in a neat condition, free from accumulations of waste materials and rubbish. Lunch papers, bottles, lumber cut-offs, drinking cups and like rubbish shall be removed from the site daily. No alcoholic beverages will be permitted at the construction site(s).

On or before the completion of the work and before acceptance and final payment shall be made, the Contractor shall clean and remove, from the site and adjacent property all surplus and discarded materials, rubbish, and temporary structures and restore, in an acceptable manner, all property and leave the whole area in a neat and presentable condition.

END OF SECTION

CONSTRUCTION CONTRACT
for

Washington and Bunker Hill Elevator Additions

between

City of Waterbury

and

THIS CONTRACT, effective on the date signed by the Mayor, is by and between the CITY OF WATERBURY, City Hall, 235 Grand Street, Waterbury, Connecticut (the "City") and located at a State of duly registered (the "Contractor").

WHEREAS, the Contractor submitted a Proposal to the City in response to **Request for Proposal ("RFP") Number 7473 for Washington and Bunker Hill Elevator Additions**; and,

WHEREAS, the City accepted the Contractor's Proposal (as subsequently negotiated and revised) for **RFP Number 7473**; and,

WHEREAS, the City desires to obtain the Contractor's services for **Washington and Bunker Hill Elevator Additions** pursuant to the terms set forth in this Contract (the "Project").

NOW THEREFORE, THE PARTIES AGREE AND COVENANT AS FOLLOWS:

1. Scope of Services. The Contractor shall furnish all of the labor, services, equipment, materials, supplies, transportation, and incidentals necessary to complete the Project as specified in this agreement (also referred to herein as "Contract") and such shall be completed in a satisfactory manner, as reasonably determined by the City. All labor, services, equipment, materials, supplies, transportation, and incidentals shall comply with (i) any and all applicable local, state and federal laws, statutes, ordinances, rules and regulations, including without limitation all notice requirements thereunder, and (ii) generally accepted professional standards.

1.1. The Project consists of **Washington and Bunker Hill Elevator Additions** as detailed and described in the Proposal Documents in **Attachment A** and are hereby made material provisions of this Contract. **Attachment A** shall consist of the following, which are

attached hereto, are acknowledged by the Contractor as having been received, or otherwise hereby incorporated by reference as noted below, and all are made a part hereof:

- 1.1.1 RFP Number 7473** (acknowledged by the Contractor as having been received and incorporated by reference);
- 1.1.2 RFP Number 7473 Addendum #1**, dated (attached hereto);
- 1.1.3 Contractor's Proposal**, dated _____ and consisting of _____ pages, submitted in response to **RFP Number 7473** and Contractor's revised Price Proposal, dated _____ and consisting of _____ pages (all attached hereto);
- 1.1.4 Annual Statement of Financial Interests; Disclosure and Affidavit Re: Outstanding Obligations to the City; Debarment Certification; Corporate Resolution, Non-Collusive Affidavit** (incorporated by reference);
- 1.1.5 Certificates of Insurance** (attached hereto);
- 1.1.6 Performance Bond and Payment Bond** (attached hereto);
- 1.1.7 Technical Specifications** consisting of 595 pages (attached hereto);
 - 1.1.7.1 June 17, 2022 letter from Facility Support Services to Rosh Mangfour consisting of 3 pages re: Bunker Hill School
 - 1.1.7.1.1 Attachment A – Asbestos Inspection Certificate consisting of 2 pages
 - 1.1.7.1.2 Attachment B – Laboratory Analytical Results consisting of 8 pages
 - 1.1.7.2 June 17, 2022 letter from Facility Support Services to Rosh Mangfour consisting of 3 pages re: Washington School
 - 1.1.7.2.1 Attachment A – Asbestos Inspection Certificate consisting of 2 pages
 - 1.1.7.2.2 Attachment B – Laboratory Analytical Results consisting of 8 pages
 - 1.1.7.3 August 22, 2022 letter from Welti Geotechnical P.C. to Friar Architecture consisting of 4 pages re: Bunker Hill School
 - 1.1.7.3.1 Appendix Boring Log Plan and Test Boring log consisting of 3 pages
 - 1.1.7.4 August 22, 2022 letter from Welti Geotechnical P.C. to Friar Architecture consisting of 4 pages re: Washington School
 - 1.1.7.4.1 Appendix Boring Log Plan and Test Boring log consisting of 3 pages

- 1.1.8 Drawings consisting of XX sheets (attached hereto);
- 1.1.9 Special Conditions (Article 1 – Article ???) consisting of X pages (attached hereto);
- 1.1.10 General Conditions (Article 1 – Article ???) consisting of X pages (attached hereto);
- 1.1.11 State Wage Rate Documentation (attached hereto);
- 1.1.12 Any and all amendment(s) and Change Orders issued by the City after execution of Contract (incorporated by reference);
- 1.1.13 All applicable Federal, State and local statutes, regulations, charter and ordinances (incorporated by reference), and
- 1.1.14 All permits (including, but not limited to, City of Waterbury Building permit(s)) and licenses (incorporated by reference).

1.2. The entirety of **Attachment A** plus this executed instrument are together deemed the Contract Documents (hereinafter collectively referred to as "Contract Documents"). The City's record copy of the Contract Documents shall control and shall be effective and binding on the Contractor. In the event that any provision in the Contract Documents conflict with any other provision therein, the provision in the component part of the Contract Document first enumerated below shall govern over any other component part which follows it numerically.

- 1.2.1 Federal laws and regulations
- 1.2.2 State, and local laws, regulations, charter and ordinances
- 1.2.3 Contract Amendment(s) and Change Orders
- 1.2.4 Contract
- 1.2.5 Contractor's Price Proposal Form
- 1.2.6 Special Conditions
- 1.2.7 General Conditions
- 1.2.8 Technical Specifications
- 1.2.9 Drawings

2. Representations Regarding Qualification and Accreditation. The Contractor represents that its employees are licensed to perform the scope of work set forth in this Contract. The Contractor further represents that its employees have the requisite skill, expertise and knowledge necessary to perform the scope of work required under the terms of

this Contract, including any supplementary work and the City relies upon Contractor's representations.

2.1. Representations regarding Personnel. The Contractor represents that it has, or will secure at its own expense, all personnel required to perform the services under this Contract. Such personnel shall not be employees of or have any contractual relationship with the City, unless use of City employees or of personnel having a contractual relationship with the City is approved in writing. As set forth above, all the services required hereunder shall be performed by the Contractor or under its supervision and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under state or local law to perform such services.

2.2. Representations regarding Qualifications. The Consultant hereby represents that, to the extent required by Federal, State and Local statutes, regulations, codes, ordinances, and policies that the Consultant and/or its employees be licensed, certified, registered, or otherwise qualified, the Consultant and all employees providing services under this Contract, are in full compliance with those statutes, regulations and ordinances. Upon City request, the Consultant shall provide to the City a copy of the Consultant's licenses, certifications, registrations, etc.

3. Responsibilities of the Contractor. The Contractor agrees to properly implement the services required in the manner herein provided. The Contractor shall, in addition to any other responsibilities set forth in this Contract and the Schedules and Attachments hereto, perform the following coincident with the performance of this Contract:

3.1. Due Diligence Obligation. The Contractor acknowledges its responsibilities to examine and to be thoroughly familiar with the City's bid document, including, but not limited to the plans, specifications, drawings and any addenda thereto. The Contractor hereby warrants and represents that prior to the submission of its proposal during the bid process it reviewed or was afforded opportunity, by the City, to review all physical items, facilities, services and functions essential to the satisfactory performance of the services required ("Due Diligence") and thereby certifies that all such items facilities, services and functions are included in this Contract and thereby warrants that:

3.1.1 it conducted or had opportunity to conduct all due diligence prior to the submission of its bid and, accordingly, any additional costs, services or products resulting from the failure of the Contractor to complete Due Diligence prior to submission of its bid proposal shall be borne by the Contractor. Furthermore, the Contractor had the opportunity during the bid process to ask questions it saw fit and to review the responses from the City;

3.1.2 its failure or omission to make investigation and verification of data shall, in no way, be cause for future claim of ignorance of such data or conditions nor shall such failure to investigate and verify be the basis for any claim whatsoever, monetary or otherwise;

3.1.3 it is solely responsible for resolving any issues resulting from its failure to conduct due diligence and it shall assume any and all resulting costs it incurs during the Project;

3.1.4 it was responsible for specifying any changes and disclosing any associated new costs prior to submittal of its bid. In the event the Contractor failed to disclose any such new cost prior to the submittal of its bid, the Contractor hereby covenants that it shall remain solely responsible for, and shall absorb, those non-disclosed costs;

3.1.5 it has familiarized itself with the nature and extent of the Contract Documents, Project, locality, and with all local conditions and Federal, State and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Project;

3.1.6 it has given the City written notice of any conflict, error or discrepancy that the Contractor discovered in the City's proposal documents and other documents for **RFP Number 7473** (collectively "Proposal Documents");

3.1.7. it agrees that the Proposal Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Project;

3.1.8. it has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Scope of Services which were utilized in the preparation of the plans and specifications;

3.1.9 it has made or caused to be made examinations, investigations, measurements and tests and studies of any applicable reports and related data as it deems necessary for ensuring performance of the Scope of Services at the Contract Price within the Contract Time and in accordance with the other terms and conditions of the Contracts; and certifies no additional examinations, investigations, tests, reports or similar data are or will be required by Contractor for such purposes; and

3.1.10 The Contractor shall not take advantage of any obvious error or apparent discrepancy in the Contract. Notice of any error or discrepancy discovered shall be given immediately in writing to the City, who shall make such corrections and interpretations as it may deem necessary for the completion of the Project in a satisfactory and acceptable manner.

3.2. Safety. Contractor shall perform all work in a safe manner in full compliance with local, state and federal health and safety regulations. Contractor shall immediately

correct any dangerous condition caused by or resulting from its work. If it fails to correct, or to act diligently to correct, any condition which the City reasonably believes to be a hazard to persons or property, then immediately upon oral or written notice to any supervisory or similar personnel of Contractor, City may, but shall not be required to, correct same at Contractor's expense. City shall confirm in writing any oral notice given within five (5) business days thereafter.

3.3. Storage. In the event the Project site has insufficient, inadequate, and/or improper storage space, it shall be the responsibility of the Contractor to secure, provide and maintain at the Contractor's sole cost and expense (i) adequate off-site storage space for equipment, materials, incidentals, etc., and (ii) all associated delivery and transportation services. In either event, the Contractor shall assume full responsibility for equipment, materials, incidentals, etc. until both title and risk of loss pass to the City pursuant to Section 8 of this Contract.

3.4. Working Hours. To the extent the Contractor is required to be on City property to render the Contractor's services hereunder, the Contractor shall coordinate its schedule so that work on and at the Project site is performed during the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday and 9:00 a.m. to 6:00 p.m. on Saturday, Sunday and legal holidays unless more exactly specified elsewhere in this Contract or **Attachment A** or unless prior written permission is obtained from the City to work during other times. This provision shall not excuse the Contractor from timely performance under the Contract.

3.5. Cleaning Up. The Contractor shall at all times keep the Project site free from accumulation of waste materials or rubbish caused by Contractor's employees or subcontractors, and at the completion of the work shall remove all rubbish from and about the Project and all tools, scaffolding and surplus materials and shall leave the Project site "broom clean" or its equivalent, unless more exactly specified. In case of dispute, the City may remove the rubbish and charge the cost to the Contractor.

3.6. Publicity. Contractor agrees not to deliberately disclose the fact that the City has entered into or terminated this Contract or disclose any of the terms of the Contract or use the City's name in connection with any publicity, unless the City gives prior written consent to such use of the City's name in each instance.

3.7. Standard of Performance. All Contractor labor, materials, supplies, components, equipment, reports, plans, specifications, drawings, deliverables, incidentals, etc., required to be furnished or delivered under this Contract shall conform in all respects with the requirements set forth in this Contract and shall meet or exceed those standards generally recognized in the Contractor's craft and trade in the State of Connecticut. City specified manufacturer and/or brand name substitution desired by the Contractor shall be made only with the prior written consent of an authorized representative of the City's Using Agency.

3.7.1 In carrying out the Project, the Contractor must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor, nor with the normal routine of the institution or agency operating at the Project site.

3.8. Contractor's Employees. The Contractor shall at all times enforce strict discipline and good order among its employees, and shall not employ on the work any unfit person or anyone not skilled in the work assigned. The Contractor shall not, without the prior written approval of the City's Using Agency, substitute, terminate, replace or otherwise remove any Contractor employee expressly named, identified or required in this Contract.

3.9. Subsurface/Unknown Site Conditions. If Project site conditions are encountered which are (i) subsurface or otherwise concealed physical conditions or other conditions which differ materially from those indicated in the Contract Documents, or (ii) unknown conditions of an unusual nature which differ materially from those ordinarily found to exist and generally recognized as inherent or common in construction activities of the character provided for in this Contract, then prompt notice by the observing party shall be given to the other party to this Contract before Project site conditions may be disturbed. The Contractor shall thereafter wait for written instructions from the City before proceeding with regard to such conditions.

3.10. Surveys. All surveys required under this Contract shall be performed by a State of Connecticut duly licensed land surveyor. Unless expressly stated to the contrary in Section 1 of this Contract and **Attachment A**, the Contractor shall perform all layout work, all field measurements and all construction staking required, necessary or prudent for the satisfactory prosecution of the Contractor's obligations under this Contract.

3.11. Permits and Licenses. Unless expressly stated to the contrary in Section 1 of this Contract and **Attachment A**, the Contractor shall secure and obtain all permits and all licenses required, or necessary, or prudent for the performance of the Contractor's obligations under this Contract and for the City's occupancy, use, and operation of the Project.

3.12. Manufacturer's Directions. Where it is required in this Contract that materials, products, processes, equipment or the like be installed or applied in accord with manufacturer's directions, specifications or instructions, it shall be construed to mean that the said application or installation by the Contractor shall be in strict accord with printed instructions furnished by the manufacturer of the material concerned for use under conditions similar to those at the Project site. One (1) copy of such instructions shall be furnished to the City.

3.13. Review by the City. The Contractor shall permit the City and the City's duly authorized representatives and agents to review, at any time, all work performed under the terms of this Contract at any stage of the Project.

3.14. Records Maintenance. The Contractor shall maintain or cause to be maintained all records, books or other documents relative to charges, costs, expenses, fees, alleged breaches of the Contract, settlement of claims or any other matter pertaining to the Contractor's demand for payment.

3.15. Contractor shall comply with any and all statutory and regulatory school construction requirements in the State of Connecticut, and specifically for **State Project No. 151-0304 CV and State Project No. 151-0305 CV.**

4. Responsibilities of the City and City Reservation of Rights. Upon the City's receipt of Contractor's written request for specific information, the City will provide the Contractor with existing documents, data and other materials the City agrees are necessary and appropriate to the services to be performed by the Contractor hereunder and the City will endeavor to secure, where feasible and where the City agrees it is necessary and appropriate, materials or information from other sources requested by the Contractor for the purpose of carrying out the services under this Contract.

4.1. The City may, in its sole discretion, designate person(s) to act as the City's Project Engineer(s) and/or Manager(s) and the City may, in its sole discretion, define such person(s) authority and responsibilities.

4.2. The City reserves the right to (i) perform work related or unrelated to the Project with the City's own forces adjoining, adjacent to, or in the vicinity of, the Project site and/or (ii) let separate contracts related or unrelated to the Project for work and services adjoining, adjacent to, or in the vicinity of, the Project site. In such event, the Contractor shall afford all such parties reasonable opportunity for storage of materials and equipment and for the uninterrupted provision and delivery of such parties' work and/or services. The Contractor shall cooperate with such parties and in the case of a dispute, the decision of the City shall be complied with by all.

5. Contract Time. The Contractor shall Substantially Complete all work and services required under this Contract within **Two Hundred Twenty (220)** consecutive calendar days of the City's written Notice to Proceed and shall reach Final Completion within **Two Hundred Fifty (250)** consecutive calendar days of the City's written Notice to Proceed ("Contract Time").

5.1. Within one (1) week of the City's issuance of its written notice to proceed, and prior to the commencement of any work on the Project site, the Contractor shall submit for the City's written approval a construction progress schedule. On a monthly basis, the Contractor shall deliver to the City a written status report

setting forth an analysis and critique of the Contractor's compliance with said schedule.

5.2. Delay Damages

5.2.1 Time is and shall be of the essence for all Project Phase Completion Dates, Milestones, Substantial and Final Completion Date. The Contractor further agrees that the Project shall be prosecuted regularly, diligently and uninterruptedly and at such rate of progress as will insure full completion thereof within the Contract time stated above. It is expressly understood and agreed, by and between the Contractor and City, that the Phase Completion Dates, Milestones, Substantial and Final Completion Date are reasonable for the completion of the Project.

5.2.1.1 The Contractor shall pay to the City the sum of the greater of **SEVEN HUNDRED FIFTY DOLLARS AND ZERO CENTS (\$750.00)** per calendar day for each and every calendar day for which the Contractor is in default in completing the work beyond the Final Completion Date, Substantial Completion Date, Milestones and Phase Completion Dates, as set forth in Section 5, or the actual damages incurred by the City caused by the delay. The preceding sum is hereby agreed upon not as a penalty, but as delay damages for the delay that the City shall suffer due to such default.

5.2.1.2 The City shall have the right to recover all damages pursuant to any remedy at law or equity including but not limited to deducting the amount of any such damages from any monies due the Contractor under this Contract. The Contractor understands that if the entire Work or of any portion of the Work that the City has agreed to accept separately, if any, is not attained by the applicable completion dates as set forth in the entire Section 5, the City will suffer damages, which are difficult to specify accurately and ascertain. Delay damages based upon delay shall be assessed to compensate the City for all actual loss sustained by the delay, including, but not limited to, loss of use, increased cost of material or services to complete the project, loss of State funding, all other another actual expense, and all other damages allowed by law, including attorney's fees.

5.3 No Damage for Delay

In no event shall the Contractor be entitled to any compensation or recovery of any damages in connection with any Delay, including, without limitation, consequential damages, lost opportunity damages, attorney's fees or other, similar remuneration. The City's exercise of any of its rights or remedies under the Contract Documents, including without limitation, ordering changes in the Work, or directing suspension, rescheduling or correction of the Work,

regardless of the extent or frequency of the City's exercise of these rights has been contemplated by the parties and shall not be construed as an exception.

6. Compensation. The City shall compensate the Contractor for satisfactory provision of all of the goods and services set forth in this Contract as follows in this Section 6. No claims for additional compensation will be considered for conditions made known to the Contractor prior to bidding. No claims for additional compensation will be considered on account of failure of the Contractor to completely inform itself as required herein above.

6.1. Fee Schedule. Subject to retainage, limitations, etc. set forth below in this Section 6, the fee payable to the Contractor shall not exceed **DOLLARS AND CENTS (\$ TBD)** (hereafter referred to as "Total Compensation") with the basis for payment being Contractor's Proposal set forth in **Attachment A's** "Contractor's Proposal, dated and Contractor's revised Price Proposal, and consisting of pages, which is summarized below:

6.2. Retainage. At the City's sole discretion, it hereby reserves the right to withhold as retainage five percent (5.0 %) of any payment (or monetary sum otherwise required by law) owed to the Contractor to be withheld from payments to the Contractor otherwise payable to the Contractor until such time as the Contractor's work and services to be provided under this Contract are fully completed and accepted in writing by the City. The retainage does not include additional sums that the City may withhold due to the Contractor's failure to comply with provisions of this Contract.

6.3. Limitation of Payment. Compensation to the Contractor is limited to those fees set forth in Section 6.1. of this Contract and is further limited to work (i) performed in fact, (ii) conforming with this Contract, and (iii) accepted in writing by a duly authorized City employee. Such compensation shall be paid by the City upon its review and approval of the Contractor's invoices for payment and review of the Contractor's work.

6.3.1 Funding. In the event this Contract is funded, in whole or in part, by Federal and/or State monies, grants, loans, etc, all City payment(s) shall fully comply with all relevant Federal and State statutes and regulations. In the event this Contract is 100% funded by Federal and/or State monies, grants, loans, etc., the aggregate sum of all City payments shall not exceed the aggregate sum of such funding.

6.3.2 The Contractor and its affiliates are hereby provided with notice that the City reserves the right, in the City's sole discretion, to offset, withhold, or otherwise reduce City payment(s) to the Contractor, in an amount equaling the sum or sums of money the Contractor and/or its affiliates is/are, or become delinquent or in arrears on, regarding the Vendor's and/or its affiliates real and personal property taxes and other payment obligations to the City.

6.3.3 No Payment for Lost Profits. In no event shall the City be obligated to pay or otherwise compensate the Contractor for any lost or expected future profits.

6.4. Proposal Costs. All costs of the Contractor in preparing its bid for **RFP Number 7473** shall be solely borne by the Contractor and are not included in the compensation to be paid by the City to the Contractor under this Contract or any other agreement.

6.5. Payment for Services, Materials, Appliances, Employees. The Contractor shall be responsible to the City for the suitability of services, materials and equipment furnished to comply fully with the requirements set forth in this Contract. The Contractor shall promptly pay all employees as their pay falls due, shall pay promptly as they fall due all bills for subcontractors, materials, supplies and services going into the work, and all bills for insurance, bonds, Worker's Compensation coverage, Federal and State Unemployment Compensation, and Social Security charges applicable to this Project. Before final City payment is made, the Contractor shall furnish to the City a sworn, notarized, affidavit stating that all of the foregoing payment obligations have been fully completed.

6.6. Liens. Neither the City's final payment nor any part of the retained percentage, if any, shall become due until the Contractor, if required by the City, shall deliver to the City a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof, and, if required, in either case, an affidavit that so far as the Contractor has knowledge or information, the releases and receipts include all the labor and material for which a lien could be filed; but the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the City, to indemnify it against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the City all moneys that the City may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fee.

6.7. Contractor's Certificate of Completion. Upon the Contractor's (i) completion of all Project milestones, and (ii) Substantial Completion of the Project, and (iii) Final Completion of the Project, the Contractor shall, in each instance, file with the City a written, notarized affidavit setting forth the amount of Project work performed. The City reserves the right to verify or challenge by any reasonable means the accuracy of said affidavit.

6.8. Final Payment. All prior estimates and City payments, including those relating to extra or additional work, retainage(s), and holdback(s), shall be subject to correction by this final payment which is throughout this Contract called "Final Payment". No payment, final or partial, shall act as a release to the Contractor or its surety from any Contractor obligation(s) under this Contract.

6.9. Clean Water Fund Project Requirements. In the event this Contract is funded in whole or in part, is reliant upon, or falls within the jurisdiction of the Clean Water Fund and its statutes, regulations and rules, the Contractor shall:

6.9.1 submit Applications for Payment in accordance with the following:

The City must receive the Contractor's Application for Payment by the City's or its designee's, review and recommendation for payment, by the fifteenth calendar day of the month to receive payment within the next 50 days. If not received by the fifteenth calendar day of the month, payment can not be made until 50 days after the fifteenth calendar day of the subsequent month. The Contractor shall provide at the City's request, reasonable documentation to substantiate Contractor's Application for Payment.

6.9.2 Progress and Final Payments

The City will make progress payments on account of the Contract Price on the basis of the Contractor's Applications for Payment, monthly during construction as provided below. All progress payments will be on the basis of the progress of the Scope of Services as determined by the City, according to the schedule of values provided for in the Contract Documents, and approved by the City. Prior to Substantial Completion, progress payments will be limited to an amount equal to 95 percent of the value of the Scope of Services completed. Upon Substantial Completion, the City will pay the amount as specified in the Contract Documents.

7. Warranty of the Contractor. The Contractor warrants to the City that all materials, supplies, components, equipment, etc. furnished under this Contract shall be new and of good quality, except as otherwise expressly stated and permitted by the City elsewhere in this Contract. The Contractor warrants that none of its work shall be defective. The Contractor shall be liable to repair and install and/or replace without charge any service, component, equipment or part thereof which is defective or does not conform with this Contract within the greater of **(i) three hundred sixty-five (365)** calendar days after the City delivers its written notice of its acceptance of the Project and statement therein establishing the final completion date, or **(ii)** that time period or date expressly stated elsewhere in this Contract or **Attachment A**.

7.1. The Contractor further warrants that all materials, supplies, services, components, equipment, reports, plans, drawings, deliverables, incidentals, etc., shall be free from any and all defects caused by faulty design, faulty material or poor workmanship. The Contractor shall supply to the City copies of any written manufacturer's warranties and guarantees. The Contractor's foregoing warranty obligations are in addition to, and not a limitation of, all manufacturer's warranties and guarantees, and any other remedy stated in this contract or otherwise available to the City under applicable law.

8. Passing of Title and Risk of Loss.

8.1. City beneficial use of Project equipment, materials, site-work, etc. prior to the Contractor's final completion of the Project or prior to the City's final payment for the Project shall neither act to vest title in the City nor act to transfer risk of loss from the Contractor to the City. Said title and risk shall pass to the City upon the City's final payment for the Project.

8.2. Contractor and its insurer shall assume the risks of loss or damage to the equipment up to and including the date title passes, except that City shall be responsible for loss or damage caused by City's gross negligence.

8.3. After Project equipment, materials, etc. are delivered to the Project work-site and become operable or functional, the Contractor shall not thereafter remove any such equipment, materials, etc. from the Project work-site without securing the prior written consent of an authorized City Using Agency employee.

9. Indemnification.

9.1. The Contractor shall indemnify, defend, and hold harmless the City, City's Boards, and Board of Education, commissions, agents, officials and employees from and against all claims, suits, damages, losses, judgments, costs and expenses including attorney's fees arising out of or resulting from the delivery of the labor, services, equipment, materials, reports, plans, specifications, design, drawings, deliverables, incidentals, etc. provided that any such claims, suits, damages, losses, judgments, costs or expenses **(i)** are attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting there from, **(ii)** are alleged to be caused in whole or in part by any willful, intentional, negligent, or reckless act or omission of the Contractor, its employees, any subcontractor or consultant, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder; **(iii)** enforcement action or any claim for breach of the Contractor's duties hereunder or **(iv)** claim for intangible loss(es) including but not limited to business losses, lost profits or revenue, regardless of whether or not it is caused in part by a party indemnified hereunder.

9.2. In any and all claims against the City, Board of Education or any of City's boards, agents, employees or officers by the Contractor or any employee of the Contractor, any subcontractor or consultant, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 9 above, shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the

Contractor or any subcontractor under Worker's Compensation Acts, disability benefit acts or other employee benefit acts.

9.3. The Contractor understands and agrees that any insurance required by this Contract, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify, defend, keep and hold harmless the City, the Board of Education, any of City's boards, agents, employees as provided in this Contract.

9.4. The Contractor expressly understands and agrees that any performance bond or insurance protection required by this Contract, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify, keep and save harmless and defend the City and the City's boards, agents, employees or officers as provided herein.

9.5. Royalties and Patents. The Contractor shall, for all time, secure to the City the free and undisputed right to the use of any and all patented articles and methods used in the work and shall defend at Contractor's own expense any and all suits for infringement or alleged infringement of such patents, and in the event of adverse award under patent suits, the Contractor shall pay such awards and hold the City harmless in connection with any patent suits that may arise as a result of installations made by the Contractor and as to any award made thereunder.

9.6. In the event this Contract and/or the Contractor's, or its subcontractor, work and services provisioned hereunder is/are subject to the provisions of any Federal or State statute or regulations, or the City Charter or City Ordinance, the Contractor shall indemnify, defend and hold harmless the City from any fine, penalty or other amounts imposed on the City under said statutes, regulations, Charter or Ordinances, if caused by Contractor, or its subcontractor, omission or commission.

10. Contract Bonds. The Contractor shall furnish to the City, prior to the execution of this Contract by the City, both a performance bond and a payment bond, each bond written for a penal sum equaling the Section 6 "Total Compensation" amount in a form and with a surety acceptable to the City. The bonds shall continue in effect for the greater of **(i)** the warranty period set forth in Section 7 of this Contract, or **(ii)** three hundred sixty-five (365) calendar days after the City delivers its written notice of its acceptance of the Project.

11. Contractor's Insurance.

11.1. The Contractor shall not commence work under this Contract until all insurance required under this Section 11 has been obtained by the Contractor and such insurance has been approved by the City. The Contractor shall not allow any subcontractor to commence work on any subcontract until all insurance required of any such subcontractor has been so obtained and approved by the City. Insurance shall be provided by insurers, satisfactory to the City and authorized to do business in the State

of Connecticut, an "A-" Best's Rating and at least a Class V3 or better financial size category as shown in the most current A.M. Best Company ratings.

11.2. At no additional cost to the City, the Contractor shall purchase and maintain the insurance coverages set forth below which shall protect the City from claims which may arise out of or result from the Contractor's obligation under this Contract, whether such obligations are the Contractor's or subcontractor or person or entity directly or indirectly employed by said Contractor or subcontractor, or by any person or entity for whose acts said Contractor or subcontractor may be liable.

11.3. Each insurance policy shall state that the insurance company shall agree to investigate and defend the insured against all claims for damages, even if groundless. If any insurance required herein is to be issued or renewed on a claims made form as opposed to an occurrence form, the retroactive date for coverage shall be no later than the commencement date of this Contract and shall provide that in the event of cancellation or non-renewal, the discovery period for insurance claims ("Tail Coverage") shall be available for at least 60 months.

11.4. The following policies with stated limits shall be maintained, in full force and effect, at all times during which the services are to be performed by the Contractor:

11.4.1 General Liability Insurance:

\$1,000,000.00 each Occurrence

\$2,000,000.00 General Aggregate

\$2,000,000.00 Products/Completed Operations Aggregate

Providing coverage to protect the City for all damages arising out of bodily injuries, sickness to or death of all persons in any one accident or occurrence and for all damages arising out of destruction of property in any one accident or occurrence.

11.4.2 Automobile Liability Insurance:

\$1,000,000.00 Combined Single Limit Each Accident

Any Auto, All Owned and Hired Autos

Providing coverage to protect the City with respect to claims for damage for bodily injury and or property damage arising out of ownership, maintenance, operation, use or loading and unloading of any auto including hired & non-owned autos.

11.4.3 Workers' Compensation: Statutory Limits within the State of Connecticut: Employer Liability (EL):

EL Each Accident **\$1,000,000.00**

EL Disease Each Employee **\$1,000,000.00**

EL Disease Policy Limit **\$1,000,000.00**

Contractor shall comply with all State of Connecticut statutes as it relates to workers' compensation.

11.4.4 Excess/Umbrella Liability Insurance:

\$1,000,000.00 each Occurrence

\$1,000,000.00 Aggregate

Excess or Umbrella insurance coverage that follows form or sits over General Liability, Automobile Liability and Workers Compensation insurances.

11.4.5 Builder's Risk/Installation Floater Insurance

\$1,000,000.00 each Occurrence or Limits Equaling the Value of the Project (whichever is greater)

11.4.6 Contractor Pollution Liability Insurance:

\$1,000,000.00 each Occurrence/Claim

\$1,000,000.00 Aggregate

There will be no exclusion for Hazardous materials, including Asbestos and Lead

11.4.7 Abuse/Molestation Liability Insurance:

\$1,000,000.00 each Occurrence/Claim

\$1,000,000.00 Aggregate

(Applicable to Contractors working directly with Youth/Minors)

11.5. Failure to Maintain Insurance: In the event the Contractor fails to maintain the minimum required coverage as set forth herein, the City may at its option purchase same, and offset the Contractor's invoices for the cost of said insurance.

11.6. Cancellation: The City of Waterbury shall receive written notice of cancellation from the Contractor at least thirty (30) calendar days prior to the date of actual cancellation, regardless of the reason for such cancellation.

11.7. Certificates of Insurance: All Contractor's Insurance except Workers' Compensation and Professional Liability shall be endorsed to add the City of Waterbury and its Board of Education, as additional insured and provide waiver of subrogation on all policies except Builders Risk. The insurance afforded the additional insured shall be primary and non-contributory insurance and the coverage and limits provided under the Contractor's policies shall not be reduced or prorated by the existence of any other insurance applicable to any loss the additional insured may have suffered. Prior to the execution of this Contract by the City, the Contractor shall furnish to the City, subject to City approval, certificate(s) of insurance and Additional Insured Endorsement and Waiver of Subrogation Endorsement verifying the above coverages, including the naming of the City of Waterbury, as follows: **"The City of Waterbury and its Board of Education are listed as Additional Insured on a primary and**

non-contributory basis on all policies except Workers' Compensation and Professional Liability. All policies shall include a Waiver of Subrogation except Builders Risk". The City's Request for Proposal Number must be shown on the certificate of insurance to assure correct filing. The Contractor must supply replacement/renewal certificates at least 30 days prior to the expiration of the policy(ies).

11.8. If any policy is written on a "Claims Made" basis, the policy must be continually renewed for a minimum of two (2) years from the completion date of this contract. If the policy is replaced and/or the retroactive date is changed, then the expiring policy must be endorsed to extend the reporting period for claims for the policy in effect during the contract for two (2) years from the completion date.

11.9 Original, completed Certificates of Insurance must be presented to the City of Waterbury prior to contract issuance. Contractor agrees to provide replacement/renewal certificates at least thirty (30) calendar days prior to the expiration date of the policies. Should any of the above described policies be cancelled, limits reduced or coverage altered, thirty (30) calendar days written notice must be given to the City of Waterbury.

12. Conformance with Federal, State and Other Jurisdictional Requirements. By executing this Contract, the Contractor represents and warrants that, at all pertinent and relevant times to the Contract, it has been, is and will continue to be in full compliance with all applicable statutes, acts, ordinances, guidelines, resolutions, orders, judgments, decrees, injunctions, rules, and regulations of all government authorities applicable to performance by the Contractor of services hereunder, including those having jurisdiction over its registration and licensing to perform services hereunder; including, but not limited to, the following: EQUAL EMPLOYMENT OPPORTUNITY; COPELAND ANTI-KICKBACK ACT, as supplemented in the Department of Labor Regulations (29 CFR, Part 3); DAVIS BACON ACT as supplemented by Department of Labor Regulations (29 CFR Part 5); Section 103 and 107 of the Contract Work Hours and Safety Standards Act, as supplemented by the Department of Labor Regulations (29 CFR Part 5); the HOUSING and COMMUNITY DEVELOPMENT ACT of 1974, as amended; TITLE 31 and Section 12-430(7) of the State of Connecticut General Statutes. All applicable sections of the City Charter and Code of Ordinances are incorporated by reference made a part hereof.

12.1. Taxes-Federal, State and Local. The City is exempt from Federal Excise and Transportation, State and Local Sales and Use Taxes, including without limitation, taxes that would otherwise be imposed upon the Contractor for transactions required or necessitated hereunder between it and its subcontractors, suppliers, etc. The Contractor remains liable, however, for any applicable tax obligations it incurs. Moreover, the Contractor represents that the bid and pricing contained in this Contract do not include the amount payable for said taxes.

12.2. Labor and Wages-Federal and State. The Contractor and its subcontractors shall conform to Federal and State of Connecticut labor laws, and all other laws, ordinances, and legal requirements affecting the work in Connecticut.

12.2.1 The Contractor is aware of, and shall comply with, the provisions of Title 31, §53 of the Connecticut General Statutes, latest revision (the "Act"), concerning the payment of minimum wages for work on public facilities. The provisions of the Act are hereby incorporated by reference and made a part of this Contract. The Act provides that the Connecticut prevailing wage law applies to certain remodeling, refurbishing, alteration, repair and new construction. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in Conn.Gen.Statute 31-53(i), shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

12.2.2 The Contractor is aware of, and shall comply with, the provisions of both the Federal Davis-Bacon Act and the Federal American Recovery and Reinvestment Act of 2009, the provisions of both acts hereby incorporated by reference and made a part of this Contract. The Federal Davis-Bacon Act provides that Federal wage rate laws apply to certain federally funded contracts. The American Recovery and Reinvestment Act ("ARRA") provides that Federal wage rate laws apply to all ARRA funded contracts regardless of the contract's dollar value.

12.3. Compliance with Chapters 34, 38, and 39 of the Code of Ordinances of the City. By executing this Contract, the Contractor represents and warrants that, at all pertinent and relevant times to the Contract, it has been, is and will continue to be in full compliance with the provisions of Chapters 34, 38, and 39 of the Code of Ordinances of the City and well as any other relevant provisions of the Charter and the Code of Ordinances.

12.4. Compliance with CONN. GEN. STAT. § 4a-60g, as amended by June 2015 Special Session Public Act 15-5.

12.4.1 Definitions – For purposes of this paragraph:

i. "Small contractor" means any contractor, subcontractor, manufacturer, service company or nonprofit corporation (A) that maintains its

principal place of business in the state, (B) that had gross revenues not exceeding fifteen million dollars in the most recently completed fiscal year prior to such application, and (C) that is independent. "Small contractor" does not include any person who is affiliated with another person if both persons considered together have a gross revenue exceeding fifteen million dollars.

ii. "Minority business enterprise" means any small contractor (A) fifty-one per cent or more of the capital stock, if any, or assets of which are owned by a person or persons who (i) exercise operational authority over the daily affairs of the enterprise, (ii) have the power to direct the management and policies and receive the beneficial interest of the enterprise, (iii) possess managerial and technical competence and experience directly related to the principal business activities of the enterprise, and (iv) are members of a minority, as such term is defined in subsection (a) of section 32-9n, or are individuals with a disability, or (B) which is a nonprofit corporation in which fifty-one per cent or more of the persons who (i) exercise operational authority over the enterprise, (ii) possess managerial and technical competence and experience directly related to the principal business activities of the enterprise, (iii) have the power to direct the management and policies of the enterprise, and (iv) are members of a minority, as defined in this subsection, or are individuals with a disability.

iii. "Municipal public works contract" means that portion of an agreement entered into on or after October 1, 2015, between any individual, Contractor or corporation and a municipality for the construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, which is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees but excluding any project of an alliance district, as defined in section 10-262u, as amended by this act, financed by state funding in an amount equal to fifty thousand dollars or less.

12.4.2 The Contractor and subcontractor shall comply with the specific requirements of the State of Connecticut Set Aside Program, CONN. GEN. STAT. § 4a-60g, as amended by June 2015 Special Session Public Act 15-5, if the municipal public works contract awarded to the Contractor is funded in whole or in part by state funds.

12.4.3 The Contractor shall be subject to the following set-aside requirements if the municipal public works contract, is funded in whole or in part by the State of Connecticut, and is in excess of FIFTY THOUSAND DOLLARS (\$50,000.00), for the construction, rehabilitation, conversion, extension, demolition, or repairing of a public building or highway, or other changes or improvements in real property.

12.4.4 Set-Aside requirements – Any contractor awarded a municipal public

works contract, on the basis of competitive bidding procedures, shall comply with the following Set –Aside requirements:

- i. set aside at least twenty-five per cent (25%) of the total value of the state's financial assistance for such contract for award to subcontractors who are small contractors, and
- ii. of that portion to be set aside in accordance with Subparagraph i. of this subdivision, reserve a portion equivalent to twenty-five per cent (25%) of the total value of the contract or portion thereof to be set aside for awards to subcontractors who are minority business enterprises.

12.4.5 Failure of the Contractor or subcontractor to comply with the State of Connecticut Set-Aside requirements shall be a material breach of this Contract.

13. Discriminatory Practices. In performing this Contract, the Contractor shall not discriminate against any employee or applicant for employment, with respect to his or her hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, sex, age, religious creed, disability, national origin or ancestry, marital status, family status, prior psychiatric treatment, health care, military status or source of income or because of a handicap that is unrelated to the employee's or the applicant's ability to perform the duties of a particular job or position. Subcontracts with each subcontractor shall contain a provision requiring non-discrimination in employment as herein specified. This covenant is required pursuant to §93.04 of the Code of Ordinances of the City and any breach thereof may be regarded as a material breach of this Contract. Said provisions with subcontractors shall require conformity and compliance with all local, state and federal laws, rules and regulations and Executive orders pertaining to discrimination and equal opportunity requirements.

13.1. Discrimination Because of Certain Labor Matters. No person employed on the work covered by this Contract shall be discharged or in any way discriminated against because such person has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or related to the labor standards applicable hereunder to its employer.

13.2. Equal Opportunity. In its execution of the performance of this Contract, the Contractor shall not discriminate and shall comply with applicable laws prohibiting discrimination on the grounds of race, color, religion, sex, national origin or citizenship status, age or handicap. The Contractor agrees to comply with all local, state and federal laws, rules and regulations and Executive orders pertaining to discrimination and equal opportunity requirements, and will require the same of all subcontractors

13.3. Affirmative Action.

13.3.1. Pursuant to CONN. GEN. STAT. § 4a-60, as amended by June 2015 Special Session Public Act 15-5, the following are required for every Municipal Public Works Contract:

(a) Every contract to which an awarding agency is a party, every quasi-public agency project contract and every municipal public works contract shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the state of Connecticut; and the contractor further agrees to take affirmative action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved;

(2) The contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission on Human Rights and Opportunities;

(3) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(4) The contractor agrees to comply with each provision of this section and sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to sections 46a-56, as amended by this act, 46a-68e, 46a-68f and 46a-86; and

(5) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of this section and section 46a-56, as amended by this act.

(b) If the contract is a public works contract, municipal public works contract or contract for a quasi-public agency project, the contractor agrees and warrants that he or she will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works or quasi-public agency project.

13.3.2. Pursuant to CONN. GEN. STAT. § 4a-60a, as amended by June 2015 Special Session Public Act 15-5, the following are required for every Municipal Public Works Contract:

(a) Every contract to which an awarding agency is a party, every contract for a quasi-public agency project and every municipal public works contract shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or of the state of Connecticut, and that employees are treated when employed without regard to their sexual orientation;

(2) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(3) The contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said commission pursuant to section 46a-56; and

(4) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor which relate to the provisions of this section and section 46a-56.

14. Good Jobs Ordinance

14.1. Conformance With An Ordinance Concerning The Hiring Of Waterbury Residents On Certain Publicly-Funded Construction Projects.

14.1.1 The Contractors and its Subcontractors shall comply with the specific requirements of "An Ordinance Concerning the Hiring of Waterbury Residents

on Certain Publicly-Funded Construction Projects” (the “Good Jobs Ordinance”), as may be amended from time to time and as set forth in Chapter 34 of the Code of Ordinances of the City. While the principal provisions of the ordinance are summarized as set forth in paragraphs C-H below, the Contractor does hereby acknowledge that it has reviewed a copy of the Good Jobs Ordinance and that it has read the Ordinance and that Contractor is familiar with the obligations imposed on the Contractor and each Subcontractor by the Good Jobs Ordinance.

14.1.2 Failure of the Contractor or its Subcontractors to comply with the Good Jobs Ordinance shall be a material breach of this Agreement.

14.1.3 This paragraph shall apply to a Covered Project, as that term is defined in the Good Jobs Ordinance, in the City with a value of \$500,000.00 or greater and only to the extent permitted by federal and state law.

14.1.4 Definitions. For purposes of this paragraph:

- i. “Administrator” shall be defined as it is in the Good Jobs Ordinance.
- ii. “Apprentice” shall be defined as it is in the Good Jobs Ordinance.
- iii. “Basic Skilled Worker” shall be defined as it is in the Good Jobs Ordinance.
- iv. “Contractor” shall be defined as it is in the Good Jobs Ordinance.
- v. “Covered Project” shall be defined as it is in the Good Jobs Ordinance.
- vi. “Hiring Goal” shall be defined as it is in the Good Jobs Ordinance.
- vii. “Resident” shall be defined as it is in the Good Jobs Ordinance.
- viii. “Subcontractor” shall be defined as it is in the Good Jobs Ordinance and shall include the Contractor's direct subcontractor providing construction work and all lower tiered (level) providers of construction work.

14.1.5 Hiring Goals. If this Agreement requires the Contractor to perform

work on a Covered Project, the Contractor and each Subcontractor shall have as its hiring goals:

- i. at least thirty percent (30%) of its total worker hours performed by City Residents, and
- ii. at least twenty-five percent (25%) of construction trade jobs shall go to Apprentices and/or Basic Skilled Workers, and
- iii. at least seventy percent (70%) of all "new hires" (as that term is defined in the Good Jobs Ordinance) shall be "economically disadvantaged" individuals (as that term is defined in the Good Jobs Ordinance), and
- iv. a minimum of five percent (5%) of the construction workforce labor hours will be local resident, minority artisans, and
- v. a minimum of five percent (5%) of the construction workforce labor hours will be women, and
- vi. a minimum of ten percent (10%) of the total work hours shall be allocated for minorities, or
- vii. as may otherwise be required by any superseding Federal or State employment discrimination prohibition laws.

14.1.6 Good Faith Efforts. The Contractor and each Subcontractor shall engage in Good Faith Efforts to comply with the Hiring Goals. For the purposes of this paragraph, the term "Good Faith Efforts" shall have the same meaning as it does in the Good Jobs Ordinance.

The Contractor and each Subcontractor shall individually implement Good Faith efforts to satisfy the Hiring Goals.

14.1.7 Action Plan and Pre-Construction Meeting. Not later than fourteen (14) business days prior to the scheduled commencement date for construction, the Contractor shall submit a written plan-of-action to the City and to the Administrator of the Good Jobs Ordinance defining how the Contractor, and each Subcontractor, shall implement Good Faith Efforts to fulfill the Hiring Goals. Each plan-of-action shall include the anticipated number of job positions required for the Work. Not later than five (5) business day prior to the commencement date of construction, the Contractor must attend a mandatory "pre-construction" meeting with the City to review all plans-of-action and other relevant materials. No construction work shall proceed absent this pre-

construction meeting.

14.1.8 Other Contractor Obligations. In addition to the foregoing, the Contractor shall ensure that all Subcontractor contracts and agreements expressly set forth and state as binding obligations therein, subject to appropriate party name change, the above Hiring Goals and Good Faith Efforts. The Contractor shall be accountable for, and liable to the City for, Contractor and each Subcontractor compliance with Hiring Goals and Good Faith efforts.

i. The Contractor shall meet with the Administrator no less than four (4) weeks prior to the commencement of construction on a Covered Project and provide the Administrator with the number of job positions to be created by the project by trade and the qualifications by job tile.

ii. The Contractor shall be required to produce Contractor and Subcontractor documentation that may be required under the provisions of the Good Jobs Ordinance or that the City or the Administrator reasonably believes will assist the City or the Administrator with their evaluation of Hiring Goals and Good Faith Efforts.

iii. The Contractor shall deliver weekly certified payroll records to the City within five (5) working days of the end of each payroll period. Moreover, the Contractor shall require each Subcontractor to create weekly certified payroll records.

iv. The Contractor's and each Subcontractor's payroll records shall include the person-hours, the residential address, race, gender, hiring date, and apprentice (job) classification of all personnel employed under this Agreement and all Contracts and Sub-Contracts thereunder. The Contractor and each Subcontractor shall mark their respective final payroll period records as being final and be signed by an authorized officer or employee.

14.2 Liquidated Damages Applicable To Section 14.1

14.2.1 If the City finds that the Contractor, or a Subcontractor, has failed to achieve Hiring Goals during any five (5) day work period (Monday through Friday), the City shall:

i. issue a written notice to the Contractor specifying the matters constituting such failure and the time period within which Good Faith Efforts documentation must be delivered to the City for its evaluation.

ii. if the Good Faith documentation is not provided or, if provided,

it fails to demonstrate compliance with Good Faith Efforts, the Contractor shall, for each failure by the Contractor or a Subcontractor to achieve the Hiring Goals during a full five day work period, pay to the City one thousand dollars (\$1,000.00) as liquidated damages.

14.2.2 If the City finds that the Contractor, or a Subcontractor, has failed to deliver weekly certified payroll records to the City within five (5) working days of the end of each payroll period the Contractor shall, as liquidated damages pay one thousand dollars (\$1,000.00) to the City for each week of ongoing violation.

14.2.3 The City shall provide the Contractor with an invoice identifying all sums due the City, as liquidated damages, as a result of the Contractor or a Subcontractor's failure to comply with the Good Jobs Ordinance as set forth above.

14.2.4 No portion of any invoice submitted by a Contractor that is subject to liquidated damages shall be paid by the City until such time as all liquidated damages relating to that invoice have been paid to the City.

14.2.5 The foregoing liquidated damages provisions shall be expressly set forth, subject to appropriate party name adjustments, as material provisions in all Contracts that the Contractor has with Subcontractors and the Contractor is obligated hereunder to enforce compliance in such Contracts with Subcontractors.

14.2.6 Any payment of liquidated damages hereunder shall not preclude a later claim, nor any later finding of a breach, or any payment of additional damages related to such later claim.

15. Housing and Urban Development Section 3 Clause. In the event this Contract is funded, in whole or in part, through Housing and Urban Development assistance, 24 C.F.R. §135.38 may apply and the Contractor shall then be required to comply with the following (referred to as the "Section 3 clause"):

15.1. The work to be performed under this Contract is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. § 1701u (Section 3). The purpose of Section 3 is to ensure that employment and other economic opportunities generated by HUD assistance or HUD-assisted Projects covered by Section 3, shall, to the greatest extent feasible, be directed to low and very low-income persons, particularly persons who are recipients of HUD assistance for housing.

15.2. The parties to this Contract agree to comply with HUD's regulations in 24

C.F.R. part 135, which implement Section 3. As evidenced by their execution of this Contract, the parties to this Contract certify that they are under no contractual or other impediment that would prevent them from complying with the part 135 regulations.

15.3. The Contractor agrees to send to each labor organization or representative of workers with which the Contractor has a collective bargaining agreement or other understanding, if any, a notice advising the labor organization or workers' representative of the Contractor's commitments under this Section 3 clause, and will post copies of the notice in conspicuous places at the work site where both employees and applicants for training and employment positions can see the notice. The notice shall describe the Section 3 preference, shall set forth minimum number and job titles subject to hire, availability of apprenticeship and training positions, the qualifications for each; and the name and location of the person(s) taking applications for each of the positions; and the anticipated date the work shall begin.

15.4. The Contractor agrees to include this Section 3 clause in every subcontract subject to compliance with regulations in 24 C.F.R. part 135, and agrees to take appropriate action, as provided in an applicable provision of the subcontract or in this Section 3 clause, upon a finding that the subcontractor is in violation of the regulations in 24 C.F.R. part 135. The Contractor will not subcontract with any subcontractor where the contractor has notice or knowledge that the subcontractor has been found in violation of the regulations in 24 C.F.R. part 135.

15.5. The Contractor will certify that any vacant employment positions, including training positions, that are filled (i) after the Contractor is selected but before the Contract is executed, and (ii) with persons other than those to whom the regulations of 24 C.F.R. part 135 require employment opportunities to be directed, were not filled to circumvent the Contractor's obligations under 24 C.F.R. part 135.

15.6. Noncompliance with HUD's regulations in 24 C.F.R. part 135 may result in sanctions, termination of this contract for default, and debarment or suspension from future HUD assisted contracts.

15.7. With respect to work performed in connection with Section 3 covered Indian housing assistance, section 7(b) of the Indian Self-Determination and Education Assistance Act (25 U.S.C. § 450e) also applies to the work to be performed under this Contract. Section 7(b) requires that to the greatest extent feasible (i) preference and opportunities for training and employment shall be given to Indians, and (ii) preference in the award of contracts and subcontracts shall be given to Indian organizations and Indian-owned Economic Enterprises. Parties to this Contract that are subject to the provisions of Section 3 and section 7(b) agree to comply with Section 3 to the maximum extent feasible, but not in derogation of compliance with section 7(b).

16. Termination.

16.1. Termination of Contract for Cause. If, through any cause, the Contractor shall fail to fulfill in a timely and proper manner its obligations under this Contract, or if the Contractor shall violate any of the covenants, agreements, or stipulations of this Contract, the City shall thereupon have the right to terminate this Contract by either (i) giving written notice to the Contractor of a date certain by which Contractor shall, to the written satisfaction of the City, cure after which and without further action by any party, such termination shall automatically become effective and binding, or (ii) giving written notice to the Contractor specifying the effective date of such termination at least five (5) business days before the effective date of such termination.

16.1.1 In the event of a termination, all finished or unfinished documents, data, studies, reports, plans, specifications, drawings, supplies, services, etc. prepared by the Contractor under this Contract shall, at the option of the City, become the City's property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed for such.

16.1.2 Notwithstanding the above, the Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any breach of this Contract by the Contractor, and the City may withhold any payments to the Contractor for the purpose of setoff until such time as the exact amount of damages due the City from the Contractor is determined.

16.2. Termination for Convenience of the City. The City may terminate this Contract at any time for the convenience of the City, by a notice in writing from the City to the Contractor. If this Contract is terminated by the City as provided herein, the Contractor will be paid an amount which bears the same ratio to the total compensation as the services actually performed bear to the total services of the Contractor covered by this Contract, less payments of compensation previously made.

16.3. Termination for Non-Appropriation or Lack of Funding. The Contractor acknowledges that the City is a municipal corporation and that this Contract is subject to the appropriation and disbursement of funds by the City sufficient for this Contract for each budget year in which this Contract is in effect. The Contractor therefore agrees that the City shall have the right to terminate this Contract in whole or in part without penalty to the City in the event that sufficient funds to provide for City payment(s) under this Contract is not appropriated, not authorized, or not made available, or such funding has been reduced. In the event this Contract is subject, in whole or in part, to the appropriation and disbursement of Federal and/or State funds and those Federal and/or State funds are not appropriated or are not disbursed to the City, the Contractor hereby agrees that the City shall have the right to terminate this Contract in whole or in part without penalty to the City.

16.3.1 Effects of Non-Appropriation. If funds to enable the City to effect continued payment under this Contract are not appropriated, authorized or otherwise made available by law, the City shall have the right to terminate this Contract without penalty at the end of the last period for which funds have been appropriated, authorized or otherwise made available by law by giving written notice of termination to the Contractor.

16.3.2 Effects of Reduced Levels of Funding. If funding is reduced by law, or funds to pay the Contractor for the agreed to level of the products, services and functions to be provided by the Contractor under this Contract are not appropriated, authorized or otherwise made available by law, the City may, upon seven (7) business days written notice to the Contractor, reduce the level of the products, services or functions in such manner and for such periods of time as the City may elect. The charges payable under this Contract shall be equitably adjusted to reflect such reduced level of products, services or functions and the parties shall be afforded the rights set forth in this Contract.

16.3.3 No Payment for Lost Profits. In no event shall the City be obligated to pay or otherwise compensate the Contractor for any lost or expected future profits.

16.4. Rights Upon Termination.

16.4.1 Termination for Cause. In the event the City terminates this Contract for cause, the Contractor shall relinquish to the City any applicable interest, title and ownership including, but not limited to, perpetual use of any proprietary rights in and to the products and deliverables delivered to, in possession of and properly invoiced and paid for by (except to the extent such invoiced amount is disputed) the City. With regard to third party products, the Contractor shall transfer all licenses which it is permitted to transfer in accordance with the applicable third party license. The City shall have no financial obligation to compensate the Contractor for such terminated products unless payment is otherwise approved by the City prior to such termination. The Contractor shall be liable for costs incurred by the City, including but not limited to reasonable attorney fees and all court awarded fees and costs incurred in terminating this Contract in whole or in part.

16.4.2 Termination for Lack of Funding or Convenience. In the event of termination by the City for lack of funding or convenience, the City shall pay the Contractor for all labor, services, equipment, materials, reports, plans, specifications, drawings, deliverables, incidentals, etc.(including any holdbacks) installed and delivered to the City as of the Termination Date and the Contractor shall relinquish to the City any applicable interest, title and ownership including, but not limited to perpetual use of any proprietary rights in and to said labor, services, equipment, materials, reports, plans, specifications,

drawings, deliverables, incidentals, etc. delivered to, in possession of and paid for by the City (except to the extent any invoiced amount is disputed). The Contractor shall be required to exercise commercially reasonable efforts to mitigate damages. In the event of a termination for Lack of Funding or Convenience the City and the Contractor may negotiate a mutually acceptable payment to the Contractor for reasonable demobilization expenses. Said demobilization expenses, if any, shall be handled in accordance with the provision of this Contract pertaining to changes in the Project.

16.4.3 Assumption of Subcontracts. In the event of termination, the City shall have the right to assume, at its option, any and all subcontracts for products, services and functions provided exclusively under this Contract.

16.4.4 Delivery of Documents. In the event of termination, (i) the Contractor shall promptly deliver to the City, in a manner reasonably specified by the City, all documents and other tangible items furnished by, or owned, leased, or licensed by, the City, and (ii) the City shall pay the Contractor for all services performed and deliverables completed and accepted (pro-rated for deliverables partially completed) prior to the effective date of the termination (except to the extent any invoice amount is disputed).

17. Force Majeure. Contractor shall not be held responsible for delays nor be subject to liquidated damages when such delays are caused by conditions beyond its control, including without limitation:

17.1. Acts of God, fire, explosion, epidemic, cyclone, flood, war, strikes, revolution, civil commotion, or acts of public enemies; and

17.2. Change of law and order, proclamation, regulation, ordinance, or governmental requirement.

Upon cessation of work for reason of force majeure delays, Contractor shall use its best efforts to meet the schedule set forth in Section 5 of this Contract.

18. Subcontracting. The Contractor shall not, without the prior written approval of the City's Using Agency, subcontract, in whole or in part, any of the Contractor's services. Any subcontractor so approved shall be required to secure and maintain insurance coverage equal to or better than that required of the Contractor and shall name the City as an additional insured party and said subcontractors shall deliver to the City a certificate of insurance evidencing such coverages. All subcontractors shall comply with all federal, state and local, laws, regulations and ordinances but such requirement shall not relieve the Contractor from its requirement that all services provided hereunder shall comply with all Federal, State and local, laws, regulations and ordinances.

18.1. The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by the Contractor.

18.2. The Contractor is responsible for and shall control activities of its subcontractors, and the subcontractors shall consult and cooperate with one another and other contractors working on the Project site. Each subcontractor shall furnish all necessary information to other subcontractors and shall lay out and install its own work so as to avoid any delays or interferences with the work of another. Any cost for changes, cutting and/or repairing, made necessary by failure to observe the above requirements shall be borne by the Contractor or subcontractor responsible for such failure or neglect.

18.3. The Contractor shall not, without the prior written approval of the City's Using Agency, substitute, terminate, replace or otherwise remove a subcontractor.

19. Assignability. The Contractor shall not assign any interest in this Contract, and shall not transfer any interest in the same (whether by assignment or novation) without the prior written approval of the City; provided, however, that claims for money due or to become due the Contractor from the City under this Contract may be assigned to a bank, trust, company, or other financial institution, or to a Trustee in Bankruptcy, without such approval. Notice of any such assignment or transfer shall be furnished promptly to the City.

20. Audit. The City reserves the right to audit the Contractor's books of account in relation to this Contract any time during the period of this Contract or at any time during the twelve month period immediately following the closing or termination of this Contract. In the event the City elects to make such an audit, the Contractor shall immediately make available to the City all records pertaining to this Contract, including, but not limited to, payroll records, bank statements and canceled checks.

21. Interest of City Officials. No member of the governing bodies of the City, and no other officer, employee, or agent of the City who exercises any functions or responsibilities in connection with the carrying out of the Project to which this Contract pertains, shall have any personal interest, direct or indirect, in this Contract.

22. Interest of Contractor. The Contractor covenants that it presently has no interest and shall not acquire any interest, direct or indirect, in the Project or any parcel of land therein or any other interest which would conflict in any manner or degree with the performance of its services hereunder. The Contractor further covenants that in the performance of this Contract no person having any such interest shall be employed.

23. Entire Contract. This Contract shall constitute the complete and exclusive statement of the contract between the parties as it relates to this transaction and supersedes all previous agreements and understandings, whether written or oral, relating to such subject matter. Any

amendment to this Contract must be in writing and agreed to and executed by the City and the Contractor, and must comply with the City's Charter and Code of Ordinances.

24. Independent Contractor Relationship. The relationship between the City and the Contractor is that of client and independent contractor. No agent, employee, or servant of the Contractor shall be deemed to be an employee, agent or servant of the City. The Contractor shall be solely and entirely responsible for its acts and the acts of its agents, employees, servants and subcontractors during the performance of this Contract.

25. Severability. Whenever possible, each provision of this Contract shall be interpreted in such a manner as to be effective and valid under applicable law. If any provision of this Contract, however, is held to be prohibited or invalid under applicable law, such provision shall be deemed restated to reflect the original intentions of the parties, as nearly as possible in accordance with applicable law, and if capable of substantial performance, the remaining provisions of this Contract shall be enforced as if this Contract was entered into without an invalid provision. If the ruling and/or controlling principle of law or equity leading to the ruling is subsequently overruled, modified or amended by legislation, judicial or administrative action, then the provision(s) in question as originally set forth in this Contract shall be deemed valid and enforceable to the maximum extent permitted by the new controlling principal of law or equity.

26. Survival. Any provisions of this Contract that impose continuing obligations on the parties shall survive the expiration or termination of this Contract for any reason.

27. Changes in the Project: Change Orders.

27.1. Requests for Change Orders. The City reserves the right on its own volition, or based upon a proposal for a Change Order submitted in written form with a thorough explanation by the Contractor, to request from time to time any changes to the requirements and specifications of this Contract and the products to be provided and the functions and services to be performed by the Contractor under this Contract. Such changes must be authorized by the City. The City will not approve of any change orders, deletions, additions, or additional work items to the Scope of Services or any change in the terms and conditions of this Contract except by means of a City authorized amended Scope of Services, applicable and restricted to those items set forth in §1, above, or Change Order issued as set forth in this section, except in the event of an emergency endangering life or property.

27.2. Procedures.

27.2.1 The Contractor's Response to a Change Request.

- i. Within thirty (30) calendar days after receipt of a request by the City for any such change or such other period of time as the Parties may mutually agree to in writing, the Contractor shall submit to the City a proposal describing any changes in Contract Milestones or Contract

completion dates, products, functions, timing of delivery, assignment of personnel, and the like, and any associated price adjustment. The Contractor's proposal shall describe, in detail, the basis for the proposed price adjustment, including the charges for any products required to implement the change request.

ii. To the extent that additional cost or cost savings result from a change in required products, the Contractor shall obtain any additional products and provide them to the City at a negotiated price acceptable to the City and the Contractor. Similarly, if the change request is expected to result in a reduction in products required to perform the services, the Contractor's charges shall be reduced by the cost savings resulting from the products eliminated by the change request.

27.2.2 City's Acceptance of Change Request. If the City accepts the Contractor's proposal, the City shall issue a change order referencing the Contractor's proposal and both parties shall sign the change order. The Contractor shall not implement any change request until the City has issued a valid, properly executed, change order.

27.2.3 City's Rejection of Change Request. If the City does not accept the Contractor's proposal, the City may within two weeks of such non-acceptance: (i) withdraw its change request; or, (ii) modify its change request, in which case the procedures set forth above shall apply to the Contractor's response to the modified change request.

27.3. City Discretion. The City may, in its sole discretion, approve the proposed Change Order and shall forward same for additional signatures under the following conditions: (i) If it conforms to provisions of applicable laws, and (ii) if it is consistent with this Contract, and (iii) if the time of performance of this Contract will not be unreasonably delayed, (iv) the Final Completion date is not changed, (v) if the Change Order requires a change to the Final Completion date, such change has been authorized by an approved, executed, written Amendment to this Contract, and (vii) if the Change Order requires an increase in the price of the Contract, the City (1) has sufficient funds, and (2) if a budget transfer is required to cover the cost of the proposed Change Order, such transfer has secured the written approval of the Board of Aldermen and other required regulatory agencies.

27.4. Change Orders Governed by the Provisions of this Contract. All work performed under a Change Order is governed by the provisions of this Contract.

28. Conflicts or Disputes. This Contract represents the concurrence between the City and the Contractor and governs all disputes between them. In the instance of a conflict or dispute over issues not specifically referenced within the Contract, the following documents shall be

used as historical documents, without regard to the order of precedence, to resolve such conflicts or disputes, as follows: (i) the City's **RFP Number 7473**, and (ii) the Contractor's response to **RFP Number 7473**. Said historical documents are attached hereto as part of **Attachment A**.

28.1. Procedure. This procedure supersedes all statements to the contrary occurring either in proposals or other prior agreements, oral or written, and all other communications between the parties relating to this subject.

28.2. Presumption. This Contract or any section thereof shall not be construed against any party due to the fact that the Contract or any section thereof was drafted by such party.

29. Disputes; Legal Proceedings; Waiver of Trial by Jury and Continued Performance. The Contractor agrees that it waives a trial by jury as to any and all claims, causes of action or disputes arising out of this Contract or services to be provided pursuant to this Contract. Notwithstanding any such claim, dispute or legal action, the Contractor shall continue to perform services under this Contract in a timely manner, unless otherwise directed by the City.

30. Binding Contract. The City and the Contractor each bind themselves, and their successors, assigns and legal representatives to the other party to this Contract and to the successors, assigns and legal representatives of such other party with respect to all covenants of this Contract.

31. Waiver. Any waiver of the terms and conditions of this Contract by either of the parties hereto shall not be construed to be a waiver of any other term or condition of this Contract.

32. Governing Laws. This Contract, its terms and conditions and any claims arising therefrom shall be governed by the laws of the State of Connecticut.

33. Notice. Except as otherwise specifically prohibited in this Contract, whenever under this Contract approvals, authorizations, determinations, notices, satisfactions or waivers are required or permitted, such items shall be effective and valid only when given in writing signed by a duly authorized officer of the City or the Contractor, and delivered in hand or sent by mail, postage prepaid, to the party to whom it is directed, which until changed by written notice, are as follows:

Contractor:

City: Rosh Maghfour
Interim Chief Operating Officer
Waterbury Public Schools
236 Grand Street
Waterbury, CT 06702

With copy to:
City of Waterbury
Office of the Corporation Counsel
City Hall Municipal Building - 3rd Floor
235 Grand Street
Waterbury, CT 06702

34. City Code of Ordinances, Ethics and Conflict of Interest Code, Provisions.

The Person (the term "Person" shall herein be as defined in Section 38 of the City's Code of Ordinances) supplying the labor, services, equipment, materials, reports, plans, specifications, drawings, deliverables, incidentals, etc. under this Contract shall comply with all applicable Federal, State and Municipal statutes, regulations, charters, ordinances, rules, etc, whether or not they are expressly stated in this Contract, including but not limited to the following:

34.1. It shall be a material breach of this Contract, and, except as may be permitted by regulations or rulings of the City of Waterbury Board of Ethics it shall be a violation of the City's Code of Ordinances, for any Public Official, City Employee or Member of a Board or Commission who is participating directly or indirectly in the procurement process as set forth in the City's Code of Ordinances, including those participating in exempt transactions, to become or be the employee of any person contracting with the governmental body by whom the Official, Employee, or Board or Commission member is employed or is a member.

34.2. It shall be a material breach of this Contract, and it shall be a violation of the City's Code of Ordinances for any Person to offer, give, or agree to give any current or former Public Official, Employee or Member of a Board or Commission, or for such current or former Public Official, Employee or Member of a Board or Commission to solicit, demand, accept or agree to accept from another Person, a gratuity or an offer of employment in connection with any: decision; approval; disapproval; recommendation; preparation of any part of a program requirement or a requisition; influencing the content of any specification or procurement standard; or rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a Contract or Purchase Order, or to any solicitation or proposal therefore.

34.3. It shall be a material breach of this Contract and it shall be a violation of the City's Code of Ordinances for any payment, Gratuity, or offer of employment to be made as an inducement for the award of a subcontract or order, by or on behalf of a

subcontractor, the prime Contractor or higher tier subcontractor or any Person associated therewith, under a Contract or Purchase Order to the City.

34.4. The value of anything transferred or received in violation of the City's Charter, Code of Ordinances, and/or regulations promulgated there under, by any Person subject to said Charter and/or Ordinances may be recovered by the City.

34.5. Upon a showing that a subcontractor made a kickback to the City, a prime Contractor or a higher tier subcontractor in connection with the award of a subcontract or order there under, it shall be conclusively presumed that the amount thereof was included in the price of the subcontract or order and ultimately borne by the City and will be recoverable hereunder from the recipient. In addition, said value may also be recovered from the subcontractor making such kickbacks. Recovery from one offending party shall not preclude recovery from other offending parties.

34.6. It shall be a material breach of this Contract and it shall be a violation of the City's Code of Ordinances for a Person to be retained, or to retain a Person, to solicit or secure a contract with the City upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee; and every Person, before being awarded a City Contract, shall deliver to the City, on a City authored form, a representation that such Person has not retained anyone in violation of this subsection 34.6, the failure to deliver said form being a material breach of this Contract and a violation of the City's Code of Ordinances. Note, however, this subsection 34.6 shall not apply to full-time Employees who, as a condition of their employment, may be entitled to bonuses or other fees in accordance with their employment relationship.

34.7. The Person hereby expressly represents that he/she/it has complied with those sections of the City's Code of Ordinances requiring that said Person has **(i)** delivered to the City an affidavit, on a City authored form, stating that the Person and its affiliates have no delinquent taxes or other financial obligations owed to the City; **(ii)** filed the City authored financial disclosure statement form as set forth in the City's Code of Ordinances regarding disclosure of financial interests; **(iii)** delivered to the City a written acknowledgement, on a City authored form, evidencing receipt of a copy of the "Ethics and Conflict of Interest" ordinance for the City of Waterbury and hereby expressly represents that said Person is in full compliance with the entirety of said Code of Ordinances; and **(iv)** filed a current list of all taxable personal and real property as required by the State of Connecticut General Statutes. Any violation of this subsection 34.7 shall be deemed a material breach of this Contract and shall be a violation of the City's Code of Ordinances.

34.8. The definitions set forth in the City's Code of Ordinances shall be the primary source for interpretation of the forgoing subsections 34.1-34.7.

34.9. The Contractor is hereby charged with the requirement that it shall have knowledge of, and shall fully comply with, all relevant provisions of the City's Charter and all relevant provisions of the City's Code of Ordinances, including without limitation Chapters 93, titled "Discriminatory Practices", Chapter 38 titled "Centralized Procurement System", and Chapter 39 titled "Ethics and Conflict of Interest", of said Code as may be amended from time to time.

34.10 The Contractor hereby acknowledges receipt of a copy of the Chapters 38 and 39 of City's Ordinance regarding Procurement, Ethics, and Conflicts of Interest and has familiarized itself with said Code and hereby agrees to adhere to said Code. The text of Chapters 38 and 39 of said Code may be obtained from the Office of the City Clerk of the City and on the internet at the City Clerk's web site: <http://www.waterburyct.org/content/458/539/default.aspx> [click link titled "The City of Waterbury Code of Ordinances Passed 8/24/2009". For Chapter 38, click on "TITLE III: ADMINISTRATION", then click on "CHAPTER 38: CENTRALIZED PROCUREMENT SYSTEM". For Chapter 39, click on "TITLE III: ADMINISTRATION", then click on "CHAPTER 39: ETHICS AND CONFLICTS OF INTEREST"]].

34.11. The Contractor is hereby charged with the requirement that it shall have knowledge of, and shall fully comply with, the City's Ordinance Sections 34.15 through 34.99 entitled, "Ordinance Concerning the Hiring of Waterbury Residents on Certain Publicly-Funded Construction Projects," and the State of Connecticut Legislature's Special Act No. 01-1.

34.12. Every Person who conducts business with, contracts, with or provides commodities or services to the City, is charged with notice of the extent of the powers and authority, and the limitations thereon, of the Public Officials and Employees of the City, as set forth in the charter of the City, the Code of Ordinances and any Regulations or Policies pertaining thereto. In particular, and without implying any limitation as to its applicability, it applies to all Persons who participate in the procedures pertaining to the Centralized Procurement System as set forth in Chapter 38, and the Ethics and Conflict of Interest provisions set forth in Chapter 39 of the Code of Ordinances.

34.13. INTEREST OF CITY OFFICIALS. No member of the governing body of the City, and no other officer, employee, or agent of the City who exercises any functions or responsibilities in connection with the carrying out of the project, to which this agreement pertains, shall have any personal interest, direct or indirect, in this agreement.

34.14. PROHIBITION AGAINST CONTINGENCY FEES. The Contractor hereby represents that it has not retained anyone to solicit or secure a contract with the City upon an agreement or understanding for a commission, percentage, brokerage or contingency fee.

34.15. FREEDOM OF INFORMATION ACT NOTICE. Pursuant to State statute, in the event the total compensation payable to the Contractor set forth in Section 6 of this Contract is greater than \$2,500,000.00, the City is entitled to receive a copy of any and all Contractor records and files related to the performance of this Contract and those records and files are subject to the Freedom of Information Act ("the Act") and may be disclosed by the City pursuant to the Act.

35. Definitions. Whenever the following, words, terms, etc. appear in this Contract, the intent and meaning shall be as follows:

- 35.1 Additional Work:** Work required by the City that involves a substantial addition to, deduction from or modification of the Contract Documents.
- 35.2 Bid or Proposal:** The form on which the bidder is to submit a bid for the Work contemplated.
- 35.3 Bidder or Proposer:** A person, partnership, corporation or other business organization submitting a bid or proposal on the form for the Work contemplated.
- 35.4 City:** The City of Waterbury, acting directly or through specifically authorized personnel.
- 35.5 Construction Supervisor:** An employee of the City of Waterbury, or other City duly authorized person.
- 35.6 Contract Time:** The number of days as stated in the Contract to: (i) achieve Substantial Completion (ii) Final Completion and any other identified Project Milestone.
- 35.7 Equal:** The recognized equivalent in substance and function; considering quality, workmanship, economy of operation, durability and suitability for purposes intended, and not constituting a change in the Work specified. Whenever the words "equal" or "equals" or words of like import are used, it shall be understood they mean "equal" in the opinion of the City.
- 35.8 Final Completion:** The time at which the Project has progressed to the point where, in the opinion of the City, the Project is complete such that it is ready for final payment as evidenced by the City's, or its duly authorized City representative's, written recommendation of final payment. The terms "finally complete" and "finally completed" as applied to the Project refer to Final Completion.

- 35.9** Notice to Proceed: A letter from the City which shall state the date of execution of the Contract and specifically advise the Contractor to begin work on the Contract.
- 35.10** Plans: All drawings or reproductions of drawings pertaining to the construction of the work contemplated and its appurtenances.
- 35.11** Project Engineer or Manager: **Friar Architecture Inc.**
- 35.12** Shop Drawings: Drawings, diagrams, schedules, performance charts, brochures and other materials prepared by the Contractor or subcontractors, manufacturers or distributors which illustrate some portion of the work.
- 35.13** Specifications or Technical Specifications: The description, provisions and other requirements pertaining to the materials, methods and manner of performing the Project.
- 35.14** Subcontractor: A person, partnership, corporation or other business organization supplying labor and/or materials for work at the site of the Project to and under agreement with the Contractor.
- 35.15** Substantial Completion: The time at which, in the opinion of the Project Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work mean Substantial Completion thereof.
- 35.16** Substitution: A replacement of specified material, device or equipment which is sufficiently different in substance, function, quality or workmanship to become the subject of a Change Order.
- 35.17** Supplementary General Conditions (also known as Special Conditions): An extension to the terms, conditions, and provisions set forth in this document as additional, material, provisions of this Contract.
- 35.18** Work: All plant, labor, materials, services, supplies, equipment and other facilities and items necessary for, or incidental to, the completion of the terms of the Contract.
- 35.19** Using Agency: **City of Waterbury Department of Education.**

[Signature page follows]

IN WITNESS WHEREOF, the parties hereto execute this Contract on the dates signed below.

WITNESSES:

CITY OF WATERBURY

Sign: _____
Print name: _____

By: _____
Neil M. O'Leary, Mayor

Sign: _____
Print name: _____

Date: _____

WITNESSES:

Sign: _____
Print name: _____

By: _____
Print name: _____
Its _____

Sign: _____
Print name: _____

Date: _____

ATTACHMENT A

Attachment A shall consist of the following, which are attached hereto, are acknowledged by the Contractor as having been received, or otherwise hereby incorporated by reference as noted below, and all are made a part hereof:

DRAFT - CITY RESERVES THE RIGHT TO EDIT

ATTACHMENT C

**KEVIN MCCAFFERY
DIRECTOR OF PURCHASING
235 GRAND STREET
WATERBURY, CT 06702**

The undersigned declares that the only persons or parties interested in this Proposal as principals are as stated; that the Proposal is made without any collusion with other persons, firms, or corporations; that Proposer has carefully examined the entire Request for Proposal; that Proposer has informed itself fully in regard to all conditions pertaining to the Work and the place where it is to be performed; and that with this representation, the undersigned makes this Proposal. These prices shall cover all expenses incurred in performing the Work required under the Contract Documents, of which this Proposal and Form are a part.

The undersigned agrees and covenants that the Contract Time shall commence on delivery of the City of Waterbury's written notice to proceed, which shall occur after contract execution by both parties.

The undersigned acknowledges receipt of addenda numbered: (insert date)

1 _____ 4 _____
2 _____ 5 _____
3 _____ 6 _____

All Work for this Project shall be performed at the Proposal Prices as described in the Proposal Documents.

The undersigned hereby certifies under the penalties of perjury that this Proposal is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this section, the work "person" shall mean any natural person, joint venture, partnership, corporation, or other business or legal entity.

Social Security Number
or Federal Identification Number

Signature of Individual or Corporate Name

Corporate Officer
(if applicable)

City notice of acceptance should be mailed, telegraphed or delivered to the undersigned Proposer at the following address:

Name _____

By: _____
(Title)

Business Address: _____
(City, State, Zip Code)

Phone: _____

Date: _____

Note: If the Proposer is a corporation, indicate State of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses, if different from business address.

Attachment D

Insurance Requirements

Contractor/Vendor shall agree to maintain in force at all times during the contract the following minimum coverages and shall name City of Waterbury and the Waterbury Board of Ed as an Additional Insured on a primary and non-contributory basis to all policies, except Workers Compensation. All policies should also include a Waiver of Subrogation. Insurance shall be written with Carriers approved in the State of Connecticut and with a minimum AM Best's rating of "A- "VIII.

If any policy is written on a "Claims Made" basis, the policy must be continually renewed for a minimum of two (2) years from the completion date of this contract. If the policy is replaced and/or the retroactive date is changed, then the expiring policy must be endorsed to extend the reporting period for claims for the policy in effect during the contract for two (2) years from the completion date.

Original, completed Certificates of Insurance must be presented to The City of Waterbury and the Waterbury Board of Ed prior to contract issuance. Contractor/Vendor agrees to provide replacement/renewal certificates at least 30 days prior to the expiration date of the policies. Should any of the above described policies be cancelled, limits reduced or coverage altered, 30 days written notice must be given to the City of Waterbury and the Waterbury Board of Education.

General Liability: \$1,000,000 each Occurrence
 \$2,000,000 General Aggregate
 \$2,000,000 Products/ Completed Operations Aggregate

Auto Liability: \$1,000,000 Combined Single Limit each Accident
 Any Auto, All Owned and Hired Autos

Workers Compensation: WC Statutory Limits
 Employer Liability (EL)
 \$1,000,000 EL each Accident
 \$1,000,000 EL Disease each Employee
 \$1,000,000 EL Disease Policy Limits

Excess/Umbrella Liability: \$1,000,000 each Occurrence
 \$1,000,000 Aggregate

Builder's Risk/Installation Floater Insurance:
 \$1,000,000 each Occurrence OR Limits equaling the Value of
 the Project

Contractors Pollution Liability Insurance:
 \$1,000,000 each Occurrence/Claim
 \$1,000,000 Aggregate
 There will be no exclusion for Hazardous materials, including Asbestos and Lead

Other Insurance Required: Abuse / Molestation Liab Ins.
 \$1,000,000 each Occurrence
 \$1,000,000 Aggregate
 (Applicable to Contractors working directly with Youths/Minors)

Wording for Additional Insured Endorsement and Waiver of Subrogation:

The City Waterbury and its Board of Education is listed as an Additional Insured on a primary and non-contributory basis on all policies except Workers Compensation and Professional Liability. All policies shall include a Waiver of Subrogation except Builders Risk.

THE CITY OF WATERBURY

Bunker Hill and Washington ES – Elevator Additions

SECTION 00400

Date: _____

Director of Purchasing
City of Waterbury
235 Grand Street
Waterbury, CT 06702

Sir:

Pursuant to and in compliance with the Invitation to Bid, the Undersigned:

(Print or Type Business Name of Bidder)

having carefully examined all the Bid Documents, together with all Addenda, as acknowledged on the Addendum Acknowledgment Form, and having informed itself fully in regard to all conditions pertaining to the providing of the specified Bid Items and the place where the Work, Services and/or Items are to be delivered, constructed, installed and/or performed; and that with this representation, the undersigned makes this Bid.

Further, the undersigned proposes to provide the specified Bid Items, to perform all Services and/or to furnish all equipment, labor and materials, etc. and to complete the Work in its entirety in the manner and under the conditions required by the Bid Documents at the prices listed as follows:

[Bid Items set out on following page]

BID ITEMS

	Bunker Hill Elementary School	
BID ITEM	AMOUNT BID IN WORDS	AMOUNT BID IN NUMBERS
1.0	Base Bid _____ _____ _____ Lump Sum	\$ _____ .00
2.0	Alternate #1 – Site Paving and Regrading (see drawing C1.0) _____ _____ _____ Lump Sum	\$ _____ .00

<u>TOTAL BID PRICE ITEMS 1.0 – 2.0 (in words)</u> _____ _____	\$ _____ .00
--	--------------

	Washington Elementary School	
BID ITEM	AMOUNT BID IN WORDS	AMOUNT BID IN NUMBERS
1.0	Base Bid _____ _____ _____ Lump Sum	\$ _____ .00

<u>TOTAL BID PRICE ITEMS 1.0 – 2.0 (in words)</u> _____ _____	\$ _____ .00
--	--------------

ID#: 22-42052

Connecticut Department of Labor
Wage and Workplace Standards

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: _____ Project Town: Waterbury
State#: _____ FAP#: _____
Project: Elevator Additions At Bunker Hill and Washington Elementary Schools

CLASSIFICATION	Hourly Rate	Benefits
1b) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters. **See Laborers Group 7**		
1c) Asbestos Worker/Heat and Frost Insulator	44.57	31.79
2) Boilermaker	44.46	28.51
3a) Bricklayer, Cement Mason, Concrete Finisher (including caulking), Stone Masons	37.75	34.62 + a
3b) Tile Setter	37.1	30.52
3c) Tile and Stone Finishers	30.0	25.30
3d) Marble & Terrazzo Finishers	31.07	24.23
3e) Plasterer	41.9	28.75

-----LABORERS-----

4) Group 1: Laborers (common or general), acetylene burners, concrete specialists, wrecking laborers, fire watchers.	32.0	24.40
4a) Group 2: Mortar mixers, plaster tender, power buggy operators, powdermen, fireproofers/mixer/nozzleman (Person running mixer and spraying fireproof only).	32.25	24.40
4b) Group 3: Jackhammer operators/pavement breaker, mason tender (brick), mason tender (cement/concrete), forklift operators and forklift operators (masonry).	32.5	24.40
4c) **Group 4: Pipelayers (Installation of water, storm drainage or sewage lines outside of the building line with P6, P7 license) (the pipelayer rate shall apply only to one or two employees of the total crew who primary task is to actually perform the mating of pipe sections) P6 and P7 rate is \$26.80.	33.0	24.40
4d) Group 5: Air track operator, sand blaster and hydraulic drills.	32.75	24.40
4e) Group 6: Blasters, nuclear and toxic waste removal.	35.0	24.40
4f) Group 7: Asbestos/lead removal and encapsulation (except it's removal from mechanical systems which are not to be scrapped).	33.0	24.40
4g) Group 8: Bottom men on open air caisson, cylindrical work and boring crew.	30.28	24.40
4h) Group 9: Top men on open air caisson, cylindrical work and boring crew.	29.74	24.40
4i) Group 10: Traffic Control Signalman	18.0	24.40
5) Carpenter, Acoustical Ceiling Installation, Soft Floor/Carpet Laying, Metal Stud Installation, Form Work and Scaffold Building, Drywall Hanging, Modular-Furniture Systems Installers, Lathers, Piledrivers, Resilient Floor Layers.	36.07	26.15

As of: November 18, 2022

5a) Millwrights	36.32	26.81
6) Electrical Worker (including low voltage wiring) (Trade License required: E1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	41.4	31.07+3% of gross wage
7a) Elevator Mechanic (Trade License required: R-1,2,5,6)	58.9	36.885+a+b
-----LINE CONSTRUCTION-----		
Groundman	26.5	6.5% + 9.00
Linemen/Cable Splicer	48.19	6.5% + 22.00
8) Glazier (Trade License required: FG-1,2)	40.78	23.40 + a
9) Ironworker, Ornamental, Reinforcing, Structural, and Precast Concrete Erection	39.7	38.77 + a
-----OPERATORS-----		
Group 1: Crane Handling or Erecting Structural Steel or Stone; Hoisting Engineer (2 drums or over). (Trade License Required)	50.27	26.80 + a
Group 1a: Front End Loader (7 cubic yards or over); Work Boat 26 ft. and Over	46.07	26.80 + a
Group 2: Cranes (100 ton rate capacity and over); Bauer Drill/Caisson. (Trade License Required)	49.91	26.80 + a
Group 2a: Cranes (under 100 ton rated capacity).	49.06	26.80 + a

As of: November 18, 2022

Group 2b: Excavator over 2 cubic yards; Pile Driver (\$3.00 premium when operator controls hammer)	45.71	26.80 + a
Group 3: Excavator; Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar); Grader Operator; Bulldozer Finegrade. (slopes, shaping, laser or GPS, etc.). (Trade License Required)	44.86	26.80 + a
Group 4: Trenching Machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper); Goldhofer.	44.42	26.80 + a
Group 5: Specialty Railroad Equipment; Asphalt Spreader, Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24 mandrel).	43.73	26.80 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller.	43.73	26.80 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	43.38	26.80 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under mandrel).	42.99	26.80 + a
Group 8: Mechanic; Grease Truck Operator; Hydroblaster; Barrier Mover; Power Stone Spreader; Welding; Work Boat Under 26 ft.; Transfer Machine; Rigger Foreman.	42.54	26.80 + a
Group 9: Front End Loader (under 3 cubic yards); Skid Steer Loader regardless of attachments; (Bobcat or Similar); Forklift, Power Chipper; Landscape Equipment (including Hydroseeder); Vacuum Excavation Truck and Hydrovac Excavation Truck (27 HG pressure or greater).	42.04	26.80 + a
Group 10: Vibratory hammer; ice machine; diesel and air, hammer, etc.	39.7	26.80 + a

As of: November 18, 2022

Group 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment.	39.7	26.80 + a
Group 12: Wellpoint Operator.	39.63	26.80 + a
Group 13: Compressor Battery Operator.	38.97	26.80 + a
Group 14: Elevator Operator; Tow Motor Operator (solid tire no rough terrain).	37.66	26.80 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	37.2	26.80 + a
Group 16: Maintenance Engineer.	36.46	26.80 + a
Group 17: Portable Asphalt Plant Operator; Portable Crusher Plant Operator; Portable Concrete Plant Operator; Portable Grout Plant Operator; Portable Water Filtration Plant Operator.	41.39	26.80 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (Minimum for any job requiring a CDL license); Rigger; Signalman.	38.61	26.80 + a
-----PAINTERS (Including Drywall Finishing)-----		
10a) Brush and Roller	37.22	23.40
10b) Taping Only/Drywall Finishing	37.97	23.40
10c) Paperhanger and Red Label	37.72	23.40
10e) Blast and Spray	40.22	23.40
11) Plumber (excluding HVAC pipe installation) (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2)	47.03	34.05

As of: November 18, 2022

12) Well Digger, Pile Testing Machine	37.26	24.05 + a
Roofer: Cole Tar Pitch	43.0	21.80 + a
Roofer: Slate, Tile, Composition, Shingles, Singly Ply and Damp/Waterproofing	41.5	21.80 + a
15) Sheetmetal Worker (Trade License required for HVAC and Ductwork: SM-1,SM-2,SM-3,SM-4,SM-5,SM-6)	40.89	41.72
16) Pipefitter (Including HVAC work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4, G-1, G-2, G-8 & G-9)	47.03	34.05
-----TRUCK DRIVERS-----		
17a) 2 Axle, Helpers	31.16	28.78 + a
17b) 3 Axle, 2 Axle Ready Mix	31.27	28.78 + a
17c) 3 Axle Ready Mix	31.33	28.78 + a
17d) 4 Axle	31.39	28.78 + a
17e) 4 Axle Ready Mix	31.44	28.78 + a
17f) Heavy Duty Trailer (40 Tons and Over)	33.66	28.78 + a
17g) Specialized Earth Moving Equipment (Other Than Conventional Type on-the-Road Trucks and Semi-Trailers, Including Euclids)	31.44	28.78 + a

17h) Heavy Duty Trailer up to 40 tons	32.39	28.78 + a
17i) Snorkle Truck	31.54	28.78 + a
18) Sprinkler Fitter (Trade License required: F-1,2,3,4)	47.55	28.96 + a
19) Theatrical Stage Journeyman	25.76	7.34

Welders: Rate for craft to which welding is incidental.

**Note: Hazardous waste removal work receives additional \$1.25 per hour for truck drivers.*

***Note: Hazardous waste premium \$3.00 per hour over classified rate*

Crane with 150 ft. boom (including jib) - \$1.50 extra

Crane with 200 ft. boom (including jib) - \$2.50 extra

Crane with 250 ft. boom (including jib) - \$5.00 extra

Crane with 300 ft. boom (including jib) - \$7.00 extra

Crane with 400 ft. boom (including jib) - \$10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyman instructing and supervising the work of each apprentice in a specific trade.

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page:

www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

~~Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clause (29 CFR 5.5 (a) (1) (ii)).

Please direct any questions which you may have pertaining to classification of work and payment of prevailing wages to the Wage and Workplace Standards Division, telephone (860)263-6790.

As of: November 18, 2022

As of: November 18, 2022



Opportunity ★ Guidance ★ Support



THIS IS A PUBLIC WORKS PROJECT

Covered by the

PREVAILING WAGE LAW

CT General Statutes Section 31-53

**If you have QUESTIONS regarding your wages
CALL (860) 263-6790**

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

Sec. 31-53b. Construction safety and health course. New miner training program. Proof of completion required for mechanics, laborers and workers on public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (g) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 48 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2009, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

(P.A. 06-175, S. 1; P.A. 08-83, S. 1.)

History: P.A. 08-83 amended Subsec. (a) by making provisions applicable to public works project contracts entered into on or after July 1, 2009, replacing provision re total cost of work with reference to Sec. 31-53(g), requiring proof in certified payroll form that new mechanic, laborer or worker has completed a 10-hour or more construction safety course and adding provision re new miner training program, amended Subsec. (b) by substituting "person" for "employee" and adding "or program", amended Subsec. (c) by adding "or in accordance with Federal Mine Safety and Health Administration Standards" and setting new deadline of January 1, 2009, deleted former Subsec. (d) re "public building", added new Subsec. (d) re exemptions for public service company employees and delivery drivers who perform no labor other than delivery and made conforming and technical changes, effective January 1, 2009.

November 29, 2006

Notice
To All Mason Contractors and Interested Parties
Regarding Construction Pursuant to Section 31-53 of the
Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.
- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

STATUTE 31-55a

- SPECIAL NOTICE -

To: All State and Political Subdivisions, Their Agents, and Contractors

Connecticut General Statute 31-55a - Annual adjustments to wage rates by contractors doing state work.

Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54 of the general statutes, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 of the general statutes shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

- The prevailing wage rates applicable to any contract or subcontract awarded on or after October 1, 2002 are subject to annual adjustments each July 1st for the duration of any project which was originally advertised for bids on or after October 1, 2002.
- Each contractor affected by the above requirement shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.
- It is the **contractor's** responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's Web Site. The annual adjustments will be posted on the Department of Labor Web page: www.ctdol.state.ct.us. For those without internet access, please contact the division listed below.
- The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project. All subsequent annual adjustments will be posted on our Web Site for contractor access.

Any questions should be directed to the Contract Compliance Unit, Wage and Workplace Standards Division, Connecticut Department of Labor, 200 Folly Brook Blvd., Wethersfield, CT 06109 at (860)263-6790.

NOTICE

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached “Contracting Agency Certification Form” to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

Inquiries can be directed to 860.263.6790.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

Contracting Agency Certification Form

I, _____, acting in my official capacity as _____,
Authorized Representative Title
for _____, located at _____,
Contracting Agency Address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
Project name and number Address

shall be \$_____, which includes all work, regardless of whether such project
contains of one or more contracts.

Contractor Information

Name: _____

Address: _____

Authorized Representative: _____

Approximate Starting Date: _____

Approximate Completion Date: _____

Signature

Date

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM
Construction Manager at Risk/General Contractor/Prime Contractor

I, _____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

Street

City

and all of its subcontractors will pay all workers on the

Project Name and Number

Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

Signed

Subscribed and sworn to before me this _____ day of _____, _____.

Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53 Certified Payrolls with a statement of compliance shall be submitted monthly to the contracting agency.												PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS										Connecticut Department of Labor Wage and Workplace Standards Division 200 Folly Brook Blvd. Wethersfield, CT 06109							
CONTRACTOR NAME AND ADDRESS:												SUBCONTRACTOR NAME & ADDRESS						WORKER'S COMPENSATION INSURANCE CARRIER POLICY # EFFECTIVE DATE: EXPIRATION DATE:											
PAYROLL NUMBER		Week-Ending Date		PROJECT NAME & ADDRESS																									
PERSON/WORKER, ADDRESS and SECTION		APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION		DAY AND DATE						Total ST Hours	BASE HOURLY RATE	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS				GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY								
						S	M	T	W	TH	F	S				Total O/T Hours	TOTAL FRINGE BENEFIT PLAN CASH	FICA	FEDERAL			STATE	LIST OTHER						
				Trade License Type & Number - OSHA 10 Certification Number		HOURS WORKED EACH DAY																							
												\$ Base Rate	1. \$ 2. \$ 3. \$																
												\$ Cash Fringe	4. \$ 5. \$ 6. \$																
												\$ Base Rate	1. \$ 2. \$ 3. \$																
												\$ Cash Fringe	4. \$ 5. \$ 6. \$																
												\$ Base Rate	1. \$ 2. \$ 3. \$																
												\$ Cash Fringe	4. \$ 5. \$ 6. \$																
												\$ Base Rate	1. \$ 2. \$ 3. \$																
												\$ Cash Fringe	4. \$ 5. \$ 6. \$																
12/9/2013												*IF REQUIRED																	
WWS-CP1												*SEE REVERSE SIDE												PAGE NUMBER ____OF					

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker’s compensation, income taxes, etc.).

Please specify the type of benefits provided:

- 1) Medical or hospital care _____
- 4) Disability_____
- 2) Pension or retirement _____
- 5) Vacation, holiday_____
- 3) Life Insurance _____
- 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____ of _____, (hereafter known as Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such person is covered by a worker’s compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.
2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

(Signature)

(Title)

Submitted on (Date)

Weekly Payroll Certification For Public Works Projects (Continued)				PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS										Week-Ending Date: Contractor or Subcontractor Business Name:					
WEEKLY PAYROLL																			
PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION	DAY AND DATE						Total ST Hours	BASE HOURLY RATE	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS				GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				S	M	T	W	TH	F	S									
			Trade License Type & Number - OSHA 10 Certification Number								Total O/T Hours			TOTAL FRINGE BENEFIT PLAN CASH					
				HOURS WORKED EACH DAY															
											\$ Base Rate	1. \$ 2. \$ 3. \$							
											\$ Cash Fringe	4. \$ 5. \$ 6. \$							
											\$ Base Rate	1. \$ 2. \$ 3. \$							
											\$ Cash Fringe	4. \$ 5. \$ 6. \$							
											\$ Base Rate	1. \$ 2. \$ 3. \$							
											\$ Cash Fringe	4. \$ 5. \$ 6. \$							
											\$ Base Rate	1. \$ 2. \$ 3. \$							
											\$ Cash Fringe	4. \$ 5. \$ 6. \$							
											\$ Base Rate	1. \$ 2. \$ 3. \$							
											\$ Cash Fringe	4. \$ 5. \$ 6. \$							
*IF REQUIRED																			
12/9/2013 WWS-CP2																			
NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)																			
PAGE NUMBER ____ OF																			

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS												Connecticut Department of Labor Wage and Workplace Standards Division 200 Folly Brook Blvd. Wethersfield, CT 06109								
In accordance with Connecticut General Statutes, 31-53 Certified Payrolls with a statement of compliance shall be submitted monthly to the contracting agency.												WEEKLY PAYROLL								
CONTRACTOR NAME AND ADDRESS: Landon Corporation, 15 Connecticut Avenue, Northford, CT 06472										SUBCONTRACTOR NAME & ADDRESS XYZ Corporation 2 Main Street Yantic, CT 06389			WORKER'S COMPENSATION INSURANCE CARRIER Travelers Insurance Company POLICY # #BAC8888928 EFFECTIVE DATE: 1/1/09 EXPIRATION DATE: 12/31/09							
PAYROLL NUMBER	Week-Ending Date	PROJECT NAME & ADDRESS																		
1	9/26/09	DOT 105-296, Route 82																		
PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE							Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS				GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				S	M	T	W	TH	F	S					FICA	FEDERAL	STATE	LIST OTHER		
				20	21	22	23	24	25	26										
Robert Craft 81 Maple Street Willimantic, CT 06226		M/C	Electrical Lineman E-1 1234567 Owner OSHA 123456		8	8	8	8	8			S-TIME 40 \$ 30.75 Base Rate O-TIME \$ 8.82 Cash Fringe	1. \$ 5.80 2. \$ 3. \$ 2.01 4. \$ 5. \$ 6. \$	\$1,582.80				P-xxxx	\$1,582.80	#123 \$ xxx.xx
Ronald Jones 212 Elm Street Norwich, CT 06360	65%	M/B	Electrical Apprentice OSHA 234567		8	8	8	8	8			S-TIME 40 \$ 19.99 Base Rate O-TIME \$ 16.63 Cash Fringe	1. \$ 2. \$ 3. \$ 4. \$ 5. \$ 6. \$	\$1,464.80	xx.xx	xxx.xx	xx.xx	G-xxx	\$1,464.80	#124 \$xxx.xx
Franklin T. Smith 234 Washington Rd. New London, CT 06320 SECTION B		M/H	Project Manager			8						S-TIME 8 \$ Base Rate O-TIME \$ Cash Fringe	1. \$ 2. \$ 3. \$ 4. \$ 5. \$ 6. \$	\$1,500.00	xx.xx	xx.xx	xx.xx	M-xx.x		#125 xxx.xx
												S-TIME \$ Base Rate O-TIME \$ Cash Fringe	1. \$ 2. \$ 3. \$ 4. \$ 5. \$ 6. \$							

7/13/2009
WWS-CP1
*IF REQUIRED
*SEE REVERSE SIDE
PAGE NUMBER 1 OF 2

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

- 1) Medical or hospital care Blue Cross 4) Disability _____
2) Pension or retirement _____ 5) Vacation, holiday _____
3) Life Insurance Utopia 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of 9/26/09,

I, Robert Craft of XYZ Corporation, (hereafter known as
Employer) in my capacity as Owner (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such employee of the Employer is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such employee's name first appears.

Robert Craft owner 10/2/09
(Signature) (Title) Submitted on (Date)

Section B: Applies to CONNDOT Projects ONLY

That pursuant to CONNDOT contract requirements for reporting purposes only, all employees listed under Section B who performed work on this project are not covered under the prevailing wage requirements defined in Connecticut General Statutes Section 31-53.

Robert Craft owner 10/2/09
(Signature) (Title) Submitted on (Date)

Note: CTDOL will assume all hours worked were performed under Section A unless clearly delineated as Section B WWS-CP1 as such. Should an employee perform work under both Section A and Section B, the hours worked and wages paid must be segregated for reporting purposes.

THIS IS A PUBLIC DOCUMENT
DO NOT INCLUDE SOCIAL SECURITY NUMBERS

Information Bulletin

Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine "job classification" on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

- **ASBESTOS WORKERS**

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- **ASBESTOS INSULATOR**

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- **BOILERMAKERS**

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- **BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS**

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- **CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS**

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **LABORER, CLEANING**

- The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

- If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

- An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

- **ELECTRICIANS**

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ****License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.***

- **ELEVATOR CONSTRUCTORS**

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. **License required by Connecticut General Statutes: R-1,2,5,6.*

- **FORK LIFT OPERATOR**

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- **GLAZIERS**

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- **IRONWORKERS**

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- **INSULATOR**

- Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

- **LABORERS**

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal)).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- **PAINTERS**

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- **LEAD PAINT REMOVAL**

- Painter's Rate

1. Removal of lead paint from bridges.
2. Removal of lead paint as preparation of any surface to be repainted.
3. Where removal is on a Demolition project prior to reconstruction.

- Laborer's Rate

1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- **PLUMBERS AND PIPEFITTERS**

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- **POWER EQUIPMENT OPERATORS**

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ****License required, crane operators only, per Connecticut General Statutes.***

- **ROOFERS**

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- **SHEETMETAL WORKERS**

Fabricate, assemble, install and repair sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, fascia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- **SPRINKLER FITTERS**

Installation, alteration, maintenance and repair of fire protection sprinkler systems.

****License required per Connecticut General Statutes: F-1,2,3,4.***

- **TILE MARBLE AND TERRAZZO FINISHERS**

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are required to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ****License required, drivers only, per Connecticut General Statutes.***

For example:

- Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
- Hauling material off site is not covered provided they are not dumping it at a location outlined above.
- Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➤ *Any questions regarding the proper classification should be directed to:*
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6790.

**Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES**

- ⇒ Please Note: If the “Benefits” listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the “Benefits” section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

- a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Elevator Constructors: Mechanics

- a. Paid Holidays: New Year’s Day, Memorial Day, Independence Day, Labor Day, Veterans’ Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.
- b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

- a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year’s Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

- a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

- a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

- a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers

(Heavy and Highway Construction & Building Construction)

- a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

CHAPTER 34: CITY POLICY

Section

General Provisions

34.01 Lost articles; state law adopted

Hiring of Waterbury Residents on Certain Publicly-Funded Construction Projects

- 34.10 Title
- 34.15 Purpose
- 34.16 Findings
- 34.17 Definitions
- 34.18 Hiring goal and implementation
- 34.19 Referral mechanism
- 34.20 Monitoring
- 34.21 Good faith efforts
- 34.22 Contract requirements for covered services

Cross-reference:

Centralized procurement system, see Ch. 38

Interlocal agreements, see Ch. 40

Statutory reference:

Advertising; sale of perishable goods, see Conn. Gen. Stat. § 50-11

Disposition after expiration of time for making claim, see Conn. Gen. Stat. § 50-14

Duties of finder, see Conn. Gen. Stat. § 50-10

Lost and unclaimed property, see Conn. Gen. Stat. Ch. 859

Procedure if unclaimed, see Conn. Gen. Stat. § 50-13

Restoration to owner if claimed, see Conn. Gen. Stat. § 50-12

GENERAL PROVISIONS

§ 34.01 LOST ARTICLES; STATE LAW ADOPTED.

The provisions of Conn. Gen. Stat. §§ 50-10 through 50-14 are adopted as permitted by Conn. Gen. Stat. § 50-9 and shall apply within the city to the finding of any article of the value of \$1 or more. (1967 Code, § 13-11)

Hiring of Waterbury Residents on Certain Publicly-Funded Construction Projects

§ 34.10 TITLE.

The City of Waterbury Code of Ordinances §§ 34.10 through 34.22 entitled “Hiring of Waterbury Residents on Certain Publicly-Funded Construction Projects” shall also be known and may be cited as the “Good Jobs Ordinance” for the City.

(Ord. passed 5-13-2015)

§ 34.15 PURPOSE.

The purpose of this subchapter is to increase the benefit to the City of Waterbury and its residents from the city’s investment of public funds in certain publicly-funded construction projects to allow the city to recognize, as a benefit of such investment, a reduction in the amount of poverty and unemployment that would otherwise exist amongst its residents and also to help reduce the economic burden that would otherwise be placed on the city in having to provide alternative assistance to those residents who, but for their being hired pursuant to the provisions of this ordinance, would remain unemployed.

(Ord. passed 2-21-2012)

§ 34.16 FINDINGS.

The City of Waterbury finds that a substantial number of city residents are not being employed by contractors performing work on publicly-funded construction projects in the City of Waterbury and that the residents, therefor, are not receiving the maximum possible benefit from the City of Waterbury’s investment of public funds in the projects. The city further finds that:

(A) Recent research of hiring patterns on construction projects reveals a pattern of low hiring of residents in favor of nonresidents whose hiring is draining significant resources from the city.

(1) Only 14% of work hours performed on the construction of the \$138,000,000 waste water treatment plant in 1998 - 1999 were performed by residents;

(2) Only 10% of laborers hours on city street paving in 1999 were performed by residents;

(3) With an average wage of \$21 per hour on tax-funded city construction work as exemplified by the waste water treatment plant construction project, more than \$13,000,000 in wages was lost by city residents on that project. Due to typical turnover of those funds among businesses

in the community, \$13,000,000 - \$26,000,000 of additional economic activity from the multiplier affect was lost to city businesses;

(4) As a result of the high percentage of noncity residents on construction projects, fewer Waterbury residents are able to be home owners, thus reducing property taxes to the city. For each resident who loses the opportunity to be a home owner, the city loses an estimated \$2,000 in revenue per year.

(5) The migration of benefits caused by the high percentage of noncity residents on construction projects increases the burden on health care providers to provide uncompensated care to Waterbury residents without health insurance. Over the course of the waste water treatment plant project alone, for example, \$5,000,000 in health and pension benefits were lost to city residents. If this subchapter were minimally met, it would double the wages and benefits going to city residents; and

(6) The extra cost to tax payers of the under-usage of apprentices on the project compared to what is permissible under state law is estimated at close to \$1,000,000.

(B) Waterbury residents face higher rates of unemployment than other towns and cities in the region and state.

(1) The unemployment rate among construction workers who are residents of the city is 50% higher than the statewide unemployment rate among construction workers, and more than double the unemployment rate among construction workers in similarly-sized cities. For example, the Connecticut Department of Labor reports that in September 1999, 324 city residents applied for construction jobs at unemployment offices out of a total construction workforce of 3,600 (9%). Statewide, 3,908 applicants applied out of a total construction labor force of 63,800 (6%). In Danbury, 166 city residents applied out of a total construction workforce of 4,100 (4%).

(2) Since 1984 the city's unemployment rate has been consistently higher than the rate of unemployment in the Naugatuck Valley region and the state. Unemployment is especially severe in some neighborhoods, which faced up to 19% unemployment, compared to the city's 8% unemployment in the 1990 Census.

(C) Poverty is much greater and incomes are much lower in Waterbury than elsewhere in the region and state.

(1) According to the 1990 Census, 12.1% of the city's residents lived below the poverty level, compared to 2.7% in the rest of the region and 6.8% statewide.

(2) Median 1990 household income was \$30,533 in Waterbury compared to \$41,721 for the state, and compared to \$45,000 - \$67,500 for towns in the rest of the Naugatuck Valley region. Estimates updating this data to 1997 show little change. Residents on average earn \$10,000 less per capita than the statewide average of \$28,000.

(3) Poverty is even more pronounced in some neighborhoods with up to 30% of their residents in poverty.

(4) The average wage for residents coming off of welfare in the city is one of the lowest in the State of Connecticut at \$5.93 per hour.

(5) Over one-third of female headed households are under poverty.

(6) City children are among the poorest in the State of Connecticut, 61% of students city-wide are eligible for reduced price meals versus 25% statewide.

(Ord. passed 2-21-2012)

§ 34.17 DEFINITIONS.

For the purpose of this subchapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

ADMINISTRATOR. The person(s), city department or agency designated by the Mayor of the city with the responsibility of overseeing the implementation and enforcement of this subchapter.

APPRENTICE. Definition as set forth in Conn. Gen. Stat. § 31-22m and any subsequent amendments approved by the Connecticut General Assembly is incorporated by reference herein.

BASIC SKILLED WORKER. A person who is currently enrolled in or having completed a training program administered by or on behalf of a legally organized labor union or a state-approved standardized craft training program. Specifically excluded from this definition is an APPRENTICE as defined by Conn. Gen. Stat. § 31-22m.

CITY. The City of Waterbury, Connecticut.

CITY FUNDS. Funds originating within the city pursuant to the city's taxing powers or authority to raise money through the sale of public bonds, permit tax abatements and enter into tax fixing agreements and tax increment financing agreements.

CONSTRUCTION. The process of building, altering, repairing, improving or demolishing any public infrastructure facility, including any public structure, public building or other public improvements of any kind to city property or other property or space in which the city has an interest. It does not include the routine operation, routine repair or routine maintenance of any existing public infrastructure facility, including structures, buildings or real property.

CONSTRUCTION PROJECT. Any project for which the primary purpose involves construction, as defined above, deconstruction, the remediation of any hazardous materials as defined in the Connecticut General Statutes, the rehabilitation or renovation of any structure or the creation, extension, reconstruction, reconditioning or rebuilding of any portion of a municipal infrastructure or public utility system.

CONTRACTOR. Any person hired by the city, directly or indirectly through an owner, to perform construction work on covered projects.

COVERED PROJECT. Any construction project taking place in the city with a value of \$500,000 or greater, funded in whole or in part by city funds or funds administered by the city in accordance with federal or state grant or loan programs or any other federal or state programs. This definition of **COVERED PROJECT** shall include funds derived from the aforementioned federal or state grant, loan or other programs only to the extent permitted by federal and state law. The value of the projects shall equal the total consideration to be paid to all contractors stated in each contract pursuant to which contractors are performing construction work on covered projects.

FIRST-SOURCE REFERRAL PROGRAM. A program whose purpose includes but is not limited to, job training and the referral of qualified residents to contractors. The **FIRST-SOURCE REFERRAL PROGRAM** shall use the Good Jobs umbrella coalition of community groups and churches as a priority source for recruitment.

GOOD JOBS ADMINISTRATION BUDGET. The amount of funding required to oversee the implementation and enforcement of this subchapter in a given fiscal year.

HIRING GOAL. The 30% of the total worker hours on each covered project shall be performed by residents. At least 25% of construction trade jobs shall go to apprentices and/or basic skilled workers. At least 70% of all "new hires" (those workers hired by a contractor on a project, other

than existing employees and those referred by union hiring halls with prior seniority in the case of a union job) shall be "economically disadvantaged" individuals, defined as those earning less than 150% of the poverty line at the time of application. A minimum of 5% of the construction workforce labor hours will be local resident, minority artisans. A minimum of 5% of the construction workforce labor hours will be women. A minimum of 10% of the total work hours shall be allocated for minorities. Contractors are expected to employ a workforce that represents the population of the city.

LIAISON COMMITTEE. The committee established by the Board of Aldermen to monitor compliance with the provisions of this subchapter, and make recommendations to the Administrator and the Board of Aldermen regarding administration of this subchapter. The committee shall convene at a minimum of once every quarter in a space open to the public. The committee shall be comprised of two representatives of the Board of Aldermen one to be appointed by the President of the Board of Aldermen and one to be appointed by the Minority Leader on the Board of Aldermen, one representative from the Board of Education to be appointed by the President of the Board of Education, one representative of the Workforce Development Board, and five representatives who are appointed by the Board of Aldermen to represent: one contractor, one union, one civil rights group, one community and one Human Rights Commission. The committee members shall serve for a term of two years, and this nomination and selection process shall be used to fill any vacancy.

NEW HIRE. Those workers hired by a contractor on a project, other than existing employees, and those referred by union hiring halls with prior seniority in the case of a union job.

OWNER. The person who enters into a contract with a contractor for work on a covered project other than the city.

PERSON. An individual or a company, partnership, foreign or domestic corporation, partnership, limited liability company or other business entity.

RESIDENT. Any person whose domicile is the City of Waterbury, Connecticut.

ROUTINE MAINTENANCE. Simple, small-scale activities (usually requiring only minimal skills or training) planned and performed at regular intervals and being necessary to (1) extend the life of, or to delay or prevent the premature failure of, any plant or system or of any structure or structural system, building component or equipment; or (2) protect against normal wear and tear; or (3) maintain a suitable aesthetic appearance. Examples of ROUTINE MAINTENANCE may include, but are not limited to, lawn or grass cutting, hedge trimming, painting, caulking, sealing, plumbing or electrical repairs, carpet cleaning or other cleaning performed at regular intervals.

SUBCONTRACTOR. Any person hired by a contractor to perform construction work on covered projects.

(Ord. passed 2-21-2012; Ord. passed 8-19-2013; Ord. passed 5-13-2015)

§ 34.18 HIRING GOAL AND IMPLEMENTATION.

(A) All contractors and subcontractors performing work on covered projects shall make good faith efforts to satisfy the hiring goal.

(B) Any contractors or subcontractors that fail to meet the hiring goal shall be required to demonstrate to the Administrator's satisfaction that the contractor or subcontractor made good faith efforts to meet the hiring goal.

(C) (1) The Mayor of the city shall appoint an Administrator annually no later than June 30th to serve as the Administrator for the city's fiscal year following such appointment or within 30 days of a vacancy that might arise during any fiscal year. The foregoing notwithstanding, an incumbent Administrator shall serve until their successor has been appointed and qualified. If, in the event of a vacancy, the Mayor fails to appoint a replacement Administrator within the first 30 days following the effective date of that vacancy, then the Board of Aldermen shall have the power to fill the vacancy provided that the Board does so:

(a) Within 30 days from the date upon which the power to make the appointment vested in the Board; or

(b) Prior to May 31st if the power to make the appointment vests in the Board on or after May 1st.

(2) Should the Board fail to make the appointment during any 30 day period it has to do so, or prior to May 31st if the power to make the appointment vests in the Board on or after May 1st, then the power of appointment shall revert to the Mayor. Thereafter, throughout the remainder of the then current fiscal year, the power to make the appointment shall alternate between the Mayor and the Board, at 30 day intervals, until an appointment is made or until June 1st at which point in time the power to make the appointment shall vest in the Mayor.

(D) The Mayor shall annually, prior to the adoption of the city's budget for the then next fiscal year and after consultation with the Administrator and all relevant city department heads, establish a Good Jobs Administration Budget for the then next fiscal year and the Mayor shall include a line item in his

annual budget submission to the Board of Aldermen sufficient to fund the Good Jobs Administration Budget. If, during the fiscal year in which the Mayor submits a given Good Jobs Administration Budget as part of his budget submission, the city has received as liquidated damages, pursuant to its contracts for covered projects, an amount greater than or equal to the Good Jobs Administration Budget as then submitted by the Mayor, the city shall be required to fund the Good Jobs Administration Budget as submitted by the Mayor and approved by the Board of Aldermen. To the extent possible, the cost required to oversee the implementation and enforcement of this subchapter for each project shall be funded and paid for through each project.

(Ord. passed 2-21-2012; Ord. passed 5-13-2015)

§ 34.19 REFERRAL MECHANISM.

(A) No less than four (4) weeks prior to the commencement of construction on covered projects, the contractor shall meet with the Administrator and provide the number of job positions to be created by the project by trade and the qualifications by job title. The Administrator shall make reasonable efforts to ensure that adequate job training is available to the extent necessary to achieve the hiring goal and that screening and referral mechanisms are in place so that contractors can access qualified residents. Additionally, the Administrator shall designate a first-source referral program for the city.

(B) In the event a contractor or subcontractor cannot satisfy the hiring goal through its own employees and union hiring halls, the contractor or subcontractor shall next utilize the first source referral program in order to satisfy the hiring goal. The contractor or subcontractor must wait five business days after a request has been submitted before advertising the position elsewhere.

(C) Qualifications required shall be only those relevant to the job. In satisfying the hiring goal, the contractor and any subcontractor shall employ all qualified persons referred by the first source referral program. The contractor and any subcontractor must utilize the first source referral program whenever its hiring needs increase and they are unable to comply with the hiring goals.

(Ord. passed 2-21-2012; Ord. passed 5-13-2015)

§ 34.20 MONITORING.

(A) The owner for a covered project shall require all construction contracts to comply with all provisions of this subchapter, and a copy of this subchapter shall be included with all contracts with contractors and subcontractors performing construction work on covered projects. This subchapter must be a contractual obligation in all contracts.

(B) All contractors and subcontractors performing construction work on covered projects shall submit to the Administrator weekly certified payroll records within five working days of the end of each payroll period. The records must show the person-hours on a craft-by-craft basis and identify the address, social security number, hiring date, ethnicity, gender and trade (journeyperson or apprentice) of all employees on the project. All reports must have an original signature and be signed by an authorized officer or employee of the company. Failure to comply with the provisions of this division (B) shall be deemed by the Administrator to be a violation of this subchapter and shall be subject to, and invoiced, liquidated damages on a weekly basis. Any willful misrepresentation contained in the information requested pursuant to this division (B) shall be deemed by the Administrator to be a violation of this subchapter and shall be subject to, and invoiced, liquidated damages on a weekly basis. The Administrator shall notify the City of Waterbury Department of Finance upon any violation of this subchapter. No portion of any invoice submitted by a contractor that is subject to liquidated damages shall be paid by the city until such time as all liquidated damages relating to that invoice have been paid to the city.

(C) Unless prohibited by federal, state or local law, all records in the city's possession shall be available for public inspection.

(D) The Administrator shall review all information provided pursuant to division (B) hereof and submit monthly reports to the Liaison Committee and to the Board of Aldermen summarizing the information.

(Ord. passed 2-21-2012; Ord. passed 5-13-2015)

§ 34.21 GOOD FAITH EFFORTS.

(A) Contractors shall be deemed to have made good faith efforts if they demonstrate to the satisfaction of the Administrator that they have done all of the following:

(1) Utilize the first source referral program to help satisfy the hiring goal;

(2) Notify the public in the city of the employment opportunities available on covered projects. The notification shall comprise a notice in a newspaper of general circulation in the city of employment opportunities, written notice to construction unions, community organizations and city high schools concerning same, and any other notice required by the Administrator. Contractors shall maintain records of responses to the notices received thereby. All notices must state that all qualified applicants will receive consideration without regard to race, color, religion, sex or national origin. The notice required by this division shall include a statement that the notice is provided pursuant to this subchapter;

(3) Maintain a file on the job site of the names and addresses of each worker referred by the first source referral program. The file shall indicate what action was taken with respect to each referred person, and if the person was not hired, the reasons therefore; provided, however, that this subchapter shall not be construed as requiring contractors to hire any persons who do not satisfy applicable job qualifications;

(4) Participate in State of Connecticut-approved local employment training programs in the city's area, or develop on-the-job training opportunities and participate and assist in any association or employer-group training program relevant to the contractor's employment needs;

(5) Regularly review and evaluate their personnel and promotional opportunities, encourage city residents to seek opportunities and establish a program to monitor compliance with this subchapter; and

(6) Utilize other means of obtaining employees who are residents of the city that are reasonably calculated to assist with achieving the hiring goals.

(B) Contractors shall provide the city with any documentation requested by the Administrator in order to establish compliance with this subchapter.

(Ord. passed 2-21-2012)

§ 34.22 CONTRACT REQUIREMENTS FOR COVERED SERVICES.

(A) This city shall include provisions in Chapter 38, entitled "Centralized Procurement System," of the Code of Waterbury mandating that each contract for a covered project, as that term is defined herein, awarded pursuant to Chapter 38 include provisions addressing compliance with the provisions of this subchapter by the contractor or contractors thereunder and by any subcontractor or subcontractors performing work related to any such contract.

(B) Whenever provisions are included in a contract for a covered project pursuant to division (A) of this section, they shall include provisions establishing liquidated damages for the failure of any contractor or subcontractor to comply with the provisions of this subchapter on a weekly basis. The liquidated damages shall be based on an estimate of the cost the city would incur in having to provide alternative employment opportunities, or alternative economic assistance, to those residents who would have benefited by the city's investment in the covered project if they had been hired by the contractor or subcontractor had they complied with the provisions of this subchapter.

(C) Whenever provisions regarding liquidated damages are included in a contract for a covered project pursuant to division (B) of this section, that contract shall, if applicable, also include provisions addressing the following matters:

(1) Weekly compliance reviews by the Administrator for the purpose of assessing compliance with the provisions of this subchapter, or the lack thereof;

(2) Requiring a separate certification of compliance by the Administrator prior to the payment of any funds by the city under any such contract;

(3) The weekly assessment and invoicing of liquidated damages per noncompliant contractor or subcontractor while said contract is executory;

(4) No portion of any invoice submitted by a contractor that is subject to liquidated damages shall be paid by the city until such time as all liquidated damages relating to that invoice have been paid to the city.

(Ord. passed 2-21-2012; Ord. passed 5-13-2015)

June 17, 2022

Mr. Rosh Maghfour
City of Waterbury
Board of Education
236 Grand Street
Waterbury, CT 06702

Re: Asbestos Inspection & Bulk Sampling of Materials Associated with Elevator Project, Bunker Hill School, Waterbury, Connecticut (FSS# 17522)

Dear Mr. Maghfour,

At the request of the City of Waterbury Board of Education, Facility Support Services, LLC (FSS) conducted an inspection and bulk asbestos sampling on June 13, 2022 of suspect asbestos containing materials associated with the future installation of an elevator unit and associated lobby space at the Bunker Hill School located at 170 Bunker Hill Avenue in Waterbury, Connecticut. The inspection and sampling were conducted at the following areas of the school: Third Floor Room T114, Second Floor Room S118, First Floor Room F108, Basement Room B105, and exterior (east side).

A total of forty-two (42) bulk suspect asbestos samples were collected. **Materials sampled during this inspection are homogenous throughout all floors of the school (ie. sheetrock, ceiling tiles, ceiling tile glue daubs, wall block grout, etc.) where applicable.** The suspected asbestos containing materials sampled from the School included:

- Classroom T114 – 3rd Floor
 - 12” Tan w/ Maroon & White Streaks Floor Tile*
 - 9” Peach w/ Maroon & White Streaks Floor Tile*
 - Mastix Assoc. w/ Floor Tiles***
 - 1’x1’ Holes & Fissures Ceiling Tiles
 - Glue Daubs Assoc. w/ 1’x1’ Ceiling Tiles**
 - Sheetrock
 - Joint Compound
 - Glazed Wall-Block Grout
 - Glazed Wall-Block Setting Compound
- Classroom S118 – 2nd Floor
 - 12” Brown w/ Orange & White Streaks Floor Tile*
 - 9” Black w/ Red & White Streaks Floor Tile
 - Mastix Assoc. w/ Floor Tiles***
 - 1’x1’ Ceiling Tile Backing Board
- Classroom F108 – 1st Floor
 - 12” Orange/Brown w/ White & Black Streaks Floor Tile*
 - Mastix Assoc. w/ Floor Tiles***
- Classroom B105 - Basement
 - 12” Green w/ White Streaks Floor Tile
 - Mastix Assoc. w/ Floor Tiles**
 - 1’x1’ Holes & Fissures Ceiling Tile (Old)
 - 4” Pipe Insulation
- Exterior (All Floors Fire Escape Space)
 - Fire Escape Door Frame Caulking***

Note: Materials marked with an asterisk () are asbestos containing. Materials marked with double asterisks (**) are assumed to contain PCB's at >50ppm. Materials marked with triple asterisks (***) are asbestos containing and assumed to contain PCB's at >50ppm.*

The materials were sampled by State of Connecticut licensed Asbestos Inspectors representing FSS. Copies of the asbestos inspectors' certifications are located in Attachment A of this report. Samples of materials were delivered under full chain of custody and analyzed for a 24-hour turn-around time by EMSL Analytical, Inc., via EPA/600/R-93/116. This is currently the approved EPA test method, which uses Polarized Light Microscopy (PLM). EMSL Analytical, Inc. is an accredited asbestos laboratory (NVLAP # 200700-0) and is a State of Connecticut approved public health laboratory for asbestos analysis.

The laboratory results revealed that the following materials were analyzed and found to be asbestos containing materials (>1%) (per CTDPH and EPA regulations). These materials are regulated by the CT Department of Public Health and are required to be removed by a licensed asbestos abatement contractor prior to building renovations.

- 12" Tan w/ Maroon & White Streaks Floor Tile
- 9" Peach w/ Maroon & White Streaks Floor Tile
- 12" Brown w/ Orange & White Streaks Floor Tile
- 12" Orange/Brown w/ White & Black Streaks Floor Tile
- Mastic Assoc. w/ Floor Tiles*
- 4" Pipe Insulation
- Fire Escape Door Frame Caulking*

Note: Materials marked with an asterisk () are also to be assumed to contain PCB's at > 50ppm.*

Please note that the 9" Black w/ Red & White Streaks Floor Tile will likely be contaminated with asbestos-containing mastic. This floor tile will be treated as an asbestos containing material, removed, and disposed as such.

As part of the project, FSS was required to identify materials that are assumed to contain Polychlorinated Biphenyl (PCB). These materials are to be assumed to contain PCB levels at greater than 50 parts per million (ppm), removed, and disposed as such. The following materials associated with the project that are to be assumed, removed, and treated as containing greater than 50ppm PCB include the following:

- 12" Tan w/ Maroon & White Streaks Floor Tile
- 9" Peach w/ Maroon & White Streaks Floor Tile
- Mastic Assoc. w/ Floor Tiles
- 1'x1' Holes & Fissures Ceiling Tiles
- Glue Daubs Assoc. w/ 1'x1' Ceiling Tiles
- 12" Brown w/ Orange & White Streaks Floor Tile
- 9" Black w/ Red & White Streaks Floor Tile
- 12" Orange/Brown w/ White & Black Streaks Floor Tile
- Fire Escape Door Frame Caulking

Please note that the 12" Green w/ White Streaks Floor Tile will likely be contaminated with mastic. This floor tile will be treated as a PCB -containing material, removed, and disposed as such.

FSS has made reasonable effort to locate and identify all hazardous materials associated with the elevator project. As per contract terms, FSS did not conduct destructive sampling therefore areas such as walls, ceilings, and exterior locations meant to seal out water were not damaged to obtain samples. Any other materials discovered during renovation activities, which have not been included in this survey or previously sampled, must be presumed to contain asbestos until such time that bulk samples can be collected and analyzed for asbestos content.

FSS is pleased to assist you with this project. If you have any questions, or if we can be of further assistance, please contact the undersigned at (203) 288-1281.

Sincerely,

Facility Support Services, LLC

A handwritten signature in black ink, appearing to read "Michael DiFabio", with a stylized flourish extending from the end.

Michael DiFabio

CTDPH Licensed Asbestos Inspector/Management Planner (#000340)

Attachments

Attachment A
Asbestos Inspector Certifications

1000014 SP

0664

-C01-P00016-1

1000014-00000018-00000001 of 00000001-C01-a1d00101-0664-00016

MICHAEL V DIFABIO
61 SEAPS ST
MIDDLETOWN CT 06457-4218

B

Dear MICHAEL V DIFABIO,

Attached you will find your validated certificate for the coming year. Should you have any questions about your certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308

(860) 509-7603
oplcdph@ct.gov
www.ct.gov/dph/license

Sincerely,



MANISHA JUTHANI, MD, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSP/MGMT PLANNER

MICHAEL V DIFABIO

CERTIFICATE NO.
000340

CURRENT THROUGH
12/31/22

VALIDATION NO.
03-934692

SIGNATURE

COMMISSIONER

EMPLOYER'S COPY

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME

MICHAEL V DIFABIO

VALIDATION NO.
03-934692

CERTIFICATE NO.
000340

CURRENT THROUGH
12/31/22

PROFESSION

ASBESTOS CONSULTANT-INSP/MGMT PLANNER

SIGNATURE

COMMISSIONER

INSTRUCTIONS:

1. Detach and sign each of the cards on this form
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

WALLET CARD

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME

MICHAEL V DIFABIO

VALIDATION NO.
03-934692

CERTIFICATE NO.
000340

CURRENT THROUGH
12/31/22

PROFESSION

ASBESTOS CONSULTANT-INSP/MGMT PLANNER

SIGNATURE

COMMISSIONER

Attachment B
Laboratory Analytical Results



EMSL Analytical, Inc.

165 Gracey Avenue Meriden, CT 06451

Tel/Fax: (203) 284-5948 / (203) 284-5978

<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 242202802

Customer ID: FSS93

Customer PO:

Project ID:

Attention: Michael DiFabio

Facility Support Services, LLC

121 North Plains Industrial Road, Unit F

Wallingford, CT 06492

Phone: (203) 288-1281

Fax: (203) 248-4409

Received Date: 06/14/2022 9:00 AM

Analysis Date: 06/14/2022 - 06/15/2022

Collected Date:

Project: BUNKER HILL/ 17522

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
175220613-01A 242202802-0001	Classroom T114-3rd floor - 12" tan w/maroon and white streaks ft	Tan Non-Fibrous Homogeneous		93% Non-fibrous (Other)	7% Chrysotile
175220613-01B 242202802-0002	Classroom T114-3rd floor - 12" tan w/maroon and white streaks ft	Tan Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
175220613-02A 242202802-0003	Classroom T114-3rd floor - 9" peach w/maroon and white streaks ft	Brown Non-Fibrous Homogeneous		90% Non-fibrous (Other)	10% Chrysotile
175220613-02B 242202802-0004	Classroom T114-3rd floor - 9" peach w/maroon and white streaks ft	Brown/Tan Non-Fibrous Homogeneous	3% Cellulose	90% Non-fibrous (Other)	7% Chrysotile
175220613-03A 242202802-0005	Classroom T114-3rd floor - mastic assoc. w/floor tiles	Black Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
175220613-03B 242202802-0006	Classroom T114-3rd floor - mastic assoc. w/floor tiles	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
175220613-04A 242202802-0007	Classroom T114-3rd floor - 1'x1' holes + fissures ceiling tile	Gray/White Fibrous Homogeneous	70% Min. Wool	30% Non-fibrous (Other)	None Detected
175220613-04B 242202802-0008	Classroom T114-3rd floor - 1'x1' holes + fissures ceiling tile	Gray/White Fibrous Homogeneous	75% Min. Wool	25% Non-fibrous (Other)	None Detected
175220613-05A 242202802-0009	Classroom T114-3rd floor - glue daubs assoc. w/1'x1' ceiling tiles	Brown Non-Fibrous Homogeneous	5% Cellulose 10% Min. Wool	85% Non-fibrous (Other)	None Detected
Result includes a small amount of inseparable attached material					
175220613-05B 242202802-0010	Classroom T114-3rd floor - glue daubs assoc. w/1'x1' ceiling tiles	Brown Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	None Detected
175220613-06A 242202802-0011	Classroom T114-3rd floor - sheetrock	Gray Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
175220613-06B 242202802-0012	Classroom T114-3rd floor - sheetrock	Gray Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
175220613-07A 242202802-0013	Classroom T114-3rd floor - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
175220613-07B 242202802-0014	Classroom T114-3rd floor - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 06/15/2022 11:30:57



EMSL Analytical, Inc.

165 Gracey Avenue Meriden, CT 06451

Tel/Fax: (203) 284-5948 / (203) 284-5978

<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 242202802

Customer ID: FSS93

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
175220613-08A 242202802-0015	Classroom T114-3rd floor - glazed wall block grout	Gray Non-Fibrous Homogeneous		8% Quartz 92% Non-fibrous (Other)	None Detected
175220613-08B 242202802-0016	Classroom T114-3rd floor - glazed wall block grout	Gray Non-Fibrous Homogeneous		8% Quartz 92% Non-fibrous (Other)	None Detected
175220613-08C 242202802-0017	Classroom T114-3rd floor - glazed wall block grout	Gray Non-Fibrous Homogeneous		8% Quartz 92% Non-fibrous (Other)	None Detected
175220613-09A 242202802-0018	Classroom T114-3rd floor - glazed wall block setting compound	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
175220613-09B 242202802-0019	Classroom T114-3rd floor - glazed wall block setting compound	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
175220613-09C 242202802-0020	Classroom T114-3rd floor - glazed wall block setting compound	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
175220613-10A 242202802-0021	Classroom T114-3rd floor - fire escape door frame caulking	Gray/White Non-Fibrous Homogeneous	3% Fibrous (Other)	95% Non-fibrous (Other)	2% Anthophyllite
175220613-10B 242202802-0022	Classroom T114-3rd floor - fire escape door frame caulking	Gray/White Non-Fibrous Homogeneous	2% Fibrous (Other)	96% Non-fibrous (Other)	2% Anthophyllite
175220613-11A 242202802-0023	Classroom S118-2nd floor - 12" brown w/orange + white streaks ft	Brown Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
175220613-11B 242202802-0024	Classroom S118-2nd floor - 12" brown w/orange + white streaks ft	Brown Non-Fibrous Homogeneous		95% Non-fibrous (Other)	5% Chrysotile
175220613-12A 242202802-0025	Classroom S118-2nd floor - 9" black w/red + white streaks ft	Brown/Black Non-Fibrous Homogeneous	4% Cellulose	96% Non-fibrous (Other)	None Detected
175220613-12B 242202802-0026	Classroom S118-2nd floor - 9" black w/red + white streaks ft	Brown Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
175220613-13A 242202802-0027	Classroom S118-2nd floor - mastic assoc. w/floor tiles	Black Non-Fibrous Homogeneous	6% Cellulose	2% Quartz 88% Non-fibrous (Other)	4% Chrysotile
175220613-13B 242202802-0028	Classroom S118-2nd floor - mastic assoc. w/floor tiles	Black Non-Fibrous Homogeneous	4% Cellulose	94% Non-fibrous (Other)	2% Chrysotile
175220613-14A 242202802-0029	Classroom S118-2nd floor - 1'x1' ceiling tile backing board	Gray Non-Fibrous Homogeneous	4% Cellulose	96% Non-fibrous (Other)	None Detected
175220613-14B 242202802-0030	Classroom S118-2nd floor - 1'x1' ceiling tile backing board	Gray Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
175220613-15A 242202802-0031	Classroom F108-1st floor - 12" orange/brown w/white + black streaks ft	Brown/Red Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile

Initial report from: 06/15/2022 11:30:57



EMSL Analytical, Inc.

165 Gracey Avenue Meriden, CT 06451

Tel/Fax: (203) 284-5948 / (203) 284-5978

<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 242202802

Customer ID: FSS93

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
175220613-15B 242202802-0032	Classroom F108-1st floor - 12" orange/brown w/white + black streaks ft	Brown/Red Non-Fibrous Homogeneous		94% Non-fibrous (Other)	6% Chrysotile
175220613-16A 242202802-0033	Classroom F108-1st floor - mastic assoc. w/floor tiles	Black Non-Fibrous Homogeneous		3% Quartz 90% Non-fibrous (Other)	7% Chrysotile
175220613-16B 242202802-0034	Classroom F108-1st floor - mastic assoc. w/floor tiles	Black Non-Fibrous Homogeneous		2% Quartz 94% Non-fibrous (Other)	4% Chrysotile
175220613-17A 242202802-0035	Classroom B105-basement - 12" green w/white streaks ft	Green Non-Fibrous Homogeneous		3% Quartz 97% Non-fibrous (Other)	None Detected
175220613-17B 242202802-0036	Classroom B105-basement - 12" green w/white streaks ft	Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
175220613-18A 242202802-0037	Classroom B105-basement - mastic assoc. w/floor tile	Black Non-Fibrous Homogeneous	5% Cellulose	2% Quartz 93% Non-fibrous (Other)	None Detected
175220613-18B 242202802-0038	Classroom B105-basement - mastic assoc. w/floor tile	Tan/Black Non-Fibrous Homogeneous	2% Glass	3% Quartz 95% Non-fibrous (Other)	None Detected
175220613-19A 242202802-0039	Classroom B105-basement - 1'x1' fissures + holes ceiling tile (old)	Gray/White Fibrous Homogeneous	75% Min. Wool	25% Non-fibrous (Other)	None Detected
175220613-19B 242202802-0040	Classroom B105-basement - 1'x1' fissures + holes ceiling tile (old)	Gray/White Fibrous Homogeneous	70% Min. Wool	30% Non-fibrous (Other)	None Detected
175220613-20A 242202802-0041	Classroom B105-basement - 4" pipe insulation	Gray Fibrous Homogeneous		40% Non-fibrous (Other)	60% Chrysotile
175220613-20B 242202802-0042	Classroom B105-basement - 4" pipe insulation	Gray Fibrous Homogeneous		40% Non-fibrous (Other)	60% Chrysotile

Analyst(s)

Danny Sandhu (20)

Leslie Tetrack (22)

Danny Sandhu, Asbestos Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Meriden, CT NVLAP Lab Code 200700-0.

Initial report from: 06/15/2022 11:30:57

2422 22802

Page 1 of 1

242202802
FACILITY SUPPORT SERVICES, LLC
 Asbestos Sampling Log

CLIENT: Waterbury BoEDATE: 6/13/22LOCATION: Bunker Hill ElementarySAMPLED BY: M. DiFabio

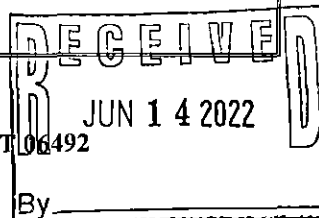
SAMPLE ID	LOCATION	DESCRIPTION
175220613- 01A	Classroom T114 - 3rd Floor	12" Tern w/ Maroon and White streaks FT
B		↓
02A		9" Peach w/ Maroon and White streaks FT
B		↓
03A		Mastic Assoc. w/ Floor Tiles
B		↓
04A		1'x1' Holes + Fissures Ceiling Tile
B		↓
05A		Glue Dabs Assoc. w/ 1'x1' Ceiling Tiles
B		↓
06A		4" Brown Cove Base
B		↓
07A		Mastic Assoc. w/ 4" Black Cove Base
B		↓
06A 04A		Sheetrock
B		↓
07A 04A		Joint Compound
B		↓
08A		Glazed Wall Block Grout
B		↓

2 of

121 NORTH PLAINS INDUSTRIAL RD.; UNIT F - WALLINGFORD, CT 06492

PH: 203-288-1281 FAX: 203-248-4409

Website: www.fssteam.com



242202802
FACILITY SUPPORT SERVICES, LLC
 Asbestos Sampling Log

CLIENT: Waterbury BoEDATE: 6/13/22LOCATION: Bunker Hill ElementarySAMPLED BY: M. DiFabio

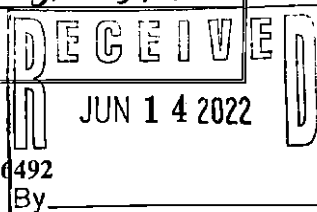
SAMPLE ID	LOCATION	DESCRIPTION
175220613 - 08C	Classroom T114 - 3rd Floor	Glazed Wall Block Grout
09A	↓	Glazed Wall Block Setting Compound
B		↓
C		
10A		Fire Escape Door Frame Caulking
B	↓	↓
11A		12" Brown w/ Orange + White streaks FT
B		↓
12A		9" Black w/ Red + White streaks FT
B		↓
13A		Mastic Assoc w/ Floor Tiles
B		↓
14A		1'x1' Ceiling Tile Backing Board
B		↓
15A	Class Room F108 - 1st Floor	12" orange/Brown w/ White + Black streaks FT
B	↓	↓
16A		Mastic Assoc. w/ Floor Tiles
B		↓
17A	Class Room B105 - Basement	12" Green w/ White streaks FT
B	↓	↓

3 of

121 NORTH PLAINS INDUSTRIAL RD.; UNIT F - WALLINGFORD, CT 06492

PH: 203-288-1281 FAX: 203-248-4409

Website: www.fssteam.com



CLIENT: Waterbury BoE

DATE: 6/13/22

LOCATION: Bunker Hill Elementary

SAMPLED BY: M. DiFabio

RECEIVED
JUN 14 2022
By _____

4 of 4

Page 4 Of 4

June 17, 2022

Mr. Rosh Maghfour
City of Waterbury
Board of Education
236 Grand Street
Waterbury, CT 06702

**Re: Asbestos Inspection & Bulk Sampling of Materials Associated with Elevator Project,
Washington Elementary School, Waterbury, Connecticut (FSS# 17622)**

Dear Mr. Maghfour,

At the request of the City of Waterbury Board of Education, Facility Support Services, LLC (FSS) conducted an inspection and bulk asbestos sampling on June 14, 2022 of suspect asbestos containing materials associated with the future installation of an elevator unit and associated lobby space at the Washington Elementary School located at 685 Baldwin Street in Waterbury, Connecticut. The inspection and sampling were conducted at the following areas of the school: Second Floor Hallway across from bathrooms, First Floor Hallway across from bathrooms, Basement Bathroom/Storage Room near Gymnasium.

A total of twenty-six (26) bulk suspect asbestos samples were collected. **Materials sampled during this inspection are homogenous throughout all floors of the school (ie. floor tiles/flooring, plaster, brick mortar, etc.) where applicable.** The suspected asbestos containing materials sampled from the School included:

- 2nd Floor Across from Bathrooms
 - Wall Plaster
 - 12" Tan Mottled Floor Tile
 - Red Sheet Flooring beneath 12" Tile
 - Red "Troweled" Flooring Beneath Sheet Flooring*
 - White/Gray Base in Wire Lath under Red "Troweled" Flooring
- Basement Bath/Storage Room
 - Wall Plaster
 - Brick Grout
 - Ceramic Floor Tile Setting Compound
 - Purple Sheetrock
 - Joint Compound

Note: Materials marked with an asterisk () are asbestos containing. Materials marked with double asterisks (**) are assumed to contain PCB's at >50ppm. Materials marked with triple asterisks (***) are asbestos containing and assumed to contain PCB's at >50ppm.*

The materials were sampled by State of Connecticut licensed Asbestos Inspectors representing FSS. Copies of the asbestos inspectors' certifications are located in Attachment A of this report. Samples of materials were delivered under full chain of custody and analyzed for a 24-hour turn-around time by EMSL Analytical, Inc., via EPA/600/R-93/116. This is currently the approved EPA test method, which uses Polarized Light Microscopy (PLM). EMSL Analytical, Inc. is an accredited asbestos laboratory (NVLAP # 200700-0) and is a State of Connecticut approved public health laboratory for asbestos analysis.

The laboratory results revealed that the following materials were analyzed and found to be asbestos containing materials (>1%) (per CTDPH and EPA regulations). These materials are regulated by the CT Department of Public Health and are required to be removed by a licensed asbestos abatement contractor prior to building renovations.

- Red "Troweled" Flooring Beneath Sheet Flooring*

Please note that the White/Gray Base in Wire Lath under Red Troweled Flooring, although not considered an "asbestos containing material" due to concentrations less than 1% by weight, still contains trace amounts of Chrysotile Asbestos (between 0 – 1%) and should be treated following all Federal and OSHA regulations.

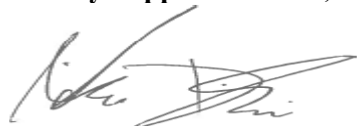
As part of the project, FSS was required to identify materials that are assumed to contain Polychlorinated Biphenyl (PCB). These materials are to be assumed to contain PCB levels at greater than 50 parts per million (ppm), removed, and disposed as such. FSS did not observe any assumed PCB containing materials within the work areas designated for the project.

FSS has made reasonable effort to locate and identify all hazardous materials associated with the elevator project. As per contract terms, FSS did not conduct destructive sampling therefore areas such as walls, ceilings, and exterior locations meant to seal out water (ie. silicone window caulking) were not damaged to obtain samples. Any other materials discovered during renovation activities, which have not been included in this survey or previously sampled, must be presumed to contain asbestos until such time that bulk samples can be collected and analyzed for asbestos content.

FSS is pleased to assist you with this project. If you have any questions, or if we can be of further assistance, please contact the undersigned at (203) 288-1281.

Sincerely,

Facility Support Services, LLC



Michael DiFabio

CTDPH Licensed Asbestos Inspector/Management Planner (#000340)

Attachments

Attachment A
Asbestos Inspector Certifications

1000014 SP

0664

-C01-P00016-1

1000014-00000018-00000001 of 00000001-C01-a1d00101-0664-00016

MICHAEL V DIFABIO
61 SEAPS ST
MIDDLETOWN CT 06457-4208

B

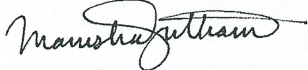
Dear MICHAEL V DIFABIO,

Attached you will find your validated certificate for the coming year. Should you have any questions about your certificate renewal, please do not hesitate to write or call:

Department of Public Health
P.O. Box 340308
M.S.#12MQA
Hartford, CT 06134-0308

(860) 509-7603
oplcdph@ct.gov
www.ct.gov/dph/license

Sincerely,



MANISHA JUTHANI, MD, COMMISSIONER
DEPARTMENT OF PUBLIC HEALTH

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

PURSUANT TO THE PROVISIONS OF THE GENERAL STATUTES OF CONNECTICUT

THE INDIVIDUAL NAMED BELOW IS CERTIFIED
BY THIS DEPARTMENT AS A

ASBESTOS CONSULTANT-INSP/MGMT PLANNER

MICHAEL V DIFABIO

CERTIFICATE NO.
000340

CURRENT THROUGH
12/31/22

VALIDATION NO.
03-934692

SIGNATURE

COMMISSIONER

EMPLOYER'S COPY

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME

MICHAEL V DIFABIO

VALIDATION NO.
03-934692

CERTIFICATE NO.
000340

CURRENT THROUGH
12/31/22

PROFESSION

ASBESTOS CONSULTANT-INSP/MGMT PLANNER

SIGNATURE

COMMISSIONER

INSTRUCTIONS:

1. Detach and sign each of the cards on this form
2. Display the large card in a prominent place in your office or place of business.
3. The wallet card is for you to carry on your person. If you do not wish to carry the wallet card, place it in a secure place.
4. The employer's copy is for persons who must demonstrate current licensure/certification in order to retain employment or privileges. The employer's card is to be presented to the employer and kept by them as a part of your personnel file. Only one copy of this card can be supplied to you.

WALLET CARD

STATE OF CONNECTICUT
DEPARTMENT OF PUBLIC HEALTH

NAME

MICHAEL V DIFABIO

VALIDATION NO.
03-934692

CERTIFICATE NO.
000340

CURRENT THROUGH
12/31/22

PROFESSION

ASBESTOS CONSULTANT-INSP/MGMT PLANNER

SIGNATURE

COMMISSIONER

Attachment B
Laboratory Analytical Results



EMSL Analytical, Inc.

165 Gracey Avenue Meriden, CT 06451

Tel/Fax: (203) 284-5948 / (203) 284-5978

<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 242202825

Customer ID: FSS93

Customer PO:

Project ID:

Attention: Michael DiFabio

Facility Support Services, LLC

121 North Plains Industrial Road, Unit F

Wallingford, CT 06492

Phone: (203) 288-1281

Fax: (203) 248-4409

Received Date: 06/14/2022 5:15 PM

Analysis Date: 06/15/2022 - 06/17/2022

Collected Date: 06/14/2022

Project: WASHINGTON/ 17622

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos % Type
			% Fibrous	% Non-Fibrous	
176220614-01A 242202825-0001	2nd floor- across from bathrooms - wall plaster	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
176220614-01B 242202825-0002	2nd floor- across from bathrooms - wall plaster	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
176220614-01C 242202825-0003	2nd floor- across from bathrooms - wall plaster	Gray Non-Fibrous Homogeneous		5% Quartz 95% Non-fibrous (Other)	None Detected
176220614-02A 242202825-0004	2nd floor- across from bathrooms - 12" tan mottled floor tile	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
176220614-02B 242202825-0005	2nd floor- across from bathrooms - 12" tan mottled floor tile	Beige Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
176220614-03A 242202825-0006	2nd floor- across from bathrooms - red sheet flooring beneath 12" tile	Red Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected
176220614-03B 242202825-0007	2nd floor- across from bathrooms - red sheet flooring beneath 12" tile	Red Fibrous Homogeneous	20% Cellulose	80% Non-fibrous (Other)	None Detected
176220614-04A 242202825-0008	2nd floor- across from bathrooms - red "troweled" flooring beneath sheet flooring	Red Non-Fibrous Homogeneous	7% Cellulose	91% Non-fibrous (Other)	2% Chrysotile
176220614-04B 242202825-0009	2nd floor- across from bathrooms - red "troweled" flooring beneath sheet flooring	Red Non-Fibrous Homogeneous	7% Cellulose	91% Non-fibrous (Other)	2% Chrysotile
176220614-04C 242202825-0010	2nd floor- across from bathrooms - red "troweled" flooring beneath sheet flooring	Red Non-Fibrous Homogeneous	7% Cellulose	90% Non-fibrous (Other)	3% Chrysotile
176220614-05A 242202825-0011	2nd floor- across from bathrooms - white/gray base in wire lath under red "troweled"	Gray/White Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	<1% Chrysotile
176220614-05B 242202825-0012	2nd floor- across from bathrooms - white/gray base in wire lath under red "troweled"	Gray/White Non-Fibrous Homogeneous	6% Cellulose	94% Non-fibrous (Other)	<1% Chrysotile
176220614-05C 242202825-0013	2nd floor- across from bathrooms - white/gray base in wire lath under red "troweled"	Gray/White Non-Fibrous Homogeneous	5% Cellulose	95% Non-fibrous (Other)	<1% Chrysotile

Initial report from: 06/17/2022 10:05:01



EMSL Analytical, Inc.

165 Gracey Avenue Meriden, CT 06451

Tel/Fax: (203) 284-5948 / (203) 284-5978

<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 242202825

Customer ID: FSS93

Customer PO:

Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos		Asbestos
			% Fibrous	% Non-Fibrous	% Type
176220614-06A 242202825-0014	Basement bath/storage room - wall plaster	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
176220614-06B 242202825-0015	Basement bath/storage room - wall plaster	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
176220614-06C 242202825-0016	Basement bath/storage room - wall plaster	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
176220614-07A 242202825-0017	Basement bath/storage room - brick grout	Gray Non-Fibrous Homogeneous		7% Quartz 93% Non-fibrous (Other)	None Detected
176220614-07B 242202825-0018	Basement bath/storage room - brick grout	Gray Non-Fibrous Homogeneous		7% Quartz 93% Non-fibrous (Other)	None Detected
176220614-07C 242202825-0019	Basement bath/storage room - brick grout	Gray Non-Fibrous Homogeneous		8% Quartz 92% Non-fibrous (Other)	None Detected
176220614-08A 242202825-0020	Basement bath/storage room - ceramic floor tile setting compound	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
176220614-08B 242202825-0021	Basement bath/storage room - ceramic floor tile setting compound	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
176220614-08C 242202825-0022	Basement bath/storage room - ceramic floor tile setting compound	Gray Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
176220614-09A 242202825-0023	Basement bath/storage room - purple sheetrock	Gray Non-Fibrous Homogeneous	2% Cellulose	98% Non-fibrous (Other)	None Detected
176220614-09B 242202825-0024	Basement bath/storage room - purple sheetrock	Gray Non-Fibrous Homogeneous	3% Cellulose	97% Non-fibrous (Other)	None Detected
176220614-10A 242202825-0025	Basement bath/storage room - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
176220614-10B 242202825-0026	Basement bath/storage room - joint compound	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected



EMSL Analytical, Inc.

165 Gracey Avenue Meriden, CT 06451

Tel/Fax: (203) 284-5948 / (203) 284-5978

<http://www.EMSL.com> / wallingfordlab@emsl.com

EMSL Order: 242202825

Customer ID: FSS93

Customer PO:

Project ID:

Analyst(s)

Danny Sandhu (26)

Danny Sandhu, Asbestos Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. Interpretation and use of test results are the responsibility of the client. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. The report reflects the samples as received. Results are generated from the field sampling data (sampling volumes and areas, locations, etc.) provided by the client on the Chain of Custody. Samples are within quality control criteria and met method specifications unless otherwise noted. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method") but augmented with procedures outlined in the 1993 ("final") version of the method. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. Non-friable organically bound materials present a problem matrix and therefore EMSL recommends gravimetric reduction prior to analysis. Unless requested by the client, building materials manufactured with multiple layers (i.e. linoleum, wallboard, etc.) are reported as a single sample. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Meriden, CT NVLAP Lab Code 200700-0,

Initial report from: 06/17/2022 10:05:01



EMSL ANALYTICAL, INC.
LABORATORY PRODUCTS TRAINING

Asbestos Chain of Custody (Air, Bulk, Soil)

EMSL Order Number / Lab Use Only

EMSL Analytical, Inc.
165 Gracey Ave

Meriden, CT 06451
PHONE: (203) 284-5948
EMAIL: MeridenLab@emsl.com

242202825

If Bill-To is the same as Report-To leave this section blank. Third-party billing requires written authorization.

Customer Information	Customer ID:	Billing ID:
	Company Name: Facility Support Services, LLC.	Company Name: Facility Support Services, LLC.
	Contact Name: Michael DiFabio	Billing Contact: Michele Viarengo
	Street Address: 121 North Plains Industrial Road; Unit F	Street Address: 121 North Plains Industrial Road; Unit F
	City, State, Zip: Wallingford CT 06492 Country: US	City, State, Zip: Wallingford CT 06492 Country: US
	Phone: 2032881281	Phone: 203-288-1281
Email(s) for Report: mdifabio@fssteam.com	Email(s) for Invoice:	

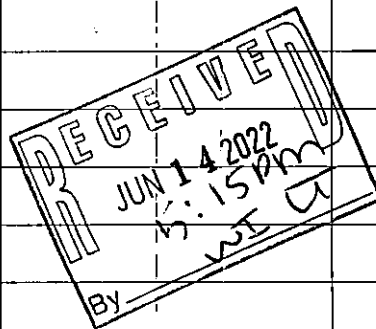
Project Information	
Project Name/No: Washington / 17622	Purchase Order:
EMSL LIMS Project ID: (if applicable, EMSL will provide)	US State where samples collected: CT
State of Connecticut (CT) must select project location:	
<input type="checkbox"/> Commercial (Taxable)	<input type="checkbox"/> Residential (Non-Taxable)
Sampled By Name: Michael DiFabio	Sampled By Signature: [Signature]
No. of Samples in Shipment	

Turn-Around-Time (TAT)	
<input type="checkbox"/> 3 Hour <input type="checkbox"/> 4-4.5 Hour <input type="checkbox"/> 6 Hour <input checked="" type="checkbox"/> 24 Hour <input type="checkbox"/> 32 Hour <input type="checkbox"/> 48 Hour <input type="checkbox"/> 72 Hour <input type="checkbox"/> 96 Hour <input type="checkbox"/> 1 Week <input type="checkbox"/> 2 Week	
TEM Air 3-6 Hour, please call ahead to schedule. 32 Hour TAT available for select tests only; samples must be submitted by 11:30 am.	

PCM Air <input type="checkbox"/> NIOSH 7400 <input type="checkbox"/> NIOSH 7400 w/ 8hr. TWA PLM - Bulk (reporting limit) <input checked="" type="checkbox"/> PLM EPA 600/R-93/116 (<1%) <input type="checkbox"/> PLM EPA NOB (<1%) <input type="checkbox"/> POINT COUNT <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1,000 (<0.1%) POINT COUNT w/ GRAVIMETRIC <input type="checkbox"/> 400 (<0.25%) <input type="checkbox"/> 1,000 (<0.1%) <input type="checkbox"/> NIOSH 9002 (<1%) <input type="checkbox"/> NYS 198.1 (Friable - NY) <input type="checkbox"/> NYS 198.6 NOB (Non-Friable - NY) <input type="checkbox"/> NYS 198.8 (Vermiculite SM-V)	TEM - Air <input type="checkbox"/> AHERA 40 CFR, Part 763 <input type="checkbox"/> NIOSH 7402 <input type="checkbox"/> EPA Level II <input type="checkbox"/> ISO 10312* TEM - Bulk <input type="checkbox"/> TEM EPA NOB <input type="checkbox"/> NYS NOB 198.4 (Non-Friable-NY) <input type="checkbox"/> TEM EPA 600/R-93/116 w Milling Prep (0.1%) Other Test (please specify)	TEM - Settled Dust <input type="checkbox"/> Microvac - ASTM D5755 <input type="checkbox"/> Wipe - ASTM D6480 <input type="checkbox"/> Qualitative via Filtration Prep <input type="checkbox"/> Qualitative via Drop Mount Prep Soil - Rock - Vermiculite (reporting limit)* <input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<0.25%) <input type="checkbox"/> PLM EPA 600/R-93/116 with milling prep (<0.1%) <input type="checkbox"/> TEM EPA 600/R-93/116 with milling prep (<0.1%) <input type="checkbox"/> TEM Qualitative via Filtration Prep <input type="checkbox"/> TEM Qualitative via Drop Mount Prep
*Please call with your project-specific requirements.		

<input type="checkbox"/> Positive Stop - Clearly Identified Homogeneous Areas (HA)	Filter Pore Size (Air Samples)	<input type="checkbox"/> 0.8um <input type="checkbox"/> 0.45um
--	--------------------------------	--

Sample Number	Sample Location / Description	Volume, Area or Homogeneous Area	Date / Time Sampled (Air Monitoring Only)
	See Attached		



Special Instructions and/or Regulatory Requirements (Sample Specifications, Processing Methods, Limits of Detection, etc.)	

Method of Shipment: Drive-In	Sample Condition Upon Receipt:
Relinquished by: [Signature]	Received by:
Date/Time: 6/14/2022 17:15	Date/Time:
Relinquished by:	Received by:
Date/Time:	Date/Time:

Controlled Document - COC-05 Asbestos R15 4/23/2021 ☐ AGREE TO ELECTRONIC SIGNATURE (By checking, I consent to signing this Chain of Custody document by electronic signature.)

EMSL Analytical, Inc.'s Laboratory Terms and Conditions are incorporated into this Chain of Custody by reference in their entirety. Submission of samples to EMSL Analytical, Inc. constitutes acceptance and acknowledgment of all terms and conditions by Customer.

242202825
FACILITY SUPPORT SERVICES, LLC
 Asbestos Sampling Log

CLIENT: Waterbury BoEDATE: 6/14/2022LOCATION: Washington Elementary SchoolSAMPLED BY: M. DiFabio

SAMPLE ID	LOCATION	DESCRIPTION
176220614 - 01A	2nd Floor - Across From Bathrooms	Wall plaster
B		↓
C		↓
02A		12" Tan Mottled Floor Tile
B		↓
03A		Red Sheet Flooring Beneath 12" Tile
B		↓
04A		Red "Troweled" Flooring Beneath Sheet Flooring
B		↓
C		↓
05A		White/Gray Base in Wire Lath under Red "Troweled"
B		↓
C		↓
06A	Basement Bath/Storage Room	Wall Plaster
B		↓
C		↓
07A		Brick Grout
B		↓
C		↓
08A		Ceramic Floor Tile Setting Compound

2 of 3

121 NORTH PLAINS INDUSTRIAL RD.; UNIT F - WALLINGFORD, CT 06492

PH: 203-288-1281 FAX: 203-248-4409

Website: www.fssteam.com

242202825
FACILITY SUPPORT SERVICES, LLC
Asbestos Sampling Log

CLIENT: Waterbury BoE

DATE: 6/14/2022

LOCATION: Washington Elementary School

SAMPLED BY: M. DiFazio

[illegible]

3 of 3

121 NORTH PLAINS INDUSTRIAL RD.; UNIT F - WALLINGFORD, CT 06492

PH: 203-288-1281 FAX: 203-248-4409

Website: www.fssteam.com

WELTI GEOTECHNICAL, P.C.

227 Williams Street · P.O. Box 397
Glastonbury, CT 06033-0397

(860) 633-4623 / FAX (860) 657-2514

August 22, 2022

Mr. Bryce Sens AIA
Associate Principal
Friar Architecture
21 Talcott Notch Road
Farmington, CT 06032

**Re: Geotechnical Study for Proposed Elevator Installation at Bunker Hill Elementary School,
170 Bunker Hill Avenue, Waterbury, CT**

Dear Bryce:

1.0 Herewith are the boring data pertaining to the above. One boring was drilled to a depth of 26.5 feet below the existing grades. The boring location is shown on the attached plan. *The boring was drilled by Clarence Welti Associates, Inc. and sampling was conducted by this firm solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.*

2.0 The **Subject Project** will include the construction of a new elevator at the east side of the existing building. It appears that the elevator would have access of at least four and possibly five floors. The site is paved and is relatively level. It is presumed the elevator will have 4± feet pit below the lowest floor.

3.0 The **Geologic Origin** of the natural inorganic soils is from glacial moraine or outwash deposits. The deposits consist of dense to very dense sand, some gravel and cobbles, trace to some silt, few boulders. Bedrock was not encountered in the boring.

3.1 The **Soils Cross Section** from the boring is as follows:

Bituminous Concrete 3.5"

FILL; fine to coarse SAND, some Gravel, trace Silt, Asphalt and Bricks to 5.5 feet

Fine to coarse SAND, some Gravel and Cobbles, trace Silt, few Boulders to 20.5 feet, dense to very dense

Fine to coarse SAND, some Silt and Gravel to 26+ feet, very dense

3.2 The Water Table was at 25 feet below the existing grades at the completion of the borings.

4.0 The Criteria for Foundation Type and Loading are as follows:

1. The maximum total settlement should not exceed $\frac{1}{2}$ " and the maximum differential settlement should not exceed $\frac{1}{2}$ the maximum settlement over a distance of 50 feet.
2. The Foundations and Structures should address the seismic section of the building code, where applicable.

The above criteria is generally applied to buildings of similar character. If the owner, the architect, the engineers find the criteria as unacceptable, the writer shall be informed to permit additional geotechnical input.

4.1 Regarding item 2 (above), the seismic site soil profile classification is "**D**". The mapped MCE spectral response acceleration values for Waterbury, CT are $S_1 = 0.064$ for one second period and $S_s = 0.189$ for short period. For transfer of ground shear into the soil the ultimate friction factor can be **0.60**.

5.0 Regarding the foundation for the elevator shaft, it is presumed that the structure will be placed on a mat or possibly on an enlarged strip footing. To avoid any tilting away from the building the centroid of the mat or strip footing should be outside (away from the building) from the centroid the elevator and shaft loading. The mat can be placed on the natural inorganic soils at 5.5+ feet below grade. It is recommended that there be a minimum 6" layer of 3/8" crushed stone beneath the mat or footing. The elevator pit should be water proofed with water stops at the wall/mat interface.

5.1 The Allowable Bearing Pressure at 5+ feet below grade can be 4,000 psf. For wind and seismic loading this value may be increased by 1/3.

5.2 The Frost Protection Depth is 3.5 feet below the finish grades in areas, which are exposed to weather.

5.3 Summary of the Foundation Design Parameters:

Parameter	Value
Allowable Bearing Pressure for Spread Footings or Mat	4,000 psf
For the mat foundations subgrade modulus	250 pci

Soil Unit Weight (Backfill) *	125 pcf
Internal Friction Angle (Backfill) *	34°
At-Rest Pressure Coefficient, K_0	0.45
Active Pressure Coefficient, K_A (level backfill)	0.28
Ultimate Sliding Coefficient, concrete on crushed stone over soil or rock	0.60
Seismic Site Soil Profile Classification	D
Mapped MCE Spectral Response Acceleration for one second period, S_1	0.064
Mapped MCE Spectral Response Acceleration for short period, S_s	0.189
Frost Protection Depth	3.5 feet

* Backfill material conforming to section 6.0 below

6.0 Regarding **Backfill of Pit Walls**, the material should conform to the following or be 3/8" crushed stone:

Percent Passing	Sieve Size
100	3.5"
50 - 100	3/4"
25 - 75	No.4

The fraction, passing the No.4 sieve should have less than 15%, passing the No. 200 sieve.

Controlled fills must be compacted to at least 95% of modified optimum density (ASTM D-1557).

7.0 Regarding **Earthwork**, the excavations in the natural soils will fall in OSHA Class C, which will require sloping of unshored excavations exceeding 5 feet in height to slopes less than 34° from the horizontal.

8.0 This report has been prepared for specific application to the subject project in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. In the event that any changes in the nature, design and location of structures are planned, the conclusions and recommendations contained in this report should not be considered valid unless

the changes are reviewed and conclusions of this report modified or verified in writing.

The analyses and recommendations submitted in this report are based in part upon data obtained from referenced explorations. The extent of variations between explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

Welti Geotechnical, P.C., should perform a general review of the final design and specifications in order that geotechnical design recommendations may be properly interpreted and implemented as they were intended.

If you have any questions, please call our office.

Very truly yours,

A handwritten signature in cursive script that reads "Max Welti".

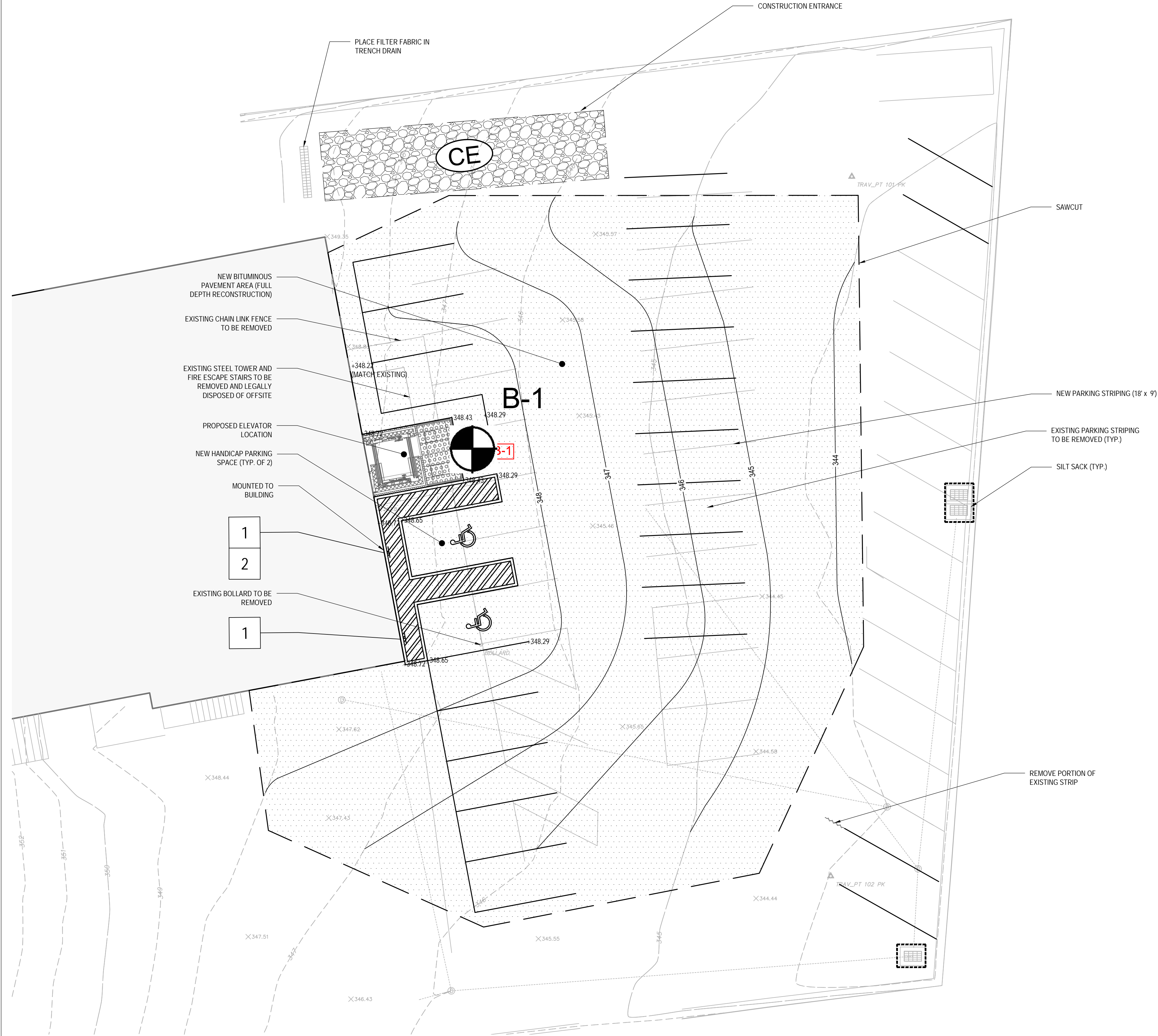
Max Welti, P. E.
President, Welti Geotechnical, P.C.

APPENDIX

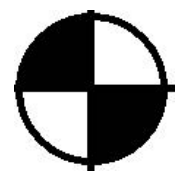
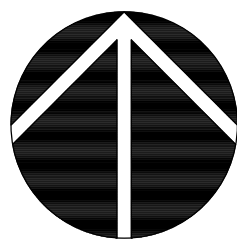
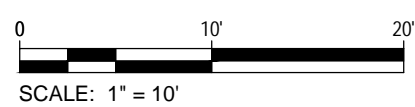
BORING LOCATION PLAN

+

TEST BORING LOGS



1 SITE PLAN
SCALE: 1"=10'





TEST BORING LOCATION
CLARENCE WELTI ASSOCIATES, INC.
8/16/22

SITE PREP/EROSION CONTROL NOTES:

1. PRIOR TO ANY DEMOLITION ACTIVITY THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES.
2. BEFORE BEGINNING ANY WORK, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT 1.800.922.4455. THE RESPECTIVE UTILITY COMPANIES AND LOCAL AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES. ANY COSTS INCURRED BY THE CONTRACTOR AS A RESULT OF FAILURE TO CONTACT PROPER AUTHORITIES SHALL BE BORN BY THE CONTRACTOR.
3. CARE SHOULD BE TAKEN IN ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES.
4. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DUE TO HIS CONTRACT OPERATIONS.
5. CONTRACTOR SHALL PROTECT AND SUSTAIN IN NORMAL SERVICE ALL EXISTING UTILITIES, STRUCTURES, EQUIPMENT, ROADWAYS AND DRIVEWAYS.
6. LIMITS OF EXISTING PAVEMENTS AND CURBS TO REMAIN SHALL BE NEATLY SAWCUT TO PROVIDE FOR A NEAT, CLEAN JOINT/OR FINISHED EDGE.
7. ANY STOCKPILED MATERIAL SHALL BE SUBJECT TO EROSION CONTROL MEASURES THAT INCLUDE A MINIMUM OF SILT FENCE OR HAY BALE BARRIER. COVER STOCKPILES IF SIGNIFICANT RAINFALL IS PREDICTED.
8. NO RUNOFF SHALL BE ALLOWED TO ENTER ANY STORMWATER SYSTEM OR EXIT THE SITE PRIOR TO TREATMENT FOR SEDIMENT REMOVAL.
9. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AND SHALL NOT ALLOW THE ACCUMULATION OF RUBBISH OR CONSTRUCTION DEBRIS. ALL TRASH SHALL BE CLEANED ON A DAILY BASIS AND THE SITE SHALL BE LEFT IN A NEAT CONDITION AT THE END OF EACH WORK DAY.
10. FOR DUST CONTROL, PERIODICALLY MOISTEN EXPOSED SOIL SURFACES WITH WATER AND MAINTAIN ADEQUATE MOISTURE LEVELS.
11. SWEEP ADJACENT ROADWAYS IF MUD OR SOIL IS TRACKED ON TO THEM, OR AS DIRECTED BY THE ENGINEER.

CONSTRUCTION NOTES:

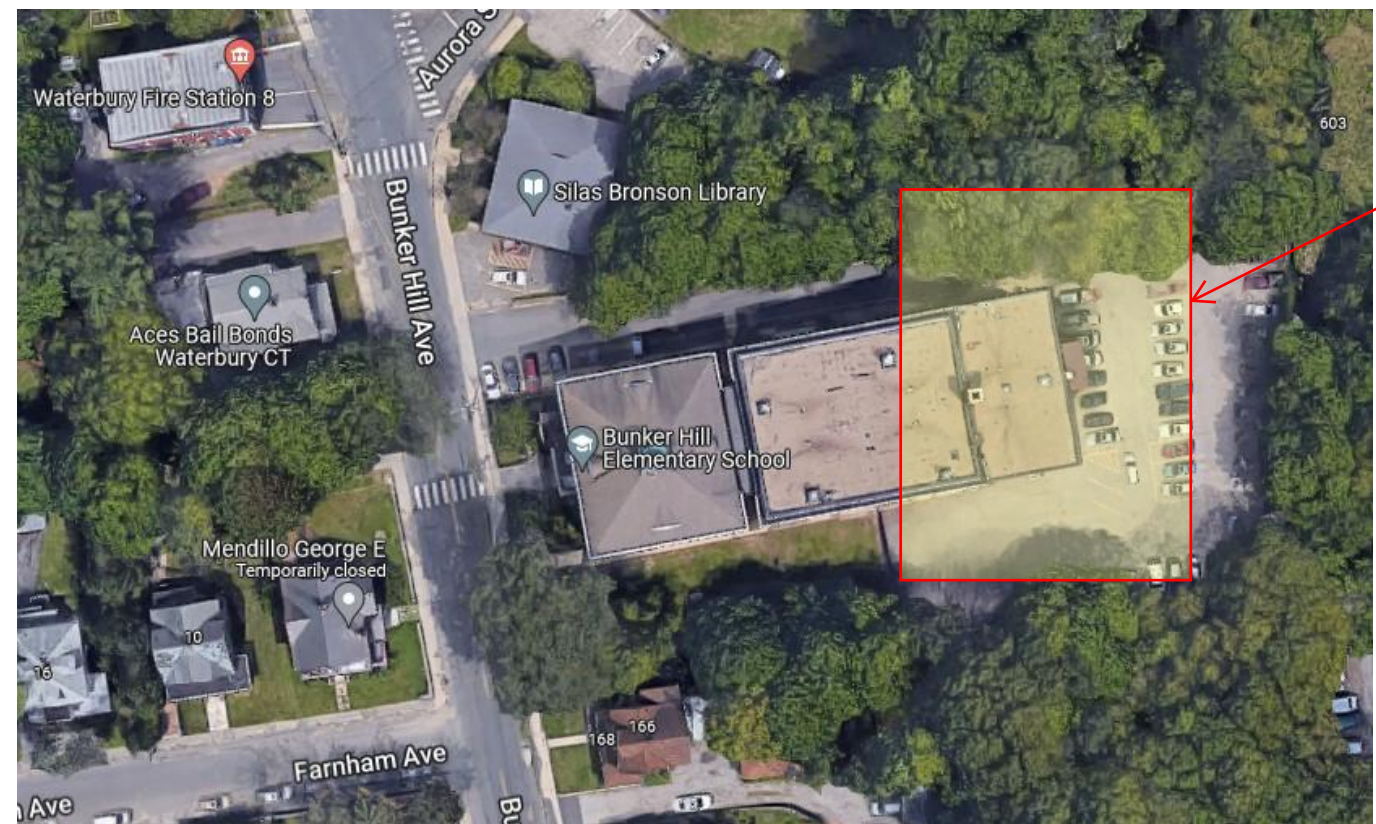
1. MATERIALS AND CONSTRUCTION PROCEDURES SHALL COMPLY WITH CT DOT FORM 818 AND THE TOWN OF WATERBURY.
2. NEW PAVEMENT TO MEET LINE & GRADE OF EXISTING PAVEMENTS.
3. ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED.
4. FIELD ADJUSTMENTS MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE AND APPROPRIATE MUNICIPAL OFFICIALS PRIOR TO CONSTRUCTION.
5. SLOPES ALONG THE ACCESSIBLE ROUTE SHALL BE LESS THAN 1:20 (5%) AND THE CROSS SLOPES SHALL NOT EXCEED 1:50 (2%). CHANGES IN LEVELS SHALL NOT BE GREATER THAN 1/4 INCH.
6. SLOPES WITHIN THE HCP PARKING SPACE SHALL NOT EXCEED 1:50 (2%) IN ANY DIRECTION.
7. THE LOCATIONS OF EXISTING SITE FEATURES AS SHOWN HAVE BEEN OBTAINED FROM MAPS, SURVEYS, FIELD INSPECTIONS, AND OTHER AVAILABLE INFORMATION. THEY MUST BE CONSIDERED APPROXIMATE BOTH TO LOCATION, SIZE, AND AS-BUILT CONDITION AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL FIELD CONDITIONS.
8. COMPLY WITH CONNECTICUT BUILDING CODE FOR ALL SITE CONSTRUCTION, INCLUDING HANDICAPPED ACCESSIBILITY.
9. PROPOSED GRADES INDICATE DESIGN INTENT. VERIFY ELEVATIONS AND MAKE ADJUSTMENTS TO MEET FIELD CONDITIONS. DO NOT PROCEED WITH ANY ADJUSTMENT OR FIELD MODIFICATION UNTIL APPROVED BY THE ENGINEER.
10. THE CONTRACTOR SHALL COMPLY WITH ALL STATE, LOCAL, AND FEDERAL REGULATIONS.

SIGNAGE TABLE							
#	MUTCD NO.	CT CATALOG NO.	LEGEND	WIDTH	HEIGHT	SHEETING TYPE	SIGN DETAIL
1	N/A	PKE-35215-CT	ACCESSIBLE SIGN	18 IN.	12 IN.	XI	WHITE  VIOLATORS WILL BE FINED MIN \$150 RESERVED PARKING PERMIT REQUIRED
2	R7-8P	31-0648	VAN ACCESSIBLE (PLAQUE)	18 IN.	9 IN.	IX	WHITE  VAN ACCESSIBLE

PARKING TABLE	
A. EXISTING PARKING =	31 SPACES
B. PROPOSED PARKING =	34 SPACES
C. REQUIRED HC PARKING =	2 SPACES
D. PROPOSED HC PARKING =	2 SPACES

LEGEND

	345	5' CONTOUR
	346	1' CONTOUR
	X345.55	EXIST. SPOT ELEVATION
	+348.29	PROP. SPOT ELEVATION
		SILT SACK
		PROP. BITUMINOUS PAVEMENT AREA
		CONSTRUCTION ENTRANCE



AREA OF INSET PLAN

DATE:	05/20/2022
DRAWN BY:	JJD
SCALE:	1" = 10'
REVIEWED BY:	WGW
PROJECT NO.	2021.091A

REVISIONS	
NO.	DESCRIPTION

benesch
120 Hebron Avenue, 2nd Floor
Glastonbury, Connecticut 06033
P 860-633-8341
F 860-633-1068
www.benesch.com

SITE PLAN

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

ARCHITECT'S SEAL

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
C1.0

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT FRIAR ARCHITECTURE		PROJECT NAME PROPOSED ELEVATOR ADDITION AT BUNKER HILL ELEMENTARY SCHOOL LOCATION 170 BUNKER HILL AVENUE, WATERBURY, CT			
	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.		HOLE NO. B-1	
TYPE	HSA		SS		LINE & STA.	GROUND WATER OBSERVATIONS		START DATE 8/16/22	
SIZE I.D.	3.75"		1.375"		N. COORDINATE	AT 25.0 FT. AFTER 0 HOURS			
HAMMER WT.			140lbs		E. COORDINATE	AT FT. AFTER HOURS		FINISH DATE 8/16/22	
HAMMER FALL			30"						
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS				ELEV.
	NO.	BLOWS/6"	DEPTH						
0					ASPHALT 0.30				
	1	10-11-21-21	1.0'-3.0'		BR.FINE-CRS.SAND, SOME GRAVEL, TRACE SILT, ASPHALT & BRICKS - FILL				
	2	11-9-25-14	3.0'-5.0'						
5									
	3	3-35-27-27	5.0'-7.0'		BR.FINE-CRS.SAND, SOME GRAVEL & COBBLES, TRACE SILT, FEW BOULDERS 5.5				
10									
	4	43-60	10.0'-10.8'						
15									
	5	60	15.0'-15.4'						
20									
	6	35-60	20.0'-20.8'		GREY/BR.FINE-CRS.SAND, SOME SILT & GRAVEL 20.5				
25									
	7	27-33-56	25.0'-26.5'						
30									
35									
LEGEND: COL. A: SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%						DRILLER: J. BREWER INSPECTOR:			
						SHEET 1 OF 1		HOLE NO. B-1	

WELTI GEOTECHNICAL, P.C.

227 Williams Street · P.O. Box 397
Glastonbury, CT 06033-0397

(860) 633-4623 / FAX (860) 657-2514

August 22, 2022

Mr. Bryce Sens AIA
Associate Principal
Friar Architecture
21 Talcott Notch Road
Farmington, CT 06032

**Re: Geotechnical Study for Proposed Elevator Installation at Washington Elementary School,
685 Baldwin Street, Waterbury, CT**

Dear Bryce:

1.0 Herewith are the boring data pertaining to the above. One boring was drilled to a depth of 17.5 feet below the existing grades. The boring location is shown on the attached plan. *The boring was drilled by Clarence Welti Associates, Inc. and sampling was conducted by this firm solely to obtain indications of subsurface conditions as part of a geotechnical exploration program. No services were performed to evaluate subsurface environmental conditions.*

2.0 The **Subject Project** will include the construction of a new elevator at the south side of the existing three story structure. The elevator location at the connector structure is between the two building elements. The site is paved and is relatively level. It is presumed the elevator will have 4± feet pit below the lowest floor.

3.0 The **Geologic Origin** of the natural inorganic soils is from glacial moraine deposits. The moraine deposits consist of dense sand, some gravel, cobbles and boulders, little silt. The bedrock, which was encountered at about 12 feet below grade, is Waterbury Gneiss.

3.1 The **Soils Cross Section** from the boring is as follows:

Bituminous Concrete 3.5"

FILL; fine to coarse SAND, some Gravel, trace Silt to 2.5 feet

Fine to coarse SAND, some Gravel, Cobbles and Boulders, little Silt to 12 feet, dense to very dense

Note: Cored soil with boulders from 5.5 to 8.5 and recovered 12"

Weathered Rock 12.0 to 12.5

Bedrock; Gneiss

Note: Cored Bedrock from 12.5 to 17.5 feet, with recovery of 83% and RQD value of 30%

3.2 The Water Table was not evident at the completion of the boring.

4.0 The Criteria for Foundation Type and Loading are as follows:

1. The maximum total settlement should not exceed $\frac{1}{2}$ " and the maximum differential settlement should not exceed $\frac{1}{2}$ the maximum settlement over a distance of 50 feet.
2. The Foundations and Structures should address the seismic section of the building code, where applicable.

The above criteria is generally applied to buildings of similar character. If the owner, the architect, the engineers find the criteria as unacceptable, the writer shall be informed to permit additional geotechnical input.

4.1 Regarding item 2 (above), the seismic site soil profile classification can be "C". The mapped MCE spectral response acceleration values for Waterbury, CT are $S_1 = 0.064$ for one second period and $S_s = 0.189$ for short period. For transfer of ground shear into the soil the ultimate friction factor can be **0.60**.

5.0 Regarding the foundation for the elevator shaft, it is presumed that the structure will be placed on a mat or possibly on an enlarged strip footing. To avoid any tilting away from the building the centroid of the mat or strip footing should be outside (away from the building) from the centroid the elevator and shaft loading. The mat can be placed on the dense moraine soils at 4+ feet below grade. It is recommended that the mat be on a minimum 6" layer of 3/8" crushed stone to address partial bottom on a large boulder. If the boulder protrudes into the proposed elevator pit, it would have to be removed by hoe-ramming. If the boulder is removed, the void should be filled with concrete to within 6" of the mat bottom. The elevator pit should be water proofed with water stops at the wall/mat interface.

5.1 The Allowable Bearing Pressure at 4+ feet below grade can be 4,000 psf. For wind and seismic loading this value may be increased by 1/3.

5.2 The Frost Protection Depth is 3.5 feet below the finish grades in areas, which are exposed to weather.

5.3 Summary of the Foundation Design Parameters:

Parameter	Value
Allowable Bearing Pressure for Spread Footings or Mat	4,000 psf
For the mat foundations subgrade modulus	250 pci
Soil Unit Weight (Backfill) *	125 pcf
Internal Friction Angle (Backfill) *	34°
At-Rest Pressure Coefficient, K_0	0.45
Active Pressure Coefficient, K_A (level backfill)	0.28
Ultimate Sliding Coefficient, concrete on crushed stone over soil or rock	0.60
Seismic Site Soil Profile Classification	C
Mapped MCE Spectral Response Acceleration for one second period, S_1	0.064
Mapped MCE Spectral Response Acceleration for short period, S_s	0.189
Frost Protection Depth	3.5 feet

* Backfill material conforming to section 6.0 below

6.0 Regarding Backfill of Pit Walls, the material should conform to the following or be 3/8" crushed stone:

Percent Passing	Sieve Size
100	3.5"
50 - 100	3/4"
25 - 75	No.4

The fraction, passing the No.4 sieve should have less than 15%, passing the No. 200 sieve.

Controlled fills must be compacted to at least 95% of modified optimum density (ASTM D-1557).

7.0 Regarding Earthwork, the excavations in the natural soils will fall in OSHA Class C, which will require sloping of unshored excavations exceeding 5 feet in height to slopes less than 34° from the

horizontal.

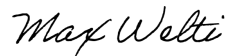
8.0 This report has been prepared for specific application to the subject project in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. In the event that any changes in the nature, design and location of structures are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

The analyses and recommendations submitted in this report are based in part upon data obtained from referenced explorations. The extent of variations between explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

Wolti Geotechnical, P.C., should perform a general review of the final design and specifications in order that geotechnical design recommendations may be properly interpreted and implemented as they were intended.

If you have any questions, please call our office.

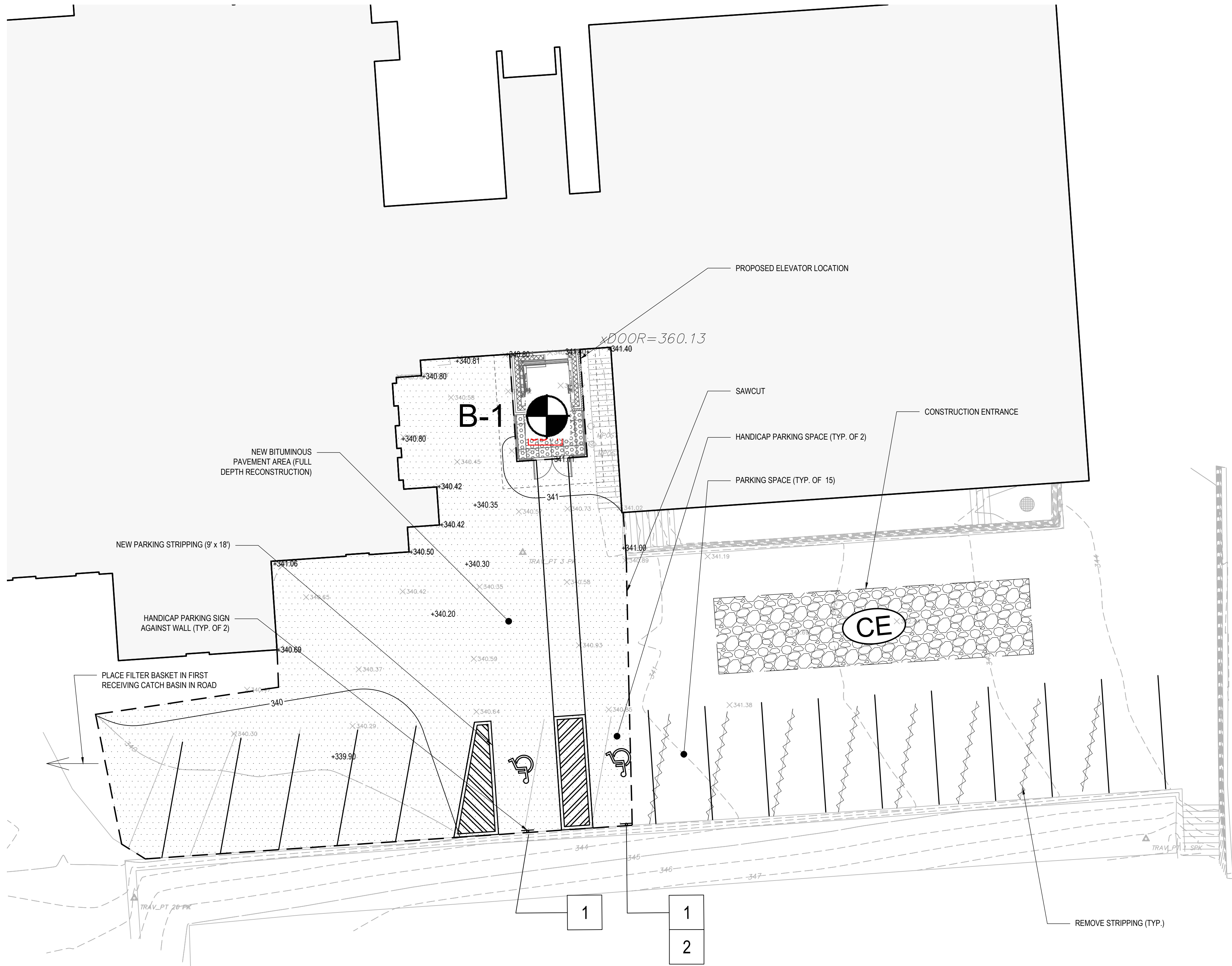
Very truly yours,

A handwritten signature in cursive script that reads "Max Wolti".

Max Wolti, P. E.
President, Wolti Geotechnical, P.C.

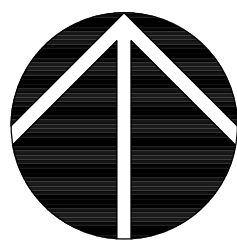
APPENDIX

BORING LOCATION PLAN + TEST BORING LOGS



TEST BORING LOCATION
CLARENCE WELTI ASSOCIATES, INC.
8/12/22

1 SITE PLAN
SCALE: 1"=10'



LEGEND	
	5' CONTOUR
	1' CONTOUR
	EXIST. SPOT ELEVATION
	PROP. SPOT ELEVATION
	PROP. BITUMINOUS PAVEMENT AREA
	CONSTRUCTION ENTRANCE

SITE PREP/EROSION CONTROL NOTES:

1. PRIOR TO ANY DEMOLITION ACTIVITY THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES.
2. BEFORE BEGINNING ANY WORK, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT 1.800.922.4455. THE RESPECTIVE UTILITY COMPANIES AND LOCAL AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES. ANY COSTS INCURRED BY THE CONTRACTOR AS A RESULT OF FAILURE TO CONTACT PROPER AUTHORITIES SHALL BE BORN BY THE CONTRACTOR.
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7. ANY STOCKPILED MATERIAL SHALL BE SUBJECT TO EROSION CONTROL MEASURES THAT INCLUDE A MINIMUM OF SILT FENCE OR HAY BALE BARRIER, COVER STOCKPILES IF SIGNIFICANT RAINFALL IS PREDICTED.
8. NO RUNOFF SHALL BE ALLOWED TO ENTER ANY STORMWATER SYSTEM OR EXIT THE SITE PRIOR TO TREATMENT FOR SEDIMENT REMOVAL.
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10. FOR DUST CONTROL, PERIODICALLY MOISTEN EXPOSED SOIL SURFACES WITH WATER AND MAINTAIN ADEQUATE MOISTURE LEVELS.
11. SWEEP ADJACENT ROADWAYS IF MUD OR SOIL IS TRACKED ON TO THEM, OR AS DIRECTED BY THE ENGINEER.

SIGNAGE TABLE							
#	MUTCD NO.	CT CATALOG NO.	LEGEND	WIDTH	HEIGHT	SHEETING TYPE	BCKGND. COLOR
1	NA	PKE-35215-CT	ACCESSIBLE SIGN	18 IN.	12 IN.	XI	WHITE
2	R7-8P	31-0648	VAN ACCESSIBLE (PLAQUE)	18 IN.	9 IN.	IX	WHITE

PARKING TABLE	
A. EXISTING PARKING =	15 SPACES
B. PROPOSED PARKING =	17 SPACES
C. REQUIRED HC PARKING =	1 SPACES
D. PROPOSED HC PARKING =	2 SPACES

CONSTRUCTION NOTES:

1. MATERIALS AND CONSTRUCTION PROCEDURES SHALL COMPLY WITH CT DOT FORM 818 AND THE TOWN OF WATERBURY
2. NEW PAVEMENT TO MEET LINE & GRADE OF EXISTING PAVEMENTS.
3. ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED.
4. FIELD ADJUSTMENTS MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE AND APPROPRIATE MUNICIPAL OFFICIALS PRIOR TO CONSTRUCTION.
5. SLOPES ALONG THE ACCESSIBLE ROUTE SHALL BE LESS THAN 1:20 (5%) AND THE CROSS SLOPES SHALL NOT EXCEED 1:50 (2%). CHANGES IN LEVELS SHALL NOT BE GREATER THAN 1/4 INCH.
6. SLOPES WITHIN THE HCP PARKING SPACE SHALL NOT EXCEED 1:50 (2%) IN ANY DIRECTION.
7. THE LOCATIONS OF EXISTING SITE FEATURES AS SHOWN HAVE BEEN OBTAINED FROM MAPS, SURVEYS, FIELD INSPECTIONS, AND OTHER AVAILABLE INFORMATION. THEY MUST BE CONSIDERED APPROXIMATE BOTH TO LOCATION, SIZE, AND AS-BUILT CONDITION AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL FIELD CONDITIONS.
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9. PROPOSED GRADES INDICATE DESIGN INTENT. VERIFY ELEVATIONS AND MAKE ADJUSTMENTS TO MEET FIELD CONDITIONS. DO NOT PROCEED WITH ANY ADJUSTMENT OR FIELD MODIFICATION UNTIL APPROVED BY THE ENGINEER.
10. THE CONTRACTOR SHALL COMPLY WITH ALL STATE, LOCAL, AND FEDERAL REGULATIONS.



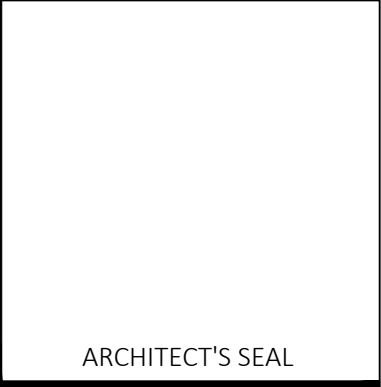
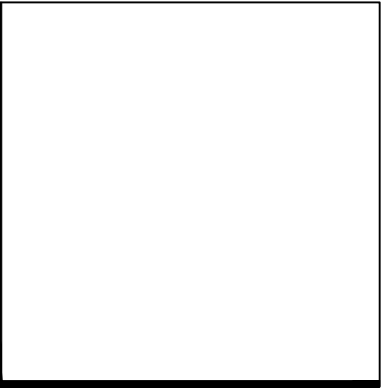
DATE:	5/20/2022
DRAWN BY:	JJD
SCALE:	1" = 10'
REVIEWED BY:	JWGW
PROJECT NO.	2021-091A

REVISIONS	
NO.	DESCRIPTION

120 Hebron Avenue, 2nd Floor
Glastonbury, Connecticut 06033
P 860-633-8341
F 860-633-1068
www.Benesch.com

SITE PLAN

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
**WASHINGTON
ELEMENTARY SCHOOL**
685 BALDWIN STREET
WATERBURY, CT 06706



21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
C1.0

CLARENCE WELTI ASSOC., INC. P.O. BOX 397 GLASTONBURY, CONN 06033				CLIENT FRIAR ARCHITECTURE		PROJECT NAME PROPOSED ELEVATOR ADDITION AT WASHINGTON ELEMENTARY SCHOOL LOCATION 685 BALDWIN STREET, WATERBURY, CT			
	AUGER	CASING	SAMPLER	CORE BAR.	OFFSET	SURFACE ELEV.		HOLE NO. B-1	
TYPE	HSA		SS	NQ	LINE & STA.	GROUND WATER OBSERVATIONS		START DATE 8/12/22	
SIZE I.D.			1.375"	2.0"	N. COORDINATE	AT none FT. AFTER 0 HOURS			
HAMMER WT.			140lbs		E. COORDINATE	AT FT. AFTER HOURS		FINISH DATE 8/12/22	
HAMMER FALL			30"						
DEPTH	SAMPLE			A	STRATUM DESCRIPTION + REMARKS				ELEV.
	NO.	BLOWS/6"	DEPTH						
0					ASPHALT 0.30 BR.FINE-CRS.SAND, SOME GRAVEL, TRACE SILT - FILL				
	1	8-4-3-60	1.0'-3.0'		BR.FINE-CRS.SAND, SOME GRAVEL & COBBLES, FEW BOULDERS, LITTLE SILT 2.5 NOTE: CORED BOULDERS FROM 5.5' TO 8.5', RECOVERED 10"				
5									
10									
	2	33-60	10.0'-10.8'						
15					WEATHERED ROCK 12.0 CORED BEDROCK - GNEISS 12.5 RUN #1 12.5' - 17.5' RECOVERED 50" RQD=30%				
20									
25									
30									
35					BOTTOM OF BORING @ 17.5' 17.5				
LEGEND: COL. A: SAMPLE TYPE: D=DRY A=AUGER C=CORE U=UNDISTURBED PISTON S=SPLIT SPOON PROPORTIONS USED: TRACE=0-10% LITTLE=10-20% SOME=20-35% AND=35-50%						DRILLER: J. BREWER INSPECTOR:			
						SHEET 1 OF 1		HOLE NO. B-1	

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Access to site.
 - 4. Coordination with occupants.
 - 5. Work restrictions.
 - 6. Specification and drawing conventions.
- B. Related Section:
 - 1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

- A. Project #1 Identification: Bunker Hill Elementary School (State Project No. 151-0305 CV)
 - 1. Project Location: 170 Bunker Hill Avenue, Waterbury, CT 06708.
- B. Project #2 Identification: Washington Elementary School (State Project No. 151-0304 CV).
 - 1. Project Location: 685 Baldwin Street, Waterbury, CT 06706.
- C. Owner: City of Waterbury - Board of Education.
 - 1. Owner's Representative: Rosh Maghfour.
- D. Architect: Friar Architecture, Inc., 21 Talcott Notch Road, Farmington, CT 06032.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of the Project is defined by the Contract Documents and consists of the following:

Project #1 (Bunker Hill Elementary School): Installation of a new elevator hoistway adjacent to the existing school and an elevator vestibule within the existing school, along with modifications to the existing site and M/E/P/FP system in the immediate area of the new hoistway/vestibule.

Project #2 (Washington Elementary School): Installation of a new elevator hoistway and single person lift within the existing school and adjacent elevator vestibule along with modifications to the existing site and M/E/P/FP system in the immediate area of the new hoistway/vestibule.

B. Type of Contract

1. Project will be constructed under a single prime contract.

1.5 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.
- B. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.
- C. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 1. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- D. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

- A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

1.7 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours 8:00 a.m. to 5:00 p.m., Monday through Friday, except as otherwise indicated.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 1. Notify Owner not less than seven days in advance of proposed utility interruptions.
 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 1. Notify Owner not less than three days in advance of proposed disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted on the Owner's property.
- F. Controlled Substances: Use of tobacco products and other controlled substances on the Project site is not permitted.
- G. Employee Identification: Provide identification tags for Contractor personnel working on the Project site. Require personnel to utilize identification tags at all times.
- H. Employee Screening: Comply with Owner's requirements regarding drug and background screening of Contractor personnel working on the Project site.
 1. Maintain list of approved screened personnel with Owner's Representative.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

1.9 MISCELLANEOUS PROVISIONS

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Sections:
 - 1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 10 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.

- d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Architect.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
 - 7. Proposal Request Form: Use form acceptable to Architect.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.
- B. Overhead and Profit
 - 1. The allowance for the combined overhead and profit included in the total cost to the Owner shall be based on the following schedule: (All percentages shall be taken on net cost of work. Net cost is the total amount due before addition of overhead and profit.)
 - a. For the Contractor, for Work performed by the Contractor's own forces, 10 percent of the net cost.
 - b. For the Contractor, for Work performed by the Contractor's Subcontractor, 10 percent of the net amount due the Subcontractor.
 - c. For each Subcontractor or Sub-subcontractor involved, for the Work performed by that Subcontractor's own forces, 5 percent of the net cost.
 - d. Total combined overhead and profit shall not exceed 20 percent of the net cost.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections:
 - 1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Division 01 Section "Submittal Procedures" for administrative requirements governing the preparation and submittal of the submittal schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Correlate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.

3. Sub-schedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide sub-schedules showing values correlated with each element.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Arrange schedule of values consistent with format of AIA Document G703.
 3. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - a. Change Orders (numbers) that affect value.
 - b. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of Contract Sum.
 5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 6. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
 7. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 8. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
 9. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

- a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
10. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:

- a. Materials previously stored and included in previous Applications for Payment.
 - b. Work completed for this Application utilizing previously stored materials.
 - c. Additional materials stored with this Application.
 - d. Total materials remaining stored, including materials with this Application.
- F. Transmittal: Submit three signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 1. List of subcontractors.
 2. Schedule of values.
 3. Combined Contractor's construction schedule (preliminary if not final) incorporating Work of multiple contracts, with indication of acceptance of schedule by each Contractor.
 4. Submittal schedule (preliminary if not final).
 5. Copies of building permits.
 6. Report of preconstruction conference.
 7. Certificates of insurance and insurance policies.
 8. Performance and payment bonds.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
 1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
 1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. AIA Document G707, "Consent of Surety to Final Payment."
 4. Evidence that claims have been settled.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Administrative and supervisory personnel.
 - 3. Coordination drawings.
 - 4. Requests for Information (RFIs).
 - 5. Project meetings.
- B. Related Sections:
 - 1. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 2. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request from Owner, Architect, or Contractor seeking information from each other during construction.

1.4 COORDINATION

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.

- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's construction schedule.
 - 2. Preparation of the schedule of values.
 - 3. Installation and removal of temporary facilities and controls.
 - 4. Delivery and processing of submittals.
 - 5. Progress meetings.
 - 6. Preinstallation conferences.
 - 7. Project closeout activities.
 - 8. Startup and adjustment of systems.
 - 9. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
 - 1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.5 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings in accordance with requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
 - 1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - c. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.

- d. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
 - e. Indicate required installation sequences.
 - f. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
- B. Coordination Drawing Organization: Organize coordination drawings as follows:
- 1. Plenum Space: Indicate subframing for support of ceiling and wall systems, mechanical and electrical equipment, and related Work. Locate components within ceiling plenum to accommodate layout of light fixtures indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
 - 2. Mechanical Rooms: Provide coordination drawings for mechanical rooms showing plans and elevations of mechanical, plumbing, fire protection, fire alarm, and electrical equipment.
 - 3. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
 - 4. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
 - 5. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
 - 6. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inch diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire alarm locations.
 - c. Panel board, switch board, switchgear, transformer, busway, generator, and motor control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
 - 7. Review: Architect will review coordination drawings to confirm that the Work is being coordinated, but not for the details of the coordination, which are the Contractor's responsibility. If the Architect determines that the coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, the Architect will so inform the Contractor, who shall make changes as directed and resubmit.
 - 8. Coordination Drawing Prints: Prepare coordination drawing prints in accordance with requirements of Division 01 Section "Submittal Procedures."

1.6 KEY PERSONNEL

- A. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and email addresses. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.7 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect.
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.

- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow 10 working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or inaccurately prepared RFIs.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within five days if Contractor disagrees with response.
- F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect.
 4. RFI number including RFIs that were dropped and not submitted.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's response was received.
 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.8 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Pre-Abatement Conference: Before any hazardous material abatement work is scheduled to commence, a conference will be held by the Contractor at the Site for the purpose of reviewing the Contract Documents, discussing requirements for the Work and reviewing procedures.
1. The conference shall be attended by the Remediation Contractor and the Owner's Authorized Representatives employed by the Owner.
- C. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
1. Conduct the conference to review responsibilities and personnel assignments.
 2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Lines of communications.
 - f. Procedures for processing field decisions and Change Orders.
 - g. Procedures for RFIs.
 - h. Procedures for testing and inspecting.
 - i. Procedures for processing Applications for Payment.
 - j. Distribution of the Contract Documents.
 - k. Submittal procedures.
 - l. Preparation of record documents.
 - m. Use of the premises and existing building.
 - n. Work restrictions.
 - o. Working hours.
 - p. Owner's occupancy requirements.
 - q. Responsibility for temporary facilities and controls.
 - r. Procedures for disruptions and shutdowns.
 - s. Construction waste management and recycling.
 - t. Parking availability.
 - u. Office, work, and storage areas.
 - v. First aid.

- w. Progress cleaning.
- 4. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- D. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.
 - 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Related RFIs.
 - b. Related Change Orders.
 - c. Submittals.
 - d. Possible conflicts.
 - e. Compatibility problems.
 - f. Time schedules.
 - g. Manufacturer's written recommendations.
 - h. Compatibility of materials.
 - i. Acceptability of substrates.
 - j. Temporary facilities and controls.
 - k. Space and access limitations.
 - l. Regulations of authorities having jurisdiction.
 - m. Testing and inspecting requirements.
 - n. Installation procedures.
 - o. Coordination with other work.
 - p. Required performance results.
 - q. Protection of adjacent work.
 - r. Protection of construction and personnel.
 - 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- E. Project Closeout Conference: Schedule and conduct a Project closeout conference, at a time convenient to Owner and Architect, but no later than 30 days prior to the scheduled date of Substantial Completion.
 - 1. Conduct the conference to review requirements and responsibilities related to Project closeout.

2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of record documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Submittal of written warranties.
 - d. Requirements for preparing operations and maintenance data.
 - e. Requirements for demonstration and training.
 - f. Preparation of Contractor's punch list.
 - g. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - h. Submittal procedures.
 - i. Responsibility for removing temporary facilities and controls.
 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- F. Progress Meetings: Conduct progress meetings at weekly intervals.
1. Coordinate dates of meetings with preparation of payment requests.
 2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Sequence of operations.
 - 2) Status of submittals.
 - 3) Temporary facilities and controls.
 - 4) Progress cleaning.

- 5) Quality and work standards.
 - 6) Status of correction of deficient items.
 - 7) Field observations.
 - 8) Status of RFIs.
 - 9) Status of proposal requests.
 - 10) Pending changes.
 - 11) Status of Change Orders.
 - 12) Pending claims and disputes.
 - 13) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
- a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Preliminary Construction Schedule.
 - 2. Submittals Schedule.
 - 3. Field condition reports.
 - 4. Special reports.
- B. Related Sections include the following:
 - 1. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
 - 2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
 - 3. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
 - 4. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Architect.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.

- F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Fragment: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- H. Major Area: A story of construction, a separate building, or a similar significant construction element.
- I. Milestone: A key or critical point in time for reference or measurement.
- J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
- K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.4 SUBMITTALS

- A. Qualification Data: For scheduling consultant.
- B. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Architect's final release or approval.
- C. Preliminary Construction Schedule: Submit two opaque copies.
 - 1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.
- D. Field Condition Reports: Submit two copies at time of discovery of differing conditions.
- E. Special Reports: Submit two copies at time of unusual event.

1.5 QUALITY ASSURANCE

- A. Scheduling Consultant Qualifications: An experienced specialist in CPM scheduling and reporting, with capability of producing CPM reports and diagrams within 24 hours of Architect's request.

1.6 COORDINATION

- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 - 2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.

2.2 PRELIMINARY CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within seven days of date established for commencement of the Work.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

- A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for commencement of the Work. Base schedule on the Preliminary Construction Schedule and whatever updating and feedback was received since the start of Project.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.4 REPORTS

- A. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.5 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Scheduling Consultant: Engage a consultant to provide planning, evaluation, and reporting using CPM scheduling.
 1. In-House Option: Owner may waive the requirement to retain a consultant if Contractor employs skilled personnel with experience in CPM scheduling and reporting techniques. Submit qualifications.
 2. Meetings: Scheduling consultant shall attend all meetings related to Project progress, alleged delays, and time impact.
- B. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- C. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 1. Post copies in Project meeting rooms and temporary field offices.

2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
- B. Related Sections:
 - 1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 - 2. Division 01 Section "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 3. Division 01 Section "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
 - 4. Division 01 Section "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as action submittals.
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as informational submittals.
- C. File Transfer Protocol (FTP): Communications protocol that enables transfer of files to and from another computer over a network and that serves as the basis for standard Internet protocols. An FTP site is a portion of a network located outside of network firewalls within which internal and external users are able to access files.
- D. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.
 - 1. Initial Submittal: Submit concurrently with start-up construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - 2. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal category: Action, informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled dates for installation.
 - i. Activity or event number.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 - 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 - 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the

Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 10 working days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 10 working days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 15 working days for initial review of each submittal.
- D. Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification.
1. Indicate name of firm or entity that prepared each submittal on label or title block.
 2. Include the following information for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name of Contractor.
 - d. Name of subcontractor.
 - e. Name of supplier.
 - f. Name of manufacturer.
 - g. Submittal number or other unique identifier, including revision identifier.
 - 1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
 - h. Number and title of appropriate Specification Section.
 - i. Drawing number and detail references, as appropriate.
 - j. Location(s) where product is to be installed, as appropriate.
- E. Identification and Information: Identify and incorporate information in each electronic submittal file as follows:
1. Assemble complete submittal package into a single indexed file with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.
 - a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., LNHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).

3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
4. Include the following information on an inserted cover sheet:
 - a. Project name.
 - b. Date.
 - c. Name and address of Architect.
 - d. Name of Contractor.
 - e. Name of firm or entity that prepared submittal.
 - f. Name of subcontractor.
 - g. Name of supplier.
 - h. Name of manufacturer.
 - i. Number and title of appropriate Specification Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Location(s) where product is to be installed, as appropriate.
 - l. Related physical samples submitted directly.
 - m. Other necessary identification.
5. Include the following information as keywords in the electronic file metadata:
 - a. Project name.
 - b. Number and title of appropriate Specification Section.
 - c. Manufacturer name.
 - d. Product name.
- F. Options: Identify options requiring selection by the Architect.
- G. Deviations: Identify deviations from the Contract Documents on submittals.
- H. Additional Paper Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
- I. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.
 1. Transmittal Form: Provide locations on form for the following information:
 - a. Project name.
 - b. Date.
 - c. Destination (To:).
 - d. Source (From:).
 - e. Names of subcontractor, manufacturer, and supplier.
 - f. Category and type of submittal.
 - g. Specification Section number and title.

- h. Indication of full or partial submittal.
 - i. Drawing number and detail references, as appropriate.
 - j. Transmittal number, numbered consecutively.
 - k. Submittal and transmittal distribution record.
 - l. Remarks.
 - m. Signature of transmitter.
 - 2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- J. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
- 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- K. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- L. Use for Construction: Use only final submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
- 1. Action Submittals: Submit three paper copies of each submittal, unless otherwise indicated. Architect will return two copies.
 - 2. Informational Submittals: Submit two paper copies of each submittal, unless otherwise indicated. Architect will not return copies.
 - 3. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
 - 4. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

- a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
 - b. Provide a notarized statement on original paper copy certificates and certifications where indicated.
5. Test and Inspection Reports Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
 6. Submit Product Data in the following format:
 - a. Three paper copies of Product Data, unless otherwise indicated. Architect will return two copies.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 42 inches (750 by 1067 mm).
 3. Submit Shop Drawings in the following format:
 - a. Three opaque copies of each submittal. Architect will retain two copies; remainder will be returned.
- D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
- E. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."
- F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- G. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.

- H. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- I. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- J. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- K. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- L. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- M. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- N. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- O. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 01 Section "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
- C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.
- D. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- E. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- F. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 013800 – HEALTH AND SAFETY PLAN

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Prior to the start of work on the site, Contractor shall prepare and submit a site-specific health and safety plan that includes consideration of all known and potential hazards at the site. As used in this Section, the 'Site' refers to the area encompassed by the Contract Limit of Work. Work may not proceed at the site until the Contractor's health and safety plan has been received and reviewed by the Consultant.
- B. Site-specific health and safety procedures as specified herein are required due to potentially hazardous conditions that may be encountered during handling, sampling, treatment, removal and disposal of contaminated and/or hazardous material, specifically petroleum contaminated soil. In addition to addressing health and safety issues associated with removal of petroleum contaminated soil, the Health and Safety Plan and related items of this Section are also to address general demolition and construction activities required under this Contract.
- C. The Contractor is responsible for its workers' and Subcontractors' health and safety and the monitoring and control of dust and odor migration from the sites. Therefore, the Consultant will only review the Contractor's Health and Safety Plan for relevant content. The Contractor shall implement, maintain, and enforce these procedures during all phases of the Work associated with the description of work described in this Section.
- D. The following items are addressed in this Section.
 - 1. Preparation of a Site-Specific Health and Safety Plan
 - 2. Personal Protective Equipment
 - 3. Logs, Reports and Recordkeeping
 - 4. Equipment Decontamination
 - 5. Training Certification

1.2 RELATED WORK

- A. Section 312316 – EXCAVATION

1.3 PREPARATION OF SITE-SPECIFIC HEALTH AND SAFETY PLAN

- A. Prior to the start of work on the site, the Contractor shall prepare, stamp, and submit to the Consultant a site-specific Health and Safety Plan, which includes consideration of all known and potential hazards at the site. Work may not proceed at the Site until the Contractor's Health and Safety Plan has been received by the Consultant/Owner.
- B. The Contractor shall conduct an initial survey of the sites to determine the appropriate safety procedures and level of worker safety equipment. The Contractor's Site Safety and Health Officer (SSHO) shall be present on-site throughout the duration of the Contract, shall be fully qualified and experienced to conduct his/her duties, and shall maintain a continuous hazardous materials health and safety monitoring program throughout the performance of site remediation work. It shall be the SSHO's responsibility to notify the Consultant of any deviations in the hazardous materials health and safety monitoring program.

- C. This Section describes the minimum health and safety requirements during completion of the work. The Contractor shall develop a detailed Health and Safety Plan based on all applicable regulations. Contractor shall be cognizant of the minimum health and safety plan standards set forth in 29 CFR 1910.120.29 C FR 1926. The Health and Safety Plan shall include, but is not limited to, the following minimum requirements:
1. Identification of the Contractor's General Supervisor and Site Health and Safety Officer and their General functions and responsibilities.
 2. Lines of authority, responsibility, and communication associated with the personnel identified in Paragraph 1.04 B.1.
 3. Copies of 40-hour OSHA HASWOPER training and Confined Space training certificates, including most current 8-hour refresher session certificates if applicable, for all personnel that will be on-site or involved in the activities for which such training is required.
 4. Comprehensive work plan that addresses the tasks and objectives of the project, including associated logistics and resources.
 5. Identification and analysis of the hazards and risks associated with each task/operation for the project.
 6. Contractor's standard operating procedures, including personnel training and field orientation information.
 7. Procedures for determining appropriate levels of personal protection equipment selection.
 8. Identification of personal protective equipment (including respiratory protection equipment) to be used during each task/operation of the project.
 9. Contractor's medical surveillance program.
 10. Personal hygiene requirements and guidelines for project personnel.
 11. Project Site zone delineation.
 12. Site security and entry control procedures.
 13. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques to be used (including methods for maintenance and calibration of monitoring and sampling equipment).
 14. Decontamination procedures (see Specification Section 015700 – ENVIRONMENTAL PROTECTION for additional information).
 15. Contingency and emergency response plans and procedures.
 16. List of emergency contacts (including names, addresses, and telephone numbers).
 17. Confined space entry procedures.
 18. Procedures for minimizing electrical hazards and risks posed by overhead wires and substation electrical equipment.
 19. Methods and responsibility for updating the Health and Safety Plan, as necessary.
 20. Spill Containment Program – Develop, submit for Consultant's review, and implement an Oil and Hazardous Materials Management and Spill Control Program (OHM Program) to address inventory, storage, and on-site handling of oil and hazardous materials, risk mitigation measures, and spill control and reporting procedures that will be implemented by the Contractor during construction. The OHM Program shall include complete descriptions of all methods, procedures, and Best Management Practices (BMP) proposed to insure compliance with appropriate environmental requirements of the Owner, the U.S. Environmental Protection Agency, and all others having jurisdiction.
 21. Provisions for pre-entry initial and periodic safety briefings. The Health and Safety Plan shall include site access provisions that effectively limit access to work areas to only those persons in full compliance with the requirements of the Occupational Safety and Health Administration (OSHA) and CONN OSHA.
- D. It shall be the Contractor's responsibility to immediately notify the Consultant orally or in writing within one (1) day should any unforeseen safety hazard or condition become evident during the performance of

the work. In the interim, the Contractor shall take prudent action to establish and maintain safe working conditions and to safeguard employees, the public, and the environment.

1.4 PERSONAL PROTECTIVE EQUIPMENT

- A. The personal protective equipment required to provide the appropriate level of dermal and respiratory protection shall be determined based on the results of air monitoring performed by the Contractor and the standards set forth in the Contractor's Health and Safety Plan. The Consultant may conduct duplicate air monitoring for quality control purposes. Modified Level D protection shall be the minimum requirement for all on-Site personnel.

1.5 LOGS, REPORTS AND RECORDKEEPING

- A. The Contractor shall maintain daily logs covering the implementation of the Health and Safety Plan. Contractor shall provide Consultant with copies of all logs and reports on a weekly basis.
- B. Daily Safety Logs shall include, at a minimum, the following:
 - 1. Date.
 - 2. Area (site-specific) checked.
 - 3. Employees in particular areas.
 - 4. Site visitors, name, affiliation, and purpose of site visit.
 - 5. Equipment being utilized by the employees.
 - 6. Protective clothing being worn by employees.
 - 7. Protective devices being used by:
 - a. Contractor Personnel;
 - b. Visitors; and
 - c. Designated State and Federal representatives.
 - 8. Air monitoring data, including description of area being monitored, equipment used, and a summary of the collected readings.
- C. Each Daily Safety Log shall be signed and dated by the Contractor's Site Safety and Health Officer.
- D. Employer Obligation: The Contractor shall be solely responsible for compliance with regulations of the CONN OSHA, Connecticut Department of Energy and Environmental Protection, and all Federal laws such as OSHA (29 CFR) which require chemical exposure records and medical records be maintained by employer for a specified length of time after the termination of the job.

1.6 HEALTH AND SAFETY AUDITS

- A. The Contractor shall be aware that unannounced health and safety audits will be conducted by the Owner's safety representative during the work.

PART 2 - NOT USED

PART 3 - NOT USED

END OF SECTION 013800

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect.
- C. Preconstruction Testing: Tests and inspections performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

- D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.
- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade or trades.
- I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 ACTION SUBMITTALS

- A. Shop Drawings: For integrated exterior mockups, provide plans, sections, and elevations, indicating materials and size of mockup construction.
 - 1. Indicate manufacturer and model number of individual components.
 - 2. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

1.6 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.
 - 2. Entity responsible for performing tests and inspections.
 - 3. Description of test and inspection.
 - 4. Identification of applicable standards.
 - 5. Identification of test and inspection methods.
 - 6. Number of tests and inspections required.
 - 7. Time schedule or time span for tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.

1.7 CONTRACTOR'S QUALITY-CONTROL PLAN

- A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's construction schedule.
- B. Quality-Control Personnel Qualifications: Engage qualified full-time personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.
 - 1. Project quality-control manager may also serve as Project superintendent.
- C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.
- D. Testing and Inspection: Include in quality-control plan a comprehensive schedule of Work requiring testing or inspection, including the following:
 - 1. Contractor-performed tests and inspections including subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections.
 - 2. Special inspections required by authorities having jurisdiction and indicated on the "Statement of Special Inspections."

- E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.
- F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.8 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
 - 1. Date of issue.
 - 2. Project title and number.
 - 3. Name, address, and telephone number of testing agency.
 - 4. Dates and locations of samples and tests or inspections.
 - 5. Names of individuals making tests and inspections.
 - 6. Description of the Work and test and inspection method.
 - 7. Identification of product and Specification Section.
 - 8. Complete test or inspection data.
 - 9. Test and inspection results and an interpretation of test results.
 - 10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
 - 11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
 - 12. Name and signature of laboratory inspector.
 - 13. Recommendations on retesting and reinspecting.
- B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, and telephone number of technical representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at Project site comply with requirements.
 - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 6. Statement whether conditions, products, and installation will affect warranty.
 - 7. Other required items indicated in individual Specification Sections.

- C. **Factory-Authorized Service Representative's Reports:** Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.
- D. **Permits, Licenses, and Certificates:** For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.9 QUALITY ASSURANCE

- A. **General:** Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. **Fabricator Qualifications:** A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.
- F. **Testing Agency Qualifications:** An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.
1. **NRTL:** A nationally recognized testing laboratory according to 29 CFR 1910.7.
 2. **NVLAP:** A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

- G. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
 - 1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens, assemblies, mockups; do not reuse products on Project.
 - 2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.10 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- F. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform any duties of Contractor.

- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents as a component of the Contractor's quality-control plan. Coordinate and submit concurrently with Contractor's construction schedule. Update as the Work progresses.
1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.11 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
1. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 2. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
 3. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 4. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 5. Retesting and reinspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to Architect.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 014200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if

bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 014200

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Sections:
 - 1. Division 01 Section "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

1.4 INFORMATIONAL SUBMITTALS

- A. Moisture-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage, including delivery, handling, and storage provisions for materials subject to water absorption or water damage, discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water damaged Work.
 - 1. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
- B. Dust-Control and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust-control and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:
 - 1. Locations of dust-control partitions at each phase of the work.

2. HVAC system isolation schematic drawing.
3. Location of proposed air filtration system discharge.
4. Other dust-control measures.
5. Waste management plan.

1.5 QUALITY ASSURANCE

- A. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.
- B. Accessible Temporary Egress: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC/ANSI A117.1.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Dust Control Adhesive-Surface Walk-off Mats: Provide mats minimum 36 by 60 inches (914 by 1624 mm).
- B. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

- A. Field Offices, General: Personnel will be permitted to use permanent facilities, under conditions acceptable to Owner.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Use of permanent HVAC system.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 2. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction and clean HVAC system as required in Division 01 Section "Closeout Procedures".
- C. Air Filtration Units: HEPA primary and secondary filter-equipped portable units with four-stage filtration. Provide single switch for emergency shutoff. Configure to run continuously.

PART 3 - EXECUTION

3.1 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Isolation of Work Areas in Occupied Facilities: Prevent dust, fumes, and odors from entering occupied areas.
1. Prior to commencing work, isolate the HVAC system in area where work is to be performed in accordance with approved coordination drawings.
 - a. Disconnect supply and return ductwork in work area from HVAC systems servicing occupied areas.
 - b. Maintain negative air pressure within work area using HEPA-equipped air filtration units, starting with commencement of temporary partition construction, and continuing until removal of temporary partitions is complete.
 2. Maintain dust partitions during the Work. Use vacuum collection attachments on dust-producing equipment. Isolate limited work within occupied areas using portable dust containment devices.
 3. Perform daily construction cleanup and final cleanup using approved, HEPA-filter-equipped vacuum equipment.
- C. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
1. Provide dehumidification systems when required to reduce substrate moisture levels to level required to allow installation or application of finishes.

- D. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
 - 2. Install lighting for Project identification sign.

3.2 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Personnel will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Project Signs: Provide Project signs as indicated per the attachment included with this specification section. Provide one sign per school location. Unauthorized signs are not permitted.
 - 1. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 - 2. Maintain and touchup signs so they are legible at all times.
- C. Waste Disposal Facilities: Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."
- D. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.3 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Division 01 Section "Summary."
- B. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- C. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

- D. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.
 - 1. Construct dustproof partitions with gypsum wallboard with joints taped on occupied side, and fire-retardant plywood on construction operations side.
 - 2. Where fire-resistance-rated temporary partitions are indicated or are required by authorities having jurisdiction, construct partitions according to the rated assemblies.
 - 3. Insulate partitions to control noise transmission to occupied areas.
 - 4. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
 - 5. Protect air-handling equipment.
 - 6. Provide walk-off mats at each entrance through temporary partition.

3.4 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor.
 - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 015000

SECTION 015700 – ENVIRONMENTAL PROTECTION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. The work covered by this section of the specifications consists of furnishing all labor, materials, tools and equipment and performing all work required by the prevention of environmental pollution during and as a result of construction operations under this contract.
- B. Prior to commencement of work, the Contractor shall meet with representatives of the Consultant to develop mutual understandings relative to compliance of the environmental protection program.

1.2 RELATED WORK

- A. Section 312316 – EXCAVATION
- B. Section 312319 – DEWATERING

1.3 SUBMITTALS

- A. The Contractor shall submit for approval six (6) sets of details and literature fully describing environmental protection methods to be employed in carrying out construction activities.

PART 2 - PRODUCTS

2.1 Straw Wattles:

- A. Straw wattles or equivalent shall be used along the perimeter of the work area and soil stockpiles.

PART 3 - EXECUTION

3.1 NOTIFICATION AND STOPPAGE OF WORK

- A. The Consultant will notify the Contractor in writing of any non-compliance with the foregoing provisions. The Contractor shall, after receipt of such notice, immediately take corrective action. Such notice, when delivered to the Contractor by his authorized representative at the site of the work, shall be deemed sufficient for the purpose. If the Contractor fails to act promptly, the Owner may order stoppage of all or part of the work through the Consultant until satisfactory corrective action has been taken. No claim for an extension of time or for excess costs or damage incurred by the Contractor as a result of time lost due to any stop work orders shall be made unless it was later determined that the Contractor was in compliance.

3.2 AREA OF CONSTRUCTION ACTIVITY

- A. Insofar as possible, the Contractor shall confine his construction activities to those areas defined by the plans and specifications. All land resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their present condition or be restored to a condition after completion of construction at least equal to that which existed prior to work under this contract.

3.3 PROTECTION OF WATER RESOURCES

- A. The Contractor shall not pollute streams, lakes, or reservoirs with fuels, oils, bitumen, calcium chloride, acids or other harmful materials. It is the Contractor's responsibility to comply with all applicable Federal, State, County and Municipal laws regarding pollution of rivers and streams.
- B. Special measures should be taken to insure against spillage of any pollutants into public waters.

3.4 PROTECTING AND MINIMIZING EXPOSED AREAS

- A. The Contractor shall limit the area of land which is exposed and free from vegetation during construction. All disturbed vegetated areas shall be stabilized within 72 hours after final grading. In areas where the period of exposure will be greater than two (2) months, temporary vegetation, mulching or other protective measures shall be provided as specified.
- B. The Contractor shall take account of the conditions of the soil where temporary cover crop will be used to insure that materials used for temporary vegetation are adaptive to the sediment control. Materials to be used for temporary vegetation shall be approved by the Owner's Representative/Consultant.

3.5 LOCATION OF STORAGE AREAS

- A. The location of the Contractor's storage areas for equipment and/or materials shall be upon cleared portions of the job site or areas to be cleared as a part of this project, and shall require written approval of the Consultant. Plans showing storage facilities for equipment and materials shall be submitted for approval of the Owner's Representative/Consultant.
- B. No demolition debris, excavated materials, or materials used in backfill operations shall be deposited within a minimum distance of one hundred (100) feet of any watercourse or any drainage facility. Adequate measures for erosion and sediment control such as the placement of baled hay or straw around the downstream perimeter of stockpiles shall be employed to protect any downstream areas from siltation.
- C. The Consultant may designate a particular area or areas where the Contractor may store materials used in his operations.

3.6 CLEARING AND GRUBBING

- A. The Contractor shall clear and grub only on the Regional School District 17 land and only the area required for construction operations, as approved by the Consultant.

3.7 DISCHARGE OF DEWATERING OPERATIONS

- A. Any water that is pumped and discharged from the excavation as part of the Contractor's water handling including water that collects on-site during storm events, shall be as specified in Section 312319 – DEWATERING and in accordance with applicable Federal, State and local environmental regulations and permits.
- B. Under no circumstances shall the Contractor discharge water to the areas designated as wetlands. When constructing in a wetlands area, the Contractor shall discharge water from dewatering operations directly to the nearest drainage system, stream, or waterway after filtering by an approved method.

3.8 DUST CONTROL

- A. During the progress of the work, the Contractor shall conduct his operations and maintain the area of his activities, including sweeping and sprinkling of streets as necessary, to minimize creation and dispersion of dust. The Contractor shall implement engineered controls to control the emission of fugitive dust as required by the Owner's Representative/Consultant.

END OF SECTION 015700

SECTION 01 5713 - TEMPORARY EROSION AND SEDIMENTATION CONTROLS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Installation of temporary erosion and sedimentation control measures
2. Maintenance of temporary erosion and sedimentation control measures.
3. Monitoring of site condition and installation of supplemental temporary erosion and sedimentation control measures.
4. Sediment removal and disposal
5. Removal of temporary erosion and sedimentation control measures.
6. Monitoring, documentation, and recordkeeping.
7. Final cleanup.

B. Erosion and sediment control techniques include, but are in no way limited to, silt fence, hay bales, drainage structure inserts/filters, mulching with hay/straw, netting/matting, grassing, stone dikes/berms/check-dams, compost blankets and berms, barriers, diversions, traps, basins, and appurtenances which will ensure that erosion and sediment pollution will be either eliminated or maintained within acceptable limits.

C. The measures specified herein are the minimum requirements which Contractor shall comply to control erosion and siltation throughout execution of the work. Contractor shall provide additional work if necessary to control erosion and siltation throughout the duration of the construction as conditions dictate, or as directed by Engineer.

D. Contractor shall coordinate work between all Contractors, sections, and trades required for the proper completion of the work.

E. Contractor is responsible for all health and safety.

1.2 SUBMITTALS

A. Submit material specifications and shop drawings for all materials furnished under this Section.

B. Prior to the start of the construction, submit schedule for the construction of required stormwater detention basins, temporary and permanent erosion and sedimentation control measures, clearing and grubbing, grading, structures at watercourses, construction, and paving.

C. During construction, submit to Engineer schedule changes that affect timing of construction.

D. Submit copies of all inspection and maintenance report forms.

1.3 REFERENCES

- A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- B. Regulations of Connecticut State Agencies (RCSA)
 - 1. 22a-315-10 through 19, Soil and Water Conservation
- C. Connecticut Department of Energy and Environmental Protection (DEEP)
 - 1. Connecticut Guidelines for Soil Erosion and Sediment Control, DEEP Bulletin 34, State of Connecticut Council on Soil and Water Conservation, 2002.
- D. State of Connecticut Department of Transportation (ConnDOT)
 - 1. Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817, 2016 and any supplements.

1.4 PERMIT CONDITIONS

- A. Contractor and Subcontractors are bound to comply with any project-related permits obtained by Owner or Engineer for the work of the project. Such permits will affect performance of the work, and Contractor and Subcontractors are bound to comply with requirements of such permit and representations contained in permit application as though Contractor and Subcontractor were the Permittee/permit-holder. Requirements and conditions set forth in Owner or Engineer-obtained project-related permits and permit applications shall be binding on Contractor just as any Specification would be.

1.5 QUALITY CONTROL

- A. Contractor shall be responsible for the timely installation and maintenance of all sedimentation control devices necessary to prevent the erosion of soil or movement of sediment from construction activities to off-site areas via surface runoff or underground drainage systems. Measures in addition to those shown on the Drawings necessary to prevent the movement of sediment off site shall be installed, maintained, removed, and cleaned up at the expense of Contractor.
- B. Where additional erosion and sedimentation control measures are required beyond what is indicated on the Drawings or herein, comply with applicable sections of the Connecticut Guidelines for Soil Erosion and Sediment Control, DEEP Bulletin 34, State of Connecticut Council on Soil and Water Conservation, 2002.
- C. If applicable, comply with applicable provisions of the Connecticut Department of Energy and Environmental Protection (DEEP) General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities, (DEEP-WPED-GP-015), latest revision thereof. Conditions of such General Permit, other conditions of approval or authorizations, and associated Stormwater Pollution Control Plan (SWPCP) shall become part of the Contract Documents.

- D. Engineer has the authority to order immediate, additional, temporary control measures to prevent contamination of adjacent streams or other watercourses, or other areas of water impoundment and damage by erosion.
- E. If Engineer observes construction procedures and operations that jeopardize erosion control provisions, Engineer will notify Contractor. If such construction procedures and operations are not corrected promptly, Engineer may suspend the performance of any or all construction until corrections have been made, and such suspension shall not be the basis of any claim by Contractor for additional compensation, nor for an extension of time to complete the Work.
- F. Should construction materials be washed away or otherwise rendered ineffective in the opinion of Engineer during the progression of the Work, Contractor shall replace the installations at no additional cost to the Owner.

1.6 COORDINATION WITH PERMANENT EROSION CONTROL PROVISIONS

- A. Coordinate temporary erosion and sedimentation control measures with permanent erosion control features to the extent practical to ensure economical, effective and continuous erosion control throughout construction and post-construction periods.

PART 2 PRODUCTS

2.1 CATCH BASIN INSERT

- A. Manufactured "bag type" catch basin insert of woven polypropylene geotextile with integral lifting loops or straps conforming to the following:

1. Mechanical and Physical Properties of Catch Basin Insert

Mechanical Properties	Test Method	Unit	Minimum Average Roll Value
Grab Tensile Strength	ASTM D 4632	Pounds	315
Grab Elongation (Max percent)	ASTM D 4632	Percent (%)	30
Trapezoidal Tear	ASTM D 4533	Pounds	40x50 (min)
Puncture	ASTM D 4833	Pounds	135 (min)
Mullen Burst	ASTM D 3786	psi	420 (min)
Permittivity	ASTM D 4491	gal/min/sq ft	0.7
Flow Rate	ASTM D 4491	gal/min/ft ²	50-200
Apparent Opening Size	ASTM D 4751	(U.S. Sieve)	20-40
UV Resistance (at 500 hours)	ASTM D 4355	% strength retained	80 (min)

Note: Catch basin inserts for catch basins with curb openings shall be equipped with integral curb deflector.

PART 3 EXECUTION

3.1 GENERAL

- A. Install erosion and sedimentation control measures as shown on the Drawings prior to any site disturbance.
- B. No work shall be started until erosion control schedules and installation have been accepted by Engineer.
- C. Engineer has the authority to control the surface area of each material exposed by construction operations and to direct Contractor to immediately provide permanent or temporary pollution control measures to prevent contamination of adjacent watercourses or other areas of water impoundment. Every effort shall be made by Contractor to prevent erosion on the site and abutting properties or areas.
- D. Contractor shall construct all permanent erosion and sediment control features at the earliest practical time as outlined in the accepted schedule. Temporary erosion and sediment control measures shall be used to correct conditions that develop during construction, which were unforeseen, but are needed prior to installation of permanent control features, or that are needed temporarily to control erosion or sedimentation which develops during construction operations.
- E. Contractor shall limit as necessary the surface area of the earth material exposed to sufficiently maintain and protect the slopes to prevent pollution. Where erosion is likely to be a problem, clearing and grubbing operations shall be scheduled and performed so that grading operations and permanent erosion and sediment control features can follow immediately thereafter, if conditions permit; otherwise, temporary control measures will be required between successive construction stages.
- F. Erosion control measures shall be maintained by Contractor, and he shall remove such installations only upon completion of the work and the site is stabilized or when authorized to do so by Engineer.
- G. Contractor shall operate all equipment and perform all construction operations so as to minimize pollution. Contractor shall cease any of his operations, which will increase pollution during rainstorms.
- H. Failure by Contractor to control erosion, pollution, and siltation shall be cause for the Engineer to employ outside assistance to provide the necessary corrective measures. The cost of such assistance, including engineering costs, will be charged to Contractor and appropriate deductions made to Contractor's payment.

3.2 CATCH BASIN INLET SEDIMENT CONTROL

- A. Install catch basin inlet sediment control devices in each exiting catch basin as long as it remains in use in accordance with manufacturer's guidelines at the locations shown on the Drawings.
- B. A catch basin sediment filter shall be installed and changed/cleaned per the manufacturer's recommendations, or as directed by the Engineer, during construction.
- C. New catch basins shall have a filter installed immediately upon completion of construction. In addition, a hay bale, or similar, barrier shall be installed around the new basin and maintained in place until binder is placed or disturbed areas draining to it are stabilized.

- D. Catch basins with curb openings shall have filter fabric covering the opening and the edges of the fabric shall be secured. A filter boom shall also be placed over the opening.

3.3 INSPECTIONS AND MAINTENANCE

- A. Contractor is responsible to maintain the sediment and erosion control features at all times throughout the project duration and until the completion certification and approval has been issued.
- B. Regular erosion and sediment control system inspections shall be conducted by Contractor throughout the project duration. At a minimum, Contractor shall conduct daily inspections and maintain erosion control systems in good operating condition. Report the results of the inspection and the recommended maintenance and/or repair requirements to Engineer.
- C. Additional inspections may be required and/or directed prior to, or immediately following, a storm event. Repairs shall be made as necessary.
- D. In the event that the sedimentation and erosion control measures employed by Contractor prove to be inadequate as determined by the Engineer, Contractor shall adjust operations to the extent necessary to prevent erosion and sediment transport.
- E. Clean catch basin inlet sediment control devices in accordance with manufacturer's guidelines.
- F. Any catch basins that collect sediment as a result of Contractor's work shall be thoroughly cleaned out by Contractor.

END OF SECTION

SECTION 01 5714 - TEMPORARY DUST CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Furnishing and spreading water, calcium chloride, and/or mulch on the subgrade, or in other areas of a Project Site or associated off-site areas, for the purpose of controlling dust emissions.
- B. The requirements set forth in this section of the specifications apply to all phases and areas of construction.
- C. Contractor is responsible for all health and safety.

1.2 REFERENCES

- A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- B. Regulations of Connecticut State Agencies (RCSA)
 - 1. RCSA Section 22a-174-1 through 43, Abatement of Air Pollution.
- C. ASTM International (ASTM)
 - 1. ASTM D98, Standard Specification for Calcium Chloride.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Only water, calcium chloride, and mulch are approved for dust control. No asphalt or petroleum-based products may be utilized for dust control.
- B. Water used shall be clean, non-polluted water obtained from sources approved by Engineer.
- C. Calcium chloride, ASTM D98. Calcium chloride in pellet form and flake form shall be acceptable.
 - 1. Calcium chloride shall be packaged in moisture proof bags or in airtight drums with the manufacturer, name of product, net weight, and percentage of calcium chloride guaranteed by the manufacturer legibly marked on each container.
 - 2. Engineer may reject calcium chloride failing to meet the requirements of the aforementioned specifications or which has become caked or sticky in shipment.
- D. Mulch

1. Straw mulch: Threshold straw of oats, wheat, barely, or rye that is free from noxious weeds, mold or other objectionable material. Straw mulch shall contain at least 50 percent by weight of material to be 10-in or longer.
2. Wood chips: Processed tree trimmings free of trash or other physical contaminants such as metal and plastic.

PART 3 EXECUTION

3.1 GENERAL

- A. Dust control shall be the responsibility of Contractor and dust control operations shall meet the requirements of the State of Connecticut Department of Environmental Protection.
- B. Construction sequencing shall be organized and conducted in a manner to leave existing pavement or ground coverings in place until just prior to earth excavation for the purpose of minimizing the migration of dust beyond the Project Limits into the surrounding area.
- C. Engineer reserves the right to conduct active dust monitoring using visual methods and may utilize particulate measurement equipment during the course of the work. If the amount of fugitive dust and/or particulate generated during the work is deemed unacceptable in the Engineer's judgment or exceeds baseline Project Site conditions at Engineer's monitoring locations, Engineer may require Contractor to stop work and implement corrective measures. No claim for delay will be considered for work stoppage based upon the results of Engineer's active dust monitoring results.
- D. Stockpiled materials from which particle have the potential of becoming airborne shall be securely covered with a temporary waterproof covering made of polyethylene, polypropylene, hypalon, or approved equal. The covers must be in place at all times when work with the stockpiles is not occurring.
- E. Subcontractor shall sweep all adjacent roads and neighboring parking lots and driveways that are impacted by the work. Whenever dirt is tracked from the site it shall be cleaned as necessary to prevent it from becoming a nuisance or hazard. At a minimum, adjacent streets shall be swept once per week.

3.2 WATER

- A. The application of water shall be under the control of Engineer at all times. It shall be applied only at the locations, and at such times, and in the amount as may be directed by Engineer. Quantities of water wasted or applied without authorization will not be paid for.
- B. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as ice, flooding or pollution.
- C. Contractor shall have available and maintain in an operable condition at all times, sufficient equipment for the purpose of applying water for dust control.
- D. Watering equipment shall consist of pipelines, tanks, tank trucks, distributors, pumps, meters, hose or other devices, approved by Engineer, which are capable of applying a uniform spread

of water over the surface. A suitable device for a positive shut-off and for regulating the flow of water shall be located so as to permit positive operator control.

- E. Applications of water for dust suppression include, but are not necessarily limited to, the following:
 - 1. Demolition activities, material handling, material processing, and loading.
 - 2. Earthwork.
 - 3. Open excavation faces and dust-prone areas of the work.
 - 4. Temporary access roads and roadway surfaces within and around the Project Site.

3.3 CALCIUM CHLORIDE

- A. Calcium chloride shall be applied only at the locations, at such times and in the amount as may be directed by the Engineer and only in areas that will not be adversely affected by the application. Refer to Section 01 3543 – Environmental Protection.
- B. Calcium chloride shall be uniformly applied at the rate of one and one-half (1½) pounds per square yard (lb/yd²) or at any other rate as directed by Engineer. Application shall be by means of a mechanical spreader, or other approved methods. The number and frequency of applications shall be to Engineer's satisfaction.

3.4 MULCH FOR DUST CONTROL

- A. Coordinate the use of mulch for dust control with erosion and sedimentation control measures.
- B. Straw mulch shall be applied at a rate of 100 pounds per 1,000 square feet (100 lb/1,000 ft²).
- C. Wood chips or wood mulch shall be applied at such a rate as to form a layer one (1) inch thick.

3.5 OTHER DUST CONTROL MEASURES

- A. A temporary seed mixture may be spread in lieu of, or in addition to mulch over areas where the suspension of grading work in disturbed areas is expected to be more than 30 calendar days and as directed by Engineer.

END OF SECTION

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Sections:
 - 1. Division 01 Section "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.

2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Refer to Divisions 02 through 49. Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures:

1. Manufacturers:

- a. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Installation of the Work.
 - 2. Cutting and patching.
 - 3. Progress cleaning.
 - 4. Starting and adjusting.
 - 5. Protection of installed construction.
 - 6. Correction of the Work.
- B. Related Sections:
 - 1. Division 02 Section "Selective Structure Demolition" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from the Architect before proceeding. Shore, brace, and support structural element during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Mechanical systems piping and ducts.
 - f. Control systems.
 - g. Communication systems.
 - h. Conveying systems.
 - i. Electrical wiring systems.
 - j. Operating systems of special construction.
 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Equipment supports.
 - e. Piping, ductwork, vessels, and equipment.
 - f. Noise- and vibration-control elements and systems.
 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

1.5 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 - 1. For projects requiring compliance with sustainable design and construction practices and procedures, utilize products for patching that comply with requirements of Division 01 Section "Sustainable Design Requirements."
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to the Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."
- D. Surface and Substrate Preparation: Comply with manufacturer's recommendations for preparation of substrates to receive subsequent work.

3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 96 inches (2440 mm) in occupied spaces and 90 inches (2300 mm) in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned

with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.4 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements of Division 01 Section "Summary."
- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and

- with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Utilize containers intended for holding waste materials of type to be stored.
 - 4. Coordinate progress cleaning for joint-use areas where more than one installer has worked.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Construction Waste Management and Disposal."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Division 01 Section "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.8 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Disposing of nonhazardous demolition and construction waste.

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

1.5 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to ASTM E 1609 and requirements of this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Distinguish between demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.
- B. Waste Identification: Indicate anticipated types and quantities of demolition and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - 1. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 - 2. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 - 1. Comply with Division 01 Section "Temporary Facilities and Controls" for operation, termination, and removal requirements.
- B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.
 - 1. Distribute waste management plan to everyone concerned within three days of submittal return.
 - 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.

2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
- B. Related Sections:
 - 1. Division 01 Section "Execution" for progress cleaning of Project site.
 - 2. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 3. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 4. Division 01 Section "Demonstration and Training" for requirements for instructing Owner's personnel.
 - 5. Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

5. Prepare and submit Project Record Documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

1.4 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:
1. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 3. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Contractor.

- d. Page number.

1.6 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 - 4. Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide table of contents at beginning of document.
- D. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that meet Green Seal GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - j. Remove labels that are not permanent.
 - k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.
 - l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - m. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
 - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

- o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter upon inspection.
 - 1) Clean HVAC system in compliance with NADCA Standard 1992-01. Provide written report upon completion of cleaning.
 - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - q. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Construction Waste Management and Disposal."

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Operation manuals for systems, subsystems, and equipment.
 - 4. Product maintenance manuals.
 - 5. Systems and equipment maintenance manuals.
- B. Related Sections:
 - 1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
 - 2. Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual specification sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Where applicable, clarify and update reviewed manual content to correspond to modifications and field conditions.
- B. Format: Submit operations and maintenance manuals in the following format:

1. One paper copy. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect will return one copy.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least five days before commencing demonstration and training. Architect will return copy with comments.
 1. Correct or modify each manual to comply with Architect's comments. Submit copies of each corrected manual on the day of demonstration and training.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
 1. List of documents.
 2. List of systems.
 3. List of equipment.
 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 1. Title page.

2. Table of contents.
 3. Manual contents.
- B. Title Page: Include the following information:
1. Subject matter included in manual.
 2. Name and address of Project.
 3. Date of submittal.
 4. Name and contact information for Contractor.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
 4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

- a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
- b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
 1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 1. Fire.
 2. Flood.
 3. Gas leak.
 4. Water leak.
 5. Power failure.
 6. Water outage.
 7. System, subsystem, or equipment failure.
 8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
 1. Instructions on stopping.
 2. Shutdown instructions for each type of emergency.
 3. Operating instructions for conditions outside normal operating limits.
 4. Required sequences for electric or electronic systems.
 5. Special operating instructions and procedures.

2.4 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Operating standards.

3. Operating procedures.
4. Operating logs.
5. Wiring diagrams.
6. Control diagrams.
7. Piped system diagrams.
8. Precautions against improper use.
9. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed and identify color-coding where required for identification.

2.5 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference

Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.

4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
 2. Troubleshooting guide.
 3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
1. Do not use original project record documents as part of operation and maintenance manuals.
 2. Comply with requirements of newly prepared record Drawings in Division 01 Section "Project Record Documents."
- G. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Sections:
 - 1. Division 01 Section "Closeout Procedures" for general closeout procedures.
 - 2. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
 - 3. Divisions 02 through 49 Sections for specific requirements for project record documents of the Work in those Sections.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of record Drawings as follows:
 - a. Initial Submittal: Submit one paper copy set of marked-up record prints. Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal: Submit one paper copy set of marked-up record prints. Print each Drawing, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit one paper copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one paper copy of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.
- D. Reports: Submit written report weekly indicating items incorporated in Project record documents concurrent with progress of the Work, including modifications, concealed conditions, field changes, product selections, and other notations incorporated.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings.
 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked-up record prints.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
 2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared record Drawings into record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Format: Paper copy.
 3. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
 5. Note related Change Orders, record Product Data, and record Drawings where applicable.

- B. Format: Submit record Specifications as paper copy.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, record Specifications, and record Drawings where applicable.
- B. Format: Submit record Product Data as paper copy.
 - 1. Include record Product Data directory organized by specification section number and title, electronically linked to each item of record Product Data.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and modifications to project record documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 017839

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Operation manuals for systems, subsystems, and equipment.
 - 4. Product maintenance manuals.
 - 5. Systems and equipment maintenance manuals.
 - 6. Training Schedule
- B. Related Sections:
 - 1. Division 01 Section "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
 - 2. Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Manual Content: Operations and maintenance manual content is specified in individual specification sections to be reviewed at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Where applicable, clarify and update reviewed manual content to correspond to modifications and field conditions.

- B. Format: Submit operations and maintenance manuals in the following format:
 - 1. One paper copy. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. Architect will return one copy.
- C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.
- D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least five days before commencing demonstration and training. Architect will return copy with comments.
 - 1. Correct or modify each manual to comply with Architect's comments. Submit copies of each corrected manual on the day of demonstration and training.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
 - 1. List of documents.
 - 2. List of systems.
 - 3. List of equipment.
 - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
 2. Table of contents.
 3. Manual contents.
- B. Title Page: Include the following information:
1. Subject matter included in manual.
 2. Name and address of Project.
 3. Date of submittal.
 4. Name and contact information for Contractor.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Manuals, Paper Copy: Submit manuals in the form of hard copy, bound and labeled volumes.
1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch (215-by-280-mm) paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
 4. Supplementary Text: Prepared on 8-1/2-by-11-inch (215-by-280-mm) white bond paper.
 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

- a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
- b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
 1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 1. Fire.
 2. Flood.
 3. Gas leak.
 4. Water leak.
 5. Power failure.
 6. Water outage.
 7. System, subsystem, or equipment failure.
 8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
 1. Instructions on stopping.
 2. Shutdown instructions for each type of emergency.
 3. Operating instructions for conditions outside normal operating limits.
 4. Required sequences for electric or electronic systems.
 5. Special operating instructions and procedures.

2.4 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Operating standards.

3. Operating procedures.
4. Operating logs.
5. Wiring diagrams.
6. Control diagrams.
7. Piped system diagrams.
8. Precautions against improper use.
9. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed and identify color-coding where required for identification.

2.5 PRODUCT MAINTENANCE MANUALS

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference

Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.

4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
 2. Troubleshooting guide.
 3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training video recording, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original project record documents as part of operation and maintenance manuals.
 - 2. Comply with requirements of newly prepared record Drawings in Division 01 Section "Project Record Documents."
- G. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

3.2 INSTRUCTION

- A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Owner will furnish Contractor with names and positions of participants.
- B. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
 - 1. Schedule training with Owner, through Construction Manager, with at least seven days' advance notice.
- C. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

- D. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.
- E. Training Requirement Matrix

System	No. of People	Hours/Per	Media to be Provided	Specification
1. Elevator Equipment	Min. 2	Min. 4 (per elevator type/location)	Manual	142123.16 & 142400
2. Wheelchair Lift	Min. 2	Min. 4	Manual	144200
3. Heating and Ventilating Equipment	Min. 2	Min. 2	Manual	Dwg. M0.1 & M1.0
4. Storefront Entry Systems, Glazing & Door Hardware	Min. 1	Min. 1	Manual	084113, 087100 & 088000

END OF SECTION 017823

SECTION 01010

GENERAL REQUIREMENTS

PART 1 – GENERAL

RELATED DOCUMENTS

The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”

1.1 SECTION INCLUDES

- A. Contractor Qualifications.
- B. Contractor Use of Site and Premises.
- C. Work Sequence.
- D. Owner’s Operations.
- E. Closeout and Punch List.
- F. Cleaning.
- G. Emergency Calls

1.2 CONTRACTOR QUALIFICATIONS

- A. The Contractor selected must appear on the approved list of Asbestos Abatement Contractors on file at the State of Connecticut Department of Public Health (CTDPH). Only State-certified asbestos abatement supervisors and workers shall perform asbestos abatement work activities.
- B. Submit a written statement regarding whether the Contractor has ever been found out-of-compliance with federal or state asbestos regulations pertaining to worker protection, removal, transport, or disposal.
- C. The Contractor shall obtain and pay for all required permits, and prepare and file all original and amended local, state, and EPA pre-notification forms immediately following award of the work.
- D. The Contractor shall conduct personal exposure air monitoring for airborne fibers as prescribed by OSHA during the project performance.
- E. The Owner reserves the right to award this Contract to the Contractor who best meets all contractor qualifications and Owner’s interests.

1.3 CONTRACTORS USE OF SITE AND PREMISES

- A. Limit use of site and premises as follows:
 - 1. Owner occupancy.
 - 2. Work by Owner.
 - 3. Use of site and premises by public.
- B. Coordinate use of the premises, including use of restroom facilities and utilities under direction of Owner.
- C. Assume full responsibility for protection and safekeeping of products under this Contract.

1.4 WORK SEQUENCE

- A. Work must be performed to accommodate Owner's requirements. Coordinate removal schedule and operations with the Owner/Consultant.
- B. The Owner plans to close the School Building during the duration of the project. No children shall be permitted to occupy any portion of the School.

1.5 OWNER'S OPERATIONS

- A. Schedule the Work to accommodate this requirement.
- B. Maintain means of egress.
- C. Coordinate Work with the Owner and the Fire Marshall.
- D. Maintain the fire alarm and fire detection systems at all times.
- E. Maintain a permanent means of egress during project. Provide and maintain a temporary means of egress as required by the Fire Marshall.

1.6 CLEANING

- A. Throughout the abatement period, the Contractor shall maintain the building and site free of rubbish, debris, surplus materials, and other items not required for the Work. Remove such materials from the site daily to prevent accumulations. Remove all debris from work areas, and remove all hazardous waste and asbestos waste as required by the most current federal, state, and local regulations and the requirements of the specifications.

1.7 EMERGENCY CALLS

- A. The Contractor shall provide the Consultant and Owner with a telephone number where the Contractor or Contractor's Representative can be reached during non-working hours.
- B. At the direction of a duly authorized representative of the Owner, the Contractor may be required to dispatch all necessary personnel and equipment to any point on the work site to clear obstructions or make safe any conditions deemed necessary by the Owner or Consultant.

1.8 ADDITIONAL GENERAL REQUIREMENTS

- A. The Abatement Contractor shall employ an English-speaking competent Asbestos Abatement Supervisor with at least three (3) years experience on projects of similar scope and magnitude who shall be responsible for all work involving asbestos abatement as described in the Specifications and defined in the applicable regulations and have full-time daily supervision of the same. The Supervisor shall be the “Competent Person” as defined by OSHA regulations. The Contractor shall provide, on-site, at least one English-speaking foreman at all times when work is in progress. The supervisor and foreman must be thoroughly experienced in asbestos-containing materials removal work, knowledgeable of all applicable federal, state, and local regulations and capable of skillfully executing all work promptly, efficiently and in compliance with all requirements of these specifications. The Owner reserves the right to have any supervisory or foreman personnel removed from the project if they do not demonstrate the requisite qualifications.
- B. The Contractor shall allow work performed under this contract to be inspected, if required, by local, state, federal, and any other authorities having jurisdiction over such work. The Contractor shall immediately notify the Owner and Consultant and shall maintain written evidence of such inspection for review by the Owner and Consultant.
- C. The Contractor shall incur the cost of all fines resulting from regulatory non-compliance as issued by federal, state, and local agencies. The Contractor shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance or negligence.
- D. The Contractor shall immediately notify the Owner and Consultant of the delivery of all permits, licenses, certificates of inspection, approval or occupancy, etc., and any other such instruments required under codes by authorities having jurisdiction, regardless of to who issued, and shall cause them to be displayed to the Owner and Consultant for verification and recording.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01016

SCHEDULING AND PHASING

PART 1 - GENERAL

RELATED DOCUMENTS

The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section "Summary."

1.1 GENERAL REQUIREMENTS

- A. The Contractor shall present a working schedule to the Owner. Variations, amendments, and corrections to the presented schedule will be discussed, and the Owner will inform the Contractor of additions or changes in the scheduling requirements for the project.
- B. Refer to all other applicable sections of the specification for coordination with other trades. The Contractor shall coordinate work with all other activities at this site.

1.2 TIME FOR COMPLETION AND WORKING HOURS

- A. Upon award of contract from the Owner, the Contractor shall immediately order materials, supplies, and components for the work of this project.
- B. The Contractor shall begin the work immediately upon receipt of the "Notice to Proceed" from the Owner. The date of the commencement of the work is termed the "Project Start Date." The Contractor will be required to complete all work of this Contract within the time period stipulated in the finalized schedule. The last day in the schedule is termed as "Contract Completion Date."
- C. If conditions arise that are beyond the control of the Contractor and force delays in the performance of the Work, the Owner shall immediately be notified. The Contractor shall state the reason for the delay and shall estimate the expected duration of the delay. Any application for an extension of the Contract completion date shall be made under proper change order procedures. The acceptance of the cause for delay and change order is subject to the Owner's review and approval.
- D. Work hours will be established in coordination with the Owner.
- E. Any extra hours or days per week worked by the Contractor or Sub-Contractors shall be at no extra cost to the Owner. Denial of extra hours or days per week by the Owner shall not be grounds for extra time allotted to the overall Contract time.
- F. The Contractor will define a project work schedule to which the Contractor will be bound. Any change in the work schedule must be approved by the Owner.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01026

UNIT PRICES

PART 1 – GENERAL

RELATED DOCUMENTS

The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”

1.1 SUMMARY

- A. A unit price is an amount proposed by the Contractor and stated on the proposal as a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the project Scope of Work is altered.
- B. Unit prices include material, any direct or indirect expenses of the Contractor or Sub-Contractor, profit, insurance, bonding, and any applicable taxes. The same unit price shall apply whether the work is added or deducted.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 – GENERAL

RELATED DOCUMENTS

The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”

1.1 GENERAL PROVISIONS

- A. General Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 FINAL CLEANING

- A. Unless otherwise specified under Sections of this Specification, the Contractor shall perform final cleaning operations specified prior to final inspection.
- B. Maintain the project site free from accumulations of waste, debris and rubbish caused by operations. At the completion of the work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave the project clean and ready for work of others under separate contract.
- C. Cleaning shall include all surfaces, interior and exterior, in which the Contractor has had access.
- D. Use only those materials that will not create hazards to health or property.

1.3 REMOVAL CLOSEOUT DOCUMENTS

- A. Submit to the Owner, final completed copies of the Waste Shipment Records, signed by all transporters and the designated disposal site owner/operator.
- B. Submit to the Consultant copies of all Contractor's logs, notifications & permits, and all worker certifications (certificates, training, medical, and fit-test).
- C. The Contractor must be able to provide Certified Payroll documentation to the City of Waterbury Department of Education, or its Representative or Project Auditors upon formal request.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

DIVISION II

SPECIAL CONDITIONS

FOREWORD

Supplementing Division I of the Specifications for the work to be performed under this Contract, DIVISION II, SPECIAL CONDITIONS, shall apply particularly to this Contract.

The enforcement of the requirements of any of the Special Conditions shall not be construed as waiving any of the rights of the Owner, contained in any of the other provisions of the Contract.

The Contract documents, including without limitation, these Special Conditions, shall be interpreted and construed as far as is reasonably possible to be in addition to, supplementary to and consistent with each other.

SECTION 02075

SELECTIVE DEMOLITION - ASBESTOS REMOVAL

PART 1 – GENERAL

RELATED DOCUMENTS

The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”

1.1 SUMMARY

- A. Provide selective demolition to existing walls, partition walls, base trim, etc., and dismantle existing millwork as necessary to access floor tiles and associated mastic adhesives and all other ACMs.
- B. **All layers of ACM floor tile, mastics, pipe insulation, and exterior fire escape door frame caulking are included in the base work; no extra charge will be accepted.** Selective demolition or moving of typically non-movable objects by the Contractor may be required to gain access to all ACMs to be removed.
- C. The Contractor shall remove existing plumbing and electrical as required for the removal of existing millwork.

1.2 PROJECT CONDITIONS

- A. Occupancy:
 - 1. Areas of the building in which selective demolition may occur will be unoccupied during work. **All work will be performed only during a period when there are no children present in any parts of the building.**
- B. Existing Conditions:
 - 1. After the project has begun, the Contractor is responsible for the condition of the structures to be selectively demolished.
 - 2. Unforeseen Conditions: Should unforeseen conditions be encountered that affect design or function of project, investigate and fully submit an accurate, detailed, written report to the office of the Owner. While awaiting a response, reschedule operations if necessary to avoid delay of the overall project.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that necessary utilities have been disconnected and sealed.
- B. As practicable, arrange operations to reveal unknown or concealed conditions for examination and verification before removal or demolition.
- C. Verify actual conditions to determine, in advance, whether removal or demolition of any element will result in structural deficiency, overloading, failure, or unplanned collapse.
 - 1. A licensed electrical contractor shall disconnect electrical fixtures as necessary to facilitate removal of asbestos-containing materials.
 - 2. A licensed plumbing contractor shall disconnect plumbing fixtures as necessary to facilitate removal of asbestos-containing materials.

3.2 PREPARATION

- A. Traffic:
 - 1. Do not obstruct walks or public ways without the written permission of governing authorities and of the Owner. Where routes are permitted to be closed, provide alternate routes, if required.
- B. Protection:
 - 1. Provide for the protection of authorized persons passing around or through the area of demolition.
 - 2. Perform demolition so as to prevent damage to adjacent improvements and facilities to remain.
 - 3. Protect walls, floors, and other new or existing work from damage during demolition operations.

3.3 POLLUTION CONTROLS

- A. Control as much as practicable the spread of dust and dirt.
- B. Observe environmental regulations.
- C. Do not allow water usage that may result in freezing or flooding.
- D. Do not allow adjacent improvements to remain to become soiled by demolition operations.

3.4 DEMOLITION - GENERAL

Not Applicable.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. Promptly dispose of materials resulting from demolition operations. Non-contaminated material shall be disposed of as construction waste by the Contractor. Do not allow materials to accumulate on site.
- B. All rubbish and waste material from the Work shall be neatly stacked or kept in suitable containers and removed from the premises daily. The premises shall be kept clean and in an orderly condition at all times to the satisfaction of the Owner and the Consultant.
- C. Transport materials resulting from demolition operations and legally dispose of off-site.
- D. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials (where applicable) and promptly dispose of off-site.

3.6 CLEANING

- A. Throughout the construction period, the Contractor shall maintain the building and site free of rubbish, debris, surplus materials, and other items not required for the Work. Remove such material from the site daily to prevent accumulations. Remove all construction debris from work areas, and remove all hazardous waste and asbestos waste, as required, by the most current federal, state, and local regulations and the requirements of the specifications.

END OF SECTION

SECTION 02080

ASBESTOS REMOVAL

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”
- B. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this Section, whether or not such work is specifically mentioned herein.

1.2 SCOPE OF WORK

- A. Work outlined in this section includes all that is necessary for the complete removal and disposal of asbestos-containing and asbestos-contaminated materials identified in the areas as detailed below for Bunker Hill School; Waterbury, CT.
The quantities given on the following pages are provided to establish the order of magnitude of the abatement project. Actual quantities may vary. The Contractor is responsible for verification of all quantities of ACM scheduled for removal. This verification shall include an on-site walk-through inspection of the work area.
- B. Coordinate this section with other Sections of these Specifications for actual quantities of work required. Location, estimated quantities, and abatement removal plan of specific items noted in paragraph A above include:

TABLE 1: LIST OF ACMs

MATERIAL	LOCATION	ESTIMATED QUANTITY
* Various Floor Tiles & Mastic	Rm T114, Rm S118, Rm F108	~ 320 Square Feet/Each
4” Pipe Insulation	Rm B105	~ 10 Linear Feet
*Exterior Fire Escape Door Frame Caulking (4)	Rms T114, S118, F108, B105 (To Fire Escape)	~ 18 Linear Feet/Each

Note: Materials marked with an asterisk (*) are presumed to be containing/contaminated with Polychlorinated Biphenyls (PCB) at concentrations greater than fifty parts per million (> 50ppm) and must be treated as such following all Federal and/or Local removal and disposal regulations. PCB technical specification is a separate document and is attached at the end of this specification.

1.3 DEFINITIONS

The following definitions relative to asbestos removal:

1. ABATEMENT - Procedures to control fiber releases from asbestos containing materials; includes removal, encapsulation, and enclosure.
2. AIR MONITORING - The process of measuring the airborne fiber concentration within an area or within a person's breathing zone.
3. AMENDED WATER - Water to which a surfactant has been added.
4. ASBESTOS - The name given to a number of naturally occurring fibrous silicates. This includes the serpentine forms and the amphiboles and includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite, or any of these forms, which have been chemically altered.
5. ASBESTOS PROJECT MONITOR (APM) - A professional capable of conducting air monitoring and analysis of samples for airborne fiber concentrations. This individual should be an industrial hygienist, an environmental scientist, or an engineer with experience in asbestos air monitoring and worker protection equipment and procedures. This individual should have demonstrated proficiency in conducting air sample collection in accordance with 29 CFR 1910.1001 and 29 CFR 1926.1101.
6. ASBESTOS WORK AREA - A regulated area as defined by OSHA 29 CFR 1926.1101 where asbestos removal operations are performed which is isolated by physical barriers to prevent the spread of asbestos dust, fibers, or debris. The regulated area shall comply with requirements of regulated area for demarcation, access, respirators, prohibited activities, competent persons and exposure assessments and monitoring.
7. ASBESTOS FELT - A product made by saturating felted asbestos with asphalt or other suitable binder, such as a synthetic elastomer.
8. ASBESTOS FIBERS - Those asbestos particles with a length greater than five (5) microns and a length to diameter ratio of 3:1 or greater.
9. ASPHALT SHINGLES, COMPOSITION SHINGLES OR STRIP SLATES - (Pitched Roof Shingle): a roofing material manufactured by saturating a dry felt with asphalt then coating the saturated felt with a harder asphalt mixed with a fine mineral, glass fiber, asbestos or organic stabilizer. All or part of the weather side may be covered with mineral granules, or with powdered talc or mica.
10. BASE FLASHING (ROOF) - The flashing provided by upturned edges of a watertight membrane on a roof. May contain metal and associated waterproofing material or combination of roofing felts and waterproofing at the joint between a roofing surface and a vertical surface such as a wall or parapet. Also base flashing may be present at perimeter of completely flat roofing.

11. BUILT-UP ROOFING - Composition Roofing, Felt and Gravel Roofing, Gravel Roofing) - a continuous roof covering made up of laminations or plies of saturated or coated roofing felts, alternated with layers of asphalt or coal-tar pitch and surfaced with gravel, paint or finish coat.
12. CAULKING - Resilient mastic compound often having a silicone bituminous or rubber base. Used to seal cracks, fill joints and prevent leakage. Typical applications: around windows and doors, at joints between two dissimilar materials. (i.e. masonry to wood, masonry to steel etc.).
13. CLEAN ROOM - An uncontaminated area or room, which is a part of the worker decontamination enclosure with provisions for storage of workers' street clothes and protective equipment.
14. CLEARANCE SAMPLING - Final air sampling performed aggressively after the completion of the removal project in a regulated area. Clearance sampling can be conducted by either of the following two methods:
 - (A) Air samples collected by the air sampling professional having a fiber concentration of less than 0.01 fibers/cc of air in each of five (5) samples collected inside the containment will denote acceptable clearance sampling by Phase Contrast Microscopy (PCM).
 - (B) Five air samples collected inside the containment by the air sampling professional having an average asbestos concentration of less than 70 structures per square millimeter of air will denote acceptable clearance sampling for Transmission Electron Microscopy (TEM).
15. COMPETENT PERSON - As defined by 29 CFR 1926.1101, a representative of the Abatement Contractor who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure. In addition has authority to take prompt corrective measures to eliminate such hazards during asbestos removal. Competent person shall be properly trained in accordance with Environmental Protection Agency's (EPA) Model Accreditation Plan.
16. CURTAINED DOORWAY - A device to allow ingress and egress from one area to another while permitting minimal air movement between the areas. Two curtained doorways spaced a minimum of six feet apart can form an airlock.
17. DAMP PROOFING - Application of a water impervious material to surface such as wall to prevent penetration of moisture, typically at foundation or below grade surface.
18. DECONTAMINATION ENCLOSURE SYSTEM - A series of connected areas, with curtained doorways between any two adjacent areas, for the decontamination of workers and equipment. A decontamination enclosure system always contains at least one airlock and is adjacent and connected to the regulated area, where possible.

19. ENCAPSULANT - A liquid material which can be applied to asbestos-containing materials which controls the possible release of asbestos fibers from the materials either by creating a membrane over the surface (bridging encapsulant) or penetrating the material and binding its components together (penetrating encapsulant).
20. EQUIPMENT ROOM - Any contaminated area or a room that is part of the worker decontamination enclosure with provisions for storage of contaminated clothing and equipment.
21. FIXED OBJECT - Unit of equipment or furniture in the work areas that cannot be removed from the work area.
22. FRIABLE ASBESTOS MATERIALS - Any material that contains more than 1% asbestos by weight, that can be crumbled, pulverized or reduced to powder by hand pressure.
23. GLAZING COMPOUND - any compound used to hold window glass in place, also referred to as putty, or glaziers' putty. Is not field-applied, usually installed during manufacture of windows.
24. GLOVE BAG - A manufactured polyethylene bag type of enclosure with built-in gloves such as is placed with an airtight seal around asbestos-containing material and which permits the asbestos-containing materials contained by the bag to be removed without releasing asbestos fibers to the atmosphere. The use of glove bag is permitted for removal and repair of small amount (less than 3 linear feet/3 square feet) of ACM.
25. HEPA FILTER - High Efficiency Particulate Air (HEPA) filter in compliance with ANSI Z9.2-1979.
26. HEPA VACUUM EQUIPMENT - Vacuum equipment equipped with a HEPA filter system for filtering the effluent air from the unit.
27. MOVABLE OBJECT - Unit of equipment or furniture in the work area that can be removed from the work area.
28. NEGATIVE AIR PRESSURE EQUIPMENT - A portable local exhaust ventilation system equipped with HEPA filtration used to create negative pressure in a regulated area (negative with respect to adjacent unregulated areas) and capable of maintaining a constant, low velocity air flow into regulated areas from adjacent unregulated areas.
29. NESHAPS - National Emissions Standard for Hazardous Air Pollutants regulations enforced by the EPA.
30. PERMISSIBLE EXPOSURE LEVEL (PEL) - The average airborne concentration of asbestos fibers to which an employee is allowed to be exposed over an eight-hour period. The PEL established by OSHA 29 CFR 1926.1101 is 0.1 fibers per cubic centimeter of air averaged over an eight-hour time period. An airborne fiber concentration of 1.0 fibers /cc averaged over a sampling period of 30 minutes is the Excursion Limit. The Contractor is responsible for maintaining work areas in a manner that this standard is not exceeded.

31. REGULATED AREA - An area established by the employer to demarcate where Class I, II, and III asbestos work is conducted and any adjoining area where debris and waste from such asbestos work accumulate, and a work area within which airborne concentrations of asbestos fibers may exceed the PEL.
32. SHOWER ROOM - A room between the clean room and the equipment room in the work decontamination enclosure with hot and cold running water and suitably arranged for employee showering during decontamination. The shower room is located in an airlock between the contaminated area and the clean area.
33. WATERPROOFING - material, usually a membrane or applied compound (tar/mastic), used to make a surface impervious to water. Includes concealed conditions (applications around doors, windows, and in wall cavities), sometimes combined with felts.

1.4 SUBMITTALS

- A. The Contractor shall submit the following to the Owner prior to start of project:
 1. Evidence that the Contractor is certified to perform asbestos abatement work in the State of Connecticut.
 2. Schedule which defines a timetable for executing and completing the project, including set-up, removal, cleanup, decontamination, and air clearance sampling.
 3. The identity and licensing of the hauling contractor and the landfill to be used.
 4. Connecticut certificate of training (both initial and current refresher), current respirator fit test records, and current medical records for each employee who may be on the project site. Effective June 4, 2000, no individual shall provide services as an asbestos abatement site supervisor or as an asbestos abatement worker without a certificate to do so issued by the CTDPH.
 5. Detailed product information on all materials and equipment proposed for asbestos abatement removal on this project.
 6. Training and medical records for new employees to start work.
 7. Signed copy of the Certificate of Workers Acknowledgment found at the end of this section for each worker who is to be at job site.
- B. The following shall be submitted to the Owner at the completion of work:
 1. Completed Punch List.
 2. Completed copies of Waste Shipment Records (WSR).

1.5 REGULATIONS AND STANDARDS

- A. The Contractor shall be solely responsible for conducting this project and supervising all work in a manner which will be in conformance with all federal, state, and local regulations and guidelines pertaining to asbestos removal. Specifically, the Contractor shall comply with the requirements of the following:
 - 1. U.S. Environmental Protection Agency (USEPA) National Emissions Standards for Hazardous Air Pollutants (NESHAP) Regulations (40 CFR 61, Subpart M).
 - 2. Occupational Safety and Health Administration (OSHA) Asbestos Regulations (29 CFR 1910.1001 and 1926.1101).
 - 3. State of Connecticut Department of Public Health (CTDPH) Standards for Asbestos Abatement Sections 19a-332a-1 through 19a-332a-16. Licensure and Training Requirements for Persons Engaging in Asbestos Abatement and Consultation Services Sections 20-440-1 through 20-440-9 inclusive. Standards for Asbestos-Containing Materials in Schools Sections 19a-333-1 through 19a-333-13.
 - 4. State of Connecticut Department of Environmental Protection (CTDEEP) Regulations, Section 22a-209-8(i).
 - 6. National Fire Protection Association (NFPA) Life Safety Code.
 - 8. All national codes and standards including American National Standards Institute (ANSI) and Underwriter's Laboratories (UL).

1.6 EXEMPTIONS

- A. Any deviations from these Specifications require the written approval and authorization from the Owner and Consultant.
- B. Any deviation in work practices identified in CTDPH Standards for Asbestos Abatement, Sections 19a-332a-1 to 19a-332a-23, Sections 19a-333-1 through 19a-333-13, Sections 20-440-1 to 20-440-9, Section 20-441, and Section 19a-332e-1 to 19a-332e-2, must be requested in writing and approved in writing by the CTDPH.

1.7 FINAL VISUAL INSPECTION AND CLEARANCE AIR SAMPLING

- A. Following the completion of the final cleaning phase of the work in the regulated area, the Consultant shall conduct a final visual inspection of the area. The Contractor shall be responsible for meeting final visual criteria, which is the absence of visible debris, as specified in CTDPH regulation 19a-332a-12(b).
- B. Following the completion of the final visual inspection, and upon which time the Consultant agrees that the Contractor has met the final visual criteria, (and following encapsulation of the work area) the Consultant's Asbestos Project Monitor will collect post-removal air samples in the work area. The Owner shall be responsible for payment of the sampling and analysis of the first round of final air clearances for a particular work area.

1.8 NOTIFICATIONS, POSTINGS, SUBMITTALS, AND PERMITS

- A. The Contractor shall make the following notifications and provide submittals to the following agencies prior to the commencement of removal/renovation work. These notifications are required prior to the start of the abatement/demolition project:
1. State of Connecticut
Department of Public Health
Indoor Air Program
410 Capitol Avenue
P.O. Box 340308
Hartford, CT 06134-0308
 2. United States Environmental Protection Agency
Region 1 – New England
5 Post Office Square, Suite 100
Boston, MA 02109-3912

1.9 WORK SITE SAFETY PLAN

- A. The Contractor shall establish a set of emergency procedures and shall post them in a conspicuous place at the work site. The safety plan should include provisions for the following:
1. Evacuation of injured workers.
 2. Emergency and fire exit routes from all work areas.
 3. Emergency first aid treatment.
 4. Local telephone numbers for emergency services including ambulance, fire, and police.
 5. Methods to notify appropriate personnel in the event of a fire or other emergency requiring evacuation of the site or area.
 6. Site safety plan for fall protection.
- B. The Contractor is responsible for training all workers in these procedures.

1.10 CONTROL OVER REMOVAL WORK

- A. At the discretion of the Owner & Consultant, full-time project monitoring will be performed as part of this project throughout the duration.
- B. The Contractor shall maintain control of and be responsible for access to all work areas to ensure the following requirements:
1. Non-essential personnel are prohibited from entering the area.
 2. All authorized personnel entering the work area shall read the "Worker Protection Procedures" which are posted at the entry points to the enclosure system and shall be equipped with properly fitted respirators and protective clothing.

3. All personnel who are exiting from the decontamination enclosure system shall be properly decontaminated.
4. Asbestos waste that is taken out of the work area must be properly bagged and labeled in accordance with these specifications. The surface of the bags shall be decontaminated. Asbestos waste leaving the enclosure system must be transported off site at end of work day or immediately placed in locked, posted temporary storage on site, and removed within 24 hours of the project conclusion. The Contractor may seek permission of the Owner to place a temporary lockable storage at a suitable onsite location.
5. Any material, equipment, or supplies that are brought out of the decontamination enclosure system shall be cleaned and decontaminated by wet cleaning and/or HEPA vacuuming of all surfaces.

1.11 PROPER WORKER PROTECTION

- A. This section describes the equipment and procedures required for protecting workers against asbestos contamination and other workplace hazards except for respiratory protection.
- B. All workers are to be accredited and certified as Asbestos Abatement Workers as required by the CTDPH.
- C. The Contractor is required to be certified, accredited, and licensed as required by the CTDPH.
- D. In accordance with 29 CFR 1926.1101, all workers shall receive a training course covering the dangers inherent in handling asbestos, the dangers of breathing asbestos dust, proper work procedures, and proper worker protective measures. This course must include but is not limited to the following:
 1. Methods of recognizing asbestos.
 2. Health effects associated with asbestos.
 3. Relationship between smoking and asbestos in producing lung cancer.
 4. Nature of operations that could result in exposure to asbestos.
 5. Importance of and instruction in the use of necessary protective controls, practices and procedures to minimize exposure including:
 - a. Engineering controls
 - b. Work practices
 - c. Respirators
 - d. Housekeeping procedures
 - e. Hygiene facilities
 - f. Protective clothing
 - g. Decontamination procedures
 - h. Emergency procedures
 - i. Waste disposal procedures
 6. Purpose, proper use, fitting, instructions, and limitations of respirators as required by 29 CFR 1910.134.
 7. Appropriate work practices for the work.

8. Requirements of medical surveillance program.
 9. Review of 29 CFR 1926.
 10. Pressure differential systems.
 11. Work practices including hands on or on-job training.
 12. Personal Decontamination procedures.
 13. Air monitoring, personal and area.
- E. The Contractor shall provide medical examinations for all workers who may encounter an airborne fiber level of 0.1 f/cc or greater for an eight-hour Time Weighted Average (TWA). In the absence of specific airborne fiber data, provide medical examinations for all workers who will enter the work area for any reason. Examination shall at a minimum meet OSHA requirements as set forth in 29 CFR 1926.1101. In addition, provide an evaluation of the individual's ability to work in environments capable of producing heat stress in the worker.
- F. Submit the following to the Owner for review. The Contractor shall not start work until the Owner/Consultant reviews the submittals and indicates that they are acceptable.
1. Certificates from an EPA-approved AHERA Abatement Workers course for each worker as evidence that each Asbestos Abatement Worker is accredited as required by the AHERA Regulation 40 CFR 763 Appendix C to Subpart E, April 30, 1987.
 2. Evidence that the Contractor is certified to perform asbestos abatement work by the State of Connecticut Department of Public Health.
 3. An original signed copy of the Certificate of Worker's Acknowledgment found at the end of this section, for each worker who is to be at the job site or enter the Work Area.
 4. Documents verifying that each worker has had a medical examination within the last 12 months as part of compliance with OSHA medical surveillance requirements. Submit, at a minimum, for each worker the following:
 - a. Name and Social Security Number.
 - b. Physicians Written Opinion from examining physician including at a minimum the following:
 - 1) Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.
 - 2) Any recommended limitations on the worker or on the use of personal protective equipment such as respirators.
 - 3) Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.
 5. Information that was provided to physician in compliance with 29 CFR 1926.1101.
 6. A statement that the worker is able to wear and use the type of respiratory protection proposed for the project and is able to work safely in an environment capable of producing heat/cold stress in the worker.

1.12 CONTRACTOR'S AIR SAMPLING RESPONSIBILITY

- A. The Contractor shall be responsible for monitoring airborne asbestos fiber concentrations in the workers' breathing zones and to establish conditions and work procedures for maintaining compliance with OSHA Regulations 29 CFR 1910.1001, and 1926.1101.
- B. The Contractor's air sampling procedures shall ensure proper documentation of all personal air-sampling results. Documentation for personal sampling must be available at the job site for review by federal and/or state regulatory agencies.
- C. All air sampling shall be conducted in accordance with methods described in OSHA Standards 29 CFR 1910.1001 and 1926.1101. The flow rate for air samples will not be less than 0.5 liters/minute and must not exceed 2.5 liters/minute.

1.13 RESTRICTIONS ON CONTRACTOR'S USE OF GROUNDS

- A. The Contractor shall confine his/her operations to the actual work site, access routes and storage areas designated by the Owner. The Contractor may place a storage container at a place designated by the Owner.
- B. The Contractor shall have sole responsibility for providing all materials, equipment, or tools and any storage required shall be at the Contractor's own risk. The Owner will not assume responsibility for any loss of materials, equipment, or tools stored on its property.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.
- B. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be decontaminated or disposed of as asbestos waste.
- C. Polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to the job site with factory label indicating 4 or 6 mil thickness.
- D. Polyethylene disposable bags shall be six (6) mil thick with pre-printed labels.
- E. Tape or adhesive spray will be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.
- F. Surfactant (wetting agent), shall consist of fifty (50) percent polyoxyethylene ether and fifty (50) percent polyoxyethylene ester, or equivalent, and shall be mixed with water to provide a concentration of one (1) ounce surfactant to five (5) gallons of water or as directed by manufacturer.

- G. Encapsulant shall be non-flammable factory prepared penetrating encapsulant found acceptable to Consultant such as ABC Asbestos Binding Compound manufactured by Fiberlock. Usage shall be in accordance with manufacturer's printed technical data.
- H. The Contractor shall have available spray equipment capable of mixing wetting agent with water and capable of generating sufficient pressure and volume and having sufficient hose length to reach all areas where asbestos is present.
- I. Impermeable containers are to be used to receive and retain any asbestos- containing or contaminated materials until disposal at an acceptable disposal site. (The containers shall be labeled in accordance with OSHA Standard 29 CFR 1926.1101) Containers must be both air and watertight.
- J. Labels and signs, as required by OSHA Standard 29 CFR 1926.1101 will be used.
- L. A high efficiency particulate air (HEPA)-filtered local exhaust ventilation shall be utilized during the installation of enclosures and supports where asbestos-containing materials may be disturbed.

2.2 TOOLS AND EQUIPMENT

- A. The Contractor shall provide all tools and equipment necessary for asbestos removal.
- B. The Contractor's air monitoring professional shall have air-monitoring equipment of type and quantity to monitor operations and conduct personal exposure monitoring per OSHA requirements.
- C. The Contractor shall have available sufficient inventory of dated purchase orders for materials necessary for the job including protective clothing, respirators, filter cartridges, polyethylene sheeting of proper size and thickness, tape and air filters.
- D. The Contractor shall have available power cables or power sources such as generators (where required).
- E. As applicable, exhaust air filtration system units shall contain HEPA filter(s) capable of sufficient air exhaust to create negative pressure of at least 0.02 inches of water column within each enclosure with respect to outside areas. Equipment shall be checked for proper operation by differential pressure gauge continuously during the project. Adequate exhaust air shall be provided for a minimum of four (4) air changes per hour within the enclosure. No air movement system or air filtering equipment shall discharge unfiltered air outside, nor shall filtered air units be exhausted indoors from the work area.
- F. Vacuum units, of suitable size and capacities for the project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.
- G. The Contractor will have reserve units so that the exhaust air filtration system will operate continuously.

2.3 ELECTRICAL

- A. Any electrical installations shall be accomplished under the direction of a Licensed Electrician.
- B. The Contractor shall furnish and install a portable ground fault circuit interrupters (GFCI) including the following:
 - 1. All circuits individually GFCI-protected.
 - 2. Components UL listed
- C. The Contractor shall not use existing electrical outlets within the regulated area:
- D. The Contractor will supply temporary lighting for all asbestos removal work areas.
- F. The Owner will furnish electrical power for the project.

PART 3 - EXECUTION

3.1 WORKER PROTECTION

- A. General:
 - 1. All asbestos abatement removal shall be performed in accordance with 29 CFR 1910.1001, 29 CFR 1926.1101 and State of Connecticut regulations as specified herein. Personnel shall wear and utilize protective clothing and equipment as specified herein. Eating, smoking, drinking, chewing gum, or applying cosmetics shall not be permitted in the asbestos control area. Personnel of other trades not engaged in the removal of asbestos shall not be allowed in the work area unless all the personnel protection provisions of this Specification are complied with by the trade personnel.
 - 2. Engineering controls shall be used to minimize airborne fiber concentrations within the work area. A combination of personal protective equipment and work practices shall also be used to further reduce employee exposure to asbestos fibers.
 - 3. The Contractor shall provide all authorized visitors with protective clothing, as in the procedures described herein and afford them the use of all facilities to keep them free of contamination from asbestos fibers.
 - 4. The Contractor shall provide the decontamination facility for worker and equipment decontamination as well as the results of the personal air monitoring.

B. Respiratory Protection:

1. The Contractor shall select and provide at no cost to his/her employees respirators, which shall provide adequate protection to the employee as specified by Section 1910.1001(g) Table D-1 and Section 1926.1101(h) Table D-4.
2. Respiratory protection shall be worn by all persons potentially exposed to elevated airborne concentrations of asbestos fibers from the initiation of the asbestos removal project until all areas have been given clearance.
3. At a minimum, the Contractor shall provide half-face air-purifying respirators to all workers at the job site. If it is established, through collection and analysis of personal air samples in accordance with the OSHA Reference Method (ORM) (See U.S. Department of Labor; Occupational Safety and Health Administration; Occupational Exposure to Asbestos; Title 29 CFR 1910.1001, "General Industry Standard." Title 29 CFR 1926.1101, "Construction Standard") that this respiratory protection is inadequate, the Contractor will provide Powered Air Purifying Respirators or Type C (continuous flow or pressure demand) supplied air respirators.
 - a. Once the exposure limits have been established, the respirators presented in 29 CFR 1910.1001 that afford adequate protection at such upper concentrations of airborne asbestos fibers shall be used.
 - b. The minimum personal sampling period shall be seven hours at a flow rate of 0.5 to 2.5 liters per minute. The samples shall be collected within the workers' breathing zone. Personal sampling shall be the responsibility of the Contractor. Personal sampling results shall be available on site no later than 24 hours after sampling.
 - c. The filters provided for both the cartridge respirators and the PAPR's shall be National Institute for Occupational Safety and Health (NIOSH) approved for asbestos fibers.

C. Protective Clothing:

1. The Contractor shall provide to all workers, foreman and superintendents, protective disposable clothing consisting of full body coveralls including head covers.
2. The Contractor shall provide eye protection and hard hats, as required, by job conditions and safety regulations.
3. Reusable footwear, hard hats and eye protection devices shall be left in the "contaminated equipment room" until the end of the asbestos removal work.
4. Upon completion of asbestos removal work, the footwear shall be disposed of as contaminated waste or cleaned thoroughly inside and out using soap and water before removing from work area or from equipment and access area.
5. All disposable protective clothing shall be discarded and disposed of as asbestos waste when the wearer exits from the workspace to the outside through the decontamination facilities.

6. The color of the disposable clothing worn outside the work area shall be a different color than the disposable clothing worn inside the work area.

D. Decontamination Procedures:

1. Each worker and authorized visitor without exception shall, upon entering the job site: remove street clothes in the clean change room and put on an appropriate respirator with new filters, and clean disposable protective clothing before entering the equipment room or the work area, except those workers intending to re-wear previously worn protective clothing stored in the equipment room shall enter the equipment room wearing only respirators.
2. Each time he/she leaves the work area, each worker and authorized visitor shall:
 - a. Vacuum gross contamination from clothing before leaving the work area.
 - b. Proceed to the equipment room and remove all clothing except respirator.
 - c. Still wearing the respirator, proceed unclothed into the showers.
 - d. Clean the outside of the respirator with soap and water while showering.
 - e. Remove filters and wet them and dispose of filters in the container provided for that purpose.
 - f. Wash and rinse the inside of the respirator. After showering, dry off with disposable towels.
3. Following showering and drying off, each worker and authorized visitor shall proceed directly to the clean change room and dress in street clothes at the end of the day's work, or before eating, smoking, or drinking.
4. Contaminated reusable work footwear shall be stored in the equipment room when not in use in the work area. Upon completion of asbestos removal work, footwear shall be disposed of as contaminated waste or cleaned inside and out using soap and water before removing these items from the work area or from the equipment and access area. Contaminated protective clothing shall be placed in receptacles for disposal with other asbestos-contaminated materials.

3.2 WORK AREA PREPARATION

- A. Shut down and/or isolate any heating, cooling, and ventilation air systems or zones to prevent contamination and fiber dispersal to other areas of the structure.
- B. Where necessary, within regulated areas, shut down electrical power, including receptacles and light fixtures. Provide GFCI devices and temporary lighting installed in compliance with the applicable electrical codes if building lighting is not usable per the Owner's request.

- C. Install decontamination system as described below in section 3.3 of these specifications.
- D. Pre-clean and seal off all openings, including, but not limited to, windows, corridors, doorways, ducts, grills, diffusers, and any other penetration of the work area, with polyethylene sheeting a minimum of six (6) mil thick, sealed with duct tape.
- E. Install adequate number of HEPA ventilation units to achieve the required number of at least 4 air changes per hour and exhaust units to the exterior of the building.

3.3 DECONTAMINATION SYSTEM

- A. The Contractor shall establish a decontamination enclosure (decon) contiguous to the work area consisting of equipment room, shower room, and clean room in series. The only access between contaminated and uncontaminated areas shall be through this decontamination enclosure.
- B. Access between rooms in the decontamination system shall be through double-flap curtained openings. The clean room, shower room and the equipment room within the decontamination enclosure shall be completely sealed ensuring that the sole source of airflow through this area originates from uncontaminated areas outside the work area.
- C. Construct the decontamination system with PVC or metal framing and cover all sides with a double layer of six (6) mil polyethylene sheeting, spray glued or taped at the joints.

3.4 MAINTENANCE OF THE WORK AREA

- A. Acceptance of Asbestos Control Area: The Contractor shall not begin removal unless approved by the APM. The control area must be constructed, the decontamination facility prepared and the supplies to be used assembled, barriers properly constructed, openings sealed, and other preparations made to allow the removal operation to proceed. If conditions are not acceptable, the Contractor shall correct deficiencies to comply with the specifications.

3.5 ASBESTOS REMOVAL PROCEDURE – GENERAL

- A. The Contractor shall have a designated "Competent Person" on the job at all times to ensure establishment of a proper enclosure system and proper work practices throughout project.
- B. Spray asbestos materials with amended water using airless spray equipment or apply approved removal wetting agent to reduce the release of fibers during removal operation.
- C. Fill disposal containers as removal proceeds, seal filled containers and wet clean each container thoroughly, double bag and apply caution label.
- D. After completion of stripping work, where needed, all surfaces from which asbestos has been removed shall be wet brushed, using a nylon brush, wet wiped, and sponged or cleaned by an equivalent method to remove all visible material. During this work, the surfaces being cleaned shall be kept wet.

- E. Sealed disposal containers, and all equipment used in the work area, shall be included in the cleanup and shall be removed from work areas via the equipment decontamination enclosure at an appropriate time in the cleaning sequence. All asbestos waste shall be placed in 6-mil polyethylene disposal bags and shall be double bagged in the equipment decontamination enclosure before removal from the site.
- F. At any time during asbestos removal, should contamination of areas outside the work area be suspected, the Contractor shall cause all removal work to stop until the he/she takes steps to decontaminate these areas and eliminate the causes of such contamination. Unprotected individuals shall be prohibited from entering suspected contaminated areas until air sampling and visual inspections certify decontamination.
- G. After completion of the final cleaning procedure, an inspection shall be conducted by the Consultant APM. The inspection shall verify that ACM and residual dust has been removed from the work area.

3.6 ASBESTOS REMOVAL PROCEDURE – FLOOR TILE AND MASTIC

- A. Prior to beginning the removal of any resilient floor covering, remove all movable objects from the work area. If applicable, remove the bookcases, counters, and radiators to access the floor tile and mastic that go underneath those items.
- B. Remove resilient tile floor covering using the following procedure:
 - 1. Remove binding strips, all vinyl cove base, or other restrictive molding from doorways, walls, etc. clean and dispose of as demolition waste unless contaminated with ACMs. Dispose of any materials that have floor mastic on them as asbestos-containing waste. The contractor may have to perform selective destructive demolition, such as removing partition walls, to access the tile.
 - 2. Wet the floor with amended water, removal encapsulant, or detergent solution, so that entire surface is wet. Do not allow puddle or run off to other areas. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions. If necessary, cover with sheet polyethylene to allow humidity to release tiles from floor. Allow time for humidity and water or removal encapsulant to loosen tiles prior to removal.
 - 3. Keep floor continuously wet throughout removal operation.
 - 4. Remove tiles using a manual or powered spade or stripping machine. Continuously mist floor in area where machine is working with amended water, removal encapsulant or detergent solution. Wet any debris generated as necessary to keep continuously wet. Keep floor where tile has been removed continuously wet until after completion of heavy adhesive residue removal.
 - 5. Floor mastics may be removed using low odor chemical strippers in accordance with manufacturer's instructions or mechanical means such as shot-blasting or hand grinding.
 - 6. In areas where mastic has been applied to a wood or similar porous sub-flooring, such material shall be removed and disposed of as asbestos/PCB (>50ppm) containing waste.
- C. Debris and Waste

1. Pick up whole tiles, stack, place in lined boxes or place in labeled disposal bags. At the Contractor's option tiles may be placed directly into durable leak-tight containers.
 2. Shovel broken tiles and debris into nylon reinforced bags that are placed in a disposal bag, or place directly in leak-tight drums.
 3. Place bagged waste in a second disposal bag during decontamination and dispose of as asbestos/PCB (>50ppm) waste.
- D. After completion of floor tile removal, the Contractor may remove mastic adhesive. If the thickness of the mastic residue is too thick to permit effective use of a shot/bead blast machine, utilize hand-scraping/ grinding wet methods to remove gross adhesive and then use the shot/bead blast or equivalent machine/ hand power tools to complete the removal of these materials.
- E. After completion of all ACM removal work, the Contractor shall conduct final cleaning.

3.7 ASBESTOS REMOVAL PROCEDURE – EXTERIOR FIRE ESCAPE DOOR FRAME CAULKING

- A. Prior to beginning the removal of any caulking, remove all movable objects from the work area.
- B. Remove interior caulking using the following procedure:
1. Wet the caulking with amended water, removal encapsulant, or detergent solution, so that entire surface is wet. Do not allow puddle or run off to other areas. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions.
 2. Keep caulking materials continuously wet throughout removal operation.
 3. Remove caulking materials using a manual spade or stripping device. Continuously wet area with amended water, removal encapsulant or detergent solution. Wet any debris generated as necessary to keep continuously wet.
- C. Debris and Waste
1. Pick waste debris created immediately.
 2. Place debris into labeled disposal bags.
 3. Place bagged waste in a second labeled disposal bag and dispose of as asbestos/PCB (>50ppm) waste.
- D. After completion of all ACM removal work, the Contractor shall conduct final cleaning

3.8 ASBESTOS REMOVAL PROCEDURE – THERMAL SYSTEM INSULATION (TSI)

- A. Prior to beginning the removal of any TSI, remove all movable objects from the work area.

- B. Remove TSI using the following procedure:
 - 1. Wet the TSI with amended water, removal encapsulant, or detergent solution, so that entire surface is adequately wet. Do not allow puddle or run off to other areas. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions. Allow time for amended water, removal encapsulant, or detergent solution to absorb prior to removal.
 - 2. Keep TSI continuously wet throughout removal operation.
 - 3. Remove fasteners and/or bands from TSI. Continuously mist area where removal is being performed with amended water, removal encapsulant or detergent solution. Wet any debris generated as necessary to keep continuously wet. Area where TSI has been removed must be kept continuously wet until after the completion of removal.
- C. Debris and Waste
 - 1. Whenever feasible, TSI should be removed directly into labeled disposal bags. Do not allow materials to drop onto floor.
 - 2. Pick up and/or shovel any debris from floor into disposal bags.
 - 3. Place bagged waste in a second disposal bag during decontamination and dispose of as asbestos waste.
- D. After completion of all asbestos containing materials removal work and prior to encapsulation, the Contractor shall remove drop cloth from floor and conduct final cleaning of the entire area.
- E. After final cleaning is completed by the Contractor, the APM shall perform the pre-sealant visual inspection.
- F. Following successful completion of the visual inspection by the APM, the Contractor shall apply encapsulant to all surfaces inside of the work area.

3.9 CONSULTANT AND SUSPENSION OF WORK

- A. The Owner will designate an Asbestos Consultant to perform the duties of the for this Contract. The Consultant may also act as the APM for the project.
- B. The removal work shall be reviewed by the Consultant. The Contractor will request an inspection at least 24 hours in advance of requiring the inspection.
- C. The Consultant will recommend that the Owner order a suspension of work based on a determination of risk of adverse health and safety impacts on the environment, workers, or the general public, or failure to comply with the Specifications/regulations. The Contractor and the Owner will be notified in writing of the reason and of the recommended resolution.

- D. During the progress of the work, the Consultant, following approval by the Owner, shall have the right to make any changes, alterations, additions or omissions in the work or Specifications in accordance with the General Conditions.
- E. The Consultant will provide visual inspection services throughout the Contract's duration. It shall be the Contractor's responsibility to comply with pertinent work standards and regulations.
- F. The Consultant will conduct visual observations and perform inspections in the work area for evaluating that the work area remains properly secured and isolated and specified work items are properly completed. Upon completion of work in a defined work area, the Consultant will conduct a final visual inspection for the purpose of evaluating work completion. Unsatisfactory conditions shall be immediately corrected in a manner specified by the Consultant and the contract documents. Final payments shall be approved only after the Owner receives all properly completed Waste Shipment Record Forms and other required documentation and records.

3.10 CONSULTANTS' AIR SAMPLING RESPONSIBILITIES

- A. Air sampling may be conducted by the Consultant to ascertain the integrity of controls that protect the building from asbestos contamination. Independently, the Contractor shall monitor air quality within the work area to ascertain the protection of employees and to comply with OSHA regulations.
- B. Consultant's APM may collect air samples during the following time periods:
 - 1. Pre-Abatement Period: The APM may collect samples prior to abatement work to establish baseline readings. These samples will be collected in and around the proposed work areas. Pre-abatement air samples shall be collected as required to obtain a volume of 1,200 liters. Pre-abatement and during abatement Samples shall be analyzed by PCM methodology using the NIOSH 7400 protocol.
 - 2. Abatement Period: The APM may collect samples when onsite on a daily basis during the work period. A sufficient number of area samples shall be taken outside of the work area to judge the degree of cleanliness or contamination of the building during removal. Additional samples may be taken inside the work area at the discretion of the APM.
 - 3. Post-Abatement Period: As required by regulation, the APM shall conduct air sampling following the final cleanup phase of the project, once the "no visible residue" criterion, as established by the APM, has been met. Five (5) samples shall be collected inside the work area utilizing aggressive methods to comply with the State of Connecticut Department of Public Health Standards for Asbestos Abatement, sections 19a-332a-12, and 19a-332a-13 and United States Environmental Protection Agency (USEPA) Asbestos-Containing Materials in Schools regulation 40 CFR Part 763. Analysis of the samples to determine airborne concentrations of asbestos shall be conducted by Transmission Electron Microscopy (TEM) method, for areas greater than 160 square feet or 260 linear feet, to show that the concentration of fibers for the average of the five (5) samples is less than or equal to a limit of quantitation for TEM – less than 70 structures per millimeter squared ($<70\text{s/mm}^2$) of air in accordance with the above regulations.

- C. The APM may provide ongoing evaluation of the air quality within the building during removal, using his/her best professional judgments with respect to the State of Connecticut Department of Public Health guideline of 0.010 fibers/cc and the background air quality established during the pre-abatement period.
- D. If the APM determines that the building air quality has become contaminated from the project, he/she shall immediately inform the Contractor to cease all removal operations and implement a work stoppage clean up procedure. The Contractor shall conduct a thorough cleanup of the areas of the building designated by the Consultant. No further removal work can take place until the APM has assessed that the building air has been decontaminated.
- E. Air samples shall be collected as required and shall be analyzed by TEM methodology using the AHERA 40 CFR, Part 763 protocol.

3.11 CONSULTANT'S INSPECTION RESPONSIBILITIES

- A. Inspections shall be conducted by the APM as required, throughout the progress of the abatement project. Inspections shall be conducted in order to document the progress of the abatement work as well as the procedures and practices employed by the Contractor.
- B. The APM shall perform the following inspections during the course of abatement activities:
 - 1. Pre-commencement Inspection. Pre-commencement inspections shall be performed at the time requested by the Contractor. The APM shall be informed sufficiently in advance of the time the inspection is needed. During the course of the pre-commencement inspection, the APM shall inspect the containment and surrounding work areas. This shall include, but not be limited to, inspection of barrier integrity, worker decontamination facility, utilization of power sources, and location and capacity of negative air filtration devices. If, during the course of the pre-commencement inspection, deficiencies are found, the Contractor shall perform the necessary adjustments in order to obtain compliance.
 - 2. Work Area Inspections. Work area inspections may be conducted on a daily basis at the discretion of the Owner/Consultant. During the course of the work inspections, the APM shall observe the Contractor's removal procedures, verify barrier integrity, monitor negative air filtration devices, assess project progress, and inform the Contractor of specific remedial activities if deficiencies are noted.
 - 3. Pre-sealant Final Visual Inspection. A pre-sealant inspection for the regulated area shall be conducted by the APM upon the request of the Contractor. The pre-sealant inspection shall be conducted after completion of the cleaning procedures. The pre-sealant inspection shall verify that no visible ACM or residual debris remain in the work area. If, during the course of the pre-sealant inspection, the APM identifies visible residual ACM or debris, the Contractor shall re-clean the work area until it is deemed acceptable by the APM.

3.12 WASTE DISPOSAL

- A. All waste material shall be promptly wetted and placed in 6-mil polyethylene bags or wrapped in two layers of 6-mil polyethylene plastic sheeting as it is generated. A sufficient

number of waste bags and/or plastic sheeting shall be located in the immediate work area (unused bags in the equipment room of the decontamination facility must be disposed of as contaminated waste). The Contractor shall count or measure the volume of each filled container leaving the work area, and maintain a written record of such.

- B. Warning labels, having waterproof print and permanent adhesive, shall be affixed to the sides of all waste bags or transfer containers. Warning labels shall be conspicuous and legible, and contain the following words in accordance with OSHA 1926.1101:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

In addition to the above, affix 'waste generator label' to include the generator's name and address on each waste container. Waste transport vehicles will have appropriate U.S. Department of Transportation signage on them for transportation of asbestos waste materials.

- C. A fine water spray shall be used to keep the unbagged or unwrapped waste wet at all times.
- D. Sealed waste shall be removed from the work area and stored in an on-site, enclosed and lockable dumpster or transported to the landfill. The temporary storage dumpster area shall be prominently identified and be kept locked.
- E. Once a truckload of waste containers has accumulated, the Contractor shall arrange for transportation to the landfill. No temporary co-mingling of asbestos waste from this project with that from another site will be allowed.
- F. Waste Transportation and Disposal Regulations:
1. It is the responsibility of the Contractor to determine and ensure compliance with the current waste handling regulations applicable to the work site and the current regulations for waste transportation to and disposal at each ultimate landfill. The Contractor shall comply fully with these regulations and with all U.S. Department of Transportation, EPA, and State of Connecticut Department of Environmental Protection (DEP) requirements.
 2. If required, the Contractor (or Subcontractor), at no additional cost, shall maintain a valid hazardous waste transporter's permit and identification number, and document and fully comply with any hazardous waste manifesting requirements.
- G. Waste Disposal Procedure:
1. The Contractor shall incorporate in his/her proposal the estimated quantity of asbestos waste disposal to be generated during the work; the proposed final waste site; the estimated number of separate waste shipments (loads), and the current estimated transportation and landfill disposal fees (per cubic yard). Non-contaminated waste transport and disposal shall be solely the Contractor's responsibility. The Contractor shall review each of these items and resolve any discrepancies or deficiencies during the pre-construction site meeting.

2. The Contractor shall package, label, and remove all asbestos waste as specified in the specifications. Packaging shall be accomplished in a manner that minimizes waste volume, but so that waste containers will not tear or break.
3. The Contractor shall provide legal transportation of this waste to the ultimate disposal landfill; and have the waste hauler and the landfill owner complete all other required manifests, dump slips, or other forms. The completed and fully signed (by all required parties) original of the Waste Shipment Record, and copies of the other forms, shall be returned within thirty (30) calendar days to the Consultant for payment approval. No payments will be approved, or made for incomplete Waste Shipment Records.
4. All disposal of asbestos-containing and/or asbestos-contaminated material must be in compliance with requirements of and authorized by the Solid Waste Management Division, State of Connecticut Department of Energy and Environmental Protection.

H. Waste Disposal Fees:

1. All Contractor contaminated waste handling costs, such as waste packaging, on-site/off-site storing/handling, transport/disposal, permitting, record keeping, and non-contaminated waste handling must be included in the Contractor's proposal as applicable to removal of asbestos materials and/or performance of the related removal activities.

3.13 PROJECT RESTORATION

A project walk-through shall be conducted, by the Owner or Owner's Consultant (upon the Owners request), after the removal portion of the project to identify areas or equipment damaged during the work. If the Owner determines that the damage is caused by acts or omissions of the Contractor, a punch list shall be developed. The Contractor shall be responsible for repair or replacement, or at the discretion of the Owner, payment for the work of another Contractor to complete the punch list. A second walk through shall be conducted after completion of punch list items.

END OF SECTION

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME _____ DATE _____
PROJECT ADDRESS _____
CONTRACTOR'S NAME _____

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract with the Owner for the above project requires that: You be supplied with the proper respirator and be trained in its use. You be trained in safe work practices and in the use of the equipment found on the job. You receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION: You must have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. You must be given a copy of the written respiratory protection manual issued by your employer. You must be equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: You must have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course must have included the following:

- Physical characteristics of asbestos
- Health hazards associated with asbestos
- Respiratory protection
- Use of protective equipment
- Pressure Differential Systems
- Work practices including hands on or on-job training
- Personal decontamination procedures
- Air monitoring, personal and area

MEDICAL EXAMINATION: You must have had a medical examination within the past 12 months at no cost to you. This examination must have included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray.

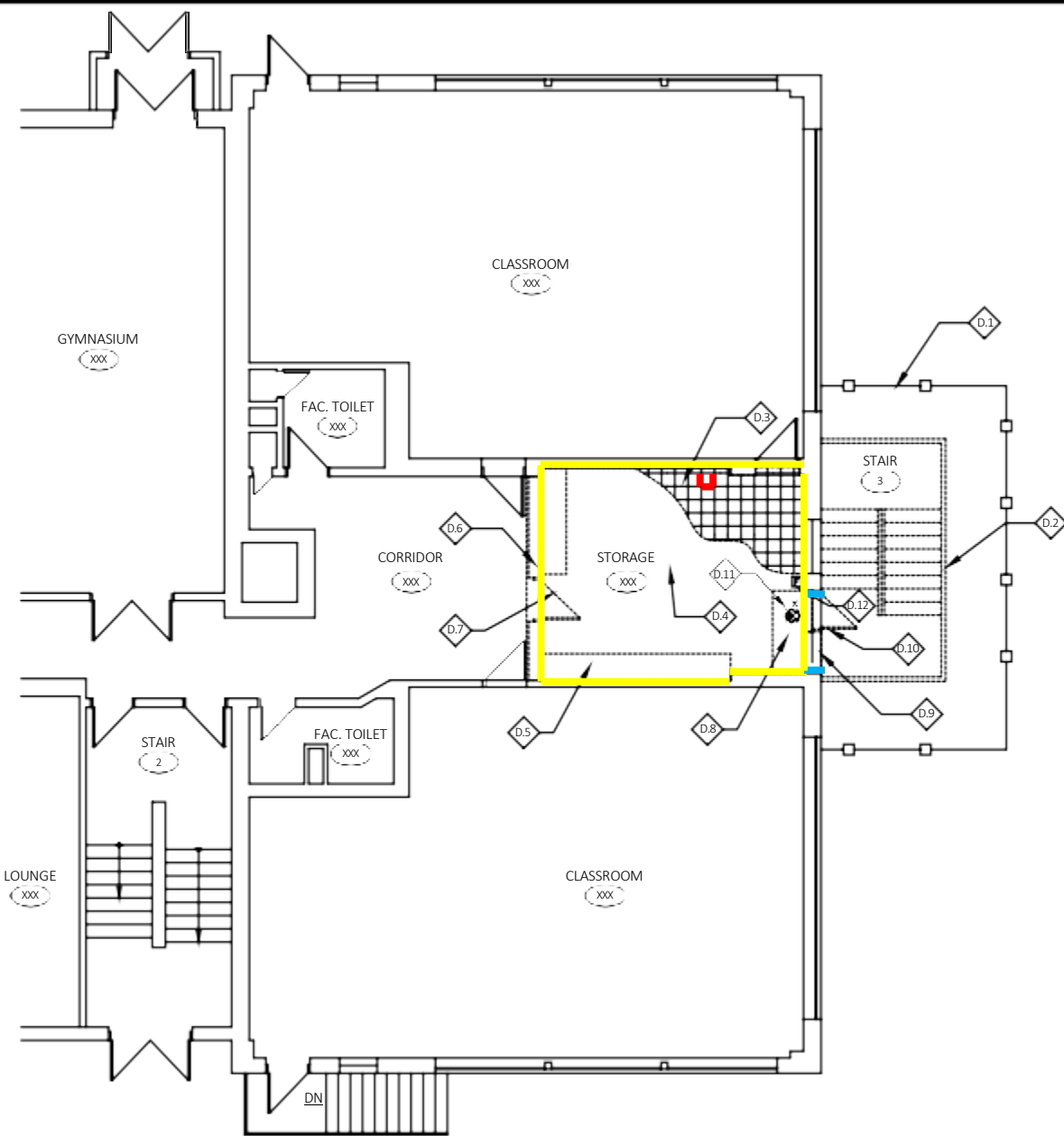
By signing this document, you are acknowledging only that the Owner of the building you are about to work in has advised you of your obligation to training and protection relative to your employer, the Contractor.

Signature _____

Social Security # _____

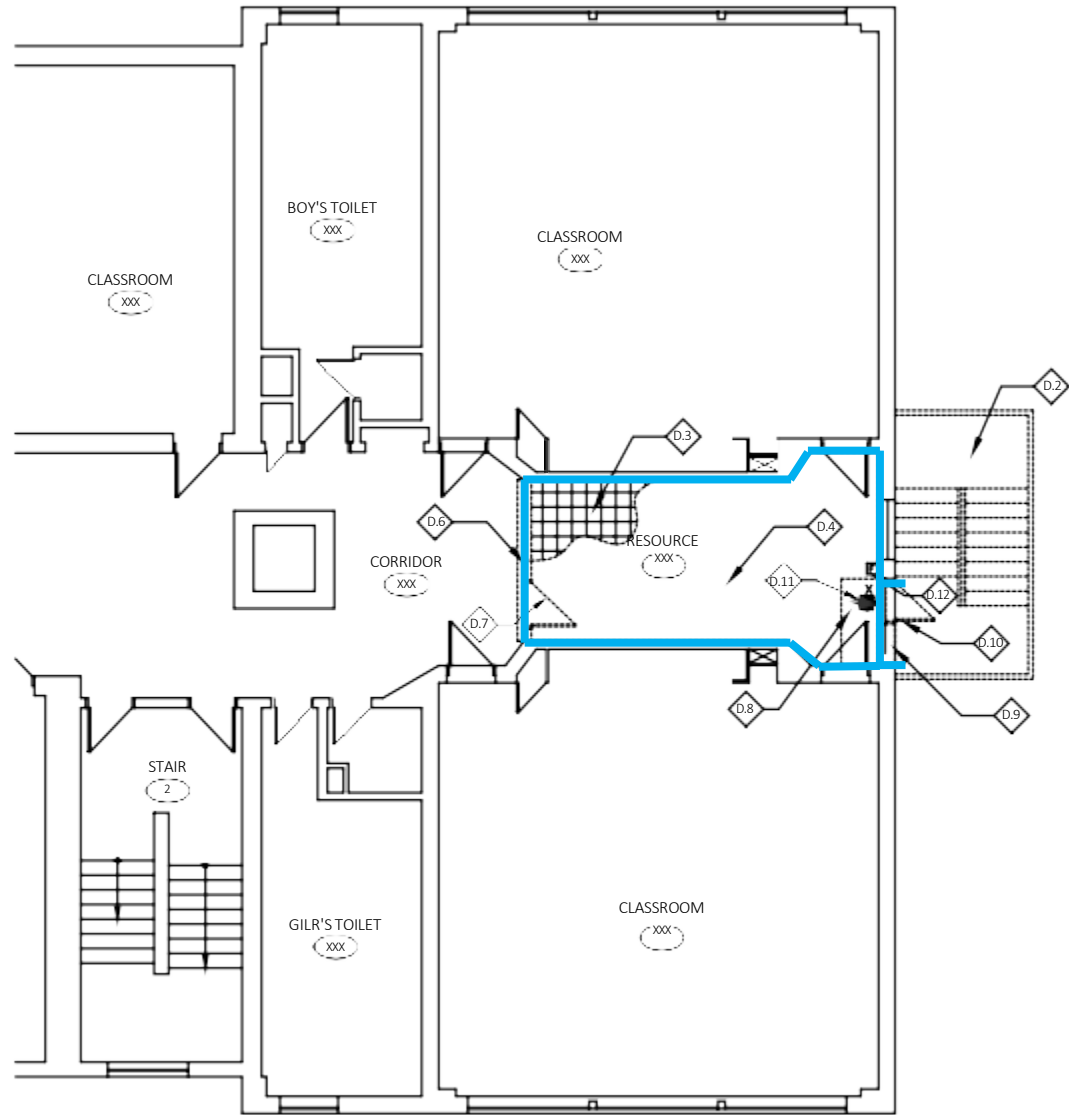
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Name _____ Witness _____



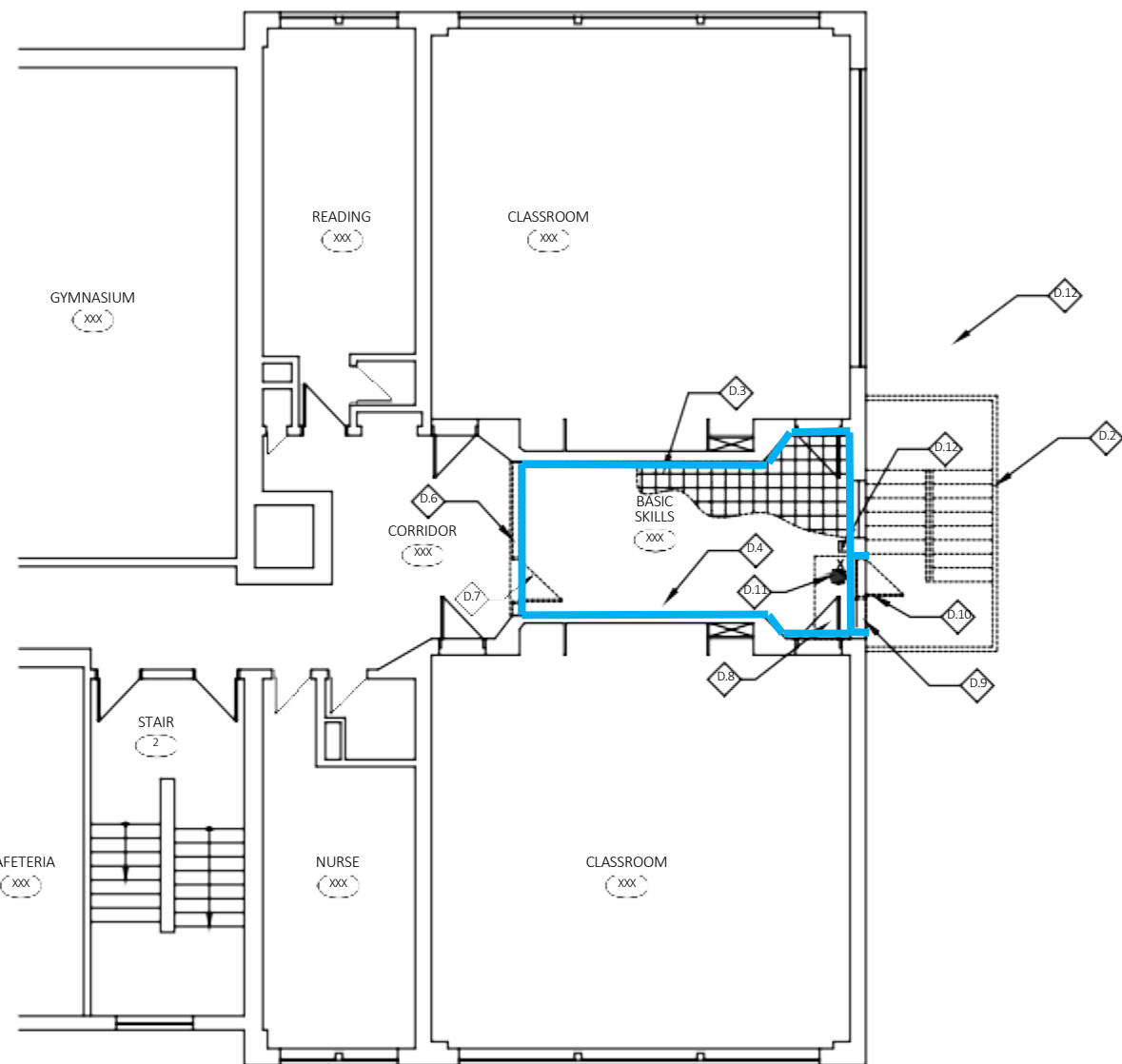
DEMO BASEMENT FLOOR PLAN

SCALE: 1/8"=1'-0"



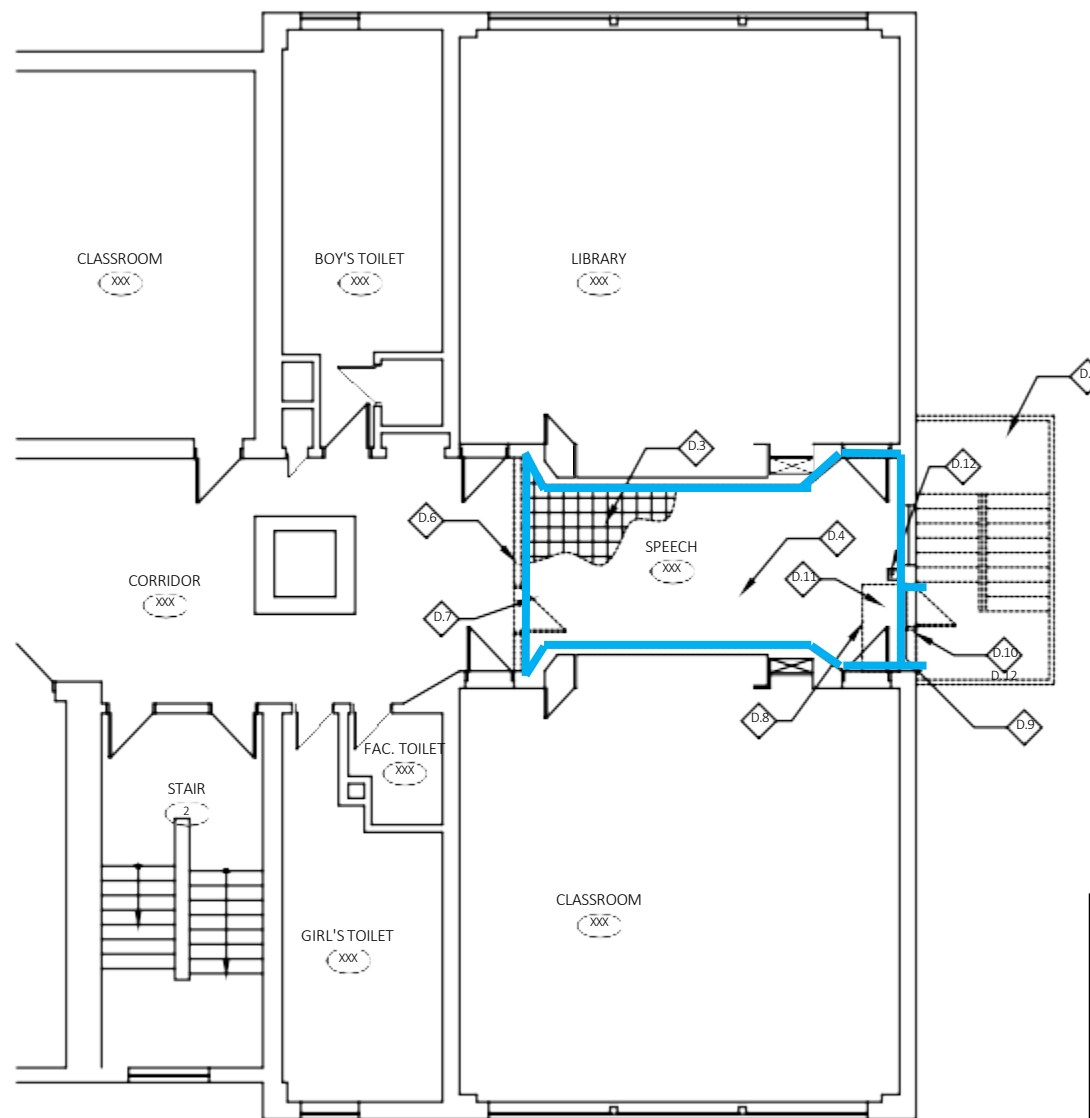
DEMO SECOND FLOOR PLAN

SCALE: 1/8"=1'-0"



DEMO FIRST FLOOR PLAN

SCALE 1/8"=1'-1"



DEMO THIRD FLOOR PLAN

SCALE 1/8"=1'-1"

GENERAL DEMOLITION NOTES

1. ANY DEMOLITIONWORK THAT IS REQUIRED FOR THE INSTALLATION OF NEW WORK THAT IS NOT SPECIFICALLY NOTED ON THIS PLAN, SHALL BE THE RESPONSIBILITY OF THE DEMOLITION CONTRACTOR.
2. DEMOLISHED MATERIAL SHALL BE CONSIDERED TO BE THE PROPERTY OF THE CONTRACTOR AND SHALL BE COMPLETELY REMOVED FROM THE JOBSITE.
3. SHUT OFF, CAP AND OTHERWISE PROTECT EXISTING PUBLIC UTILITY LINES IN ACCORDANCE WITH THE REQUIREMENTS OF THE PUBLIC AGENCY HAVING JURISDICTION.
4. COMPLETELY REMOVE ITEMS SCHEDULED TO BE DEMOLISHED, LEAVING SURFACES CLEAN, SOLID AND READY TO RECEIVE NEW MATERIAL.
5. USE MEANS NECESSARY TO PREVENT DUST FROM BECOMING A NUISANCE.
6. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL NATIONAL, STATE, LOCAL CODES AND ORDINANCES.
7. AT THE START OF DEMOLITION, ALL REMAINING FURNITURE TO BE REMOVED BY THE GENERAL CONTRACTOR.
8. DEMOLITION CONTRACTOR MUST VERIFY LOCATIONS OF ALL EXISTING STRUCTURAL, MECHANICAL, PLUMBING AND ELECTRICAL ELEMENTS PRIOR TO THE START OF DEMOLITION.
9. REMOVE ALL INTERIOR WALLS SHOWN DOTTED, ALONG WITH ALL ASSOCIATED TACK BOARDS, CHALK BOARDS, MARKER BOARDS, ETC. EXERCISE CAUTION SO AS NOT TO DISTURB OR DAMAGE ADJACENT SURFACES TO REMAIN.
10. REMOVE ALL DOORS AND DOOR FRAMES SHOWN IN FULLY DEMOLISHED PARTITION ONLY, UNLESS NOTED OTHERWISE.
11. REMOVE ALL ELECTRICAL LIGHTING FIXTURES, ELECTRICAL RUNS, ASSOCIATED DEVICES AND ELECTRICAL PANELS. REFER TO ELECTRICAL DEMOLITION DRAWINGS FOR RELATED INFORMATION.
12. REMOVE ALL FLOOR FINISHES, ADHESIVES, MASTICS AND MORTAR, ETC DOWN TO FINISH CONCRETE FLOORS SCHEDULED TO REMAIN. TREAT EXISTING CONCRETE SLAB SCARIFICATION TREATMENT AND CEMENTITIOUS UNDERLAYMENT PROCEDURES. COORDINATE WORK WITH HAZARDOUS MATERIALS BUILDING INSPECTION REPORT. PREP FLOORS TO RECEIVE NEW FINISHES.
13. REMOVE ALL CEILING GRIDS, GYPSUM CEILING AND SUSPENSION SYSTEMS AT ALL AREAS WHERE NEW CEILINGS ARE SCHEDULED. REFER TO REFLECTED CEILING DEMO PLANS FOR EXISTING CONDITIONS.
14. THE DEMOLITION PLANS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE GENERAL EXTENT OF THE WORK ONLY.
15. THE CONTRACTOR SHALL INCLUDE ALL DEMOLITION WORK REQUIRED TO ACCOMPLISH THE INTENT OF THE PLANS AND SPECIFICATIONS.
16. ALL DEMOLISHED ITEMS SHALL BE REMOVED FROM THE BUILDING/SITE UNLESS OTHERWISE NOTED. COORDINATE WITH THE OWNER FOR DELIVERY OF ITEMS NOTED TO REMAIN OWNERS PROPERTY. THE PROJECT SITE/BUILDING SHALL BE CLEANED OF DEBRIS ON A DAILY BASIS. GENERAL CONTRACTOR WILL COORDINATE AND INSTRUCT WHICH ITEMS ARE TO REMAIN. SECURE, STORE AND PROTECT ITEMS.
17. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHORING AND SUPPORT (TEMPORARY OR PERMANENT) FOR ALL PORTIONS OF CONSTRUCTION DURING DEMOLITION AND CONSTRUCTION.
18. ALL ABANDONED MECHANICAL/ELECTRICAL/PLUMBING/FIRE PROTECTION LINES SHALL BE REMOVED TO THE MAIN SOURCE, CAPPED OFF BEHIND FINISHES, UNLESS OTHERWISE NOTED. REFER TO MECHANICAL/ELECTRICAL/PLUMBING/FIRE PROTECTION DRAWINGS FOR ADDITIONAL DEMO INFORMATION.
19. SAWCUT ALL MASONRY OR CONCRETE OPENINGS INDICATED. MASONRY SHALL BE TOOTHED IN AND/OR RETURNED TO FINISH OPENING. ALL OPENINGS WHERE EXISTING CONSTRUCTION HAS BEEN REMOVED AND WHICH ARE NOT NOTED TO REMAIN, SHALL BE FILLED AND/OR PATCHED TO MATCH THE ADJACENT EXISTING OR NEW FINISH, INCLUDING ANY FIRE RATINGS REQUIRED.
20. ALL AREAS OF FLOORS, WALLS AND CEILINGS DISTURBED BY DEMOLITION SHALL BE FILLED, PATCHED OR OTHERWISE REFINISHED TO MATCH EXISTING AS DESIGNATED, INCLUDING ALL REQUIRED RATINGS.
21. CONTRACTOR MUST VERIFY LOCATIONS OF ALL EXISTING STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL AND FIRE PROTECTION ELEMENTS PRIOR TO THE START OF DEMOLITION.
22. EXISTING CONDITIONS SHALL BE STUDIED BY GENERAL CONTRACTOR PRIOR TO BIDDING TO FAMILIARIZE THEMSELVES WITH THE BUILDING.

DEMOLITION NOTES

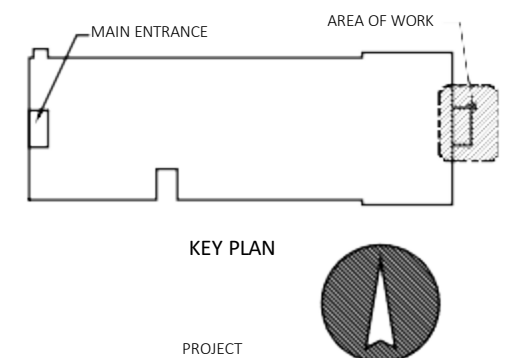
- D.1 DEMO AND REMOVE EXISTING CHAIN LINK FENCE, GATE AND ASSOCIATED HARDWARE.
- D.2 DEMO AND REMOVE EXISTING METAL STAIRCASE, SUPPORTS, EXTERIOR METAL SIDING, FRAMEWORK, WINDOWS AND ASSOCIATED HARDWARE.
- D.3 DEMO AND REMOVE EXISTING SPLINE CEILING SYSTEM, INCLUDING ALL CEILING FRAMEWORK AND HANGERS. DEMO AND REMOVE ALL EXISTING LIGHTING AND DEVICES ATTACHED TO CEILING.
- D.4 DEMO AND REMOVE EXISTING VCT TILE FLOORING. PREP SLAB FOR NEW FLOOR.
- D.5 DEMO AND REMOVE EXISTING SHELVES AND CABINETS.
- D.6 DEMO AND REMOVE EXISTING WALL ASSEMBLY. PREP FLOOR AND CEILING FOR NEW WORK.
- D.7 DEMO AND REMOVE EXISTING HOLLOW METAL FRAME, WOOD DOOR AND ASSOCIATED HARDWARE. TURN OVER TO OWNER.
- D.8 DEMO AND REMOVE EXISTING VAT AS PER ABATEMENT CONTRACTOR. PREP SLAB FOR NEW FLOORING.
- D.9 DEMO AND REMOVE EXISTING MASONRY WALL ASSEMBLY. (GLAZED BLOCK, CMU AND BRICK. PREP FOR NEW INFILL.
- D.10 DEMO AND REMOVE EXISTING HOLLOW METAL FRAME, METAL DOOR AND ASSOCIATED HARDWARE.
- D.11 DEMO AND REMOVE EXISTING WALL MOUNTED EXIT SIGNAGE. TURN OVER TO OWNER.
- EXISTING FIRE ALARM PULL STATION TO REMAIN IN ORIGINAL LOCATION. PROTECT DEVICE DURING THE DEMOLITION PROCESS.

HAZARDOUS MATERIAL NOTES

ALL DEMOLITION WORK IS TO BE PERFORMED IN ACCORDANCE WITH AN APPROVED ASBESTOS WORK PLAN FROM THE STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH, UNDER CONTAINMENT WITH A PRESSURE DIFFERENTIAL AND CONTIGUOUS DECONTAMINATION UNITS. REFER TO HAZARDOUS MATERIAL TESTING AND REPORTS IN REGARD TO THE EXISTING BUILDING.

Legend

- ACM
- ACM & PCB >50ppm
- PCB > 50ppm



DATE:	4/26/2022
DRAWN BY:	RS/JM
SCALE:	1/8" = 1'-0"
REVIEWED BY:	JMY
PROJECT NO.:	2021-091A
	(D1.1) DEMO PLAN

NO.	DATE	DESCRIPTION

DEMOLITION PLANS

BASEMENT THRU 3RD FLOOR

STATE PROJECT NO. XXX-XXXXA
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

ARCHITECT'S SEAL



SHEET NO.
D1.1

SECTION 01010

GENERAL REQUIREMENTS

PART 1 – GENERAL

RELATED DOCUMENTS

The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”

1.1 SECTION INCLUDES

- A. Contractor Qualifications.
- B. Contractor Use of Site and Premises.
- C. Work Sequence.
- D. Owner’s Operations.
- E. Closeout and Punch List.
- F. Cleaning.
- G. Emergency Calls

1.2 CONTRACTOR QUALIFICATIONS

- A. The Contractor selected must appear on the approved list of Asbestos Abatement Contractors on file at the State of Connecticut Department of Public Health (CTDPH). Only State-certified asbestos abatement supervisors and workers shall perform asbestos abatement work activities.
- B. Submit a written statement regarding whether the Contractor has ever been found out-of-compliance with federal or state asbestos regulations pertaining to worker protection, removal, transport, or disposal.
- C. The Contractor shall obtain and pay for all required permits, and prepare and file all original and amended local, state, and EPA pre-notification forms immediately following award of the work.
- D. The Contractor shall conduct personal exposure air monitoring for airborne fibers as prescribed by OSHA during the project performance.
- E. The Owner reserves the right to award this Contract to the Contractor who best meets all contractor qualifications and Owner’s interests.

1.3 CONTRACTORS USE OF SITE AND PREMISES

- A. Limit use of site and premises as follows:
 - 1. Owner occupancy.
 - 2. Work by Owner.
 - 3. Use of site and premises by public.
- B. Coordinate use of the premises, including use of restroom facilities and utilities under direction of Owner.
- C. Assume full responsibility for protection and safekeeping of products under this Contract.

1.4 WORK SEQUENCE

- A. Work must be performed to accommodate Owner's requirements. Coordinate removal schedule and operations with the Owner/Consultant.
- B. The Owner plans to close the School Building during the duration of the project. No children shall be permitted to occupy any portion of the School.

1.5 OWNER'S OPERATIONS

- A. Schedule the Work to accommodate this requirement.
- B. Maintain means of egress.
- C. Coordinate Work with the Owner and the Fire Marshall.
- D. Maintain the fire alarm and fire detection systems at all times.
- E. Maintain a permanent means of egress during project. Provide and maintain a temporary means of egress as required by the Fire Marshall.

1.6 CLEANING

- A. Throughout the abatement period, the Contractor shall maintain the building and site free of rubbish, debris, surplus materials, and other items not required for the Work. Remove such materials from the site daily to prevent accumulations. Remove all debris from work areas, and remove all hazardous waste and asbestos waste as required by the most current federal, state, and local regulations and the requirements of the specifications.

1.7 EMERGENCY CALLS

- A. The Contractor shall provide the Consultant and Owner with a telephone number where the Contractor or Contractor's Representative can be reached during non-working hours.
- B. At the direction of a duly authorized representative of the Owner, the Contractor may be required to dispatch all necessary personnel and equipment to any point on the work site to clear obstructions or make safe any conditions deemed necessary by the Owner or Consultant.

1.8 ADDITIONAL GENERAL REQUIREMENTS

- A. The Abatement Contractor shall employ an English-speaking competent Asbestos Abatement Supervisor with at least three (3) years experience on projects of similar scope and magnitude who shall be responsible for all work involving asbestos abatement as described in the Specifications and defined in the applicable regulations and have full-time daily supervision of the same. The Supervisor shall be the “Competent Person” as defined by OSHA regulations. The Contractor shall provide, on-site, at least one English-speaking foreman at all times when work is in progress. The supervisor and foreman must be thoroughly experienced in asbestos-containing materials removal work, knowledgeable of all applicable federal, state, and local regulations and capable of skillfully executing all work promptly, efficiently and in compliance with all requirements of these specifications. The Owner reserves the right to have any supervisory or foreman personnel removed from the project if they do not demonstrate the requisite qualifications.
- B. The Contractor shall allow work performed under this contract to be inspected, if required, by local, state, federal, and any other authorities having jurisdiction over such work. The Contractor shall immediately notify the Owner and Consultant and shall maintain written evidence of such inspection for review by the Owner and Consultant.
- C. The Contractor shall incur the cost of all fines resulting from regulatory non-compliance as issued by federal, state, and local agencies. The Contractor shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance or negligence.
- D. The Contractor shall immediately notify the Owner and Consultant of the delivery of all permits, licenses, certificates of inspection, approval or occupancy, etc., and any other such instruments required under codes by authorities having jurisdiction, regardless of to who issued, and shall cause them to be displayed to the Owner and Consultant for verification and recording.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01016

SCHEDULING AND PHASING

PART 1 - GENERAL

RELATED DOCUMENTS

The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section "Summary."

1.1 GENERAL REQUIREMENTS

- A. The Contractor shall present a working schedule to the Owner. Variations, amendments, and corrections to the presented schedule will be discussed, and the Owner will inform the Contractor of additions or changes in the scheduling requirements for the project.
- B. Refer to all other applicable sections of the specification for coordination with other trades. The Contractor shall coordinate work with all other activities at this site.

1.2 TIME FOR COMPLETION AND WORKING HOURS

- A. Upon award of contract from the Owner, the Contractor shall immediately order materials, supplies, and components for the work of this project.
- B. The Contractor shall begin the work immediately upon receipt of the "Notice to Proceed" from the Owner. The date of the commencement of the work is termed the "Project Start Date." The Contractor will be required to complete all work of this Contract within the time period stipulated in the finalized schedule. The last day in the schedule is termed as "Contract Completion Date."
- C. If conditions arise that are beyond the control of the Contractor and force delays in the performance of the Work, the Owner shall immediately be notified. The Contractor shall state the reason for the delay and shall estimate the expected duration of the delay. Any application for an extension of the Contract completion date shall be made under proper change order procedures. The acceptance of the cause for delay and change order is subject to the Owner's review and approval.
- D. Work hours will be established in coordination with the Owner.
- E. Any extra hours or days per week worked by the Contractor or Sub-Contractors shall be at no extra cost to the Owner. Denial of extra hours or days per week by the Owner shall not be grounds for extra time allotted to the overall Contract time.
- F. The Contractor will define a project work schedule to which the Contractor will be bound. Any change in the work schedule must be approved by the Owner.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01026

UNIT PRICES

PART 1 – GENERAL

RELATED DOCUMENTS

The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”

1.1 SUMMARY

- A. A unit price is an amount proposed by the Contractor and stated on the proposal as a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the project Scope of Work is altered.
- B. Unit prices include material, any direct or indirect expenses of the Contractor or Sub-Contractor, profit, insurance, bonding, and any applicable taxes. The same unit price shall apply whether the work is added or deducted.

PART 2 – PRODUCTS

NOT USED

PART 3 – EXECUTION

NOT USED

END OF SECTION

SECTION 01700

CONTRACT CLOSEOUT

PART 1 – GENERAL

RELATED DOCUMENTS

The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”

1.1 GENERAL PROVISIONS

- A. General Provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 FINAL CLEANING

- A. Unless otherwise specified under Sections of this Specification, the Contractor shall perform final cleaning operations specified prior to final inspection.
- B. Maintain the project site free from accumulations of waste, debris and rubbish caused by operations. At the completion of the work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean all sight-exposed surfaces; leave the project clean and ready for work of others under separate contract.
- C. Cleaning shall include all surfaces, interior and exterior, in which the Contractor has had access.
- D. Use only those materials that will not create hazards to health or property.

1.3 REMOVAL CLOSEOUT DOCUMENTS

- A. Submit to the Owner, final completed copies of the Waste Shipment Records, signed by all transporters and the designated disposal site owner/operator.
- B. Submit to the Consultant copies of all Contractor's logs, notifications & permits, and all worker certifications (certificates, training, medical, and fit-test).
- C. The Contractor must be able to provide Certified Payroll documentation to the City of Waterbury Department of Education, or its Representative or Project Auditors upon formal request.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

DIVISION II

SPECIAL CONDITIONS

FOREWORD

Supplementing Division I of the Specifications for the work to be performed under this Contract, DIVISION II, SPECIAL CONDITIONS, shall apply particularly to this Contract.

The enforcement of the requirements of any of the Special Conditions shall not be construed as waiving any of the rights of the Owner, contained in any of the other provisions of the Contract.

The Contract documents, including without limitation, these Special Conditions, shall be interpreted and construed as far as is reasonably possible to be in addition to, supplementary to and consistent with each other.

SECTION 02075

SELECTIVE DEMOLITION - ASBESTOS REMOVAL

PART 1 – GENERAL

RELATED DOCUMENTS

The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”

1.1 SUMMARY

- A. Provide selective demolition to existing walls, partition walls, base trim, etc., and dismantle existing millwork as necessary to access floor tiles and associated mastic adhesives and all other ACMs.
- B. **All layers of “troweled” flooring are included in the base work; no extra charge will be accepted.** Selective demolition or moving of typically non-movable objects by the Contractor may be required to gain access to all ACMs to be removed.
- C. The Contractor shall remove existing plumbing and electrical as required for the removal of existing millwork.

1.2 PROJECT CONDITIONS

- A. Occupancy:
 - 1. Areas of the building in which selective demolition may occur will be unoccupied during work. **All work will be performed only during a period when there are no children present in any parts of the building.**
- B. Existing Conditions:
 - 1. After the project has begun, the Contractor is responsible for the condition of the structures to be selectively demolished.
 - 2. Unforeseen Conditions: Should unforeseen conditions be encountered that affect design or function of project, investigate and fully submit an accurate, detailed, written report to the office of the Owner. While awaiting a response, reschedule operations if necessary to avoid delay of the overall project.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that necessary utilities have been disconnected and sealed.
- B. As practicable, arrange operations to reveal unknown or concealed conditions for examination and verification before removal or demolition.
- C. Verify actual conditions to determine, in advance, whether removal or demolition of any element will result in structural deficiency, overloading, failure, or unplanned collapse.
 - 1. A licensed electrical contractor shall disconnect electrical fixtures as necessary to facilitate removal of asbestos-containing materials.
 - 2. A licensed plumbing contractor shall disconnect plumbing fixtures as necessary to facilitate removal of asbestos-containing materials.

3.2 PREPARATION

- A. Traffic:
 - 1. Do not obstruct walks or public ways without the written permission of governing authorities and of the Owner. Where routes are permitted to be closed, provide alternate routes, if required.
- B. Protection:
 - 1. Provide for the protection of authorized persons passing around or through the area of demolition.
 - 2. Perform demolition so as to prevent damage to adjacent improvements and facilities to remain.
 - 3. Protect walls, floors, and other new or existing work from damage during demolition operations.

3.3 POLLUTION CONTROLS

- A. Control as much as practicable the spread of dust and dirt.
- B. Observe environmental regulations.
- C. Do not allow water usage that may result in freezing or flooding.
- D. Do not allow adjacent improvements to remain to become soiled by demolition operations.

3.4 DEMOLITION - GENERAL

Not Applicable.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. Promptly dispose of materials resulting from demolition operations. Non-contaminated material shall be disposed of as construction waste by the Contractor. Do not allow materials to accumulate on site.
- B. All rubbish and waste material from the Work shall be neatly stacked or kept in suitable containers and removed from the premises daily. The premises shall be kept clean and in an orderly condition at all times to the satisfaction of the Owner and the Consultant.
- C. Transport materials resulting from demolition operations and legally dispose of off-site.
- D. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials (where applicable) and promptly dispose of off-site.

3.6 CLEANING

- A. Throughout the construction period, the Contractor shall maintain the building and site free of rubbish, debris, surplus materials, and other items not required for the Work. Remove such material from the site daily to prevent accumulations. Remove all construction debris from work areas, and remove all hazardous waste and asbestos waste, as required, by the most current federal, state, and local regulations and the requirements of the specifications.

END OF SECTION

SECTION 02080

ASBESTOS REMOVAL

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this Section shall also be bound by the Related Documents identified in Division 01 Section “Summary.”
- B. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this Section, whether or not such work is specifically mentioned herein.

1.2 SCOPE OF WORK

- A. Work outlined in this section includes all that is necessary for the complete removal and disposal of asbestos-containing and asbestos-contaminated materials identified in the areas as detailed below for Washington Elementary School; Waterbury, CT.
The quantities given on the following pages are provided to establish the order of magnitude of the abatement project. Actual quantities may vary. The Contractor is responsible for verification of all quantities of ACM scheduled for removal. This verification shall include an on-site walk-through inspection of the work area.
- B. Coordinate this section with other Sections of these Specifications for actual quantities of work required. Location, estimated quantities, and abatement removal plan of specific items noted in paragraph A above include:

TABLE 1: LIST OF ACMs

MATERIAL	LOCATION	ESTIMATED QUANTITY
* “Troweled” Flooring Material	1 st and 2 nd Floor Hallways (within Project Scope)	TBD

1.3 DEFINITIONS

The following definitions relative to asbestos removal:

1. ABATEMENT - Procedures to control fiber releases from asbestos containing materials; includes removal, encapsulation, and enclosure.
2. AIR MONITORING - The process of measuring the airborne fiber concentration within an area or within a person's breathing zone.
3. AMENDED WATER - Water to which a surfactant has been added.
4. ASBESTOS - The name given to a number of naturally occurring fibrous silicates. This includes the serpentine forms and the amphiboles and includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite, or any of these forms, which have been chemically altered.
5. ASBESTOS PROJECT MONITOR (APM) - A professional capable of conducting air monitoring and analysis of samples for airborne fiber concentrations. This individual should be an industrial hygienist, an environmental scientist, or an engineer with experience in asbestos air monitoring and worker protection equipment and procedures. This individual should have demonstrated proficiency in conducting air sample collection in accordance with 29 CFR 1910.1001 and 29 CFR 1926.1101.
6. ASBESTOS WORK AREA - A regulated area as defined by OSHA 29 CFR 1926.1101 where asbestos removal operations are performed which is isolated by physical barriers to prevent the spread of asbestos dust, fibers, or debris. The regulated area shall comply with requirements of regulated area for demarcation, access, respirators, prohibited activities, competent persons and exposure assessments and monitoring.
7. ASBESTOS FELT - A product made by saturating felted asbestos with asphalt or other suitable binder, such as a synthetic elastomer.
8. ASBESTOS FIBERS - Those asbestos particles with a length greater than five (5) microns and a length to diameter ratio of 3:1 or greater.
9. ASPHALT SHINGLES, COMPOSITION SHINGLES OR STRIP SLATES - (Pitched Roof Shingle): a roofing material manufactured by saturating a dry felt with asphalt then coating the saturated felt with a harder asphalt mixed with a fine mineral, glass fiber, asbestos or organic stabilizer. All or part of the weather side may be covered with mineral granules, or with powdered talc or mica.
10. BASE FLASHING (ROOF) - The flashing provided by upturned edges of a watertight membrane on a roof. May contain metal and associated waterproofing material or combination of roofing felts and waterproofing at the joint between a roofing surface and a vertical surface such as a wall or parapet. Also base flashing may be present at perimeter of completely flat roofing.

11. BUILT-UP ROOFING - Composition Roofing, Felt and Gravel Roofing, Gravel Roofing) - a continuous roof covering made up of laminations or plies of saturated or coated roofing felts, alternated with layers of asphalt or coal-tar pitch and surfaced with gravel, paint or finish coat.
12. CAULKING - Resilient mastic compound often having a silicone bituminous or rubber base. Used to seal cracks, fill joints and prevent leakage. Typical applications: around windows and doors, at joints between two dissimilar materials. (i.e. masonry to wood, masonry to steel etc.).
13. CLEAN ROOM - An uncontaminated area or room, which is a part of the worker decontamination enclosure with provisions for storage of workers' street clothes and protective equipment.
14. CLEARANCE SAMPLING - Final air sampling performed aggressively after the completion of the removal project in a regulated area. Clearance sampling can be conducted by either of the following two methods:
 - (A) Air samples collected by the air sampling professional having a fiber concentration of less than 0.01 fibers/cc of air in each of five (5) samples collected inside the containment will denote acceptable clearance sampling by Phase Contrast Microscopy (PCM).
 - (B) Five air samples collected inside the containment by the air sampling professional having an average asbestos concentration of less than 70 structures per square millimeter of air will denote acceptable clearance sampling for Transmission Electron Microscopy (TEM).
15. COMPETENT PERSON - As defined by 29 CFR 1926.1101, a representative of the Abatement Contractor who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure. In addition has authority to take prompt corrective measures to eliminate such hazards during asbestos removal. Competent person shall be properly trained in accordance with Environmental Protection Agency's (EPA) Model Accreditation Plan.
16. CURTAINED DOORWAY - A device to allow ingress and egress from one area to another while permitting minimal air movement between the areas. Two curtained doorways spaced a minimum of six feet apart can form an airlock.
17. DAMP PROOFING - Application of a water impervious material to surface such as wall to prevent penetration of moisture, typically at foundation or below grade surface.
18. DECONTAMINATION ENCLOSURE SYSTEM - A series of connected areas, with curtained doorways between any two adjacent areas, for the decontamination of workers and equipment. A decontamination enclosure system always contains at least one airlock and is adjacent and connected to the regulated area, where possible.

19. ENCAPSULANT - A liquid material which can be applied to asbestos-containing materials which controls the possible release of asbestos fibers from the materials either by creating a membrane over the surface (bridging encapsulant) or penetrating the material and binding its components together (penetrating encapsulant).
20. EQUIPMENT ROOM - Any contaminated area or a room that is part of the worker decontamination enclosure with provisions for storage of contaminated clothing and equipment.
21. FIXED OBJECT - Unit of equipment or furniture in the work areas that cannot be removed from the work area.
22. FRIABLE ASBESTOS MATERIALS - Any material that contains more than 1% asbestos by weight, that can be crumbled, pulverized or reduced to powder by hand pressure.
23. GLAZING COMPOUND - any compound used to hold window glass in place, also referred to as putty, or glaziers' putty. Is not field-applied, usually installed during manufacture of windows.
24. GLOVE BAG - A manufactured polyethylene bag type of enclosure with built-in gloves such as is placed with an airtight seal around asbestos-containing material and which permits the asbestos-containing materials contained by the bag to be removed without releasing asbestos fibers to the atmosphere. The use of glove bag is permitted for removal and repair of small amount (less than 3 linear feet/3 square feet) of ACM.
25. HEPA FILTER - High Efficiency Particulate Air (HEPA) filter in compliance with ANSI Z9.2-1979.
26. HEPA VACUUM EQUIPMENT - Vacuum equipment equipped with a HEPA filter system for filtering the effluent air from the unit.
27. MOVABLE OBJECT - Unit of equipment or furniture in the work area that can be removed from the work area.
28. NEGATIVE AIR PRESSURE EQUIPMENT - A portable local exhaust ventilation system equipped with HEPA filtration used to create negative pressure in a regulated area (negative with respect to adjacent unregulated areas) and capable of maintaining a constant, low velocity air flow into regulated areas from adjacent unregulated areas.
29. NESHAPS - National Emissions Standard for Hazardous Air Pollutants regulations enforced by the EPA.
30. PERMISSIBLE EXPOSURE LEVEL (PEL) - The average airborne concentration of asbestos fibers to which an employee is allowed to be exposed over an eight-hour period. The PEL established by OSHA 29 CFR 1926.1101 is 0.1 fibers per cubic centimeter of air averaged over an eight-hour time period. An airborne fiber concentration of 1.0 fibers /cc averaged over a sampling period of 30 minutes is the Excursion Limit. The Contractor is responsible for maintaining work areas in a manner that this standard is not exceeded.

31. REGULATED AREA - An area established by the employer to demarcate where Class I, II, and III asbestos work is conducted and any adjoining area where debris and waste from such asbestos work accumulate, and a work area within which airborne concentrations of asbestos fibers may exceed the PEL.
32. SHOWER ROOM - A room between the clean room and the equipment room in the work decontamination enclosure with hot and cold running water and suitably arranged for employee showering during decontamination. The shower room is located in an airlock between the contaminated area and the clean area.
33. WATERPROOFING - material, usually a membrane or applied compound (tar/mastic), used to make a surface impervious to water. Includes concealed conditions (applications around doors, windows, and in wall cavities), sometimes combined with felts.

1.4 SUBMITTALS

- A. The Contractor shall submit the following to the Owner prior to start of project:
 1. Evidence that the Contractor is certified to perform asbestos abatement work in the State of Connecticut.
 2. Schedule which defines a timetable for executing and completing the project, including set-up, removal, cleanup, decontamination, and air clearance sampling.
 3. The identity and licensing of the hauling contractor and the landfill to be used.
 4. Connecticut certificate of training (both initial and current refresher), current respirator fit test records, and current medical records for each employee who may be on the project site. Effective June 4, 2000, no individual shall provide services as an asbestos abatement site supervisor or as an asbestos abatement worker without a certificate to do so issued by the CTDPH.
 5. Detailed product information on all materials and equipment proposed for asbestos abatement removal on this project.
 6. Training and medical records for new employees to start work.
 7. Signed copy of the Certificate of Workers Acknowledgment found at the end of this section for each worker who is to be at job site.
- B. The following shall be submitted to the Owner at the completion of work:
 1. Completed Punch List.
 2. Completed copies of Waste Shipment Records (WSR).

1.5 REGULATIONS AND STANDARDS

- A. The Contractor shall be solely responsible for conducting this project and supervising all work in a manner which will be in conformance with all federal, state, and local regulations and guidelines pertaining to asbestos removal. Specifically, the Contractor shall comply with the requirements of the following:
 - 1. U.S. Environmental Protection Agency (USEPA) National Emissions Standards for Hazardous Air Pollutants (NESHAP) Regulations (40 CFR 61, Subpart M).
 - 2. Occupational Safety and Health Administration (OSHA) Asbestos Regulations (29 CFR 1910.1001 and 1926.1101).
 - 3. State of Connecticut Department of Public Health (CTDPH) Standards for Asbestos Abatement Sections 19a-332a-1 through 19a-332a-16. Licensure and Training Requirements for Persons Engaging in Asbestos Abatement and Consultation Services Sections 20-440-1 through 20-440-9 inclusive. Standards for Asbestos-Containing Materials in Schools Sections 19a-333-1 through 19a-333-13.
 - 4. State of Connecticut Department of Environmental Protection (CTDEEP) Regulations, Section 22a-209-8(i).
 - 6. National Fire Protection Association (NFPA) Life Safety Code.
 - 8. All national codes and standards including American National Standards Institute (ANSI) and Underwriter's Laboratories (UL).

1.6 EXEMPTIONS

- A. Any deviations from these Specifications require the written approval and authorization from the Owner and Consultant.
- B. Any deviation in work practices identified in CTDPH Standards for Asbestos Abatement, Sections 19a-332a-1 to 19a-332a-23, Sections 19a-333-1 through 19a-333-13, Sections 20-440-1 to 20-440-9, Section 20-441, and Section 19a-332e-1 to 19a-332e-2, must be requested in writing and approved in writing by the CTDPH.

1.7 FINAL VISUAL INSPECTION AND CLEARANCE AIR SAMPLING

- A. Following the completion of the final cleaning phase of the work in the regulated area, the Consultant shall conduct a final visual inspection of the area. The Contractor shall be responsible for meeting final visual criteria, which is the absence of visible debris, as specified in CTDPH regulation 19a-332a-12(b).
- B. Following the completion of the final visual inspection, and upon which time the Consultant agrees that the Contractor has met the final visual criteria, (and following encapsulation of the work area) the Consultant's Asbestos Project Monitor will collect post-removal air samples in the work area. The Owner shall be responsible for payment of the sampling and analysis of the first round of final air clearances for a particular work area.

1.8 NOTIFICATIONS, POSTINGS, SUBMITTALS, AND PERMITS

- A. The Contractor shall make the following notifications and provide submittals to the following agencies prior to the commencement of removal/renovation work. These notifications are required prior to the start of the abatement/demolition project:
1. State of Connecticut
Department of Public Health
Indoor Air Program
410 Capitol Avenue
P.O. Box 340308
Hartford, CT 06134-0308
 2. United States Environmental Protection Agency
Region 1 – New England
5 Post Office Square, Suite 100
Boston, MA 02109-3912

1.9 WORK SITE SAFETY PLAN

- A. The Contractor shall establish a set of emergency procedures and shall post them in a conspicuous place at the work site. The safety plan should include provisions for the following:
1. Evacuation of injured workers.
 2. Emergency and fire exit routes from all work areas.
 3. Emergency first aid treatment.
 4. Local telephone numbers for emergency services including ambulance, fire, and police.
 5. Methods to notify appropriate personnel in the event of a fire or other emergency requiring evacuation of the site or area.
 6. Site safety plan for fall protection.
- B. The Contractor is responsible for training all workers in these procedures.

1.10 CONTROL OVER REMOVAL WORK

- A. At the discretion of the Owner & Consultant, full-time project monitoring will be performed as part of this project throughout the duration.
- B. The Contractor shall maintain control of and be responsible for access to all work areas to ensure the following requirements:
1. Non-essential personnel are prohibited from entering the area.
 2. All authorized personnel entering the work area shall read the "Worker Protection Procedures" which are posted at the entry points to the enclosure system and shall be equipped with properly fitted respirators and protective clothing.

3. All personnel who are exiting from the decontamination enclosure system shall be properly decontaminated.
4. Asbestos waste that is taken out of the work area must be properly bagged and labeled in accordance with these specifications. The surface of the bags shall be decontaminated. Asbestos waste leaving the enclosure system must be transported off site at end of work day or immediately placed in locked, posted temporary storage on site, and removed within 24 hours of the project conclusion. The Contractor may seek permission of the Owner to place a temporary lockable storage at a suitable onsite location.
5. Any material, equipment, or supplies that are brought out of the decontamination enclosure system shall be cleaned and decontaminated by wet cleaning and/or HEPA vacuuming of all surfaces.

1.11 PROPER WORKER PROTECTION

- A. This section describes the equipment and procedures required for protecting workers against asbestos contamination and other workplace hazards except for respiratory protection.
- B. All workers are to be accredited and certified as Asbestos Abatement Workers as required by the CTDPH.
- C. The Contractor is required to be certified, accredited, and licensed as required by the CTDPH.
- D. In accordance with 29 CFR 1926.1101, all workers shall receive a training course covering the dangers inherent in handling asbestos, the dangers of breathing asbestos dust, proper work procedures, and proper worker protective measures. This course must include but is not limited to the following:
 1. Methods of recognizing asbestos.
 2. Health effects associated with asbestos.
 3. Relationship between smoking and asbestos in producing lung cancer.
 4. Nature of operations that could result in exposure to asbestos.
 5. Importance of and instruction in the use of necessary protective controls, practices and procedures to minimize exposure including:
 - a. Engineering controls
 - b. Work practices
 - c. Respirators
 - d. Housekeeping procedures
 - e. Hygiene facilities
 - f. Protective clothing
 - g. Decontamination procedures
 - h. Emergency procedures
 - i. Waste disposal procedures
 6. Purpose, proper use, fitting, instructions, and limitations of respirators as required by 29 CFR 1910.134.
 7. Appropriate work practices for the work.

8. Requirements of medical surveillance program.
 9. Review of 29 CFR 1926.
 10. Pressure differential systems.
 11. Work practices including hands on or on-job training.
 12. Personal Decontamination procedures.
 13. Air monitoring, personal and area.
- E. The Contractor shall provide medical examinations for all workers who may encounter an airborne fiber level of 0.1 f/cc or greater for an eight-hour Time Weighted Average (TWA). In the absence of specific airborne fiber data, provide medical examinations for all workers who will enter the work area for any reason. Examination shall at a minimum meet OSHA requirements as set forth in 29 CFR 1926.1101. In addition, provide an evaluation of the individual's ability to work in environments capable of producing heat stress in the worker.
- F. Submit the following to the Owner for review. The Contractor shall not start work until the Owner/Consultant reviews the submittals and indicates that they are acceptable.
1. Certificates from an EPA-approved AHERA Abatement Workers course for each worker as evidence that each Asbestos Abatement Worker is accredited as required by the AHERA Regulation 40 CFR 763 Appendix C to Subpart E, April 30, 1987.
 2. Evidence that the Contractor is certified to perform asbestos abatement work by the State of Connecticut Department of Public Health.
 3. An original signed copy of the Certificate of Worker's Acknowledgment found at the end of this section, for each worker who is to be at the job site or enter the Work Area.
 4. Documents verifying that each worker has had a medical examination within the last 12 months as part of compliance with OSHA medical surveillance requirements. Submit, at a minimum, for each worker the following:
 - a. Name and Social Security Number.
 - b. Physicians Written Opinion from examining physician including at a minimum the following:
 - 1) Whether worker has any detected medical conditions that would place the worker at an increased risk of material health impairment from exposure to asbestos.
 - 2) Any recommended limitations on the worker or on the use of personal protective equipment such as respirators.
 - 3) Statement that the worker has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure.
 5. Information that was provided to physician in compliance with 29 CFR 1926.1101.
 6. A statement that the worker is able to wear and use the type of respiratory protection proposed for the project and is able to work safely in an environment capable of producing heat/cold stress in the worker.

1.12 CONTRACTOR'S AIR SAMPLING RESPONSIBILITY

- A. The Contractor shall be responsible for monitoring airborne asbestos fiber concentrations in the workers' breathing zones and to establish conditions and work procedures for maintaining compliance with OSHA Regulations 29 CFR 1910.1001, and 1926.1101.
- B. The Contractor's air sampling procedures shall ensure proper documentation of all personal air-sampling results. Documentation for personal sampling must be available at the job site for review by federal and/or state regulatory agencies.
- C. All air sampling shall be conducted in accordance with methods described in OSHA Standards 29 CFR 1910.1001 and 1926.1101. The flow rate for air samples will not be less than 0.5 liters/minute and must not exceed 2.5 liters/minute.

1.13 RESTRICTIONS ON CONTRACTOR'S USE OF GROUNDS

- A. The Contractor shall confine his/her operations to the actual work site, access routes and storage areas designated by the Owner. The Contractor may place a storage container at a place designated by the Owner.
- B. The Contractor shall have sole responsibility for providing all materials, equipment, or tools and any storage required shall be at the Contractor's own risk. The Owner will not assume responsibility for any loss of materials, equipment, or tools stored on its property.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name and product technical description.
- B. Damaged or deteriorating materials shall not be used and shall be removed from the premises. Material that becomes contaminated with asbestos shall be decontaminated or disposed of as asbestos waste.
- C. Polyethylene sheet in a roll size to minimize the frequency of joints shall be delivered to the job site with factory label indicating 4 or 6 mil thickness.
- D. Polyethylene disposable bags shall be six (6) mil thick with pre-printed labels.
- E. Tape or adhesive spray will be capable of sealing joints in adjacent polyethylene sheets and for attachment of polyethylene sheet to finished or unfinished surfaces of dissimilar materials and capable of adhering under both dry and wet conditions, including use of amended water.
- F. Surfactant (wetting agent), shall consist of fifty (50) percent polyoxyethylene ether and fifty (50) percent polyoxyethylene ester, or equivalent, and shall be mixed with water to provide a concentration of one (1) ounce surfactant to five (5) gallons of water or as directed by manufacturer.

- G. Encapsulant shall be non-flammable factory prepared penetrating encapsulant found acceptable to Consultant such as ABC Asbestos Binding Compound manufactured by Fiberlock. Usage shall be in accordance with manufacturer's printed technical data.
- H. The Contractor shall have available spray equipment capable of mixing wetting agent with water and capable of generating sufficient pressure and volume and having sufficient hose length to reach all areas where asbestos is present.
- I. Impermeable containers are to be used to receive and retain any asbestos- containing or contaminated materials until disposal at an acceptable disposal site. (The containers shall be labeled in accordance with OSHA Standard 29 CFR 1926.1101) Containers must be both air and watertight.
- J. Labels and signs, as required by OSHA Standard 29 CFR 1926.1101 will be used.
- L. A high efficiency particulate air (HEPA)-filtered local exhaust ventilation shall be utilized during the installation of enclosures and supports where asbestos-containing materials may be disturbed.

2.2 TOOLS AND EQUIPMENT

- A. The Contractor shall provide all tools and equipment necessary for asbestos removal.
- B. The Contractor's air monitoring professional shall have air-monitoring equipment of type and quantity to monitor operations and conduct personal exposure monitoring per OSHA requirements.
- C. The Contractor shall have available sufficient inventory of dated purchase orders for materials necessary for the job including protective clothing, respirators, filter cartridges, polyethylene sheeting of proper size and thickness, tape and air filters.
- D. The Contractor shall have available power cables or power sources such as generators (where required).
- E. As applicable, exhaust air filtration system units shall contain HEPA filter(s) capable of sufficient air exhaust to create negative pressure of at least 0.02 inches of water column within each enclosure with respect to outside areas. Equipment shall be checked for proper operation by differential pressure gauge continuously during the project. Adequate exhaust air shall be provided for a minimum of four (4) air changes per hour within the enclosure. No air movement system or air filtering equipment shall discharge unfiltered air outside, nor shall filtered air units be exhausted indoors from the work area.
- F. Vacuum units, of suitable size and capacities for the project, shall have HEPA filter(s) capable of trapping and retaining at least 99.97 percent of all monodispersed particles of 0.3 micrometers in diameter or larger.
- G. The Contractor will have reserve units so that the exhaust air filtration system will operate continuously.

2.3 ELECTRICAL

- A. Any electrical installations shall be accomplished under the direction of a Licensed Electrician.
- B. The Contractor shall furnish and install a portable ground fault circuit interrupters (GFCI) including the following:
 - 1. All circuits individually GFCI-protected.
 - 2. Components UL listed
- C. The Contractor shall not use existing electrical outlets within the regulated area:
- D. The Contractor will supply temporary lighting for all asbestos removal work areas.
- F. The Owner will furnish electrical power for the project.

PART 3 - EXECUTION

3.1 WORKER PROTECTION

- A. General:
 - 1. All asbestos abatement removal shall be performed in accordance with 29 CFR 1910.1001, 29 CFR 1926.1101 and State of Connecticut regulations as specified herein. Personnel shall wear and utilize protective clothing and equipment as specified herein. Eating, smoking, drinking, chewing gum, or applying cosmetics shall not be permitted in the asbestos control area. Personnel of other trades not engaged in the removal of asbestos shall not be allowed in the work area unless all the personnel protection provisions of this Specification are complied with by the trade personnel.
 - 2. Engineering controls shall be used to minimize airborne fiber concentrations within the work area. A combination of personal protective equipment and work practices shall also be used to further reduce employee exposure to asbestos fibers.
 - 3. The Contractor shall provide all authorized visitors with protective clothing, as in the procedures described herein and afford them the use of all facilities to keep them free of contamination from asbestos fibers.
 - 4. The Contractor shall provide the decontamination facility for worker and equipment decontamination as well as the results of the personal air monitoring.

B. Respiratory Protection:

1. The Contractor shall select and provide at no cost to his/her employees respirators, which shall provide adequate protection to the employee as specified by Section 1910.1001(g) Table D-1 and Section 1926.1101(h) Table D-4.
2. Respiratory protection shall be worn by all persons potentially exposed to elevated airborne concentrations of asbestos fibers from the initiation of the asbestos removal project until all areas have been given clearance.
3. At a minimum, the Contractor shall provide half-face air-purifying respirators to all workers at the job site. If it is established, through collection and analysis of personal air samples in accordance with the OSHA Reference Method (ORM) (See U.S. Department of Labor; Occupational Safety and Health Administration; Occupational Exposure to Asbestos; Title 29 CFR 1910.1001, "General Industry Standard." Title 29 CFR 1926.1101, "Construction Standard") that this respiratory protection is inadequate, the Contractor will provide Powered Air Purifying Respirators or Type C (continuous flow or pressure demand) supplied air respirators.
 - a. Once the exposure limits have been established, the respirators presented in 29 CFR 1910.1001 that afford adequate protection at such upper concentrations of airborne asbestos fibers shall be used.
 - b. The minimum personal sampling period shall be seven hours at a flow rate of 0.5 to 2.5 liters per minute. The samples shall be collected within the workers' breathing zone. Personal sampling shall be the responsibility of the Contractor. Personal sampling results shall be available on site no later than 24 hours after sampling.
 - c. The filters provided for both the cartridge respirators and the PAPR's shall be National Institute for Occupational Safety and Health (NIOSH) approved for asbestos fibers.

C. Protective Clothing:

1. The Contractor shall provide to all workers, foreman and superintendents, protective disposable clothing consisting of full body coveralls including head covers.
2. The Contractor shall provide eye protection and hard hats, as required, by job conditions and safety regulations.
3. Reusable footwear, hard hats and eye protection devices shall be left in the "contaminated equipment room" until the end of the asbestos removal work.
4. Upon completion of asbestos removal work, the footwear shall be disposed of as contaminated waste or cleaned thoroughly inside and out using soap and water before removing from work area or from equipment and access area.
5. All disposable protective clothing shall be discarded and disposed of as asbestos waste when the wearer exits from the workspace to the outside through the decontamination facilities.

6. The color of the disposable clothing worn outside the work area shall be a different color than the disposable clothing worn inside the work area.

D. Decontamination Procedures:

1. Each worker and authorized visitor without exception shall, upon entering the job site: remove street clothes in the clean change room and put on an appropriate respirator with new filters, and clean disposable protective clothing before entering the equipment room or the work area, except those workers intending to re-wear previously worn protective clothing stored in the equipment room shall enter the equipment room wearing only respirators.
2. Each time he/she leaves the work area, each worker and authorized visitor shall:
 - a. Vacuum gross contamination from clothing before leaving the work area.
 - b. Proceed to the equipment room and remove all clothing except respirator.
 - c. Still wearing the respirator, proceed unclothed into the showers.
 - d. Clean the outside of the respirator with soap and water while showering.
 - e. Remove filters and wet them and dispose of filters in the container provided for that purpose.
 - f. Wash and rinse the inside of the respirator. After showering, dry off with disposable towels.
3. Following showering and drying off, each worker and authorized visitor shall proceed directly to the clean change room and dress in street clothes at the end of the day's work, or before eating, smoking, or drinking.
4. Contaminated reusable work footwear shall be stored in the equipment room when not in use in the work area. Upon completion of asbestos removal work, footwear shall be disposed of as contaminated waste or cleaned inside and out using soap and water before removing these items from the work area or from the equipment and access area. Contaminated protective clothing shall be placed in receptacles for disposal with other asbestos-contaminated materials.

3.2 WORK AREA PREPARATION

- A. Shut down and/or isolate any heating, cooling, and ventilation air systems or zones to prevent contamination and fiber dispersal to other areas of the structure.
- B. Where necessary, within regulated areas, shut down electrical power, including receptacles and light fixtures. Provide GFCI devices and temporary lighting installed in compliance with the applicable electrical codes if building lighting is not usable per the Owner's request.

- C. Install decontamination system as described below in section 3.3 of these specifications.
- D. Pre-clean and seal off all openings, including, but not limited to, windows, corridors, doorways, ducts, grills, diffusers, and any other penetration of the work area, with polyethylene sheeting a minimum of six (6) mil thick, sealed with duct tape.
- E. Install adequate number of HEPA ventilation units to achieve the required number of at least 4 air changes per hour and exhaust units to the exterior of the building.

3.3 DECONTAMINATION SYSTEM

- A. The Contractor shall establish a decontamination enclosure (decon) contiguous to the work area consisting of equipment room, shower room, and clean room in series. The only access between contaminated and uncontaminated areas shall be through this decontamination enclosure.
- B. Access between rooms in the decontamination system shall be through double-flap curtained openings. The clean room, shower room and the equipment room within the decontamination enclosure shall be completely sealed ensuring that the sole source of airflow through this area originates from uncontaminated areas outside the work area.
- C. Construct the decontamination system with PVC or metal framing and cover all sides with a double layer of six (6) mil polyethylene sheeting, spray glued or taped at the joints.

3.4 MAINTENANCE OF THE WORK AREA

- A. Acceptance of Asbestos Control Area: The Contractor shall not begin removal unless approved by the APM. The control area must be constructed, the decontamination facility prepared and the supplies to be used assembled, barriers properly constructed, openings sealed, and other preparations made to allow the removal operation to proceed. If conditions are not acceptable, the Contractor shall correct deficiencies to comply with the specifications.

3.5 ASBESTOS REMOVAL PROCEDURE – GENERAL

- A. The Contractor shall have a designated "Competent Person" on the job at all times to ensure establishment of a proper enclosure system and proper work practices throughout project.
- B. Spray asbestos materials with amended water using airless spray equipment or apply approved removal wetting agent to reduce the release of fibers during removal operation.
- C. Fill disposal containers as removal proceeds, seal filled containers and wet clean each container thoroughly, double bag and apply caution label.
- D. After completion of stripping work, where needed, all surfaces from which asbestos has been removed shall be wet brushed, using a nylon brush, wet wiped, and sponged or cleaned by an equivalent method to remove all visible material. During this work, the surfaces being cleaned shall be kept wet.

- E. Sealed disposal containers, and all equipment used in the work area, shall be included in the cleanup and shall be removed from work areas via the equipment decontamination enclosure at an appropriate time in the cleaning sequence. All asbestos waste shall be placed in 6-mil polyethylene disposal bags and shall be double bagged in the equipment decontamination enclosure before removal from the site.
- F. At any time during asbestos removal, should contamination of areas outside the work area be suspected, the Contractor shall cause all removal work to stop until the he/she takes steps to decontaminate these areas and eliminate the causes of such contamination. Unprotected individuals shall be prohibited from entering suspected contaminated areas until air sampling and visual inspections certify decontamination.
- G. After completion of the final cleaning procedure, an inspection shall be conducted by the Consultant APM. The inspection shall verify that ACM and residual dust has been removed from the work area.

3.6 ASBESTOS REMOVAL PROCEDURE – “TROWELED” FLOORING MATERIAL

- A. Prior to beginning the removal of any “Troweled” flooring material, remove all movable objects from the work area. If applicable, remove the bookcases, counters, and radiators to access the floor tile and mastic that go underneath those items.
- B. Remove “troweled” flooring material using the following procedure:
 - 1. Remove binding strips, all vinyl cove base, or other restrictive molding from doorways, walls, etc. clean and dispose of as demolition waste unless contaminated with ACMs. Dispose of any materials that have “troweled” flooring material on them as asbestos-containing waste. The contractor may have to perform selective destructive demolition, such as removing partition walls, to access the tile.
 - 2. Wet the floor with amended water, removal encapsulant, or detergent solution, so that entire surface is wet. Do not allow puddle or run off to other areas. If a removal encapsulant is used, use in strict accordance with manufacturer's instructions. If necessary, cover with sheet polyethylene to allow humidity to release tiles from floor. Allow time for humidity and water or removal encapsulant to loosen the material prior to removal.
 - 3. Keep floor continuously wet throughout removal operation.
 - 4. Remove material using a manual or powered spade or stripping/grinding machine. Continuously mist floor in area where machine is working with amended water, removal encapsulant or detergent solution. Wet any debris generated as necessary to keep continuously wet. Keep floor where material has been removed continuously wet until after completion of heavy adhesive residue removal.
 - 5. “Troweled” flooring materials may be removed via mechanical means such as shot-blasting or hand grinding.
 - 6. In areas where material has been applied to a wood or similar porous sub-flooring, such material shall be removed and disposed of as asbestos containing waste.

C. Debris and Waste

1. Place flooring debris in lined boxes or place in labeled disposal bags. At the Contractor's option tiles may be placed directly into durable leak-tight containers.
2. Shovel loose material and/or debris into nylon reinforced bags that are placed in a disposal bag, or place directly in leak-tight drums.
3. Place bagged waste in a second disposal bag during decontamination and dispose of as asbestos waste.

D. After completion of all ACM removal work, the Contractor shall conduct final cleaning.

3.7 CONSULTANT AND SUSPENSION OF WORK

- A. The Owner will designate an Asbestos Consultant to perform the duties of the for this Contract. The Consultant may also act as the APM for the project.
- B. The removal work shall be reviewed by the Consultant. The Contractor will request an inspection at least 24 hours in advance of requiring the inspection.
- C. The Consultant will recommend that the Owner order a suspension of work based on a determination of risk of adverse health and safety impacts on the environment, workers, or the general public, or failure to comply with the Specifications/regulations. The Contractor and the Owner will be notified in writing of the reason and of the recommended resolution.
- D. During the progress of the work, the Consultant, following approval by the Owner, shall have the right to make any changes, alterations, additions or omissions in the work or Specifications in accordance with the General Conditions.
- E. The Consultant will provide visual inspection services throughout the Contract's duration. It shall be the Contractor's responsibility to comply with pertinent work standards and regulations.
- F. The Consultant will conduct visual observations and perform inspections in the work area for evaluating that the work area remains properly secured and isolated and specified work items are properly completed. Upon completion of work in a defined work area, the Consultant will conduct a final visual inspection for the purpose of evaluating work completion. Unsatisfactory conditions shall be immediately corrected in a manner specified by the Consultant and the contract documents. Final payments shall be approved only after the Owner receives all properly completed Waste Shipment Record Forms and other required documentation and records.

3.8 CONSULTANTS' AIR SAMPLING RESPONSIBILITIES

- A. Air sampling may be conducted by the Consultant to ascertain the integrity of controls that protect the building from asbestos contamination. Independently, the Contractor shall monitor air quality within the work area to ascertain the protection of employees and to comply with OSHA regulations.
- B. Consultant's APM may collect air samples during the following time periods:

1. Pre-Abatement Period: The APM may collect samples prior to abatement work to establish baseline readings. These samples will be collected in and around the proposed work areas. Pre-abatement air samples shall be collected as required to obtain a volume of 1,200 liters. Pre-abatement and during abatement Samples shall be analyzed by PCM methodology using the NIOSH 7400 protocol.
 2. Abatement Period: The APM may collect samples when onsite on a daily basis during the work period. A sufficient number of area samples shall be taken outside of the work area to judge the degree of cleanliness or contamination of the building during removal. Additional samples may be taken inside the work area at the discretion of the APM.
 3. Post-Abatement Period: As required by regulation, the APM shall conduct air sampling following the final cleanup phase of the project, once the "no visible residue" criterion, as established by the APM, has been met. Five (5) samples shall be collected inside the work area utilizing aggressive methods to comply with the State of Connecticut Department of Public Health Standards for Asbestos Abatement, sections 19a-332a-12, and 19a-332a-13 and United States Environmental Protection Agency (USEPA) Asbestos-Containing Materials in Schools regulation 40 CFR Part 763. Analysis of the samples to determine airborne concentrations of asbestos shall be conducted by Transmission Electron Microscopy (TEM) method, for areas greater than 160 square feet or 260 linear feet, to show that the concentration of fibers for the average of the five (5) samples is less than or equal to a limit of quantitation for TEM – less than 70 structures per millimeter squared ($<70\text{s/mm}^2$) of air in accordance with the above regulations.
- C. The APM may provide ongoing evaluation of the air quality within the building during removal, using his/her best professional judgments with respect to the State of Connecticut Department of Public Health guideline of 0.010 fibers/cc and the background air quality established during the pre-abatement period.
- D. If the APM determines that the building air quality has become contaminated from the project, he/she shall immediately inform the Contractor to cease all removal operations and implement a work stoppage clean up procedure. The Contractor shall conduct a thorough cleanup of the areas of the building designated by the Consultant. No further removal work can take place until the APM has assessed that the building air has been decontaminated.
- E. Air samples shall be collected as required and shall be analyzed by TEM methodology using the AHERA 40 CFR, Part 763 protocol.

3.9 CONSULTANT'S INSPECTION RESPONSIBILITIES

- A. Inspections shall be conducted by the APM as required, throughout the progress of the abatement project. Inspections shall be conducted in order to document the progress of the abatement work as well as the procedures and practices employed by the Contractor.
- B. The APM shall perform the following inspections during the course of abatement activities:
1. Pre-commencement Inspection. Pre-commencement inspections shall be performed at the time requested by the Contractor. The APM shall be informed sufficiently in advance of the time the inspection is needed. During the course of the pre-commencement inspection, the APM shall inspect the containment and surrounding

work areas. This shall include, but not be limited to, inspection of barrier integrity, worker decontamination facility, utilization of power sources, and location and capacity of negative air filtration devices. If, during the course of the pre-commencement inspection, deficiencies are found, the Contractor shall perform the necessary adjustments in order to obtain compliance.

2. Work Area Inspections. Work area inspections may be conducted on a daily basis at the discretion of the Owner/Consultant. During the course of the work inspections, the APM shall observe the Contractor's removal procedures, verify barrier integrity, monitor negative air filtration devices, assess project progress, and inform the Contractor of specific remedial activities if deficiencies are noted.
3. Pre-sealant Final Visual Inspection. A pre-sealant inspection for the regulated area shall be conducted by the APM upon the request of the Contractor. The pre-sealant inspection shall be conducted after completion of the cleaning procedures. The pre-sealant inspection shall verify that no visible ACM or residual debris remain in the work area. If, during the course of the pre-sealant inspection, the APM identifies visible residual ACM or debris, the Contractor shall re-clean the work area until it is deemed acceptable by the APM.

3.10 WASTE DISPOSAL

- A. All waste material shall be promptly wetted and placed in 6-mil polyethylene bags or wrapped in two layers of 6-mil polyethylene plastic sheeting as it is generated. A sufficient number of waste bags and/or plastic sheeting shall be located in the immediate work area (unused bags in the equipment room of the decontamination facility must be disposed of as contaminated waste). The Contractor shall count or measure the volume of each filled container leaving the work area, and maintain a written record of such.
- B. Warning labels, having waterproof print and permanent adhesive, shall be affixed to the sides of all waste bags or transfer containers. Warning labels shall be conspicuous and legible, and contain the following words in accordance with OSHA 1926.1101:

DANGER
CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

In addition to the above, affix 'waste generator label' to include the generator's name and address on each waste container. Waste transport vehicles will have appropriate U.S. Department of Transportation signage on them for transportation of asbestos waste materials.

- C. A fine water spray shall be used to keep the unbagged or unwrapped waste wet at all times.
- D. Sealed waste shall be removed from the work area and stored in an on-site, enclosed and lockable dumpster or transported to the landfill. The temporary storage dumpster area shall be prominently identified and be kept locked.

- E. Once a truckload of waste containers has accumulated, the Contractor shall arrange for transportation to the landfill. No temporary co-mingling of asbestos waste from this project with that from another site will be allowed.
- F. Waste Transportation and Disposal Regulations:
 - 1. It is the responsibility of the Contractor to determine and ensure compliance with the current waste handling regulations applicable to the work site and the current regulations for waste transportation to and disposal at each ultimate landfill. The Contractor shall comply fully with these regulations and with all U.S. Department of Transportation, EPA, and State of Connecticut Department of Environmental Protection (DEP) requirements.
 - 2. If required, the Contractor (or Subcontractor), at no additional cost, shall maintain a valid hazardous waste transporter's permit and identification number, and document and fully comply with any hazardous waste manifesting requirements.
- G. Waste Disposal Procedure:
 - 1. The Contractor shall incorporate in his/her proposal the estimated quantity of asbestos waste disposal to be generated during the work; the proposed final waste site; the estimated number of separate waste shipments (loads), and the current estimated transportation and landfill disposal fees (per cubic yard). Non-contaminated waste transport and disposal shall be solely the Contractor's responsibility. The Contractor shall review each of these items and resolve any discrepancies or deficiencies during the pre-construction site meeting.
 - 2. The Contractor shall package, label, and remove all asbestos waste as specified in the specifications. Packaging shall be accomplished in a manner that minimizes waste volume, but so that waste containers will not tear or break.
 - 3. The Contractor shall provide legal transportation of this waste to the ultimate disposal landfill; and have the waste hauler and the landfill owner complete all other required manifests, dump slips, or other forms. The completed and fully signed (by all required parties) original of the Waste Shipment Record, and copies of the other forms, shall be returned within thirty (30) calendar days to the Consultant for payment approval. No payments will be approved, or made for incomplete Waste Shipment Records.
 - 4. All disposal of asbestos-containing and/or asbestos-contaminated material must be in compliance with requirements of and authorized by the Solid Waste Management Division, State of Connecticut Department of Energy and Environmental Protection.
- H. Waste Disposal Fees:
 - 1. All Contractor contaminated waste handling costs, such as waste packaging, on-site/off-site storing/handling, transport/disposal, permitting, record keeping, and non-contaminated waste handling must be included in the Contractor's proposal as applicable to removal of asbestos materials and/or performance of the related removal activities.

3.11 PROJECT RESTORATION

A project walk-through shall be conducted, by the Owner or Owner's Consultant (upon the Owners request), after the removal portion of the project to identify areas or equipment damaged during the work. If the Owner determines that the damage is caused by acts or omissions of the Contractor, a punch list shall be developed. The Contractor shall be responsible for repair or replacement, or at the discretion of the Owner, payment for the work of another Contractor to complete the punch list. A second walk through shall be conducted after completion of punch list items.

END OF SECTION

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME _____ DATE _____
PROJECT ADDRESS _____
CONTRACTOR'S NAME _____

WORKING WITH ASBESTOS CAN BE DANGEROUS. INHALING ASBESTOS FIBERS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCER. IF YOU SMOKE AND INHALE ASBESTOS FIBERS THE CHANCE THAT YOU WILL DEVELOP LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract with the Owner for the above project requires that: You be supplied with the proper respirator and be trained in its use. You be trained in safe work practices and in the use of the equipment found on the job. You receive a medical examination. These things are to have been done at no cost to you.

RESPIRATORY PROTECTION: You must have been trained in the proper use of respirators, and informed of the type respirator to be used on the above referenced project. You must be given a copy of the written respiratory protection manual issued by your employer. You must be equipped at no cost with the respirator to be used on the above project.

TRAINING COURSE: You must have been trained in the dangers inherent in handling asbestos and breathing asbestos dust and in proper work procedures and personal and area protective measures. The topics covered in the course must have included the following:

- Physical characteristics of asbestos
- Health hazards associated with asbestos
- Respiratory protection
- Use of protective equipment
- Pressure Differential Systems
- Work practices including hands on or on-job training
- Personal decontamination procedures
- Air monitoring, personal and area

MEDICAL EXAMINATION: You must have had a medical examination within the past 12 months at no cost to you. This examination must have included: health history, pulmonary function tests and may have included an evaluation of a chest x-ray.

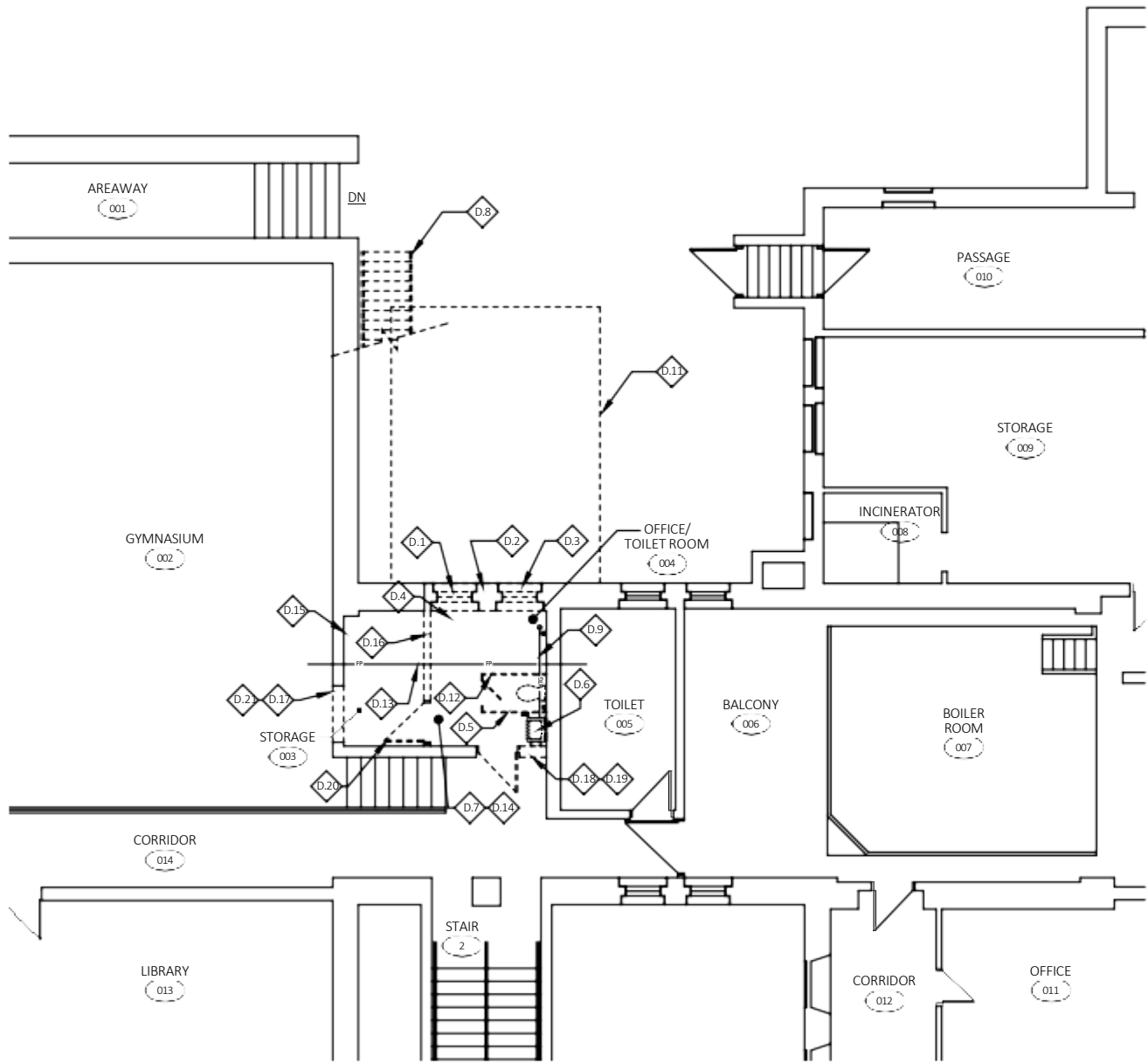
By signing this document, you are acknowledging only that the Owner of the building you are about to work in has advised you of your obligation to training and protection relative to your employer, the Contractor.

Signature _____

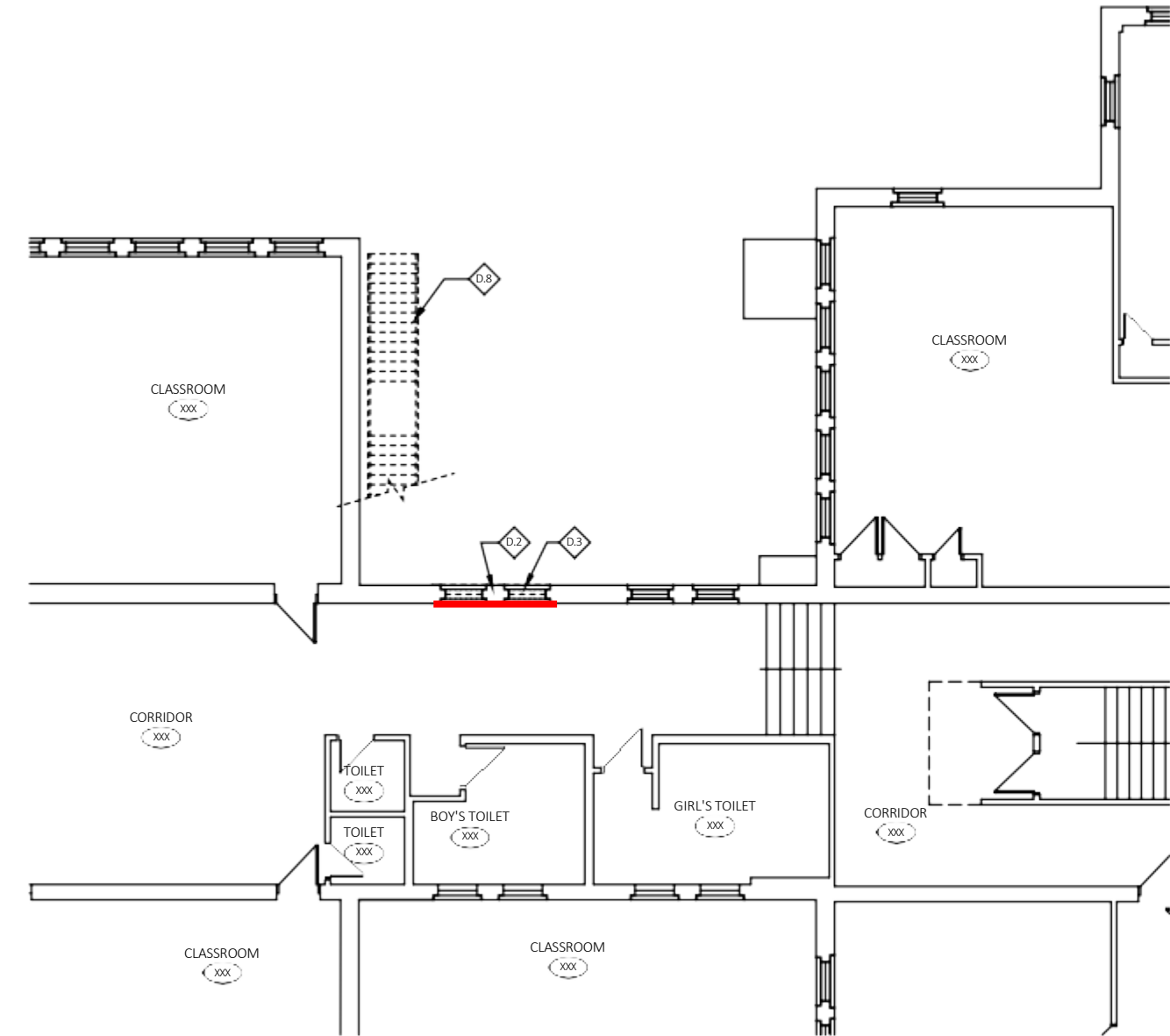
Social Security # _____

Printed

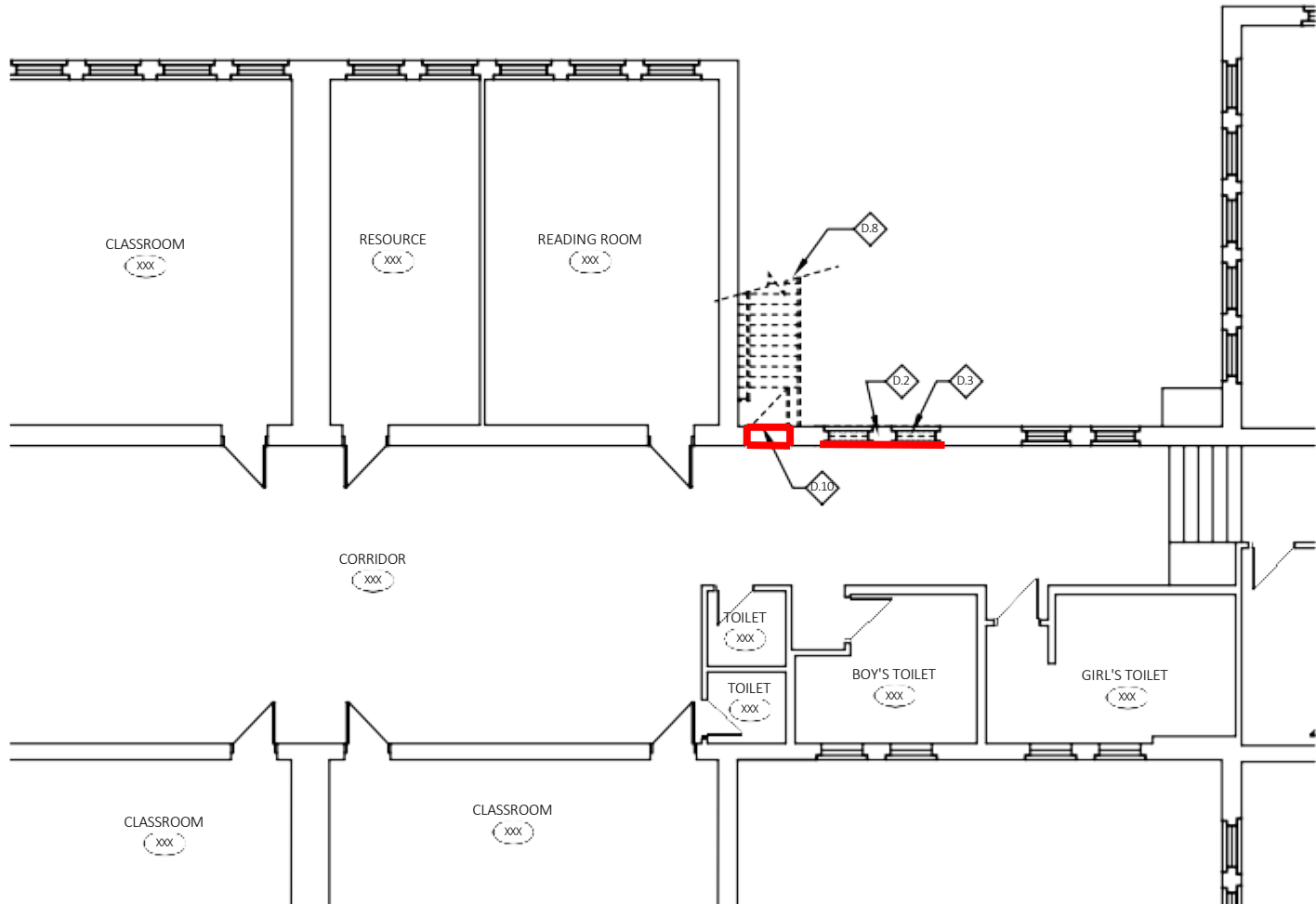
Name _____ Witness _____



BASEMENT FLOOR DEMO PLAN
SCALE: 1/8"=1'-0"



FIRST FLOOR DEMO PLAN
SCALE: 1/8"=1'-0"



SECOND FLOOR DEMO PLAN
SCALE: 1/8"=1'-0"

DEMOLITION NOTES

- D.1 DEMO AND REMOVE EXISTING EXHAUST FAN AND WIRING.
- D.2 DEMO AND REMOVE EXISTING WALL ASSEMBLY. PREP FOR INFILL (TYPICAL)
- D.3 DEMO AND REMOVE EXISTING WINDOW ASSEMBLY INCLUDING GRANITE SILL, GRANITE HEADER, JAMB AND TRIM. PREP FOR INFILL (TYPICAL)
- D.4 DEMO AND REMOVE EXISTING CEILING MOUNTED CAST IRON RADIATOR. REMOVE EXISTING SUPPLY AND RETURN PIPING AND CAP OFF.
- D.5 DEMO AND REMOVE EXISTING TOILET PARTITIONS.
- D.6 DEMO AND REMOVE EXISTING LAVATORY, WATER CLOSET AND ASSOCIATED PIPING. CAP AS REQUIRED. INCLUDE REMOVAL OF EXISTING MIRROR AND TOILET ACCESSORIES.
- D.7 DEMO AND REMOVE EXISTING FLOOR TILE AND PREP FOR NEW FLOOR.
- D.8 DEMO AND REMOVE EXISTING EXTERIOR EMERGENCY STAIRCASE.
- D.9 EXISTING HEATING PIPING TO REMAIN.
- D.10 DEMO AND REMOVE EXISTING DOOR, HOLLOW METAL FRAME AND ALL ASSOCIATED TRIM AND HARDWARE. PREP FOR NEW INFILL.
- D.11 DEMO AND REMOVE EXISTING BITUMINOUS. PREP AREA FOR NEW FOUNDATION. SEE CIVIL DRAWINGS FOR FURTHER INFORMATION.
- D.12 DEMO AND REMOVE EXISTING LIGHT FIXTURE AND ALL ASSOCIATED WIRING. PREP FOR NEW LIGHTING.
- D.13 DEMO AND REMOVE EXISTING SPRINKLER HEADS. PREP FOR INSTALLATION OF NEW SPRINKLER HEADS. (TYPICAL)
- D.14 REMOVE EXISTING FINISHES AND PREP CEILING FOR NEW INSTALLATION.
- D.15 REMOVE EXISTING FINISHES FROM WALLS AND PREP FOR NEW FINISHES. TYPICAL ALL WALLS.
- D.16 DEMO AND REMOVE EXISTING GYPSUM WALL.
- D.17 DEMO AND REMOVE EXISTING MASONRY WALL. PREP FOR NEW OPENING.
- D.18 DEMO AND REMOVE EXISTING MASONRY WALL. PREP FOR INFILL.
- D.19 DEMO AND REMOVE EXISTING HOLLOW METAL FRAME, WOOD DOOR AND ASSOCIATED HARDWARE. TURN OVER TO OWNER.
- D.20 DEMO AND REMOVE EXISTING INTERIOR METAL DOOR, HOLLOW METAL FRAME AND ASSOCIATED HARDWARE. TURN OVER TO OWNER.
- D.21 DEMO AND REMOVE ALL ITEMS ASSOCIATED WITH 17, INCLUDING, BUT NOT LIMITED TO WOOD FRAMEWORK, ELECTRICAL AND AUDIO.

HAZARDOUS MATERIAL NOTES

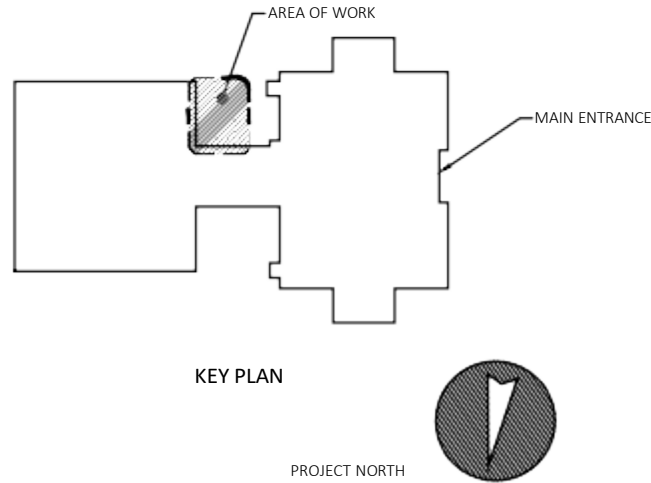
ALL DEMOLITION WORK IS TO BE PERFORMED IN ACCORDANCE WITH AN APPROVED ASBESTOS WORK PLAN FROM THE STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH, UNDER CONTAINMENT WITH A PRESSURE DIFFERENTIAL AND CONTIGUOUS DECONTAMINATION UNITS. REFER TO HAZARDOUS MATERIAL TESTING AND REPORTS IN REGARD TO THE EXISTING BUILDING.

GENERAL DEMOLITION NOTES

- ANY DEMOLITIONWORK THAT IS REQUIRED FOR THE INSTALLATION OF NEW WORK THAT IS NOT SPECIFICALLY NOTED ON THIS PLAN, SHALL BE THE RESPONSIBILITY OF THE DEMOLITION CONTRACTOR.
- DEMOLISHED MATERIAL SHALL BE CONSIDERED TO BE THE PROPERTY OF THE CONTRACTOR AND SHALL BE COMPLETELY REMOVED FROM THE JOB SITE.
- SHUT OFF, CAP AND OTHERWISE PROTECT EXISTING PUBLIC UTILITY LINES IN ACCORDANCE WITH THE REQUIREMENTS OF THE PUBLIC AGENCY HAVING JURISDICTION.
- COMPLETELY REMOVE ITEMS SCHEDULED TO BE DEMOLISHED, LEAVING SURFACES CLEAN, SOLID AND READY TO RECEIVE NEW MATERIAL.
- USE MEANS NECESSARY TO PREVENT DUST FROM BECOMING A NUISANCE.
- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL NATIONAL, STATE, LOCAL CODES AND ORDINANCES.
- AT THE START OF DEMOLITION, ALL REMAINING FURNITURE TO BE REMOVED BY THE GENERAL CONTRACTOR.
- DEMOLITION CONTRACTOR MUST VERIFY LOCATIONS OF ALL EXISTING STRUCTURAL, MECHANICAL, PLUMBING AND ELECTRICAL ELEMENTS PRIOR TO THE START OF DEMOLITION.
- REMOVE ALL INTERIOR WALLS SHOWN DOTTED, ALONG WITH ALL ASSOCIATED TACK BOARDS, CHALK BOARDS, MARKER BOARDS, ETC. EXERCISE CAUTION SO AS NOT TO DISTURB OR DAMAGE ADJACENT SURFACES TO REMAIN.
- REMOVE ALL DOORS AND DOOR FRAMES SHOWN IN FULLY DEMOLISHED PARTITION ONLY, UNLESS NOTED OTHERWISE.
- REMOVE ALL ELECTRICAL LIGHTING FIXTURES, ELECTRICAL RUNS, ASSOCIATED DEVICES AND ELECTRICAL PANELS. REFER TO ELECTRICAL DEMOLITION DRAWINGS FOR RELATED INFORMATION.
- REMOVE ALL FLOOR FINISHES, ADHESIVES, MASTICS AND MORTAR, ETC DOWN TO FINISH CONCRETE FLOORS SCHEDULED TO REMAIN. TREAT EXISTING CONCRETE SLAB SCARIFICATION TREATMENT AND CEMENTITIOUS UNDERLAYMENT PROCEDURES. COORDINATE WORK WITH HAZARDOUS MATERIALS BUILDING INSPECTION REPORT. PREP FLOORS TO RECEIVE NEW FINISHES.
- REMOVE ALL CEILING GRIDS, GYPSUM CEILING AND SUSPENSION SYSTEMS AT ALL AREAS WHERE NEW CEILINGS ARE SCHEDULED. REFER TO REFLECTED CEILING DEMO PLANS FOR EXISTING CONDITIONS.
- THE DEMOLITION PLANS ARE DIAGRAMMATIC AND ARE INTENDED TO SHOW THE GENERAL EXTENT OF THE WORK ONLY.
- THE CONTRACTOR SHALL INCLUDE ALL DEMOLITION WORK REQUIRED TO ACCOMPLISH THE INTENT OF THE PLANS AND SPECIFICATIONS.
- ALL DEMOLISHED ITEMS SHALL BE REMOVED FROM THE BUILDING/SITE UNLESS OTHERWISE NOTED. COORDINATE WITH THE OWNER FOR DELIVERY OF ITEMS NOTED TO REMAIN OWNERS PROPERTY. THE PROJECT SITE/BUILDING SHALL BE CLEANED OF DEBRIS ON A DAILY BASIS. GENERAL CONTRACTOR WILL COORDINATE AND INSTRUCT WHICH ITEMS ARE TO REMAIN. SECURE, STORE AND PROTECT ITEMS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHORING AND SUPPORT (TEMPORARY OR PERMANENT) FOR ALL PORTIONS OF CONSTRUCTION DURING DEMOLITION AND CONSTRUCTION.
- ALL ABANDONED MECHANICAL/ELECTRICAL/PLUMBING/FIRE PROTECTION LINES SHALL BE REMOVED TO THE MAIN SOURCE, CAPPED OFF BEHIND FINISHES, UNLESS OTHERWISE NOTED. REFER TO MECHANICAL/ELECTRICAL/PLUMBING/FIRE PROTECTION DRAWINGS FOR ADDITIONAL DEMO INFORMATION.
- SAWCUT ALL MASONRY OR CONCRETE OPENINGS INDICATED. MASONRY SHALL BE TOOTHED IN AND/OR RETURNED TO FINISH OPENING. ALL OPENINGS WHERE EXISTING CONSTRUCTION HAS BEEN REMOVED AND WHICH ARE NOT NOTED TO REMAIN, SHALL BE FILLED AND/OR PATCHED TO MATCH THE ADJACENT EXISTING OR NEW FINISH, INCLUDING ANY FIRE RATINGS REQUIRED.
- ALL AREAS OF FLOORS, WALLS AND CEILINGS DISTURBED BY DEMOLITION SHALL BE FILLED, PATCHED OR OTHERWISE REFINISHED TO MATCH EXISTING AS DESIGNATED, INCLUDING ALL REQUIRED RATINGS.
- CONTRACTOR MUST VERIFY LOCATIONS OF ALL EXISTING STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL AND FIRE PROTECTION ELEMENTS PRIOR TO THE START OF DEMOLITION.
- EXISTING CONDITIONS SHALL BE STUDIED BY GENERAL CONTRACTOR PRIOR TO BIDDING TO FAMILIARIZE THEMSELVES WITH THE BUILDING.

Legend

ACM



DATE:	4/25/2023
DRAWN BY:	RS/JDM
SCALE:	1/8" = 1'-0"
REVIEWED BY:	JMY
PROJECT NO.	2021-091A
	(D1.1) DEMO

REVIEWS	
NO.	DATE
	DESCRIPTION

DEMOLITION PLANS
BASEMENT, 1ST AND 2ND FLOORS

STATE PROJECT NO. XXX-XXEA
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

ARCHITECT'S SEAL



SHEET NO.
D1.1

PCB REMEDIATION TECHNICAL SPECIFICATIONS

1 PART 1 – GENERAL

As referred to in these Specifications the Project Owner is Waterbury Board of Education, the Project Architect Friar Architecture, Inc., and the Project Engineer has not been determined at this time.

1.1 RELATED DOCUMENTS

No related documents are available.

1.2 DEFINITIONS

The following definitions as used within this technical specification as well as references to specific sections of the Code of Federal Regulation section 40 CRF Part 761 are provided. Definitions are extracted in part from 40 CFR Part 761.3, for full definitions refer to the specified section of regulations.

1. Bulk PCB Remediation Waste means waste containing PCBs as a result of a spill, release, or other unauthorized disposal, at the following concentrations: Materials disposed of prior to April 18, 1978, that are currently at concentrations ≥ 50 mg/kg PCBs, regardless of the concentration of the original spill; materials which are currently at any volume or concentration where the original source was ≥ 500 mg/kg PCBs beginning on April 18, 1978, or ≥ 50 mg/kg PCBs beginning on July 2, 1979; and materials which are currently at any concentration if the PCBs are spilled or released from a source not authorized for use under this part. PCB remediation waste means soil, rags, and other debris generated as a result of any PCB spill cleanup, as further defined in 40 CFR §761.3.
2. CERCLA means the Comprehensive Environmental Response, Compensation, and Liability Act (42 U.S.C. 9601-9657).
3. Chemical waste landfill means a landfill at which protection against risk of injury to health or the environment from migration of PCBs to land, water, or the atmosphere is provided from PCBs and PCB Items deposited therein by locating, engineering, and operating the landfill as specified in §761.75.
4. Cleanup Site means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of a cleanup of PCB remediation waste, regardless of whether the site was intended for management of waste.
5. Containment means the enclosure within the building which establishes a contaminated area and surrounds the location where PCB and/or other toxic or hazardous substance removal is taking place and establishes a Control Work Area.
6. Designated Facility means the off-site disposer or commercial store of PCB waste designated on the manifest as the facility that will receive a manifested shipment of PCB waste.
7. Disposal means intentionally or accidentally to discard, throw away, or otherwise complete or terminate the useful life of PCBs and PCB Items. Disposal includes spills, leaks, and other uncontrolled discharges of PCBs as well as actions related to containing, transporting, destroying, degrading, decontaminating, or confining PCBs and PCB Items.

8. DOT means the United States Department of Transportation.
9. EPA identification number means the 12-digit number assigned to a facility by EPA upon notification of PCB waste activity under §761.205.
10. Excluded PCB products means PCB materials which appear at concentrations less than 50 mg/kg as defined in 40 CFR §761.3.
11. Fixed Object: means mechanical equipment, electrical equipment, fire detection systems, alarms, and all other fixed equipment, fixtures or other items which cannot be removed from the work area.
12. Generator of PCB waste means any person whose act or process produces PCBs that are regulated for disposal under subpart D of 40 CFR Part 761, or whose act first causes PCBs or PCB Items to become subject to the disposal requirements of subpart D, or who has physical control over the PCBs when a decision is made that the use of the PCBs has been terminated and therefore is subject to the disposal requirements of subpart D. Unless another provision of 40 CFR Part 761 specifically requires a site-specific meaning, “generator of PCB waste” includes all of the sites of PCB waste generation owned or operated by the person who generates PCB waste.
13. HEPA: High Efficiency Particulate Air filtration efficiency of 99.97 percent down to 0.3 microns. Filtration provided on specialized vacuums and air filtration devices to trap particles.
14. High occupancy area means any area where PCB remediation waste has been disposed of on-site and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is: 840 hours or more (an average of 16.8 hours or more per week) for non-porous surfaces and 335 hours or more (an average of 6.7 hours or more per week) for bulk PCB remediation waste. Examples could include a residence, school, day care center, sleeping quarters, a single or multiple occupancy 40 hours per week work station, a school class room, a cafeteria in an industrial facility, a control room, and a work station at an assembly line.
15. Incinerator means an engineered device using controlled flame combustion to thermally degrade PCBs and PCB Items. Examples of devices used for incineration include rotary kilns, liquid injection incinerators, cement kilns, and high temperature boilers.
16. Laboratory means a facility that analyzes samples for PCBs and is unaffiliated with any entity whose activities involve PCBs.
17. Liquid PCBs means a homogenous flowable material containing PCBs and no more than 0.5 percent by weight non-dissolved material.
18. Low occupancy area means any area where PCB remediation waste has been disposed of on-site and where occupancy for any individual not wearing dermal and respiratory protection for a calendar year is: less than 840 hours (an average of 16.8 hours per week) for non-porous surfaces and less than 335 hours (an average of 6.7 hours per week) for bulk PCB remediation waste. Examples could include an electrical substation or a location in an industrial facility where a worker spends small amounts of time per week (such as an unoccupied area outside a building, an electrical equipment vault, or in the non-office space in a warehouse where occupancy is transitory).
19. Manifest means the shipping document EPA form 8700–22 and any continuation sheet attached to EPA form 8700–22, originated and signed by the generator of PCB waste in accordance with the instructions included with the form and subpart K of this part.

20. Mark means the descriptive name, instructions, cautions, or other information applied to PCBs and PCB Items, or other objects subject to these regulations.
21. Marked means the marking of PCB Items and PCB storage areas and transport vehicles by means of applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets the requirements of these regulations.
22. Municipal solid wastes means garbage, refuse, sludges, wastes, and other discarded materials resulting from residential and non-industrial operations and activities, such as household activities, office functions, and commercial housekeeping wastes.
23. Non-liquid PCBs means materials containing PCBs that by visual inspection do not flow at room temperature (25°C or 77°F) or from which no liquid passes when a 100 g or 100 ml representative sample is placed in a mesh number 60 ±5 percent paint filter and allowed to drain at room temperature for 5 minutes.
24. Non-porous surface means a smooth, unpainted solid surface that limits penetration of liquid containing PCBs beyond the immediate surface. Examples are: smooth un-corroded metal, natural gas pipe with a thin porous coating originally applied to inhibit corrosion, smooth glass, smooth glazed ceramics, impermeable polished building stone such as marble or granite, and high density plastics such as polycarbonates and melamines that do not absorb organic solvents.
25. On site means within the boundaries of a contiguous property unit.
26. PCB and PCBs means any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance. Refer to §761.1(b) for applicable concentrations of PCBs. PCB and PCBs as contained in PCB items are defined in §761.3. For any purposes under this part, inadvertently generated non-Aroclor PCBs are defined as the total PCBs calculated following division of the quantity of mono-chlorinated biphenyls by 50 and di-chlorinated biphenyls by 5.
27. PCB Article means any manufactured article, other than a PCB Container, that contains PCBs and whose surface(s) has been in direct contact with PCBs. “PCB Article” includes capacitors, transformers, electric motors, pumps, pipes and any other manufactured item (1) which is formed to a specific shape or design during manufacture, (2) which has end use function(s) dependent in whole or in part upon its shape or design during end use, and (3) which has either no change of chemical composition during its end use or only those changes of composition which have no commercial purpose separate from that of the PCB Article.
28. PCB Article Container means any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB Articles or PCB Equipment, and whose surface(s) has not been in direct contact with PCBs.
29. PCB Bulk Product Waste means waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration where the concentration at the time of designation for disposal is ≥50 mg/kg PCBs. PCB bulk product waste does not include PCBs or PCB Items regulated for disposal under §761.60(a) through (c), §761.61, §761.63, or §761.64. PCB bulk product waste is further defined in 40 CFR §761.3.
30. PCB Capacitor means any capacitor that contains ≥500 mg/kg PCB. Concentration assumptions applicable to capacitors appear under §761.2.

31. PCB Container means any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB Articles and whose surface(s) has been in direct contact with PCBs.
32. PCB-Contaminated means a non-liquid material containing PCBs at concentrations ≥ 50 mg/kg but < 500 mg/kg; a liquid material containing PCBs at concentrations ≥ 50 mg/kg but < 500 mg/kg or where insufficient liquid material is available for analysis, a non-porous surface having a surface concentration > 10 $\mu\text{g}/100$ cm^2 but < 100 $\mu\text{g}/100$ cm^2 , measured by a standard wipe test as defined in §761.123.
33. PCB Equipment means any manufactured item, other than a PCB Container or a PCB Article Container, which contains a PCB Article or other PCB Equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures.
34. PCB Item means any PCB Article, PCB Article Container, PCB Container, PCB Equipment, or anything that deliberately or unintentionally contains or has as a part of it any PCB or PCBs.
35. PCB waste(s) means those PCBs and PCB Items that are subject to the disposal requirements of subpart D in 40 CFR Part 761.
36. Porous surface means any surface that allows PCBs to penetrate or pass into itself including, but not limited to, paint or coating on metal; corroded metal; fibrous glass or glass wool; unglazed ceramics; ceramics with a porous glaze; porous building stone such as sandstone, travertine, limestone, or coral rock; low-density plastics such as Styrofoam and low-density polyethylene; coated (varnished or painted) or uncoated wood; concrete or cement; plaster; plasterboard; wallboard; rubber; fiberboard; chipboard; asphalt; or tar paper. For purposes of cleaning and disposing of PCB remediation waste, porous surfaces have different requirements than non-porous surfaces.
37. RCRA means the Resource Conservation and Recovery Act (40 U.S.C. 6901 et seq.).
38. Standard wipe sample means a sample collected for chemical extraction and analysis using the standard wipe test as defined in §761.123. Except as designated elsewhere in part 761, the minimum surface area to be sampled shall be 100 cm^2 .
39. Storage for disposal means temporary storage of PCBs that have been designated for disposal.
40. SW-846 means the document having the title “SW-846, Test Methods for Evaluating Solid Waste,”
41. Totally enclosed manner means any manner that will ensure no exposure of human beings or the environment to any concentration of PCBs.
42. Transfer facility means any transportation-related facility including loading docks, parking areas, and other similar areas where shipments of PCB waste are held during the normal course of transportation. Transport vehicles are not transfer facilities under this definition, unless they are used for the storage of PCB waste, rather than for actual transport activities. Storage areas for PCB waste at transfer facilities are subject to the storage facility standards of §761.65, but such storage areas are exempt from the approval requirements of §761.65(d) and the recordkeeping requirements of §761.180, unless the same PCB waste is stored there for a period of more than 10 consecutive days between destinations.
43. Transporter of PCB waste means, for the purposes of subpart K of 40 CFR Part 761, any person engaged in the transportation of regulated PCB waste

- by air, rail, highway, or water for purposes other than consolidation by a generator.
44. Transport vehicle means a motor vehicle or rail car used for the transportation of cargo by any mode. Each cargo-carrying body (e.g., trailer, railroad freight car) is a separate transport vehicle.
45. TSCA means the Toxic Substances Control Act (15 U.S.C. 2601 et seq.).

1.3 GENERAL REQUIREMENTS

- A. The Remediation Contractor shall furnish all labor, materials, facilities, equipment, installation services, employee training, notifications, permits, licenses, certifications, agreements and incidentals necessary to perform the specified work. Work shall be performed in accordance with the contract documents, the latest regulations from the Occupational Safety and Health Administration (OSHA), the United States Environmental Protection Agency (USEPA), and all other applicable federal, state and local agencies. Whenever the requirements of the above references conflict or overlap, the more stringent provision shall apply.
- B. All project personnel engaged in the work covered under this section shall be trained in accordance with OSHA Regulations 29 CFR 1910.1000 and 29 CFR 1910.1200.
- C. The Remediation Contractor shall provide a Site-Specific Health and Safety Plan and a Project Health and Safety Officer having a minimum of eight (8) hours of supervisor training in hazardous waste site operations in accordance with the requirements of 29 CFR 1910. The supervisor must be on site at all times during abatement work.
- D. This section specifies the procedures for removal of existing suspect materials containing polychlorinated biphenyls (PCB), equal to or greater than (\geq)50 parts per million (mg/kg), in the form of floor tile, associated mastic, and interior window frame caulking, and the disposal of the removed materials as PCB Bulk Product Waste. This section also specifies the procedures for removal of Bulk PCB Remediation Waste including adjacent masonry; and the subsequent cleaning of all adjacent surfaces upon completion of work.
- E. **The quantities given in these specifications are provided to establish the order of magnitude of the abatement project. Actual quantities may vary. The Contractor is responsible for verification of all quantities of PCB containing materials scheduled for removal. This verification shall include an on-site walk-through inspection of the work area.**
- F. The Remediation Contractor shall disclose to all of his workers, supervisory personnel, subcontractors and consultants who will be at job site of the seriousness of the hazard of working with PCB-containing materials and of proper work procedures which must be followed.
- G. Where in the performance of the work, workers, supervisory personnel, subcontractors, or consultants may encounter, disturb or otherwise function in the immediate vicinity of polychlorinated biphenyls (PCB) containing materials, appropriate, continuous measures as necessary to protect all workers from the hazard of exposure shall be taken. Such measures shall include the procedures and methods

described herein, regulations of the U.S. Occupational Safety & Health Administration (OSHA), U.S. Environmental Protection Agency (USEPA), and local requirements as applicable.

- H. **Project Scope Locations and Work Statement:** The project consists of the removal of floor tile (9" and 12") and associated mastic located in Rooms T114, S118, F108, and B105 (~320 square feet/each), glue daubs associated with 1'x1' ceiling tiles located in Rooms T114, S118, F108, B105 (~ 320 square feet/each) and exterior fire escape door frame caulking associated with exits of Rooms T114, S118, F108, and B105 (~ 18 linear feet/each). **Please note that materials may contain asbestos. Please refer to the Asbestos Abatement Specification dated June 16, 2022 for the Bunker Hill School Elevator Project for reference.** The proposed removal and disposal activities to be performed by Remediation Contractor shall include the following:

1. Site preparation and controls to facilitate remediation of PCBs.
2. Health and Safety compliance in accordance with Occupational Safety and Health Administration (OSHA) requirements.
3. Recordkeeping and distribution as required in accordance with 40 CFR part 761.125 (c) (5).
4. PCB Bulk Product Waste Removal.

Pre-removal activities: The interior portion of the building opening shall be decontaminated prior to removal.

PCB-01 Remove the floor tile & associated mastic (~320 ft²/each) and glue daubs associated with 1'x1' ceiling tiles (~320 ft²/each) from Rooms T114, S118, F108, and B105. Materials from Rooms T114, S118, and F108 will be disposed as mixed waste (PCB Bulk Product Waste \geq 50 mg/kg and Asbestos >1%). **Material removed from Room B105 will be disposed as PCB Bulk Product Waste \geq 50 mg/kg.**

PCB-02 Remove the exterior fire escape door frame caulking from the exit doors of Rooms T114, S118, F108, and B105 for disposal as mixed waste (PCB Bulk Product Waste \geq 50 mg/kg and Asbestos >1%)

PCB-03 HEPA vacuum, wet wipe and clean all exposed surfaces that have contacted the mastic and caulking (Capsur, or similar).

- Note: All efforts to perform PCB-01, PCB-02, PCB-03 shall be conducted to prevent cross contamination of PCBs into uncontaminated areas. This shall include the use of:
- protective barriers affixed to the building (walls, ground, etc.) in either interior and exterior areas;
 - HEPA vacuums;

1.4 CONTRACTOR QUALIFICATIONS

- A. All bidders shall submit a record of prior experience on PCB abatement projects, listing all completed jobs in the past 3 years, with projects of similar size and scope. The Contractor shall list the experience and training of the site supervisor and all on-site workers. The information that should be included is as follows:
 - 1. Project Name and Address
 - 2. Owner's Name and Address
 - 3. Consultant
 - 4. Contract Amount
 - 5. Start Date and Completion Date
 - 6. Extras and Change Orders
- B. The Contractor must utilize only individuals that have obtained 40-Hour Hazardous Waste Operations & Emergency Response training to perform this work in addition to all other required training outlined in these specifications.
- C. Submit a written statement regarding whether the Contractor has ever been found out-of-compliance with federal or state asbestos regulations pertaining to worker protection, removal, transport, or disposal.
- D. The Contractor shall obtain and pay for all required permits, and prepare and file all original and amended local, state, and EPA pre-notification forms immediately following award of the work.
- E. The Owner reserves the right to award this Contract to the Contractor who best meets all contractor qualifications and Owner's interests.

1.5 CONTRACTORS USE OF SITE AND PREMISES

- A. Limit use of site and premises as follows:
 - Owner occupancy.
 - Work by Owner.
 - Use of site and premises by public.
- B. Coordinate use of the premises, including use of restroom facilities and utilities under direction of Owner.
- C. Assume full responsibility for protection and safekeeping of products under this Contract.

1.6 WORK SEQUENCE

- A. Work must be performed to accommodate Owner's requirements and work by other trades. Coordinate abatement schedule and operations with the Owner and Consultant. Re-occupancy by owner and other trades shall occur following completion of work by the Contractor and successful clearance sampling by the Consultant.

- B. The Owner may occupy portions of the building for their normal activities during the Work. The Contractor is responsible for creating a plan to accommodate Owner occupancy needs and remaining construction/renovation work.

1.7 OWNER'S OPERATIONS

- A. Schedule the Work to accommodate this requirement.
- B. Maintain means of egress.
- C. Coordinate Work with the Owner and the Fire Marshall.
- D. Maintain the fire alarm and fire detection systems at all times when the building is occupied during construction.
- E. Maintain a permanent means of egress during construction. Provide and maintain a temporary means of egress as required by the Fire Marshall.

1.8 CLEANING

Throughout the construction period, the Contractor shall maintain the building and site free of rubbish, debris, surplus materials, and other items not required for the Work. Remove such materials from the site daily to prevent accumulations. Remove all construction debris from work areas, and remove all hazardous waste and asbestos waste as required by the most current federal, state, and local regulations and the requirements of the specifications.

1.9 EMERGENCY CALLS

- A. The Contractor shall provide the Consultant and Owner with a telephone number where the Contractor or Contractor's Representative can be reached during non-working hours.
- B. At the direction of a duly authorized representative of the Owner, the Contractor may be required to dispatch all necessary personnel and equipment to any point on the work site to clear obstructions or make safe any conditions deemed necessary by the Owner or Consultant.

1.10 ADDITIONAL GENERAL REQUIREMENTS

- A. The Abatement Contractor shall employ an English-speaking competent Supervisor with at least three (3) years experience on projects of similar scope and magnitude who shall be responsible for all work involving asbestos abatement as described in the Specifications and defined in the applicable regulations, and have full-time daily supervision of the same. The Supervisor shall be the "Competent Person" as defined by OSHA regulations. The Contractor shall provide, on-site, at least one English-speaking foreman at all times when work is in progress. The supervisor and foreman must be thoroughly experienced in PCB-containing materials removal work, knowledgeable of all applicable federal, state, and local regulations and capable of skillfully executing all work promptly, efficiently and in compliance with all requirements of these specifications. The Owner reserves the right to have any

supervisory or foreman personnel removed from the project if they do not demonstrate the requisite qualifications.

- B. The Contractor shall allow work performed under this contract to be inspected, if required, by local, state, federal, and any other authorities having jurisdiction over such work. The Contractor shall immediately notify the Owner and Consultant and shall maintain written evidence of such inspection for review by the Owner and Consultant.
- C. The Contractor shall incur the cost of all fines resulting from regulatory non-compliance as issued by federal, state, and local agencies. The Contractor shall incur the cost of all work requirements mandated by federal, state, and local agencies as a result of regulatory non-compliance or negligence.
- D. The Contractor shall immediately notify the Owner and Consultant of the delivery of all permits, licenses, certificates of inspection, approval or occupancy, etc., and any other such instruments required under codes by authorities having jurisdiction, regardless of to who issued, and shall cause them to be displayed to the Owner and Consultant for verification and recording.

1.11 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only. Where a conflict or overlap among regulations and/or these specifications exist, the most stringent requirements shall apply.
 - 1. American National Standards Institute (ANSI)
 - a. ANSI.Z89.1 Personnel Protective Equipment - Protective Headwear for Industrial Worker's Requirements (Latest Revision)
 - b. ANSI.Z87
 - 2. Code of Federal Regulations (CFR)
 - a. 29 CFR Subpart D - Walking, Working Surfaces
 - b. 29 CFR 1910.120 - Hazardous Waste Operations and Emergency Response (HAZWOPER).
 - c. 29 CFR 1910.134 - Respiratory Protection Standard
 - d. 29 CFR 191 0.146 - Permit-Required Confined Spaces
 - e. 29 CFR 1910.1000 - Air Contaminants (Table Z-1)
 - f. 29 CFR 1910.1200 - Hazard Communication
 - g. 29 CFR 1926.20 - General Health and Safety Provisions
 - h. 29 CFR 1926.57 - Ventilation
 - i. 29 CFR 1926.59 - Hazard Communication Program
 - j. 29 CFR 1926.62 - Lead Exposure in Construction
 - k. 29 CFR 1926.95 - Criteria for Personal Protective Equipment
 - l. 29 CFR 1926, Subpart H -Materials Handling, Storage, Use and Disposal
 - m. 29 CFR 1926, Subpart L - Scaffolding
 - n. 29 CFR 1926, Subpart M -Fall Protection
 - o. 29 CFR 1926, Subpart X - Ladders
 - p. 29 CFR 1926, Subpart Z - Toxic and Hazardous Substances

- q. 40 CFR 50.6 - National Primary and Secondary Ambient Air Quality Standards for Particulate Matter
- r. 40 CFR 260 - Hazardous Waste Management System: General
- s. 40 CFR 261 - Identification and Listing of Hazardous Waste
- t. 40 CFR 262 - Standards Applicable to Generators of Hazardous Waste
- u. 40 CFR 263 - Standards Applicable to Transporters of Hazardous Waste
- v. 40 CFR 264 - Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- w. 40 CFR 265 - Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
- x. 40 CFR 268 - Land Disposal Restrictions
- y. 40 CFR 700 - Toxic Substances Control Act (TSCA)
- z. 40 CFR 761- PCBs Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions
- aa. 49 CFR 105 - Hazardous Materials Program Definitions and General Procedures
- ab. 49 CFR 171 - General Information, Regulations and Definitions
- ac. 49 CFR 172 - Hazardous Material Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements
- ad. 49 CFR 173 - Shippers-General Requirements for Shipments and Packaging
- ae. 49 CFR 177 - Carriage by Public Highway
- af. 49 CFR 176 - Specifications for Packaging
- 3. National Institute for Occupational Safety and Health (NIOSH)
 - a. Publication Number 87-106 Respiratory Decision Logic
 - b. NIOSH /OSHA Booklet 3142 Lead in Construction
 - c. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (NIOSH Publication 85-115)
- 4. U.S. Environmental Protection Agency (USEPA), Toxic Substances Control Act (TSCA)
 - a. Polychlorinated Biphenyl (PCB) Site Revitalization Guidance Under the Toxic Substances Control Act
 - b. 40 CFR Part 761.50 - Applicability (b) (1-8)
 - c. 40 CFR Part 761.61 - PCB Remediation Waste
 - d. 40 CFR Part 761.62 - PCB Bulk Product Waste
 - e. 40 CFR Part 761.79 - Decontamination
- 5. Center for Disease Control (CDC): Air Pollution and Respiratory Health.

1.12 SUBMITTALS

- A. The following documents shall be submitted within 5 business days of project award to the Consultant prior to commencement of PCB Removal work:
 - 1. Site Specific Health and Safety Plan (HASP): The Remediation Contractor shall prepare a site-specific HASP plan for protection of workers and control of the work site in accordance with OSHA regulatory requirements. The HASP shall govern all work conducted at the site during the abatement of PCB Containing Materials and related debris; waste handling, sampling, waste management; and waste transportation. At a minimum, the HASP

shall address the requirements set forth in 29 CFR 1910.120, as further outlined below:

- a. Health and Safety Organization
 - b. Site Description and Hazard Assessment
 - c. Training
 - d. Medical Surveillance
 - e. Work Areas
 - f. Personal Protective Equipment
 - g. Personal Hygiene and Decontamination
 - h. Standard Operating Procedures and Engineering Controls
 - i. Emergency Equipment and First Aid Provisions
 - j. Equipment Decontamination
 - k. Air Monitoring
 - l. Telephone List
 - m. Emergency Response and Evacuation Procedures and Routes
 - n. Site Control
 - o. Permit-Required Confined Space Procedures
 - p. Spill prevention and Containment Plan
 - q. Heat and Cold Stress
 - r. Record Keeping
 - s. Community Protection Plan
2. Training Documentation: Documentation of OSHA 40-Hour HAZWOPER Training for all employees and subcontractors to be used for the abatement work, and 8-Hour HAZWOPER Supervisor Training for the designated on-site Health and Safety Officer for the abatement work.
 3. PCB and or other Toxic or Hazardous Substances Disposal Plan: A written plan that details the Remediation Contractor's plan for transportation and disposal of PCB-containing or other Toxic or Hazardous Substance_wastes generated during the project. The Disposal Plan shall identify:
 - a. Waste packaging, labeling, placarding and manifesting procedures.
 - b. The name, address and 24-hour contact number for the proposed treatment or disposal facility or facilities to which waste generated during the project will be transported.
 - c. The name, address, contact person(s) and state-specific permit numbers for proposed waste transporters, and EPA identification number for firms that will transport waste.
 - d. The license plate numbers of vehicles to be used in transporting of the waste from the site to the disposal facility.
 - e. The route(s) by which the waste will be transported to the designated disposal facility, and states or territories through which the waste will pass.
 4. Safety Data Sheets: Safety Data Sheets (OSHA Form 174 or equivalent) and manufacturer's information shall be provided for all chemicals and materials to be used during the project including but not limited to specialty cleaners and chemical stripping products.
- B. The following documents shall be submitted to the Consultant within fifteen (15) work days following removal of waste from the site:
1. Waste Profile Sheets
 2. Pre-Disposal Analysis Test Results (If required by disposal facility)
 3. Manifests signed by the disposal facility
 4. Tipping Receipts provided by the disposal facility

5. Certification of Final Treatment/Disposal signed by the responsible disposal facility official.
- C. PCB Work Closeout Submittals:
 1. Disposal Site Receipts: Copy of waste shipment record and disposal site receipt showing the PCB-containing or other Toxic or Hazardous Substances materials have been properly disposed.
- D. Product Data: Catalog sheets, specifications, and application instructions for any removal products, if used.

1.13 POSTING AND RECORD MAINTENANCE REQUIREMENTS

- A. The following items shall be conspicuously displayed proximate but outside of abatement work areas. All signage must reviewed and approved by the Owner prior to posting.
 1. Emergency Phone Numbers - A list indicating the telephone numbers and locations of the local hospital(s); the local emergency squad; the local fire department; the local police department; the Poison Control Center; Chemical Emergency Advise (CHEMTREC); the local Department of Health's local office; the Remediation Contractor (on-site and after hours numbers); and the environmental consultant (on-site and after hours numbers).
 2. Warning Signs - Warning signs shall be in English and the language of any workers onsite who do not speak English and be of sufficient size to be clearly legible and display the language in accordance with 29 CFR 1910.1200. In addition, all entrances to work areas shall be posted with a PCB M_L marker.
- B. The Remediation Contractor shall maintain the following items on-site and available for review by all employees and authorized visitors:
 1. Remediation Contractor's Project Specific Health and Safety Plan
 2. Certificates of Training for all employees and the project Supervisor
 3. Codes, Standards and Publications
 4. Material Safety Data Sheets (MSDS) for all chemicals used during the project.
 5. Copies of the Remediation Contractor's written hazard communication, respiratory protection, and confined space entry programs.
- C. Fees, Permits and Licenses. The Remediation Contractor shall pay all licensing fees, royalties, and other costs necessary for the use of any copyrighted or patented product, design, invention, or processing in the performance of the work specified in this Section.
 1. The Remediation Contractor shall be solely responsible for costs, damages, or losses resulting from any infringement of these patent rights or copyrights. The Remediation Contractor shall hold the Owner and the Owner's Authorized Representatives harmless from any costs, damages, and losses resulting from any infringement of these patent rights or copyrights.

2. The Remediation Contractor shall be responsible for securing all necessary permits for work under this Section, including hauling, removal, and disposal, fire, and materials usage, or any other permits required to perform the specified work.

1.14 QUALITY ASSURANCE

- A. The Remediation Contractor shall provide and assure that the quality of work practices and procedures to be utilized are consistent with the above listed agencies and regulations. Remediation Contractor shall utilize the latest edition, including all addenda, revisions and supplements for all regulatory agencies codes, etc.
- B. Worker's Qualifications: The persons performing PCB material abatement and their supervisors shall be personally experienced in PCB abatement work and shall have been regularly employed by a company performing hazardous materials abatement for a minimum of 3 years.
- C. Pre-Work Conference: Before the Work of this Section is scheduled to commence, a conference will be held by the Owner at the Site for the purpose of reviewing the Contract Documents, discussing requirements for the Work, and reviewing the Work procedures.
 1. The conference shall be attended by the Remediation Contractor, and the Owner's Authorized Representatives employed by the Owner.

1.15 REQUIREMENTS FOR WORKER HEALTH AND SAFETY

- A. The Remediation Contractor is responsible and liable for the health and safety of all onsite personnel and the offsite community affected by the project. All onsite workers or other persons entering the abatement work areas, decontamination areas or waste handling and staging areas shall be knowledgeable of and comply with the requirements of the site-specific Health and Safety Plan (HASP) at all times. The Remediation Contractor's HASP shall comply with all applicable federal, state and local regulations protecting human health and the environment from the hazards posed by the work to be performed under this project.
- B. Consistent disregard for the provisions of the HASP shall be deemed as sufficient cause for immediate shut down of work and termination of the Contract or any Sub Contracts without compromise or prejudice to the rights of the Owner or the Owner's Authorized Representatives.
- C. Any discrepancies between the Remediation Contractor's HASP and these specifications or federal and state regulations shall be resolved in favor of the more stringent requirements that provide the highest degree of protection to the project personnel and the surrounding community and environment
- D. In addition to exposure concerns relating to the presence of PCB's, other health and safety considerations will apply to the work. The Remediation Contractor shall be responsible for recognizing such hazards and shall be responsible for the health and safety of Remediation Contractor employees at all times. It is the Remediation Contractor's responsibility to comply with all applicable health and safety regulations.

- E. The HASP shall be reviewed by all persons prior to entry into the abatement, decontamination, or waste staging areas, whether a representative of the Remediation Contractor, owner, architect/engineer, environmental consultant, subcontractor(s), waste transporter or federal, state or local regulatory agency. Such review shall be acknowledged and documented by the Remediation Contractor's Health and Safety Officer by obtaining the name, signature and affiliation of all persons reviewing the HASP.
- F. The HASP shall be maintained so as to be readily accessible and reviewable by all site personnel throughout the duration of the abatement project and until all waste materials are removed from the site and disposed of at the appropriate disposal facility.
- G. The Remediation Contractor's on-site Health and Safety Officer shall be responsible for ensuring that project personnel and site visitors are informed of and comply with the provisions of the HASP at all times during the project.

1.16 WORK AREAS AND ZONES

- A. The Remediation Contractor shall lay-out and clearly identify work areas in the field. Work areas shall include an abatement zone, decontamination zone, and support zone.

1.17 PERSONNEL PROTECTIVE EQUIPMENT

- A. The Remediation Contractor shall be responsible to determine and provide the appropriate level of personal protective equipment in accordance with applicable regulations and standards necessary to protect the Remediation Contractor's employees from all hazards present.
- B. The Remediation Contractor shall provide all employees with the appropriate safety equipment and protective clothing to ensure an appropriate level of protection for each task, taking into consideration the chemical, physical, ergonomic and biological hazards posed by the site and work activities.
- C. The Remediation Contractor shall establish in the HASP criteria for the selection and use of personal protective equipment (PPE).
- D. The PPE to be utilized for the project shall be selected based upon the potential hazards associated with the project site and the work to be performed. Appropriate protective clothing shall be worn at all times within the Abatement Zone.
- E. The Remediation Contractor shall provide the appropriate level of respiratory protection to all field personnel engaged in activities where respiratory hazards exist or there is a potential for such hazard to exist.
- F. The Remediation Contractor shall provide, as necessary, protective coveralls, disposable gloves and other protective clothing for all personnel that will be actively involved in abatement activities or waste handling activities or otherwise present in the Abatement Zones. Coveralls shall be of Tyvek® or equivalent material. Should the potential for exposure to liquids exist, splash resistant disposable suits shall be provided and utilized.

- G. Protective coveralls, and other protective clothing shall be donned and removed within the Decontamination Zone and shall be disposed of at the end of each day. Torn coveralls shall be immediately replaced after appropriate decontamination has been completed to the satisfaction of the Health and Safety Officer. Protective clothing shall not be worn outside of the Decontamination Zone.
- H. Hard Hats, protective eyewear, rubber boots and or other non-skid footwear shall be provided by the Remediation Contractor as required for workers and authorized visitors.
- I. All contaminated protective clothing, respirator cartridges and disposable protective items shall be placed into proper containers to be provided by the Remediation Contractor for transport and proper disposal in accordance with 40 CFR 262.

1.18 EMERGENCY EQUIPMENT AND FIRST AID REQUIREMENTS

- A. The Remediation Contractor shall provide and maintain at the site, at a minimum, the following Emergency and First Aid Equipment:
 - 1. Fire Extinguishers: A minimum one (1) fire extinguisher shall be supplied and maintained at the site by the Remediation Contractor throughout the duration of the project. Each extinguisher shall be a minimum of a 20 pound Class ABC dry fire extinguisher with Underwriters Laboratory approval per 29 CFR 1910.157.
 - 2. First Aid Kit: A minimum one (1) first aid kit meeting the requirements of 29 CFR 1910.151 shall be supplied and maintained at the site by the Remediation Contractor throughout the duration of the project.
 - 3. Communications: Telephone communications (either cellular or land line) shall be provided by the Remediation Contractor for use by site personnel at all times during the project.
- B. The Health and Safety Officer shall be notified immediately in the event of personal injury, potential exposure to contaminants, or other emergency. The Health and Safety Officer shall then immediately notify the Consultant.

1.19 H&S PROCEDURES AND ENGINEERING CONTROLS

- A. The following provisions shall be employed to promote overall safety, personnel hygiene and personnel decontamination:
 - 1. Each Remediation Contractor or Subcontractor shall ensure that all safety equipment and protective clothing to be utilized by its personnel is maintained in a clean and readily accessible manner at the site.
 - 2. All prescription eyeglasses in use on this project shall be safety glasses conforming to ANSI Standard Z87.1. No contact lenses shall be allowed on the site.
 - 3. Prior to exiting the delineated Decontamination Zone(s), all personnel shall remove protective clothing, and place disposable items in appropriate disposal containers to be dedicated to that purpose. Following removal of PPE, personnel shall thoroughly wash and rinse their face, hands, arms and other exposed areas with soap and tap water wash and subsequent tap water

- rinse. A fresh supply of tap water shall be provided at the site on each work day by the Remediation Contractor for this purpose.
4. All PPE used on site shall be decontaminated or disposed of at the end of each work day. Discarded PPE shall be placed in sealed DOT approved 55-gallon drums for off-site disposal.
 5. Respirators, if necessary due to an upgrade to Level C PPE, shall be dedicated to each employee, and not interchanged between workers without cleaning and sanitizing.
 6. Eating, drinking, chewing gum or tobacco, smoking, and any other practice that increases the likelihood of hand to mouth contact shall be prohibited within the delineated abatement and decontamination work zones. Prior to performing these activities, each employee shall thoroughly cleanse their face, hands, arms and other exposed areas.
 7. All personnel shall thoroughly cleanse their face hands, arms and other exposed areas prior to using toilet facilities.
 8. No alcohol, tobacco, illicit drugs or firearms will be allowed on the site at any time.
 9. Contact with potentially contaminated surfaces should be avoided, if possible. Field personnel should minimize walking through standing water/puddles, mud or other wet or discolored surfaces; kneeling on ground; and placing equipment, materials or food on ground or other potentially contaminated surface.
 10. The use of the "Buddy System" shall be employed at all times while conducting work at the site. Each employee shall frequently monitor other workers for signs of heat stress or chemical exposure or fatigue; periodically examine others PPE for signs of wear or damage; routinely communicate with others; and notify the Health and Safety Officer in the case of an emergency.
- B. Worker's must wear protective suits, protective gloves, eye protection, and respirators with HEPA filter cartridge, as detailed in the HASP. Respiratory protection shall be in accordance with OSHA regulation 1910.134 and ANSI Z88.2.
- C. Workers must be trained as per OSHA and USEPA requirements, have medical clearance and must have recently received pulmonary function test (PFT) and respirator fit tested by a trained professional.
1. A personal air sampling program shall be in place as required by OSHA.
 2. The use of respirators must also follow a respiratory protection program as specified by OSHA.

PART 2 - PRODUCTS

2.1 ABATEMENT PRODUCTS

- A. All materials shall be delivered in the original packages, containers, or bundles bearing the name of the manufacturer and the brand name.
- B. Disposal Drums/Boxes: Appropriate metal or fiberboard with warning labels as required by OSHA, and/or EPA.
- C. Respirators: Type: Approved by the Mine Safety and Health Administration (MSHA), Department of Labor, or the National Institute for Occupational Safety and Health (NIOSH), Department of Health and Human Services.
- D. Vacuum Cleaners: Type: Vacuums equipped with HEPA filters.
- E. Polyethylene Sheeting:

As described in Asbestos Abatement Specification (FSS: Areas Associated with Elevator Project; Dated April 27, 2018)
- F. Cleaning Products: Remediation Contractor shall at their discretion utilize specialty cleaning products such as Capsur, TechXtract or other cleaners for use in decontaminating porous and non-porous surfaces to remain. All such products shall be utilized in accordance with manufacturer's specifications as intended. Remediation Contractor shall ensure appropriate use and disposal associated with use in accordance with the SDS sheets for each product utilized. It shall be incumbent upon the Remediation Contractor to determine the need for use of specialty products to meet required cleaning verification levels established herein and in accordance with the Work Plan.

2.2 GENERAL EQUIPMENT

- A. A sufficient supply of disposable mops, rags, and sponges for work area cleaning and decontamination shall be available.

2.3 PERSONNEL PROTECTION

- A. Safety equipment (e.g., hard hats meeting the requirements of ANSI Standard Z89.1-1981, eye protection meeting the requirements of ANSI Standard Z87.1-1979, safety shoes meeting the requirements of ANSI Standard Z41.1-1967, disposable PVC gloves or other work gloves), shall be provided to all workers and authorized visitors.
- B. Non-skid footwear shall be provided to all abatement workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.

PART 3 - EXECUTION

Isolation barriers shall be installed on the exterior side of windows and doors to isolate these systems to the areas where work shall be performed. All work will be conducted inside the building and signage must be posted at all access points to the area. PCB abatement will be conducted within a negative pressure containment built for asbestos removal.

3.1 WORK AREA PROTECTION – ABATEMENT ZONE

- A. Protection of Existing Construction: Perform PCB Bulk Product Waste and Bulk PCB Remediation Waste removal work without damage or contamination of adjacent areas.
- B. Prior to commencement of PCB abatement activities at the work area, a containment system shall be constructed by the Remediation Contractor to contain dusts and materials during abatement. Containment procedures referenced for the abatement zone must be utilized.
- C. During all remediation activities, Remediation Contractor shall maintain control of all entrances and exits to the project site to ensure only authorized personnel enter the work areas and are afforded proper personal protective equipment and as required respiratory protection. All approaches to work areas shall be demarcated with appropriately worded warning signs.
- D. Work zones shall be established in accordance with this section to include abatement zone, decontamination zone and support zone.
- E. Containment of the work area should be constructed in accordance with requirements outlined in the Asbestos Abatement Specification (FSS: Areas Associated with Elevator Project; Dated April 27, 2018)
- F. To minimize dust and debris Remediation Contractor may utilize negative pressure with use of negative air filtration units with HEPA filtration along with the use of wet methods.
- G. All other openings to the building interior such as unit ventilation, ducts, and grilles shall be securely sealed with a single layer of 6-mil polyethylene sheeting from the building exterior. Unit ventilation, ducts and grilles on adjacent buildings which could be affected by emissions from the work area will also be sealed with 6-mil polyethylene sheeting.
- H. All debris generated during operations including but not limited to visible caulking, dust and debris shall be HEPA vacuumed continuously throughout the work shift and at the end of a work shift to avoid accumulation. Any tears or rips that occur in protections shall be repaired or removed and replaced with new protections.
- I. Warning Signage: Post warning signs in accordance with 29 CFR 1910.1200 at all approaches to the work area. Signs shall be conspicuously posted to permit a person to read signs and take precautionary measures to avoid exposure to PCBs or other

Toxic or Hazardous Substances. These signs should include the PCB M_L markers at each entrance to the work area.

- J. Waste Containers for PCB Bulk Product Waste: Appropriate PCB waste containers shall be placed adjacent to abatement zones. Containers shall be lined covered and secured. The PCB waste containers shall be properly marked as described in 40 CFR part 761.45. Marking shall include a PCB M_L marker.

3.2 DECONTAMINATION ZONE

- A. The Remediation Contractor shall establish a decontamination area. The only access between contaminated and uncontaminated areas shall be through this decontamination area. The Remediation Contractor shall ensure that employees enter and exit the Abatement Zone through the decontamination area.
- B. The Remediation Contractor shall visually inspect barrier several times daily to assure effective seal and the Remediation Contractor shall repair defects immediately.

3.3 PCB BULK PRODUCT WASTE MATERIALS

Refer to Figure 1 for PCB Bulk Product locations (In accordance with asbestos tile/mastic and caulking locations).

- A. PCB Bulk Product Waste Materials including PCB caulking, floor tile, mastic and associated Bulk PCB Remediation Waste to be removed intact shall be handled and removed from specified locations for proper disposal.
- B. Materials shall be removed in a manner which does not breakdown the materials into fine dust or powder to the extent feasible. Equipment and tools to be utilized shall include hand tools and mechanical equipment such as demolition hammers to remove materials from adjacent substrates. Mechanical removal equipment shall as appropriate be fitted with dust collection systems.
- C. Any dry or brittle caulking materials shall be removed with additional engineering controls such as use of a HEPA vacuum to remove accumulated dust or debris during removal.
- D. Waste shall be immediately containerized in temporary 6-mil polyethylene disposal bags for disposal. These containers shall be sealed in abatement zone when full during collection and then placed in disposal containers/storage trailers. The containers shall not be emptied into other containers to avoid dispersal of dust or fugitive emissions.
- E. The use of minimal but sufficient quantities of water to wet the generated dust prior to collection shall be utilized. Under no circumstances shall the PCB waste show evidence of free liquid water, pooling or ponding within the waste stream. Any liquid used to wet the dust and debris to control fugitive emissions shall be properly containerized and decontaminated in accordance with 40 CFR Part §761.79 (b)(1), or disposed of in accordance with 40 CFR Part §761.60 (a).

- F. PCB Bulk Product Waste shall be stored for disposal in accordance proper federal regulations. Waste generated includes mixed waste (PCB ≥ 50 mg/kg and Asbestos $> 1\%$). Facility proposed for disposal shall be permitted to accept mixed waste of PCB ≥ 50 mg/kg and Asbestos $> 1\%$.
- G. All waste containers shall be appropriately labeled in accordance with federal regulations signifying the presence of PCB ≥ 50 mg/kg and Asbestos $> 1\%$.

3.4 PCB WASTE

- A. Bulk PCB Remediation Waste Materials include adjacent surfaces such as porous concrete/plaster material. Moveable materials containing floor tile mastic will also be handled and disposed of as Bulk PCB Remediation Waste. Building materials which are assumed to possess concentrations of PCB ≥ 50 mg/kg and Asbestos $> 1\%$ are federally regulated and will be removed and disposed of as Mixed Waste.
- B. The secondary waste resulting from removal of adjacent surfaces will be PCB contaminated dust and debris from cutting, and removal of surfaces which will be containerized and handled and disposed of as Mixed Waste.
- C. Waste shall be immediately containerized in temporary 6-mil polyethylene disposal bags for disposal. These containers shall be sealed in abatement zone when full during collection and then placed in disposal containers/storage trailers. The containers shall not be emptied into other containers to avoid dispersal of dust or fugitive emissions.
- D. No dry sweeping, dusting or blowing shall be allowed. The use of minimal quantities of water to moisten the generated dust prior to collection shall be utilized. Under no circumstances shall the Bulk PCB Remediation Waste show evidence of free liquid water, pooling or ponding within the waste stream. Any liquid used to wet the dust and debris to control fugitive emissions shall be collected and decontaminated in accordance with 40 CFR Part §761.79 (b)(1) or disposed of in accordance with 40 CFR Part §761.60 (a).
- A. All rags and other cleaning materials used to decontaminate and clean remaining surfaces shall also be properly disposed as Bulk PCB Remediation Waste in accordance with 40 CFR Part §761.61(a)(5)(v)(A) and as applicable 40 CFR Part §761.79.
- B. Once materials have been removed and surfaces cleaned Owner's Consultant, shall be notified. A final visual inspection will be conducted to ensure all areas are clean and free of dust and debris.
- C. Waste shall be immediately containerized in temporary 6-mil polyethylene disposal bags for disposal. These containers shall be sealed in abatement zone when full during collection and then placed in disposal containers/storage trailers. The containers shall not be emptied into other containers to avoid dispersal of dust or fugitive emissions.
- D. The use of minimal quantities of water to moisten the generated dust prior to collection shall be utilized. Under no circumstances shall the PCB waste show

evidence of free liquid water, pooling or ponding within the waste stream. Any liquid used to wet the dust and debris to control fugitive emissions shall be collected and decontaminated in accordance with 40 CFR Part §761.79 (b)(1).

- E. All rags and other cleaning materials used to clean shall also be properly disposed as Bulk PCB Remediation Waste. All waste containers must be properly labeled and stored for disposal.
- F. Bulk PCB Remediation Waste shall be stored for disposal in accordance with 40 CFR Part §761.65.
- G. All waste containers shall be appropriately marked in accordance with 40 CFR Part §761.40 and §761.45. Marking shall include the PCB M_L marker and Asbestos signage.

3.5 CLEANING AND DECONTAMINATION

- A. The Remediation Contractor shall be responsible for complete cleaning and decontamination of the Abatement Zone upon completion of work.
- B. The Remediation Contractor shall utilize HEPA vacuum and wet cleaning products to remove all visible dust and debris from all surfaces within the work area. If specialty products are utilized the Remediation Contractor shall utilize in accordance with manufacturer's specifications including any additional safety and disposal requirements for such use.
- D. Any liquid used to wet the dust and debris to control fugitive emissions shall be collected and decontaminated in accordance with 40 CFR Part §761.79 (b)(1) or disposed of in accordance with §761.60 (a). The wash water and decontamination liquids shall be captured and containerized in DOT approved 55-gallon drums for off-site disposal.
- E. All rags and other cleaning materials used to clean shall also be properly disposed as PCB Remediation Waste. All PCB Remediation Waste shall be stored for disposal in accordance with 40 CFR Part §761.61(a)(5)(v)(A). All waste containers shall be appropriately marked in accordance with 40 CFR Part §761.40 and §761.45.
- F. Equipment to be utilized in connection with the removal of PCB Bulk Product Waste and Bulk PCB Remediation waste including waste collection or that will or may come in direct contact with the site contaminants shall be decontaminated prior to leaving the site to prevent migration of the contaminated residues from the project site. Decontamination shall be in accordance with 40 CFR Part §761.79 and Subpart S procedures.
- G. All non-disposable equipment and tools employed in the course of the project will be decontaminated at the conclusion of each work day through the following sequence:
 - 1. Initial tap water rinse, to remove gross debris
 - 2. Hexane or equivalent wash
 - 3. Tap water rinse
 - 4. Second hexane or equivalent wash

5. Second tap water rinse

Any liquid used shall be collected and decontaminated in accordance with 40 CFR Part §761.79 (b)(1), or disposed of in accordance with §761.60 (a). The wash water and decontamination liquids shall be captured and containerized in DOT approved 55-gallon drums for off-site disposal.

3.6 CERTIFICATION OF ABATEMENT AND SAMPLING

- A. The Owner may retain an industrial hygiene firm to perform periodic inspections and sampling during the work. Site visits shall be scheduled based on the progress of the work and at critical time periods.
- B. The Owner's Consultant shall perform post removal and decontamination visual clearance inspection and wipe sampling, if necessary, to determine complete removal of PCB's.
- C. Upon passing a final visual inspection the Owner's Consultant will provide re-occupancy air sampling in accordance with federal and local asbestos regulations.
- D. Once re-occupancy sampling results are analyzed and it is determined that the asbestos levels are below regulatory values, then the containment may be dismantled.

3.7 MARKING OF WASTE CONTAINERS

- A. All waste containers must be marked with the name of the waste contained; the date in which the first material was placed in the vessel; and the last date at which addition of waste occurred. All waste containers must be marked with Asbestos and PCB M_L markers.
- B. All waste containers containing mixed PCB Bulk Product Waste, Bulk PCB Remediation Waste and PCB contaminated debris, containment system components, used personnel protective equipment, personal and equipment wash water and decontamination fluids, or other wastes generated during the abatement work shall be properly labeled according to applicable regulations and guidelines
- C. Such marking must be durable, in English and printed on or affixed to the surface of the package or on a label, tag or sign; displayed on a background of sharply contrasting color; un-obscured by labels or attachments and located away from any other marking (such as advertising) that could substantially reduce its effectiveness.

3.8 WASTE MANAGEMENT OF SOLID HAZARDOUS WASTES

- A. All solid waste material, containment system components, used personnel protective equipment, and other solid wastes generated during the work, shall be placed directly in appropriate waste receptacles immediately upon removal from its in-situ position. Suitable waste receptacles may consist of roll-off containers or DOT-approved 55-gallon drums.

- B. The Remediation Contractor shall be responsible for all packaging, labeling, transport, disposal and record-keeping associated with PCB or PCB contaminated waste in accordance with all federal, state and local regulations.
- C. The Remediation Contractor shall ensure that the person transporting the waste holds a valid permit issued in accordance with appropriate federal, state, and local regulations.
- D. The Remediation Contractor shall provide to the transporter at the time of transfer appropriate shipping records or uniform waste manifests as required by the federal, state and local regulations with a copy to the Owner and Owner's Consultant.
- E. Remediation Contractor shall maintain proper follow up procedures to assure that waste materials have been received by the designated waste site in a timely manner and in accordance with all federal, state and local regulations.
- F. The Remediation Contractor shall assure that disposal of PCB containing waste material is at a facility approved to accept such waste and shall provide a tracking/manifest form signed by the landfill's authorized representative.
- G. If 55-gallon drums are to be utilized for waste containerization, the drums shall consist of suitable DOT-approved 55-gallon drums that are watertight and free of corrosion, perforations, punctures, or other damage. All drums shall be securely covered and sealed at the conclusion of each work day.
- H. The waste containers shall remain staged at the site with a secure impermeable cover in place until the materials are transported from the site to be delivered to the designated disposal facility.
- I. Properly containerized waste with PCB ≥ 50 mg/kg must be transported by a licensed hauler and shipped as PCB Bulk Product Waste or Bulk PCB Remediation Waste for disposal at a permitted facility for PCB waste ≥ 50 mg/kg.
- J. Provide required copies of the uniform waste manifests for hazardous wastes to the Owner, waste generation State and waste destination State as required.
- K. Any PCB Liquid Water Waste shall be properly containerized and decontaminated in accordance with 40 CFR Part §761.79 (b)(1) or disposed of in accordance with 40 CFR Part §761.60 (a).
- L. Any chemicals, solvents or other products used during decontamination shall be properly containerized as PCB Liquid Waste. Waste must be properly decontaminated or disposed in accordance with 40 CFR Part §761.60 (a) or 40 CFR Part §761.79(g). PCB Liquid Waste shall be transported by a licensed hauler and shipped for treatment or disposal. Provide required copies of the uniform waste manifests for hazardous wastes to the Owner, waste generation State, and waste destination State as required.
- M. All contaminated waste shall be carefully loaded on trucks or other appropriate vehicles for transport. Before and during transport, care shall be exercised to insure that no unauthorized persons have access to the material.

- N. Transporters of the waste are prohibited from “back hauling” any freight after the disposition of the Owner’s waste stream until decontamination of the vehicle and/or trailer is assured.

END OF SECTION

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Demolition and removal of selected portions of building or structure.
 - 2. Demolition and removal of selected site elements.
 - 3. Salvage of existing items to be reused or recycled.

- B. Related Requirements:

- 1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
 - 2. Section 017300 "Execution" for cutting and patching procedures.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and store.
- C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

- 1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 PREINSTALLATION MEETINGS

- A. Pre-demolition Conference: Conduct conference at Project site.

- 1. Inspect and discuss condition of construction to be selectively demolished.
 - 2. Review structural load limitations of existing structure.
 - 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 - 5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For refrigerant recovery technician.
- B. Engineering Survey: Submit engineering survey of condition of building.
- C. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.
- D. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's building manager's and other tenants' on-site operations are uninterrupted.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Use of elevator and stairs.
 - 5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

1.7 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.

1.8 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is located elsewhere in the Project Manual for review and use. Examine report to become aware of locations where hazardous materials are present.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.9 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
 - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- D. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.
- E. Verify that hazardous materials have been remediated before proceeding with building demolition operations.
- F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.
 - 1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
 - 1. Arrange to shut off utilities with utility companies.
 - 2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 - 3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

- f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
- g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.3 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
 - 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."
- B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 - 1. Strengthen or add new supports when required during progress of selective demolition.
- C. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space

- before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 9. Dispose of demolished items and materials promptly. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Removed and Salvaged Items:
1. Clean salvaged items.
- D. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS
- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
- B. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.
- C. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.
- D. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.
- E. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings."

3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 - 4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.

3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 02 4123 - SITE DEMOLITION

PART 1 GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. General Site Demolition.
 - 2. Demolition of site structures, signage, pavement, and similar site improvements.
 - 3. Filling of voids and excavations resulting from site demolition.
- B. Contractor shall coordinate work between all Contractors, sections, and trades required for the proper completion of the work.
- C. Contractor is responsible for all health and safety.

1.2 REFERENCES

- A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- B. Code of Federal Regulations (CFR).
 - 1. 29 CFR 1926, Safety and Health Regulations for Construction.
- C. State of Connecticut.
 - 1. State of Connecticut Solid Waste Management Regulations, Section 22a-209 including any amendments thereto.

1.3 DEFINITIONS

- A. Demolition: Any operation including the dismantling or wrecking of a structure, assembly, appurtenance, or any portion thereof, including major and minor components, parts, and systems. Demolition shall be inclusive of the removal, handling, processing, segregation, loading, and proper off-site disposition of materials. Demolition shall be interpreted as complete and total removal unless otherwise indicated. The term Remove shall be synonymous with Demolition.
- B. Bulky Waste: Land clearing debris and non-contaminated or hazardous waste material resulting directly from demolition activities other than Clean Fill, including such materials as tree stumps, tree tops, concrete, wood, brick, plaster, roofing materials, wallboard, metals, carpeting, insulation, furniture, and furnishings. Bulky Waste shall include Construction and Demolition Debris and Construction and Demolition Waste.

1.4 SAFETY

- A. Conduct the work of this Section in conformance with applicable regulations, including those relating to warning signs, excavation safety, sheeting, shoring, and stabilization.
- B. Provide and maintain barricades, signs, lights, etc., required for the protection of personnel, materials and property. Temporary barricades, etc. shall conform all applicable codes and regulations, and shall be lighted at night with lanterns, flares and reflectorized paint as required for safety. Adapt barricades, signs, lights, etc. to evolving site conditions throughout the progress of the work.
- C. Provide other safety devices as required, including adaptation of such safety devices to changing site conditions, to prevent unauthorized entry to construction areas and open excavations. Provide warning signs and other temporary construction safety devices necessary for proper completion of the work in compliance with applicable safety regulations.
- D. Contractor shall properly design and furnish all labor, materials, equipment, and tools necessary to construct permanent or temporary excavation support systems, including, but not necessarily limited to, sheet piling, trench shields, trench boxes, timber trench shoring, pneumatic/hydraulic shoring, steel sheeting or sheeting using other materials, sloping, and benching.
- E. Any time an excavation is to remain open, at a minimum, provide full enclosure with safety barriers and fencing, warning signs, and additional safety control measures as appropriate for the condition.

1.5 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods required for proper performance of the work in this Section. Use equipment of adequate size, capacity and quantity to accomplish the work of this Section in a timely manner.
- B. Utility Mark-out
 - 1. Prior to commencing work, comply with utility mark-out requirements of the Call-Before-You-Dig System (1-800-922-4455).
 - 2. Verify the location of all subsurface utilities marked through the Call-Before-You-Dig System.
 - 3. Not all subsurface facilities or structures will be identified through the Call-Before-You-Dig System. Confirm the location of other subsurface utilities and other subsurface facilities or structures prior to commencing work. Field-mark utilities as required.
- C. Utility Coordination
 - 1. Inform all utility owners of the necessity of test pit work. Provide reasonable advance notice to allow for coordination.
 - 2. Coordinate the excavation of all test pits with the respective utility owners having facilities in the vicinity of the test pit location.

3. If so desired by the respective utility owners, all or part of the work under this Section may be accomplished by their crews and/or supervised by them.

1.6 REGULATORY REQUIREMENTS

- A. Comply with all applicable federal, state, and local safety and health requirements regarding all aspects of the work. Do not proceed until all permits or other approvals are secured.
- B. Contractor is bound to comply with any project-related permits or approval obtained by Owner, including all requirements of such permit and representations contained in permit application as though Contractor were the permittee. Requirements and conditions set forth in Owner-obtained project-related permits and permit applications shall be binding on Contractor just as any Specification would be.
- C. Do not close or obstruct roadways, sidewalks, hydrants, or other infrastructure without permits or authorization from local municipal authorities or other authorities having jurisdiction.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 IDENTIFICATION OF EXISTING FEATURES

- A. Prior to commencing construction activities, Contractor shall identify and delineate those areas or specific improvements that are not to be disturbed. Areas or specific improvements within the Limits of Work/Contract Limits and general work areas which are not to be disturbed shall be clearly marked or fenced. Monuments and markers shall be protected before construction operations commence. Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting designated areas, specific improvements, monuments, and markers at the Project Site.

3.2 PROTECTION OF EXISTING FEATURES

A. General

1. All areas or specific improvements, including but not limited to vegetation, utilities, poles, wires, fences, curbs, monuments/property-line markers, and other structures, which must be preserved in place without being temporarily or permanently relocated shall be carefully supported and otherwise protected from damage by Contractor.
2. As excavation/demolition work approaches underground structures, digging by machinery shall be discontinued and the excavation shall be done by means of hand tools.

B. Pavements

1. On paved surfaces to remain, Contractor shall not use or operate heavy equipment, other power-operated equipment, or store tools, equipment, or materials which may mar, cut, or otherwise damage such surfaces. If there is no alternative to the operation of heavy equipment, other power-operated equipment, or storage of tools, equipment, or

materials on paved surfaces to remain, Contractor shall take all measures necessary to protect such surfaces.

2. All surfaces, which have been damaged by Contractor's operations, shall be restored to a condition at least equal to that in which they were found immediately prior to the beginning of construction operations. Such restoration shall meet the approval of Engineer and may include repair or complete replacement at Contractor's expense.

C. Planted Areas

1. All planted areas, including lawn/turf areas and landscaped areas, which have been damaged by Contractor's operations, shall be restored to a condition at least equal to that in which they were found immediately prior to the beginning of construction operations.

D. Utilities

1. Locate and identify existing utilities that are to remain and protect them from damage. Provide protection as required such as marking, blocking, bracing, stabilizing, supporting, and retaining.
2. Before excavating near any utility, notify the utility owner, coordinate protective work, and comply with the utility owners' requirements.
3. All utility services shall be supported by suitable means so that the services shall not fail when tamping and settling occurs.
4. Where known utilities are encountered, notify Engineer and document location and type of utility before proceeding with work in such area.
5. When uncharted or incorrectly charted utilities are encountered, stop work and notify Engineer. Cooperate with the utility owners in maintaining their utilities in operation prior to resuming work.

- E. Retaining Structures: Provide bracing, shoring, sheeting, sheet piling, underpinning or other retaining structures necessary to guard against any movement or settlement of existing or new construction, utility systems, paving, or other improvements. Contractor assumes responsibility for the strength and adequacy of retaining structures, and for the safety and support of construction, utilities or paving, and for any movement, settlement or damage thereto.

3.3 SITE DEMOLITION

- A. Conduct site demolition as shown on the Drawings.
- B. Conduct site demolition operations in a manner that will prevent damage to adjacent structures, utilities, pavements and other facilities to remain.
- C. Remove from the site and properly dispose of all materials resulting from site demolition operations.

3.4 DUST CONTROL

- A. Implement fugitive dust suppression to prevent unacceptable levels of dust resulting from site demolition operations or other activities required by the Contract Documents. It shall be the Contractor's responsibility to supervise fugitive dust control measures and to monitor airborne particulate matter. Comply with applicable provisions of Section 01 5714 – Temporary Dust Control.

3.5 REPLACEMENT

- A. In case of damage, Contractor shall notify the appropriate party so that proper steps may be taken to repair any and all damage done. When the Owner does not wish to make the repairs themselves, all damage shall be repaired by Contractor, or, if not promptly done by him, Engineer may have the repairs made at the expense of Contractor.
- B. Contractor shall patch, repair and/or replace all adjacent materials and surfaces damaged through the prosecution of work at no expense to Owner. All repair and replacement work shall match the existing in-kind. Final acceptance of said work shall be at the sole judgment of Owner.

END OF SECTION

SECTION 035416 - HYDRAULIC CEMENT UNDERLAYMENT

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

- A. Submittals: Product Data.
- B. Installer Qualifications: Installer who is approved by manufacturer.

PART 2 - PRODUCTS

2.1 HYDRAULIC-CEMENT-BASED UNDERLAYMENTS

- A. Underlayment: Hydraulic-cement-based, polymer-modified, self-leveling product.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide ARDEX Americas; V 1000 Self-Leveling Underlayment or comparable product by one of the following:
 - a. LATICRETE International, Inc.
 - b. MAPEI Corporation.
 - 2. Compressive Strength: Not less than 4,400 psi at 28 days when tested according to ASTM C 109/C 109M.
- B. Primer: Product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated.

PART 3 - EXECUTION

3.1 PREPARATION

- A. General: Prepare and clean substrate according to manufacturer's written instructions.
 - 1. Treat nonmoving substrate cracks according to manufacturer's written instructions to prevent cracks from telegraphing (reflecting) through underlayment.
 - 2. Concrete Substrates: Remove laitance, glaze, curing compounds, dust, dirt, grease, oil, and other contaminants that might impair underlayment bond.

3.2 APPLICATION

- A. General: Mix and apply underlayment components according to manufacturer's written instructions.

- B. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
- C. Apply underlayment to produce uniform, level surface.
- D. Do not install floor coverings over underlayment until after the time period recommended in writing by underlayment manufacturer.

END OF SECTION 035416

SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Concrete masonry units.
 - 2. Building (common) brick.
 - 3. Mortar and grout.
 - 4. Steel reinforcing bars.
 - 5. Masonry-joint reinforcement.
 - 6. Ties and anchors.
 - 7. Embedded flashing.
 - 8. Miscellaneous masonry accessories.
 - 9. Masonry-cell fill.

- B. Products Installed but not Furnished under This Section:

- 1. Steel lintels in unit masonry.
 - 2. Steel shelf angles for supporting unit masonry.
 - 3. Cavity wall insulation.

- C. Related Requirements:

- 1. Section 072100 "Thermal Insulation" for cavity wall insulation.
 - 2. Section 076200 "Sheet Metal Flashing and Trim" for exposed sheet metal flashing and for furnishing manufactured reglets installed in masonry joints.

1.3 ALLOWANCES

- A. Face brick is part of the Face Brick Allowance.

1.4 DEFINITIONS

- A. CMU(s): Concrete masonry unit(s).
- B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For the following:
 - 1. Masonry Units: Show sizes, profiles, coursing, and locations of special shapes.
 - 2. Reinforcing Steel: Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315. Show elevations of reinforced walls.
 - 3. Fabricated Flashing: Detail corner units, end-dam units, and other special applications.
- C. Samples for Initial Selection:
 - 1. brick.
 - 2. Colored mortar.
- D. Samples for Verification: For each type and color of the following:
 - 1. brick.
 - 2. Pigmented mortar. Make Samples using same sand and mortar ingredients to be used on Project.
 - 3. Accessories embedded in masonry.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Material Certificates: For each type and size of the following:
 - 1. Masonry units.
 - a. Include material test reports substantiating compliance with requirements.
 - b. For brick, include size-variation data verifying that actual range of sizes falls within specified tolerances.
 - c. For exposed brick, include test report for efflorescence according to ASTM C 67.
 - d. For masonry units used in structural masonry, include data and calculations establishing average net-area compressive strength of units.
 - 2. Integral water repellent used in CMUs.
 - 3. Cementitious materials. Include name of manufacturer, brand name, and type.
 - 4. Mortar admixtures.
 - 5. Preblended, dry mortar mixes. Include description of type and proportions of ingredients.
 - 6. Grout mixes. Include description of type and proportions of ingredients.
 - 7. Reinforcing bars.
 - 8. Joint reinforcement.

9. Anchors, ties, and metal accessories.
 - C. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.
 1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.
 2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.
 - D. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to TMS 602/ACI 530.1/ASCE 6.
 - E. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.
- 1.8 QUALITY ASSURANCE
- A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.
- 1.9 DELIVERY, STORAGE, AND HANDLING
- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
 - B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
 - C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.
 - D. Deliver preblended, dry mortar mix in moisture-resistant containers. Store preblended, dry mortar mix in delivery containers on elevated platforms in a dry location or in covered weatherproof dispensing silos.
 - E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.
- 1.10 FIELD CONDITIONS
- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.

1. Extend cover a minimum of 24 inches down both sides of walls, and hold cover securely in place.
 2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe, and hold cover in place.
- B. Do not apply uniform floor or roof loads for at least 12 hours and concentrated loads for at least three days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 2. Protect sills, ledges, and projections from mortar droppings.
 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.
- E. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 PERFORMANCE REQUIREMENTS

- A. Provide unit masonry that develops indicated net-area compressive strengths at 28 days.
 - 1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to TMS 602/ACI 530.1/ASCE 6.

2.3 UNIT MASONRY, GENERAL

- A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.
- B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.
- C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.
 - 1. Where fire-resistance-rated construction is indicated, units shall be listed and labeled by a qualified testing agency acceptable to authorities having jurisdiction.

2.4 CONCRETE MASONRY UNITS

- A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
 - 1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
 - 2. Provide bullnose units for outside corners unless otherwise indicated.
- B. CMUs: ASTM C 90.
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi.
 - 2. Density Classification: Lightweight unless otherwise indicated.
 - 3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.

2.5 MASONRY LINTELS

- A. Masonry Lintels: Prefabricated or built-in-place masonry lintels made from bond beam CMUs matching adjacent CMUs in color, texture, and density classification, with reinforcing bars placed as indicated and filled with coarse grout. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

2.6 BRICK

- A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:
1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
 2. Provide special shapes for applications where stretcher units cannot accommodate special conditions, including those at corners, movement joints, bond beams, sashes, and lintels.
 3. Provide special shapes for applications requiring brick of size, form, color, and texture on exposed surfaces that cannot be produced by sawing.
 4. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
- B. Clay Face Brick: Facing brick complying with ASTM C 216.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Watson town Brick Company.
 - b. Taylor Clay Products Inc.
 - c. The Belden Brick Company.
 2. Grade: SW.
 3. Type: FBX.
 4. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 3000 psi.
 5. Initial Rate of Absorption: Less than 30 g/30 sq. in. per minute when tested according to ASTM C 67.
 6. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated "not effloresced."
 7. Where shown to "match existing," provide face brick matching color range, texture, and size of existing adjacent brickwork.
 8. Color and Texture: As selected by Architect.

2.7 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150/C 150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
1. Alkali content shall not be more than 0.1 percent when tested according to ASTM C 114.
- B. Hydrated Lime: ASTM C 207, Type S.

- C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207, Type S.
- D. The use of masonry cement is not permitted.
- E. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C 979/C 979M. Use only pigments with a record of satisfactory performance in masonry mortar.
- F. Colored Cement Products: Packaged blend made from portland cement and hydrated lime and mortar pigments, all complying with specified requirements, and containing no other ingredients.
 - 1. Colored Portland Cement-Lime Mix:
 - a. Manufacturers: Subject to compliance with requirements, undefined:
 - 1) Flamingo Brixment; Portland & Lime Blend.
 - 2) Lafarge North America Inc.
 - 3) Lehigh Hanson; HeidelbergCement Group.
 - 2. Formulate blend as required to produce color indicated or, if not indicated, as selected from manufacturer's standard colors.
 - 3. Pigments shall not exceed 10 percent of portland cement by weight.
- G. Aggregate for Grout: ASTM C 404.
- H. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Euclid Chemical Company (The); Accelguard 80.
 - b. GCP Applied Technologies; Morset.
 - c. Sonneborn Products, BASF; Trimix-NCA.
- I. Water: Potable.

2.8 REINFORCEMENT

- A. Uncoated-Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60.
- B. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
 - 1. Products: Subject to compliance with requirements, provide one of the following:

- a. Heckmann Building Products Inc.; No. 376 Rebar Positioner.
 - b. Hohmann & Barnard, Inc.; #RB or #RB-Twin Rebar Positioner.
 - c. Wire-Bond; O-Ring or Double O-Ring Rebar Positioner.
- C. Masonry-Joint Reinforcement, General: ASTM A 951/A 951M.
 1. Interior Walls: Hot-dip galvanized carbon steel.
 2. Exterior Walls: Hot-dip galvanized carbon steel.
 3. Wire Size for Side Rods: 0.148-inch diameter.
 4. Wire Size for Cross Rods: 0.148-inch 0.187-inch diameter.
 5. Wire Size for Veneer Ties: 0.187-inch diameter.
 6. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c.
 7. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.
- D. Masonry-Joint Reinforcement for Single-Wythe Masonry: Ladder type with single pair of side rods.
 1. Heckmann Building Products Inc.; #1100 Ladder Type.
 2. Hohmann & Barnard, Inc.; #220 Ladder Mesh.
 3. Wire-Bond; Series 200 Core Clear Ladder Type.
- E. Masonry-Joint Reinforcement for Multiwythe Masonry:
 1. Adjustable (two-piece) type, either ladder or truss design, with one side rod at each face shell of backing wythe and with separate adjustable ties with pintle-and-eye connections having a maximum horizontal play of 1/16 inch and maximum vertical adjustment of 1-1/4 inches. Size ties to extend at least halfway through facing wythe but with at least 5/8-inch cover on outside face. Ties have hooks or clips to engage a continuous horizontal wire in the facing wythe.
 2. Pintle Ties: Units consisting of wire tie section with 1-1/4-inch vertical adjustment, with wire tie length as required to extend 1-1/2-inches into veneer.
 3. Products: Subject to compliance with requirements, provide one of the following:
 - a. Hohmann & Barnard, Inc.; #270 Ladder Eye-Wire.
 - b. Wire-Bond; Series 800 Cavity Ladder Double Hook and Eye.

2.9 TIES AND ANCHORS

- A. General: Ties and anchors shall extend at least 1-1/2 inches into veneer but with at least a 5/8-inch cover on outside face.
- B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:
 1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M, with ASTM A 153/A 153M, Class B-2 coating.
 2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A 153/A 153M, Class B coating.
- C. Individual Wire Ties: Rectangular units with closed ends and not less than 4 inches wide.

1. Where wythes do not align, use adjustable ties with pintle-and-eye connections having a maximum adjustment of 1-1/4 inches.
 2. Wire: Fabricate from 3/16-inch- diameter, hot-dip galvanized steel wire.
- D. Adjustable Anchors for Connecting to Structural Steel Framing: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Furnish 1-3/4-inch wide channel slots, formed from 12 gauge steel sheet, galvanized after fabrication, to the Structural Steel Contractor.
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Heckmann Building Products Inc.; #130 Weld on Channel Slot.
 - 2) Hohmann & Barnard, Inc.; #360 Gripstay Channel.
 - 3) Wire-Bond; #1302 Channel Slot.
 2. Connector Section: Dovetail tabs, 1-inch wide, for inserting into channel slots; formed from 14 gauge, steel sheet, galvanized after fabrication; with 3/16" diameter vee wall tie.
 - a. Products: Subject to compliance with requirements, provide one of the following:
 - 1) Heckmann Building Products Inc.; #129 Channel Slot Triangular Ties.
 - 2) Hohmann & Barnard, Inc.; #363 Flexible Gripstay Anchor.
 - 3) Wire-Bond; #2103 Channel Slot Triangular Tie.
 - b. Structural Performance Characteristics: Capable of withstanding a minimum 100-lbf load in both tension and compression without deforming or developing play in excess of 0.05-inch.
- E. Partition Top Anchors: 0.105-inch- thick metal plate with a 3/8-inch- diameter metal rod 6 inches long welded to plate and with closed-end plastic tube fitted over rod that allows rod to move in and out of tube. Fabricate from steel, hot-dip galvanized after fabrication.
- F. Adjustable Masonry-Veneer Anchors:
1. General: Provide anchors that allow vertical adjustment but resist a 100-lbf load in both tension and compression perpendicular to plane of wall without deforming or developing play in excess of 1/16 inch.
 2. Fabricate sheet metal anchor sections and other sheet metal parts from 0.075-inch- thick steel sheet, galvanized after fabrication.
 3. Fabricate wire ties from 0.187-inch- diameter, hot-dip galvanized-steel wire unless otherwise indicated.
 4. Screw-Attached, Masonry-Veneer Anchors: Wire tie and a rib-stiffened, sheet metal anchor section with screw holes top and bottom, with projecting tabs having holes for inserting vertical legs of wire tie formed to fit anchor section.
 - a. Manufacturers: Subject to compliance with requirements, undefined:

- 1) Heckmann Building Products, Inc.
- 2) Hohmann & Barnard, Inc.
- 3) Wire-Bond.

2.10 EMBEDDED FLASHING MATERIALS

- A. Metal Flashing: Provide metal flashing complying with Section 076200 "Sheet Metal Flashing and Trim" and as follows:
1. Stainless Steel: ASTM A 240/A 240M or ASTM A 666, Type 304, 0.016 inch thick.
 2. Fabricate continuous flashings in sections 96 inches long minimum, but not exceeding 12 feet. Provide splice plates at joints of formed, smooth metal flashing.
 3. Metal Drip Edges: Extend at least 3-inches into wall and 1/2-inch out from wall, with outer edge bent down 30 degrees and hemmed 3/8-inch.
- B. Flexible Flashing: Use the following unless otherwise indicated:
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Carlisle Coatings & Waterproofing Inc.; CCW-705-TWF Thru-Wall Flashing.
 - b. Grace Construction Products; W.R. Grace & Co. - Conn.; Perm-A-Barrier Wall Flashing.
 - c. Henry; Blueskin TWF.
 - d. Tremco Incorporated; ExoAir TWF.
 2. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound, bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than 0.040 inch.
 - a. Accessories: Provide preformed corners, end dams, other special shapes, and seaming materials produced by flashing manufacturer.
- C. Application: Unless otherwise indicated, use the following:
1. Where flashing is indicated to receive counterflashing, use metal flashing.
 2. Where flashing is indicated to be turned down at or beyond the wall face, use metal flashing.
 3. Where flashing is partly exposed and is indicated to terminate at the wall face, use metal flashing with a drip edge.
 4. Where flashing is fully concealed, use metal flashing or flexible flashing.
- D. Solder and Sealants for Sheet Metal Flashings:
1. Solder for Stainless Steel: ASTM B 32, Grade Sn60, with acid flux of type recommended by stainless-steel sheet manufacturer.

- E. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.
- F. Termination Bars for Flexible Flashing: Stainless-steel sheet 0.019 inch by 1-1/2 inches with a 3/8 inch sealant flange at top.

2.11 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.
 - 1. Control Joints and Brick Expansion Joints: Provide compressible filler, 3/8-inch thick and 3-inches wide.
 - a. Products: Subject to compliance with requirements, provide one of the following, or equal:
 - 1) Hohmann & Barnard, Inc.; NS Closed Cell Neoprene Sponge.
 - 2) Wire-Bond; #3300 Expansion Joint.
 - 2. Horizontal Soft Joints: Provide compressible filler, 3/8-inch thick and 3-inches wide, with adhesive coating on one side.
 - a. Products: Subject to compliance with requirements, provide one of the following, or equal:
 - 1) Hohmann & Barnard, Inc.; NS Closed Cell Neoprene Sponge.
 - 2) Wire-Bond; #3300 Expansion Joint.
 - 3. Sponge Wrapping at Seismic Bracing: Provide compressible filler as indicated for Control Joints, except 1/2-inch thick.
 - 4. Premolded Joint Filler at Steel Columns: Provide compressible filler as indicated for Control Joints.
- B. Grout Screen: Fabricated from monofilament polypropylene mesh to prevent grout falling through, without interfering with mortar bond.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Advanced Building Products Inc.; Grout Catch.
 - b. Heckman Building Products, Inc.; Grout Stop.
 - c. Hohmann & Barnard, Inc.; MGS.
 - d. Wire-Bond; Grout Stop 3612.
- C. Preformed Control-Joint Gaskets: Made from PVC, complying with ASTM D 2287, Type PVC-65406 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

1. Products: Subject to compliance with requirements, provide one of the following, or equal:
 - a. Hohmann & Barnard, Inc.; #VS Series - PVC Control Joint.
 - b. Wire-Bond; PVC Control Joint.
- D. Bond-Breaker Strips: Asphalt-saturated felt complying with ASTM D 226/D 226M, Type I (No. 15 asphalt felt).
- E. Weep/Cavity Vent Products: Use the following unless otherwise indicated:
 1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene co-polymer, full height and width of head joint and depth of 1/8-inch less than depth of outer wythe, in color selected from manufacturer's standard.
 2. Products: Subject to compliance with requirements, provide one of the following:
 - a. Advanced Building Products Inc.; Mortar Maze Cell Vent.
 - b. Heckmann Building Products, Inc.; No. 85 Cell Vent.
 - c. Hohmann & Barnard, Inc.; QV Quadro-Vent.
 - d. Wire-Bond; Cell Vent.
- F. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.
 1. Manufacturers: Subject to compliance with requirements, undefined:
 - a. Advanced Building Products Inc.
 - b. CavClear/Archovations, Inc.
 - c. Hohmann & Barnard, Inc.
 - d. Keene Building Products.
 - e. Mortar Net Solutions.
 2. Configuration: Provide one of the following:
 - a. Strips, full depth of cavity and 10 inches high, with dovetail-shaped notches 7 inches deep that prevent clogging with mortar droppings.
 - b. Strips, not less than 3/4 inch thick and 10 inches high, with dimpled surface designed to catch mortar droppings and prevent weep holes from clogging with mortar.

2.12 MASONRY-CELL FILL

- A. Lightweight-Aggregate Fill: ASTM C 331/C 331M.

2.13 MASONRY CLEANERS

- A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry

without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

1. Manufacturers: Subject to compliance with requirements, undefined:
 - a. Diedrich Technologies, Inc.; a Hohmann & Barnard company.
 - b. PROSOCO, Inc.

2.14 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.
 1. Do not use calcium chloride in mortar or grout.
 2. Use portland cement-lime mortar unless otherwise indicated.
 3. For exterior masonry, use portland cement-lime mortar.
 4. For reinforced masonry, use portland cement-lime mortar.
 5. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
- C. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated.
 1. For masonry below grade or in contact with earth, use Type M.
 2. For reinforced masonry, use Type M Type S.
 3. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions; and for other applications where another type is not indicated, use Type N.
 4. For interior nonload-bearing partitions, Type O may be used instead of Type N.
- D. Pigmented Mortar: Use colored cement product.
 1. Pigments shall not exceed 10 percent of portland cement by weight.
 2. Color: As selected by Architect from manufacturer's full range for each material.
 3. Application: Use pigmented mortar for exposed mortar joints with the following units:
 - a. Clay face brick.
- E. Grout for Unit Masonry: Comply with ASTM C 476.
 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
 - a. Use fine grout for 6-inch thick concrete masonry wythes.
 - b. Use course grout for 8-inch thick or greater concrete masonry wythes.

2. Proportion grout in accordance with ASTM C 476, Table 1 or paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi.
3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143/C 143M.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
 2. Verify that foundations are within tolerances specified.
 3. Verify that reinforcing dowels are properly placed.
 4. Verify that substrates are free of substances that impair mortar bond.
- B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections.
- C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match construction immediately adjacent to opening.
- D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.
 1. Mix units from several pallets or cubes as they are placed.
- F. Matching Existing Masonry: Match coursing, bonding, color, and texture of existing masonry.

- G. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested according to ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.3 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch or minus 1/4 inch.
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch.
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch in a story height or 1/2 inch total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet, or 1/2-inch maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2-inch maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2-inch maximum.
6. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet or 1/2-inch maximum.
7. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch.
2. For exposed bed joints, do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
3. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch or minus 1/4 inch.
4. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
5. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.4 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond pattern indicated on Drawings; do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches 4 inches. Bond and interlock each course of each wythe at corners. Do not use units with less-than-nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: Stop work by stepping back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.
- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below, and rod mortar or grout into core.
- H. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.
- I. Build nonload-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
 - 1. Install compressible filler in joint between top of partition and underside of structure above.
 - 2. Fasten partition top anchors to structure above and build into top of partition. Grout cells of CMUs solidly around plastic tubes of anchors and push tubes down into grout to provide 1/2-inch clearance between end of anchor rod and end of tube. Space anchors 48 inches o.c. unless otherwise indicated.
 - 3. At fire-rated partitions, treat joint between top of partition and underside of structure above to comply with Section 078443 "Joint Firestopping."

3.5 MORTAR BEDDING AND JOINTING

- A. Lay CMUs as follows:
 - 1. Bed face shells in mortar and make head joints of depth equal to bed joints.

2. Bed webs in mortar in all courses of piers, columns, and pilasters.
 3. Bed webs in mortar in grouted masonry, including starting course on footings.
 4. Fully bed entire units, including areas under cells, at starting course on footings where cells are not grouted.
 5. Fully bed units and fill cells with mortar at anchors and ties as needed to fully embed anchors and ties in mortar.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.6 CAVITY WALLS

- A. Bond wythes of cavity walls together as follows:
1. Masonry-Joint Reinforcement: Installed in horizontal mortar joints.
 - a. Where bed joints of both wythes align, use ladder-type reinforcement extending across both wythes.
 - b. Where bed joints of wythes do not align, use adjustable-type (two-piece-type) reinforcement with continuous horizontal wire in facing wythe attached to ties.
 - c. Where one wythe is of clay masonry and the other of concrete masonry, use adjustable-type (two-piece-type) reinforcement with continuous horizontal wire in facing wythe attached to ties to allow for differential movement regardless of whether bed joints align.
 2. Masonry-Veneer Anchors: Comply with requirements for anchoring masonry veneers.
- B. Bond wythes of cavity walls together using bonding system indicated on Drawings.
- C. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Do not attempt to trowel or remove mortar fins protruding into cavity.
- D. Installing Cavity Wall Insulation: Place small dabs of adhesive, spaced approximately 12 inches o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
1. Fill cracks and open gaps in insulation with crack sealer compatible with insulation and masonry.
- E. Apply air barrier to face of backup wythe to comply with Section 072727 "Self-Adhering Water-Resistive Air Barrier Membrane."

3.7 ANCHORED MASONRY VENEERS

- A. Anchor masonry veneers to wall framing and concrete and masonry backup with masonry-veneer anchors to comply with the following requirements:
 - 1. Fasten screw-attached and seismic anchors through sheathing to wall framing and to concrete and masonry backup with metal fasteners of type indicated. Use two fasteners unless anchor design only uses one fastener.
 - 2. Embed tie sections in masonry joints.
 - 3. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
 - 4. Space anchors as indicated, but not more than 16 inches o.c. vertically and 16 inches o.c. horizontally, with not less than one anchor for each 2 sq. ft. of wall area. Install additional anchors within 12 inches of openings and at intervals, not exceeding 8 inches, around perimeter.
 - 5. Provide seismic veneer anchors with continuous wire at concrete masonry veneer.

3.8 MASONRY-CELL FILL

- A. Pour lightweight-aggregate fill into cavities to fill void spaces. Maintain inspection ports to show presence of fill at extremities of each pour area. Close the ports after filling has been confirmed. Limit the fall of fill to one story high, but not more than 20 feet.

3.9 MASONRY-JOINT REINFORCEMENT

- A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
 - 1. Space reinforcement not more than 16 inches o.c.
 - 2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
 - 3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings in addition to continuous reinforcement.
- B. Interrupt joint reinforcement at control and expansion joints unless otherwise indicated.
- C. Provide continuity at wall intersections by using prefabricated T-shaped units.
- D. Provide continuity at corners by using prefabricated L-shaped units.
- E. Cut and bend reinforcing units as directed by manufacturer for continuity at corners, returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.10 ANCHORING MASONRY TO STRUCTURAL STEEL AND CONCRETE

- A. Anchor masonry to structural steel and concrete, where masonry abuts or faces structural steel or concrete, to comply with the following:

1. Provide an open space not less than 1 inch wide between masonry and structural steel or concrete unless otherwise indicated. Keep open space free of mortar and other rigid materials.
2. Anchor masonry with anchors embedded in masonry joints and attached to structure.
3. Space anchors as indicated, but not more than 16 inches o.c. vertically and 16 inches o.c. horizontally.

3.11 CONTROL AND EXPANSION JOINTS

- A. General: Install control- and expansion-joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.
- B. Form control joints in concrete masonry as follows:
 1. Fit bond-breaker strips into hollow contour in ends of CMUs on one side of control joint. Fill resultant core with grout, and rake out joints in exposed faces for application of sealant.
 2. Install control joints in interior concrete masonry partitions where indicated, and as follows. During wall layout, verify locations of all control joints with Architect.
 - a. Spacing of control joints in straight walls not to exceed 20 feet horizontally.
 - b. Install control joints at intersections of walls and column enclosures.
- C. Form expansion joints in brick as follows:
 1. Build flanges of metal expansion strips into masonry. Lap each joint 4 inches in direction of water flow. Seal joints below grade and at junctures with horizontal expansion joints if any.
 2. Form open joint full depth of brick wythe and of width indicated, but not less than 3/8 inch for installation of sealant and backer rod specified in Section 079200 "Joint Sealants."
 3. Spacing in brick veneer not to exceed 24 feet.
 4. Spacing in concrete masonry veneer not to exceed 18 feet.
- D. Provide horizontal, pressure-relieving joints by either leaving an airspace or inserting a compressible filler of width required for installing sealant and backer rod specified in Section 079200 "Joint Sealants," but not less than 3/8 inch.
 1. Locate horizontal, pressure-relieving joints beneath shelf angles supporting masonry.
- E. Install sponge wrapping and premolded joint filler where masonry abuts steel seismic bracing and steel columns.

3.12 LINTELS

- A. Install steel lintels where indicated.

- B. Provide or masonry lintels where shown and where openings of more than 12 inches for brick-size units and 24 inches for block-size units are shown without structural steel or other supporting lintels.
- C. Provide minimum bearing of 8 inches at each jamb unless otherwise indicated.

3.13 FLASHING, WEEP HOLES, AND CAVITY VENTS

- A. General: Install embedded flashing and weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated. Install cavity vents at shelf angles, ledges, and other obstructions to upward flow of air in cavities, and where indicated.
- B. Install flashing as follows unless otherwise indicated:
 - 1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
 - 2. At masonry-veneer walls, extend flashing through veneer, across airspace behind veneer, and up face of sheathing at least 16 inches or 6 inches above cavity drainage material, whichever is greater.
 - 3. At lintels and shelf angles, extend flashing a minimum of 8 inches into masonry at each end. At heads and sills, extend flashing 8 inches at ends and turn up not less than 2 inches to form end dams.
 - 4. Install termination bar at top edge of flashing and apply manufacturer's rubberized asphalt based termination mastic continuously at the top edge of the termination bar.
 - 5. At heads and sills, extend flashing as specified above unless otherwise indicated but turn up ends not less than 2 inches to form a pan.
 - 6. Install metal drip edges beneath flexible flashing at exterior face of wall. Stop flexible flashing 1/2 inch back from outside face of wall, and adhere flexible flashing to top of metal drip edge.
 - a. Install prefabricated inside and outside corners as required at inside and outside corners of wall conditions.
 - 7. Cut flexible flashing off flush with face of wall after masonry wall construction is completed.
- C. Install reglets and nailers for flashing and other related construction where they are shown to be built into masonry.
- D. Install weep holes in exterior wythes and veneers in head joints of first course of masonry immediately above embedded flashing.
 - 1. Use specified weep/cavity vent products to form weep holes.
 - 2. Space weep holes 24 inches o.c. unless otherwise indicated.

- E. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in "Miscellaneous Masonry Accessories" Article.

3.14 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 - 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 - 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and that of other loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
 - 1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
- D. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.

3.15 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.
- B. Inspections: Special inspections according to the Connecticut State Building Code.
 - 1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
 - 2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
- C. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.
- D. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for compressive strength.

- E. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

3.16 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 - 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 - 5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
 - 6. Clean concrete masonry by applicable cleaning methods indicated in NCMA TEK 8-4A.
 - 7. Clean masonry with a proprietary acidic cleaner applied according to manufacturer's written instructions.

3.17 MASONRY WASTE DISPOSAL

- A. Salvageable Materials: Unless otherwise indicated, excess masonry materials are Contractor's property. At completion of unit masonry work, remove from Project site.

END OF SECTION 042000

SECTION 054000 - COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Exterior non-load-bearing wall framing.
- B. Related Requirements:
 - 1. Section 092216 "Non-Structural Metal Framing" for standard, interior non-load bearing, metal-stud framing, with height limitations and ceiling-suspension assemblies.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Engineering Design: Drawings and calculations for each wall type and for each different structural loading situation in the Project. Signed and sealed by Engineer registered in the State of Connecticut.
- C. Shop Drawings:
 - 1. Include layout, spacings, sizes, thicknesses, and types of cold-formed steel framing; fabrication; and fastening and anchorage details, including mechanical fasteners.
 - 2. Indicate reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details, and attachment to adjoining work.
 - 3. Signed and sealed by Engineer registered in the State of Connecticut.

1.5 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of code-compliance certification for studs and tracks.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer who has completed cold-formed metal framing similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.
- B. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.
- C. Marking of Framing Members: Provide factory-applied marking and identification on each steel member, including roll-former's identification, steel thickness, in mils or inches exclusive of protective coating, yield strength in ksi, coating weight using standard coating designation, and color-coating as required by Building Code.

1.7 DELIVERY, STORAGE AND HANDLING

- A. Protect cold-formed metal framing from corrosion, deformation, and other damage during delivery, storage and handling.
- B. Store cold-formed metal framing, protect with a waterproof cover, and ventilate to avoid condensation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements.

2.2 PERFORMANCE REQUIREMENTS

- A. AISI "Specifications": Calculate structural characteristics of cold-formed metal framing according to AISI's "Specification for the Design of Cold-formed Steel Structural Members" and the following:
 - 1. Center for Cold-Formed Steel Structures (CCFSS) Technical Bulletin, Vol. 2, No. 1, February 1993 "AISI Specification Provisions for Screw Connections."
- B. Structural Performance: Provide cold-formed steel framing capable of withstanding design loads within limits and under conditions indicated.
 - 1. Design Loads: per State of Connecticut Building Codes.
 - 2. Deflection Limits: Design framing systems to withstand design loads without deflections greater than the following:
 - a. Exterior Non-Load Bearing Framing: Horizontal deflection of 1/600 of the wall height.

3. Design framing systems to provide for movement of framing members located outside the insulated building envelope without damage or overstressing, sheathing failure, connection failure, undue strain on fasteners and anchors, or other detrimental effects when subject to a maximum ambient temperature change of 120 deg F.
 4. Design framing system to maintain clearances at openings, to allow for construction tolerances, and to accommodate live load deflection of primary building structure as follows:
 - a. Upward and downward movement of 3/4 inch.
 5. Design exterior non-load-bearing wall framing to accommodate horizontal deflection without regard for contribution of sheathing materials.
- C. Cold-Formed Steel Framing Standards: Unless more stringent requirements are indicated, framing shall comply with AISI S100, AISI S200, and the following:
1. Floor and Roof Systems: AISI S210.
 2. Wall Studs: AISI S211.
 3. Headers: AISI S212.
 4. Lateral Design: AISI S213.
- D. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency acceptable to authorities having jurisdiction.
- 2.3 COLD-FORMED STEEL FRAMING MATERIALS
- A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating designation as follows:
1. Grade: As required by structural performance.
 2. Coating: G90 or equivalent.
- B. Steel Sheet for Clips: ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:
1. Grade: As required by structural performance.
 2. Coating: G90.
- 2.4 EXTERIOR NON-LOAD BEARING WALL FRAMING
- A. Structural performance: provide cold-formed metal framing capable of withstanding design loads within limits and under conditions indicated.

1. Design Loads: Design exterior non-load bearing wall backup framing for +22.9, -30.1 psf wind load with only bare stud acting to resist, and the studs spaced at maximum sixteen (16) inch centers. Stud wall opening headers are required to carry weight of stud wall above as well as horizontal wind.
2. Deflection Limits: Design framing systems to withstand wind loads indicated above without deflections greater than the following:
 - B. Exterior Non-Load Bearing Framing: Stud selection is dependent upon the unbraced height of stud, measured from bottom track to top of top track. Maximum allowable height for each type and gauge of stud is based upon maximum deflection of $L/600$ for masonry veneer, $L/360$ for non-masonry veneer, unless noted otherwise
 - C. Steel Studs: Manufacturer's standard C-shaped steel studs, of web depths indicated, punched, with stiffened flanges, and as follows:
 1. Minimum Base-Metal Thickness: 0.0329 inch.
 - D. Steel Track: Manufacturer's standard U-shaped steel track, of web depths indicated, unpunched, with unstiffened flanges, and as follows:
 1. Minimum Base-Metal Thickness: Matching steel studs.

2.5 FRAMING ACCESSORIES

- A. Fabricate steel-framing accessories from ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated steel sheet, of same grade and coating designation used for framing members.
 1. Provide with minimum yield strength of 33,000 psi.
- B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:
 1. Supplementary framing.
 2. Bracing, bridging, and solid blocking.
 3. Web stiffeners.
 4. Gusset plates.
 5. Stud kickers and knee braces.
 6. Reinforcement plates.

2.6 ANCHORS, CLIPS, AND FASTENERS

- A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.
 1. Provide deflection clips at exterior stud framing connections to top tracks.

- B. Anchor Bolts: ASTM F 1554,, threaded carbon-steel hex-headed bolts, carbon-steel nuts, and flat, hardened-steel washers; zinc coated by hot-dip process according to ASTM A 153/A 153M, Class C.
- C. Expansion Anchors: Fabricated from corrosion-resistant materials, with capability to sustain, without failure, a load equal to 5 times the design load, as determined by testing per ASTM E 488 conducted by a qualified testing agency.
- D. Power-Actuated Anchors: Fastener systems with working capacity greater than or equal to the design load, according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- E. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.
 - 1. Head Type: Low-profile head beneath sheathing; manufacturer's standard elsewhere.
- F. Welding Electrodes: Comply with AWS standards.

2.7 MISCELLANEOUS MATERIALS

- A. Galvanizing Repair Paint: SSPC-Paint 20.
- B. Shims: Load bearing, high-density, multimonomer, non-leaching plastic; or cold-formed steel of same grade and metallic coating as framing members supported by shims.
- C. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to match width of bottom track or rim track members as required.

2.8 FABRICATION

- A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
 - 1. Fabricate framing assemblies using jigs or templates.
 - 2. Cut framing members by sawing or shearing; do not torch cut.
 - 3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.
 - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - b. Locate mechanical fasteners and install according to Shop Drawings, with screws penetrating joined members by no fewer than three exposed screw threads.

4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies by means that prevent damage or permanent distortion.
- C. Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable variation of 1/8 inch in 10 feet and as follows:
 1. Spacing: Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
 2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, conditions, and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Install load-bearing shims or grout between the underside of load-bearing wall bottom track and the top of foundation wall or slab at locations with a gap larger than 1/4 inch to ensure a uniform bearing surface on supporting concrete or masonry construction.
- B. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

3.3 INSTALLATION, GENERAL

- A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.
- B. Install cold-formed steel framing according to AISI S200, AISI S202, and manufacturer's written instructions unless more stringent requirements are indicated.
- C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.

1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch.
- D. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.
 1. Cut framing members by sawing or shearing; do not torch cut.
 2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.
 - a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
 - b. Locate mechanical fasteners, install according to Shop Drawings, and comply with requirements for spacing, edge distances, and screw penetration.
- E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.
- F. Install temporary bracing and supports to secure framing and support loads equal to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.
- G. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.
- H. Install insulation, specified in Section 072100 "Thermal Insulation," in framing-assembly members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.
- I. Fasten hole-reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.
- J. Erection tolerances: Install cold-formed metal framing to a maximum allowable tolerance variation for plum, level, and true to line of 1/8-inch in 10 feet, and as follows:
 1. Space individual framing members no more than plus or minus 1/8-inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
 2. Locate framing members in addition to those at typical spacing as required to provide attachment for metal ties for unit masonry.

3.4 EXTERIOR NON-LOAD-BEARING WALL INSTALLATION

- A. Install continuous tracks sized to match studs. Align tracks accurately and securely anchor to supporting structure.

- B. Fasten both flanges of studs to top and bottom track unless otherwise indicated. Space studs as follows:
 - 1. Stud Spacing: 16 inches.
- C. Set studs plumb, except as needed for diagonal bracing or required for non-plumb walls or warped surfaces and similar requirements.
- D. Isolate non-load-bearing steel framing from building structure to prevent transfer of vertical loads while providing lateral support.
 - 1. Connect vertical deflection clips to studs and anchor to building structure.
- E. Install horizontal bridging in wall studs, spaced vertically in rows indicated on Shop Drawings but not more than 48 inches apart. Fasten at each stud intersection.
 - 1. Channel Bridging: Cold-rolled steel channel, welded or mechanically fastened to webs of punched studs.
- F. Install miscellaneous framing and connections, including stud kickers, web stiffeners, clip angles, continuous angles, anchors, and fasteners, to provide a complete and stable wall-framing system.

3.5 ERECTION TOLERANCES

- A. Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet and as follows:
 - 1. Space individual framing members no more than plus or minus 1/8 inch from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.6 REPAIRS AND PROTECTION

- A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780/A 780M and manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 054000

SECTION 055000 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Steel framing and supports for mechanical and electrical equipment.
 - 2. Steel framing and supports for applications where framing and supports are not specified elsewhere in other Sections.
 - 3. Support angles for elevator door sills.
 - 4. Miscellaneous steel trim including steel angle corner guards.
 - 5. Metal ladders.
- B. Products furnished, but not installed, under this Section include the following:
 - 1. Loose steel lintels.
 - 2. Anchor bolts, steel pipe sleeves, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
- C. Related Sections include the following:
 - 1. Section 042000 "Unit Masonry" for installing loose lintels, anchor bolts, and other items indicated to be built into unit masonry.
 - 2. Section 142100 "Electric Traction Elevators."

1.3 PERFORMANCE REQUIREMENTS

- A. Structural Performance of Ladders: Provide ladders capable of withstanding the effects of loads and stresses within limits and under conditions specified in ANSI A14.3.
- B. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

1.4 SUBMITTALS

- A. Product Data: For the following:
 - 1. Paint products.
 - 2. Grout.
- B. Shop Drawings: Show fabrication and installation details for metal fabrications.
 - 1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
 - 2. Provide templates for anchors and bolts specified for installation under other Sections.
 - 3. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer licensed in the State of Connecticut responsible for their preparation.
- C. Mill Certificates: Signed by manufacturers of stainless-steel sheet certifying that products furnished comply with requirements.
- D. Welding certificates.
- E. Qualification Data: For professional engineer.

1.5 QUALITY ASSURANCE

- A. Welding: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1, "Structural Welding Code--Steel."
 - 2. AWS D1.3, "Structural Welding Code--Sheet Steel."
 - 3. AWS D1.6, "Structural Welding Code--Stainless Steel."

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication and indicate measurements on Shop Drawings.

1.7 COORDINATION

- A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- C. Rolled Steel Floor Plate: ASTM A 786/A 786M, rolled from plate complying with ASTM A 36/A 36M or ASTM A 283/A 283M, Grade C or D.
- D. Steel Tubing: ASTM A 500/A 500M.
- E. Steel Pipe: ASTM A 53/A 53M, standard weight (Schedule 40), black finish.
- F. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 240/A 240M or ASTM A 666, Type 304.
- G. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.

2.2 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners at exterior walls. Select fasteners for type, grade, and class required.
 - 1. Provide stainless-steel fasteners for fastening aluminum.
 - 2. Provide stainless-steel fasteners for fastening stainless steel.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.
- C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, nuts and, where indicated, flat washers; ASTM F 593 for bolts and ASTM F 594 for nuts, Alloy Group 1.
- D. Anchor Bolts: ASTM F 1554, Grade 36.
 - 1. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts where item being fastened is indicated to be galvanized.
- E. Eyebolts: ASTM A 489.
- F. Machine Screws: ASME B18.6.3.
- G. Lag Bolts: ASME B18.2.1.
- H. Wood Screws: Flat head, ASME B18.6.1.

- I. Plain Washers: Round, ASME B18.22.1.
- J. Lock Washers: Helical, spring type, ASME B18.21.1.
- K. Cast-in-Place Anchors in Concrete: Anchors capable of sustaining, without failure, a load equal to four times the load imposed, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.
- L. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Material for Anchors in Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material for Anchors in Exterior Locations: Alloy Group 1 stainless-steel bolts complying with ASTM F 593 and nuts complying with ASTM F 594.

2.3 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint for re-galvanizing welds in steel, complying with SSPC-Paint 20.
- D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.
- E. Non-shrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.4 FABRICATION

- A. General: Shear and punch metals cleanly and accurately. Remove burrs and ease exposed edges. Form bent-metal corners to smallest radius possible without impairing work.
- B. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.

- C. Welding: Weld corners and seams continuously. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. At exposed connections, finish welds and surfaces smooth, with contour of welded surface matching those adjacent.
- D. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
- E. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.
- F. On units indicated to be cast into concrete or built into masonry, provide welded-steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c.
- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- I. Fabricate loose lintels from steel angles and shapes. Size to provide bearing length at each side of openings equal to one-twelfth of clear span, but not less than 8 inches.
- J. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- K. Fabricate ladders for locations shown, complying with ANSI A14.3, welded-steel construction.
 - 1. For elevator pit ladders, comply with ASME A17.1/CSA B44.

2.5 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.
 - 1. Furnish inserts if units are installed after concrete is placed.

2.6 MISCELLANEOUS STEEL TRIM

- A. Unless otherwise indicated, fabricate units from steel shapes, plates, and bars of profiles shown with continuously welded joints and smooth exposed edges. Miter corners and use concealed field splices where possible.

- B. Provide cutouts, fittings, and anchorages as needed to coordinate assembly and installation with other work.
 - 1. Provide with integrally welded steel strap anchors for embedding in concrete or masonry construction.

2.7 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.

2.8 STEEL AND IRON FINISHES

- A. Hot-dip galvanize steel fabrications at exterior locations.
- B. Prepare uncoated ferrous metal surfaces to comply with SSPC-SP 3 and paint with a fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79.
- C. Shop Priming: Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes and those to be embedded in concrete, sprayed-on fireproofing, or masonry, unless otherwise indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

2.9 STAINLESS-STEEL FINISHES

- A. Remove tool and die marks and stretch lines or blend into finish.
- B. Grind and polish surfaces to produce uniform, directionally textured, polished finish indicated, free of cross scratches. Run grain with long dimension of each piece.
- C. Bright, Directional Satin Finish: No. 4.
- D. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Provide anchorage devices and fasteners where needed to secure items to in-place construction.

- B. Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation, with edges and surfaces level, plumb, true, and free of rack.
- C. Fit exposed connections accurately together to form hairline joints or, where indicated, with uniform reveals and spaces for sealants and joint fillers.
- D. Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with a heavy coat of bituminous paint.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

3.3 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPCPA 1 for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

END OF SECTION 055000

SECTION 055213 - PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Steel pipe and tube railings.
- B. Related Requirements:
 - 1. Section 099113 "Exterior Painting" for galvanized metal.
 - 2. Section 321313 "Concrete Paving" for walks.

1.3 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- C. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

1.4 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Manufacturer's product lines of mechanically connected railings.
 - 2. Railing brackets.
 - 3. Grout, anchoring cement, and paint products.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each type of exposed finish required.

1. Sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters, including finish.
 2. Fittings and brackets.
 3. Assembled Sample of railing system, made from full-size components, including top rail, post, handrail, and infill. Sample need not be full height.
 - a. Show method of connecting and finishing members at intersections.
- D. Delegated-Design Submittal: For railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For testing agency.
- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.
- D. Product Test Reports: For pipe and tube railings, for tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.
- E. Evaluation Reports: For post-installed anchors, from ICC-ES.

1.6 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Steel Pipe and Tube Railings:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Wagner, R & B, Inc. or equal.
- B. Source Limitations: Obtain each type of railing from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design railings, including attachment to building construction.
- B. Structural Performance: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
 - 2. Infill of Guards:
 - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft..
 - b. Infill load and other loads need not be assumed to act concurrently.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.3 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.
 - 1. Provide type of bracket with flange tapped for concealed anchorage to threaded hanger bolt and that provides 1-1/2-inch clearance from inside face of handrail to finished wall surface.

2.4 STEEL AND IRON

- A. Tubing: ASTM A 500 (cold formed).
- B. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
 - 1. Provide galvanized finish for exterior installations and where indicated.
- C. Plates, Shapes, and Bars: ASTM A 36/A 36M.

2.5 FASTENERS

- A. General: Provide the following:
 - 1. Ungalvanized-Steel Railings: Plated steel fasteners complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5 for zinc coating.
 - 2. Hot-Dip Galvanized Railings: Type 304 stainless-steel or hot-dip zinc-coated steel fasteners complying with ASTM A 153/A 153M or ASTM F 2329 for zinc coating.
 - 3. Provide exposed fasteners with finish matching appearance, including color and texture, of railings.
- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.
- C. Fasteners for Interconnecting Railing Components:
 - 1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless otherwise indicated.
 - 2. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are the standard fastening method for railings indicated.
 - 3. Provide tamper-resistant flat-head machine screws for exposed fasteners unless otherwise indicated.
- D. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors capable of sustaining, without failure, a load equal to 6 times the load imposed when installed in unit masonry and 4 times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.
 - 1. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.6 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.

1. For and railings, provide type and alloy as recommended by producer of metal to be welded and as required for color match, strength, and compatibility in fabricated items.
- B. Etching Cleaner for Galvanized Metal: Complying with MPI#25.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- D. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.
- E. Intermediate Coats and Topcoats: Provide products that comply with Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."
- F. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.
- G. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- H. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
1. Water-Resistant Product: At exterior locations provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.7 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Shop assemble railings to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form work true to line and level with accurate angles and surfaces.
- E. Fabricate connections that are exposed to weather in a manner that excludes water. Provide weep holes where water may accumulate.

- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- G. Connections: Fabricate railings with welded connections unless otherwise indicated.
- H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove flux immediately.
 - 4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- I. Form Changes in Direction as Follows:
 - 1. By bending.
 - 2. By flush bends.
 - 3. By radius bends of radius indicated.
- J. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- K. Close exposed ends of railing members with prefabricated end fittings.
- L. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch or less.
- M. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
- N. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.
- O. For railing posts set in concrete, provide steel sleeves not less than 6 inches long with inside dimensions not less than 1/2 inch greater than outside dimensions of post, with metal plate forming bottom closure.

2.8 STEEL AND IRON FINISHES

- A. Galvanized Railings:
 - 1. Hot-dip galvanize exterior steel railings, including hardware, after fabrication.
 - 2. Comply with ASTM A 123/A 123M for hot-dip galvanized railings.
 - 3. Comply with ASTM A 153/A 153M for hot-dip galvanized hardware.
 - 4. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

5. Fill vent and drain holes that are exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- B. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.
- C. Preparing Galvanized Railings for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with etching cleaner.
- D. Primer Application: Apply shop primer to prepared surfaces of railings unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
 1. Shop prime uncoated railings with primers specified in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting" unless indicated.
- E. Shop-Painted Finish: Comply with Section 099113 "Exterior Painting."
 1. Color: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
 1. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet.
- C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
 1. Coat, with a heavy coat of bituminous paint, concealed surfaces of aluminum that are in contact with grout, concrete, masonry, wood, or dissimilar metals.
- D. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

3.2 RAILING CONNECTIONS

- A. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.
- B. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches of post.

3.3 ANCHORING POSTS

- A. Use metal sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.
- B. Form or core-drill holes not less than 5 inches deep and 3/4 inch larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.
- C. Cover anchorage joint with flange of same metal as post, attached to post with set screws.
- D. Leave anchorage joint exposed with 1/8-inch buildup, sloped away from post.

3.4 ADJUSTING AND CLEANING

- A. Touchup Painting: Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."

3.5 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

END OF SECTION 055213

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Wood blocking, cants, and nailers.
 - 2. Plywood backing panels.
- B. Related Requirements:
 - 1. Section 061600 "Sheathing" for sheathing, subflooring, and underlayment.
 - 2. Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" for furnishing and installation of wood blocking, nailers and plywood associated with roofing.

1.3 DEFINITIONS

- A. Dimension Lumber: Lumber of 2 inches nominal or greater size but less than 5 inches nominal size in least dimension.
- B. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.

3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.5 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Preservative-treated wood.
2. Fire-retardant-treated wood.
3. Power-driven fasteners.
4. Post-installed anchors.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
1. Factory mark each piece of lumber with grade stamp of grading agency.
 2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 3. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

2.2 FIRE-RETARDANT-TREATED MATERIALS

- A. General: Where fire-retardant-treated materials are indicated, materials shall comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

- B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.
 - 1. Treatment shall not promote corrosion of metal fasteners.
 - 2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
 - 3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
- C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
- D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.
- E. Application: Treat all miscellaneous carpentry unless otherwise indicated.

2.3 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
 - 3. Cants.
 - 4. Furring.
- B. Dimension Lumber Items: Construction or No. 2 grade lumber of the following species:
 - 1. Hem-fir (north); NLGA.
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.4 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: Plywood, DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

2.5 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 - 1. Where carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Screws for Fastening to Metal Framing: ASTM C 1002, length as recommended by screw manufacturer for material being fastened.
- D. Wood Screws: ASME B18.6.1
- E. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- F. Lag Bolts: ASME B18.2.1.
- G. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nut and, where indicated, flat washers.
- H. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspection agency.
 - 1. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

- B. Set carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- C. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.
- D. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- E. Do not splice structural members between supports unless otherwise indicated.
- F. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- G. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
 - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
- H. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- I. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
 - 2. ICC-ES evaluation report for fastener.
- J. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

3.2 WOOD BLOCKING AND NAILER INSTALLATION

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

3.3 WOOD FURRING INSTALLATION

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.
- B. Furring to Receive Plywood or Hardboard Paneling: Install 1-by-3-inch nominal- size furring vertically at 24 inches o.c.

3.4 PROTECTION

- A. Protect miscellaneous rough carpentry from weather. If, despite protection, miscellaneous rough carpentry becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061053

SECTION 061600 - SHEATHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Wall sheathing.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
- B. Shop Drawings: For air-barrier and water-resistant glass-mat gypsum sheathing assemblies.
 - 1. Show locations and extent of sheathing, accessories, and assemblies specific to Project conditions.
 - 2. Include details for sheathing joints and cracks, counterflashing strips, penetrations, inside and outside corners, terminations, and tie-ins with adjoining construction.
 - 3. Include details of interfaces with other materials that form part of air barrier.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack panels flat with spacers beneath and between each bundle to provide air circulation. Protect sheathing from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WALL SHEATHING

A. Glass-Mat Gypsum Sheathing: ASTM C 1177/1177M.

1. Products: Subject to compliance with requirements, provide one of the following:
 - a. National Gypsum Company.
 - b. USG Corporation.
2. Type and Thickness: Type X, 5/8 inch thick.
3. Size: 48 by 96 inches for vertical installation.

2.2 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.
 1. For wall sheathing, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing to be attached.
 1. For steel framing less than 0.0329 inch thick, use screws that comply with ASTM C 1002.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Do not use materials with defects that impair quality of sheathing or pieces that are too small to use with minimum number of joints or optimum joint arrangement. Arrange joints so that pieces do not span between fewer than three support members.
- B. Cut panels at penetrations, edges, and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.
- C. Securely attach to substrate by fastening as indicated, complying with the following:
 1. Table 2304.9.1, "Fastening Schedule," in the ICC's International Building Code.
 2. ICC-ES evaluation report for fastener.

- D. Coordinate wall sheathing installation with flashing and joint-sealant installation, so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.
- E. Do not bridge building expansion joints; cut and space edges of panels to match spacing of structural support elements.
- F. Coordinate sheathing installation with installation of materials installed over sheathing so sheathing is not exposed to precipitation or left exposed at end of the workday when rain is forecast.

3.2 GYPSUM SHEATHING INSTALLATION

- A. Comply with GA-253 and with manufacturer's written instructions.
 - 1. Fasten gypsum sheathing to cold-formed metal framing with screws.
 - 2. Install panels with a 3/8-inch gap where non-load-bearing construction abuts structural elements.
 - 3. Install panels with a 1/4-inch gap where they abut masonry or similar materials that might retain moisture, to prevent wicking.
- B. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.
- C. Horizontal Installation: Install sheathing with V-grooved edge down and tongue edge up. Interlock tongue with groove to bring long edges in contact with edges of adjacent panels without forcing. Abut ends over centers of studs, and stagger end joints of adjacent panels not less than one stud spacing. Attach at perimeter and within field of panel to each stud.
 - 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.
- D. Vertical Installation: Install vertical edges centered over studs. Abut ends and edges with those of adjacent panels. Attach at perimeter and within field of panel to each stud.
 - 1. Space fasteners approximately 8 inches o.c. and set back a minimum of 3/8 inch from edges and ends of panels.

END OF SECTION 061600

SECTION 071326 - SELF-ADHERING SHEET WATERPROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Modified bituminous sheet waterproofing.
- B. Related Requirements:
 - 1. Section 079513.16 "Exterior Expansion Joint Cover Assemblies" for exterior-wall expansion-joint assemblies that interface with waterproofing.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review waterproofing requirements including surface preparation, substrate condition and pretreatment, minimum curing period, forecasted weather conditions, special details and sheet flashings, installation procedures, testing and inspection procedures, and protection and repairs.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, and tested physical and performance properties of waterproofing.
 - 2. Include manufacturer's written instructions for evaluating, preparing, and treating substrate.
- B. Shop Drawings: Show locations and extent of waterproofing and details of substrate joints and cracks, expansion joints, sheet flashings, penetrations, inside and outside corners, tie-ins with adjoining waterproofing, and other termination conditions.
- C. Samples: For each exposed product and for each color and texture specified, including the following products:

1. 8-by-8-inch square of waterproofing and flashing sheet.
2. 4-by-4-inch square of drainage panel.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Sample Warranties: For special warranties.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by waterproofing manufacturer.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Apply waterproofing within the range of ambient and substrate temperatures recommended in writing by waterproofing manufacturer. Do not apply waterproofing to a damp or wet substrate.
 1. Do not apply waterproofing in snow, rain, fog, or mist.
- B. Maintain adequate ventilation during preparation and application of waterproofing materials.

1.8 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to furnish replacement waterproofing material for waterproofing that does not comply with requirements or that fails to remain watertight within specified warranty period.
 1. Warranty Period: Five years from date of Substantial Completion.
 2. Warranty Period for Material Only: Ten years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations for Waterproofing System: Obtain waterproofing materials, protection course, and molded-sheet drainage panels from single source from single manufacturer.

2.2 MODIFIED BITUMINOUS SHEET WATERPROOFING

- A. Modified Bituminous Sheet: Minimum 60-mil nominal thickness, self-adhering sheet consisting of 56 mils of rubberized asphalt laminated on one side to a 4-mil- thick, polyethylene-film reinforcement, and with release liner on adhesive side; formulated for application with primer or surface conditioner that complies with VOC limits of authorities having jurisdiction.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Carlisle Coatings & Waterproofing Inc; CCW MiraDRI 860/861.
 - b. GCP Applied Technologies Inc. (formerly Grace Construction Products); Bituthene 4000
 - c. Henry Company; Blueskin WP 200
 - d. W.R. Meadows, Inc; Mel-Rol
 2. Physical Properties:
 - a. Tensile Strength, Membrane: 250 psi minimum; ASTM D 412, Die C, modified.
 - b. Ultimate Elongation: 300 percent minimum; ASTM D 412, Die C, modified.
 - c. Low-Temperature Flexibility: Pass at minus 20 deg F; ASTM D 1970/D 1970M.
 - d. Crack Cycling: Unaffected after 100 cycles of 1/8-inch movement; ASTM C 836/C 836M.
 - e. Puncture Resistance: 40 lbf minimum; ASTM E 154/E 154M.
 - f. Water Absorption: 0.2 percent weight-gain maximum after 48-hour immersion at 70 deg F; ASTM D 570.
 - g. Water Vapor Permeance: 0.05 perm maximum; ASTM E 96/E 96M, Water Method.
 - h. Hydrostatic-Head Resistance: 200 feet minimum; ASTM D 5385.
 3. Sheet Strips: Self-adhering, rubberized-asphalt strips of same material and thickness as sheet waterproofing.

2.3 AUXILIARY MATERIALS

- A. Furnish auxiliary materials recommended by waterproofing manufacturer for intended use and compatible with sheet waterproofing.
1. Furnish liquid-type auxiliary materials that comply with VOC limits of authorities having jurisdiction.
- B. Primer: Liquid waterborne primer recommended for substrate by sheet-waterproofing material manufacturer.
- C. Surface Conditioner: Liquid, waterborne surface conditioner recommended for substrate by sheet-waterproofing material manufacturer.
- D. Liquid Membrane: Elastomeric, two-component liquid, cold fluid applied, of trowel grade or low viscosity.
- E. Substrate Patching Membrane: Low-viscosity, two-component, modified asphalt coating.

- F. Metal Termination Bars: Aluminum bars, approximately 1 by 1/8 inch, predrilled at 9-inch centers.
- G. Protection Course: Fan folded, with a core of extruded-polystyrene board insulation faced on one side with plastic film, nominal thickness 1/4 inch, with compressive strength of not less than 8 psi per ASTM D 1621, and maximum water absorption by volume of 0.6 percent per ASTM C 272/C 272M.

2.4 MOLDED-SHEET DRAINAGE PANELS

- A. Nonwoven-Geotextile-Faced, Molded-Sheet Drainage Panel with Polymeric Film: Composite subsurface drainage panel acceptable to waterproofing manufacturer and consisting of a studded, nonbiodegradable, molded-plastic-sheet drainage core; with a nonwoven, needle-punched geotextile facing with an apparent opening size not exceeding No. 70 sieve laminated to one side of the core and a polymeric film bonded to the other side; and with a vertical flow rate through the core of 9 to 21 gpm per ft..
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Carlisle Coatings & Waterproofing Inc; CCW MiraDRAIN 6200
 - b. GCP Applied Technologies Inc. (formerly Grace Construction Products); Hydroduct 220
 - c. Henry Company; Henry DB 220.
 - d. Meadows, W.R., Inc.; Mel-Drain 5035.
 - 2. Drainage Core: Three-dimensional, non-biodegradable, molded-plastic-sheet material designed to effectively conduct water to foundation drainage system under maximum soil pressures.
 - a. Minimum Compressive Strength: 15,000 psi when tested according to ASTM D-1621.
 - b. Maximum Flow Rate: 16 gpm/foot at 1 hydraulic gradient and 3,600 psf normal pressure when tested according to ASTM D 4716.
 - c. Film Backing: Plastic, protective-film, backing sheet attached to surface facing building wall.
 - 3. Filter Fabric: Non-woven geotextile fabric of polypropylene (PP) or polyester fibers, or combination of both.
 - a. Weight: 4.0 oz./sq. yd., per ASTM D 3776.
 - b. Water Flow Rate: 150 gpm/sq.ft. minimum, per ASTM D 4491.
 - c. Grab Tensile Strength: 80 lbs. minimum, per ASTM D 4632.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of waterproofing.
 - 1. Verify that concrete has cured and aged for minimum time period recommended in writing by waterproofing manufacturer.
 - 2. Verify that substrate is visibly dry and within the moisture limits recommended in writing by manufacturer. Test for capillary moisture by plastic sheet method according to ASTM D 4263.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 - 1. Commencement of work indicates acceptance of substrates.

3.2 PREPARATION

- A. Clean, prepare, and treat substrates according to manufacturer's written instructions. Provide clean, dust-free, and dry substrates for waterproofing application.
- B. Mask off adjoining surfaces not receiving waterproofing to prevent spillage and overspray affecting other construction.
- C. Remove grease, oil, bitumen, form-release agents, paints, curing compounds, and other penetrating contaminants or film-forming coatings from concrete.
- D. Remove fins, ridges, mortar, and other projections and fill honeycomb, aggregate pockets, holes, and other voids.
- E. Prepare, fill, prime, and treat joints and cracks in substrates. Remove dust and dirt from joints and cracks according to ASTM D 4258.
 - 1. Install sheet strips of width according to manufacturer's written instructions and center over treated construction and contraction joints and cracks exceeding a width of 1/16 inch.
- F. Corners: Prepare, prime, and treat inside and outside corners according to ASTM D 6135.
 - 1. Install membrane strips centered over vertical inside corners. Install 3/4-inch fillets of liquid membrane on horizontal inside corners and as follows:
 - a. At footing-to-wall intersections, extend liquid membrane in each direction from corner or install membrane strip centered over corner.
- G. Prepare, treat, and seal vertical and horizontal surfaces at terminations and penetrations through waterproofing and at drains and protrusions according to ASTM D 6135.

3.3 MODIFIED BITUMINOUS SHEET-WATERPROOFING APPLICATION

- A. Install modified bituminous sheets according to waterproofing manufacturer's written instructions and per recommendations in ASTM D 6135.
- B. Apply primer to substrates at required rate and allow it to dry. Limit priming to areas that will be covered by sheet waterproofing in same day. Reprime areas exposed for more than 24 hours.
- C. Apply and firmly adhere sheets over area to receive waterproofing. Accurately align sheets and maintain uniform 2-1/2-inch- minimum lap widths and end laps. Overlap and seal seams, and stagger end laps to ensure watertight installation.
 - 1. When ambient and substrate temperatures range between 25 and 40 deg F, install self-adhering, modified bituminous sheets produced for low-temperature application. Do not use low-temperature sheets if ambient or substrate temperature is higher than 60 deg F.
- D. Apply continuous sheets over already-installed sheet strips, bridging substrate cracks, construction, and contraction joints.
- E. Seal edges of sheet-waterproofing terminations with mastic.
- F. Install sheet-waterproofing and auxiliary materials to tie into adjacent waterproofing.
- G. Repair tears, voids, and lapped seams in waterproofing not complying with requirements. Slit and flatten fishmouths and blisters. Patch with sheet waterproofing extending 6 inches beyond repaired areas in all directions.
- H. Immediately install protection course with butted joints over waterproofing membrane.
 - 1. Board insulation may be used in place of a separate protection course to vertical applications when approved by waterproofing manufacturer and installed immediately.
- I. Correct deficiencies in or remove sheet waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.

3.4 MOLDED-SHEET DRAINAGE-PANEL INSTALLATION

- A. Place and secure molded-sheet drainage panels, with geotextile facing away from wall or deck substrate, according to manufacturer's written instructions. Use adhesive or another method that does not penetrate waterproofing. Lap edges and ends of geotextile to maintain continuity. Protect installed molded-sheet drainage panels during subsequent construction.
 - 1. For vertical applications, install board insulation before installing drainage panels.

3.5 INSULATION DRAINAGE-PANEL INSTALLATION

- A. Install insulation drainage panels over waterproofed surfaces. Cut and fit to within 3/4 inch of projections and penetrations.

- B. Ensure that drainage channels are aligned and free of obstructions.
- C. On vertical surfaces, set insulation drainage panels in adhesive or tape applied according to manufacturer's written instructions.
- D. On horizontal surfaces, loosely lay insulation drainage panels according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests.
- B. Manufacturer's Field Service: Engage a full-time site representative qualified by waterproofing membrane manufacturer to inspect substrate conditions, surface preparation, membrane application, flashings, protection, and drainage components; and to furnish daily reports to Architect.

3.7 PROTECTION, REPAIR, AND CLEANING

- A. Protect waterproofing from damage and wear during remainder of construction period.
- B. Protect installed insulation drainage panels from damage due to UV light, harmful weather exposures, physical abuse, and other causes. Provide temporary coverings where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.
- C. Correct deficiencies in or remove waterproofing that does not comply with requirements; repair substrates, reapply waterproofing, and repair sheet flashings.
- D. Clean spillage and soiling from adjacent construction using cleaning agents and procedures recommended in writing by manufacturer of affected construction.

END OF SECTION 071326

SECTION 072100 - THERMAL INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Extruded polystyrene foam-plastic board.
 - 2. Glass-fiber blanket.
- B. Related Requirements:
 - 1. Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" for insulation specified as part of roofing construction.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- B. Evaluation Reports: For foam-plastic insulation, from ICC-ES.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Protect insulation materials from physical damage and from deterioration due to moisture, soiling, and other sources. Store inside and in a dry location. Comply with manufacturer's written instructions for handling, storing, and protecting during installation.
- B. Protect foam-plastic board insulation as follows:
 - 1. Do not expose to sunlight except to necessary extent for period of installation and concealment.
 - 2. Protect against ignition at all times. Do not deliver foam-plastic board materials to Project site until just before installation time.

3. Quickly complete installation and concealment of foam-plastic board insulation in each area of construction.

PART 2 - PRODUCTS

2.1 EXTRUDED POLYSTYRENE FOAM-PLASTIC BOARD

- A. Extruded polystyrene boards in this article are also called "XPS boards." Roman numeral designators in ASTM C 578 are assigned in a fixed random sequence, and their numeric order does not reflect increasing strength or other characteristics.
- B. Extruded Polystyrene Board, Type X Cavity Wall Insulation: ASTM C 578, Type X, 15-psi minimum compressive strength; unfaced; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Owens Corning;Foamular CW-15 or comparable product by one of the following:
 - a. DiversiFoam Products.
 - b. Dow Chemical Company (The).
 2. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
- C. Extruded Polystyrene Board, Type IV Perimeter Wall Insulation: ASTM C 578, Type IV, 25-psi minimum compressive strength; unfaced; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Owens Corning; Foamular 250 or comparable product by one of the following:
 - a. DiversiFoam Products.
 - b. Dow Chemical Company (The).
- D. Extruded Polystyrene Board, Type VI Under Slab Insulation: ASTM C 578, Type VI, 40-psi minimum compressive strength; maximum flame-spread and smoke-developed indexes of 25 and 450, respectively, per ASTM E 84.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Owens Corning;Foamular 400 or comparable product by one of the following:
 - a. DiversiFoam Products.
 - b. Dow Chemical Company (The).

2.2 GLASS-FIBER BLANKET

- A. Glass-Fiber Blanket, Unfaced: ASTM C 665, Type I; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively, per ASTM E 84; passing ASTM E 136 for combustion characteristics.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. CertainTeed Corporation.
 - b. Johns Manville; a Berkshire Hathaway company.
 - c. Owens Corning.
2. Provide thickness indicated or as required to fill depth of partition.

2.3 ACCESSORIES

A. Insulation for Miscellaneous Voids:

1. Glass-Fiber Insulation: ASTM C 764, Type II, loose fill; with maximum flame-spread and smoke-developed indexes of 5, per ASTM E 84.

B. Adhesive for Bonding Insulation: Product compatible with insulation and air and water barrier materials, and with demonstrated capability to bond insulation securely to substrates without damaging insulation and substrates.

PART 3 - EXECUTION

3.1 PREPARATION

- #### A. Clean substrates of substances that are harmful to insulation, including removing projections capable of puncturing insulation or vapor retarders, or that interfere with insulation attachment.

3.2 INSTALLATION, GENERAL

- #### A. Comply with insulation manufacturer's written instructions applicable to products and applications.
- #### B. Install insulation that is undamaged, dry, and unsoiled and that has not been left exposed to ice, rain, or snow at any time.
- #### C. Extend insulation to envelop entire area to be insulated. Fit tightly around obstructions and fill voids with insulation. Remove projections that interfere with placement.
- #### D. Provide sizes to fit applications and selected from manufacturer's standard thicknesses, widths, and lengths. Apply single layer of insulation units unless multiple layers are otherwise shown or required to make up total thickness or to achieve R-value.

3.3 INSTALLATION OF SLAB INSULATION

- #### A. On vertical slab edge and foundation surfaces, set insulation units using manufacturer's recommended adhesive according to manufacturer's written instructions.

1. If not otherwise indicated, extend insulation a minimum of 24 inches below exterior grade line.
- B. On horizontal surfaces, loosely lay insulation units according to manufacturer's written instructions. Stagger end joints and tightly abut insulation units.
 1. If not otherwise indicated, extend insulation a minimum of 24 inches in from exterior walls.

3.4 INSTALLATION OF FOUNDATION WALL INSULATION

- A. Butt panels together for tight fit.
- B. Anchor Installation: Install board insulation on concrete substrates by adhesively attached, spindle-type insulation anchors as follows:
 1. Fasten insulation anchors to concrete substrates with insulation anchor adhesive according to anchor manufacturer's written instructions. Space anchors according to insulation manufacturer's written instructions for insulation type, thickness, and application.
 2. Apply insulation standoffs to each spindle to create cavity width indicated on Drawings between concrete substrate and insulation.
 3. After adhesive has dried, install board insulation by pressing insulation into position over spindles and securing it tightly in place with insulation-retaining washers, taking care not to compress insulation.
 4. Where insulation will not be covered by other building materials, apply capped washers to tips of spindles.

3.5 INSTALLATION OF CAVITY-WALL INSULATION

- A. Foam-Plastic Board Insulation: Install pads of adhesive spaced approximately 24 inches o.c. both ways on inside face and as recommended by manufacturer. Fit courses of insulation between wall ties and other obstructions, with edges butted tightly in both directions. Press units firmly against inside substrates.
 1. Supplement adhesive attachment of insulation by securing boards with two-piece wall ties designed for this purpose and specified in Section 042000 "Unit Masonry."

3.6 INSTALLATION OF INSULATION IN FRAMED CONSTRUCTION

- A. Blanket Insulation: Install in cavities formed by framing members according to the following requirements:
 1. Use insulation widths and lengths that fill the cavities formed by framing members. If more than one length is required to fill the cavities, provide lengths that will produce a snug fit between ends.

2. Place insulation in cavities formed by framing members to produce a friction fit between edges of insulation and adjoining framing members.
 3. Maintain 3-inch clearance of insulation around recessed lighting fixtures not rated for or protected from contact with insulation.
 4. For metal-framed wall cavities where cavity heights exceed 96 inches, support unfaced blankets mechanically and support faced blankets by taping flanges of insulation to flanges of metal studs.
- B. Miscellaneous Voids: Install insulation in miscellaneous voids and cavity spaces where required to prevent gaps in insulation using the following materials:
1. Glass-Fiber Insulation: Compact to approximately 40 percent of normal maximum volume equaling a density of approximately 2.5 lb/cu. ft.

3.7 PROTECTION

- A. Protect installed insulation from damage due to harmful weather exposures, physical abuse, and other causes. Provide temporary coverings or enclosures where insulation is subject to abuse and cannot be concealed and protected by permanent construction immediately after installation.

END OF SECTION 072100

SECTION 072727 - SELF-ADHERING WATER-RESISTIVE AIR BARRIER MEMBRANE

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. This Specification shall be read as a whole by all parties concerned. Each Section may contain more or less the complete work of any trade. The Contractor is solely responsible to make clear to the Subcontractors the extent of their work and coordinate overlapping work.

1.2 SYSTEM DESCRIPTION

- A. Supply labor, materials and equipment for a fully adhered water-resistive vapor permeable air barrier membrane system.
- B. Complete Work as shown on the Drawings and specified herein to bridge gaps and seal the water-resistive vapor permeable air barrier membrane against air leakage and water intrusion, including:
 - 1. Connections of the walls to the roof membrane
 - 2. Connections of the walls to the foundations
 - 3. Seismic and expansion joints
 - 4. Openings and penetrations of window and door frames, store front, curtain wall
 - 5. Piping, conduit, duct and similar penetrations
 - 6. Masonry ties, screws, bolts and similar penetrations
 - 7. All other air leakage pathways in the building envelope
- C. Install primary water-resistive vapor permeable air barrier, flashing, and ventilation strip accessories.

1.3 RELATED SECTIONS

- A. Section 042000 "Unit Masonry"
- B. Section 061600 "Sheathing"
- C. Section 072100 "Thermal Insulation"
- D. Section 074213.13 "Formed Metal Wall Panels"
- E. Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing"
- F. Section 076200 "Sheet Metal Flashing and Trim"
- G. Section 079200 "Joint Sealants"
- H. Section 084113 "Aluminum-Framed Entrances and Storefronts"

1.4 REFERENCE STANDARDS

- A. ASTM International (ASTM):
 - 1. ASTM D5034 - Test Method for Breaking Strength and Elongation of Textile Fabrics (Grab Test).
 - 2. ASTM E96/E 96M - Test Methods for Water Vapor Transmission of Materials.
 - 3. ASTM E398 Standard Test Method for Water Vapor Transmission Rate of Sheet Materials Using Dynamic Relative Humidity Measurement.

4. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.
5. ASTM E2357 - Standard Test Method for Determining Air Leakage of Air Barrier Assemblies.
6. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
7. ASTM E84 - Test Method for Surface Burning Characteristics of Building Materials.

B. American Association of Textile Chemists and Colorists (AATCC): ATCC 127 - Test Method for Water Resistance: Hydrostatic Pressure Test.

C. International Code Council Evaluation Service, Inc. (ICC-ES): ICC-ES AC38 - Acceptance Criteria for Water-Resistive Barriers.

1.5 SUBMITTALS

A. Submit manufacturers' current product data sheets, details and installation instructions for the water-resistive vapor permeable air barrier membrane components and accessories.

B. Submit samples of the following:

1. Manufacturer's sample warranty
2. Water-resistive vapor permeable air barrier sheet, minimum 8 by 10 inches
3. Components, minimum 12 inch lengths
4. Membrane flashings
5. Fasteners, clips, strapping, cladding attachment fasteners and masonry ties
6. Sealants

1.6 QUALITY ASSURANCE

A. Single Source: Self-adhered water-resistive vapor permeable air barrier membrane components and accessories must be obtained as a single-source membrane system to ensure total system compatibility and integrity.

B. Manufacturer Qualifications

1. Manufacturer of specified products listed in this Section to have minimum 10 years of continued experience in the manufacture and supply of highly vapor permeable water resistive air barrier products successfully installed in similar project applications.
2. Manufacturer of specified products listed in this Section to have experienced in-house technical and field observation personnel qualified to provide expert technical support.

C. Fire Performance Characteristics: Provide water-resistive barrier meeting the following fire-test characteristics.

1. Surface-Burning Characteristics: ASTM E84
2. Flame spread index: 5 or less
3. Smoke developed index: 15 or less

1.8 PRE-INSTALLATION CONFERENCE

- A. Contractor shall convene one week prior to commencing work of this section.
- B. Ensure all contractors responsible for creating a continuous plane of water and air tightness are present.

1.9 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the job site in undamaged and original packaging indicating the name of the manufacturer and product.
- B. Store roll materials on end in original packaging. Protect rolls from direct sunlight and inclement weather until ready for use.
- C. Waste Management and Disposal
 - 1. Separate and recycle waste materials in accordance with Section 017419 "Construction Waste Management and Disposal," and with the Waste Reduction Work Plan.

1.10 COORDINATION

- A. Ensure continuity of the fully self-adhered water-resistive vapor permeable air barrier system throughout the scope of this section.
 - 1. Air barrier vapor permeable membrane to include self-adhered air barrier, transition membranes and sealants at penetrations.
 - 2. Drainage plane to include drainage cavity, water resistive barrier and flashings to the exterior.

1.11 WARRANTY

- A. Provide manufacturer's standard material warranty in which manufacturer agrees to provide replacement material for the fully self-adhered water-resistive vapor permeable air barrier sheets installed in accordance with manufacturer's instructions that fail due to material defects within 20 years of the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Primary fully self-adhered water-resistive vapor permeable air barrier membrane components and accessories must be obtained from a single-source manufacture to ensure total system compatibility and integrity.
 - 1. Self-Adhered water-resistive vapor permeable air barrier membrane by VaproShield LLC.
- B. WATER-RESISTIVE VAPOR PERMEABLE SELF-ADHERED AIR BARRIER MATERIALS (Basis of Design)

1. Primary fully self-adhered air barrier sheet membrane shall be WrapShield SA® Self-Adhered Water-Resistive Vapor Permeable Air Barrier Sheet by VaproShield, a zero VOC fully self-adhered vapor permeable air barrier sheet membrane consisting of multiple layers of spun-bonded polypropylene tested in accordance with ICC-ES AC 38 criteria to meet IBC and IRC requirements for weather resistive barriers having the following properties:
 - a. Color: Orange with allowable UV exposure for 180 days, prior to coverage.
 - b. Breaking strength and Elongation to ASTM D5034: 88 lbf , machine direction; 83 lbf, cross-machine direction.
 - c. Water Vapor Permeance tested to ASTM E96 Method B: minimum of 50.45 perms
 - d. Water Vapor Permeance tested to ASTM E398: minimum of 52.57 perms
 - e. Air Leakage: ≤ 0.00002 cfm/ft² @ 1.57 psf when tested in accordance with ASTM E2178 and < 0.01 cfm/ft² @ 1.57 psf when tested in accordance with ASTM E2357 and. Meets Air Barrier Association of America (ABAA) requirements for “Adhesive Backed Commercial Building Wraps”.
 - f. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage
 - g. Application Temperature: Ambient temperature must be above 20 °F
 - h. Surface Burning Characteristics tested to ASTM E84: Class A, Flame-spread index of less than 5, Smoke-developed index of less than 15
 - i. Physical Dimensions: 0.022 inches thick and 59 inches wide and 7.58 oz/yd².
- C. WATER-RESISTIVE VAPOR PERMEABLE TRANSITION AND FLASHING MEMBRANE Part One of Two part Flashing System
 1. Self-adhered air barrier transition and flashing membrane for all window jambs, headers, door openings, inside and outside corners, and other transitions shall be pre-cut VaproFlashing SA™ by VaproShield, a zero VOC fully self-adhered water-resistive vapor permeable sheet membrane having the following properties:
 - a. VaproFlashing SA™ Self-Adhered Orange: 6 ½ inches, 11 ¾ inches or 19 ⅔ inches wide x 164 feet long
 - b. Air Leakage: ≤ 0.00002 cfm/ft² @ 1.57 psf when tested in accordance with ASTM E 2178 and < 0.01 cfm/ft² @ 1.57 psf when tested in accordance with ASTM E 2357
 - c. Water Vapor Permeance tested to ASTM E 96 Method B: minimum 50 perms
 - d. Water Vapor Permeance tested to ASTM E398: minimum of 50 perms
 - e. Water Resistance tested to AATCC 127, 550 mm hydrostatic head for 5 hours: No leakage
- D. VAPROLIQUI-FLASH™ VAPOR PERMEABLE WATER RESISTIVE FLASHING FOR ROUGH OPENINGS Part II of Two Part Flashing System
 1. Window and door pre-cut VaproFlashing™ SA Self-Adhered shall include VaproLiqui-Flash™ by VaproShield, a liquid-applied vapor permeable air barrier flashing material with vapor permeance and resistance to air leakage properties compatible with the primary air barrier membrane.

E. THROUGH WALL FLASHING

1. Thru-wall flashing shall include Vapro-SS Flashing™ by VaproShield, a flexible 2 mil stainless steel sheet with an 8 mil butyl adhesive backing and may include a VaproTermination Bar™ when the top section of the Vapro-SS Flashing™ is exposed.
 - a. Vapro-SS Flashing™: 4, 6, 9, 12, 18 or 24 inches x 50 feet long.
 - b. Tensile Strength/Puncture: 100,000 psi when tested in accordance with ASTM D882 and 2,500 psi when tested in accordance with ASTM E154
 - c. VaproTermination Bar™: 1 inch wide x 8 feet long, UV-resistance rigid thermoplastic extrusion, if required by sequence of installation.

F. TRANSITION FLASHING

1. Transition flashing shall include VaproSilicone Transition™ by VaproShield, a flexible 80 mil extruded silicone sheet.
 - a. VaproSilicone Transition™: 4, 6 or 9 inches x 50 feet long.
 - b. Dynamic Movement Capability: +200 / -50 % when tested in accordance to ASTM C1523.
 - c. Elongation: 400 % when tested in accordance to ASTM D412.
 - d. Tensile Strength: 295 psi when tested in accordance with ASTM D412.
 - e. Tear Strength: 20 ppi when tested in accordance to ASTM D624.

2.2 PENETRATION SEALANT

- A. Provide sealant for penetrations as recommended by manufacturer and as specified under Section 079200 "Joint Sealants." Appropriate sealants shall be VaproBond™ or VaproLiqui-Flash™.

PART 3 EXECUTION**3.1 GENERAL**

- A. Verify that surfaces and conditions are ready to accept the work of this section. Notify architect in writing of any discrepancies. Commencement of the work or any parts thereof shall mean acceptance of the prepared substrates.
- B. All surfaces must be dry, sound, clean, free of oil, grease, dirt, excess mortar or other contaminants detrimental to the adhesion of the water resistive air barrier membrane and flashings. Fill voids and gaps in substrate greater than $\frac{7}{8}$ inch in width to provide an even surface. Strike masonry joints full-flush.
- C. Minimum application temperature of fully self-adhered membrane and flashings to be above 20 °F.
- D. Ensure all preparatory Work is complete prior to applying primary fully self-adhered vapor permeable air barrier sheet membrane.

E. Mechanical fasteners used to secure sheathing surfaces or penetrate sheathing surfaces shall be set flush with sheathing, fastened into solid backing and covered with the upper overlapping membrane. If exposed fasteners are present on the surface of the membrane, cover and seal with Vapro-LiquiFlash™ or VaproBond™.

F. If exposed fasteners are required, use VaproCaps™ to insure water/air tight seal.

3.2 COORDINATION OF SELF-ADHERED VAPOR PERMEABLE AIR BARRIER MEMBRANE INSTALLATION

A. Installation Summary:

- a. Self-adhered vapor permeable air barrier sheets may be installed vertically or horizontally over the outside face of exterior sheathing board or other approved substrates.
- b. Complete detail work at; wall openings, building transitions and penetrations prior to field applications.
- c. Install fully self-adhered vapor permeable air barrier sheet over the outside face of exterior sheathing board or substrate, measure and pre-cut into manageable sized sheets to suit the application conditions.
- d. Install fully self-adhered vapor permeable air barrier sheet complete and continuous to substrate in a sequential minimal 3 inch overlapping weatherboard.
- e. Stagger all end lap seams.
- f. Roll installed membrane with roller to ensure positive contact and adhesion with substrate immediately.

3.3 BUILDING TRANSITION CONDITIONS

- A. Tie-in to structural beams, columns, floor slabs and intermittent floors, parapet curbs, foundation walls, roofing systems and at the interface of dissimilar materials with self-adhering air barrier transition and flashing membrane.
- B. Align and position fully self-adhered air barrier transition and flashing membrane, remove protective film and press firmly into place. Provide minimum 3 inch lap on to substrates.
- C. Ensure minimum 3 inch overlap at side and end laps of membrane and 6 inch at inside and outside corners, if joints occur at corner locations.
- D. Roll membrane and lap seams with roller to ensure positive contact and adhesion, immediately.

3.4 MECHANICAL EQUIPMENT PENETRATIONS

- A. Mechanical pipe, electrical conduit and/or duct work must be secured solid into position prior to installation of fully self-adhered vapor permeable air barrier membrane.
- B. Electrical services penetrating the wall assembly and fully self-adhered vapor permeable air barrier membrane must be placed in appropriate conduit and secured solid into position.
- C. Install manufactured flanged penetration sleeves as recommended by sleeve manufacturer.

- D. For straight sided penetrations, cut and fit fully self-adhered vapor permeable air barrier to accommodate sleeve, install VaproLiqui-Flash™ to seal the air barrier membrane to ductwork or preformed flange sleeve.
- E. For pipe penetrations, refer to manufacturer's standard details.

3.5 WINDOW, DOOR AND OTHER WALL OPENINGS

- A. Two part flashing system; VaproFlashing™ SA Self Adhered flashing and VaproLiqui-Flash™, Vapro-SS Flashing™ or VaproBond™ Flashing by VaproShield around window or wall openings subject to the opening size and installation of window, door or louver type.
- B. VaproFlashing™ SA Self-Adhered air barrier transition and flashing membrane installed 2 ¾ inch into rough wall openings for the sill, jambs and head.
- C. Remove release film, align flashing membrane and apply pressure to ensure positive contact. Roll Lap seams to ensure adhesion. Provide lap seams in singled fashion, to shed water.

D. VAPROLIQUI-FLASH VAPOR PERMEABLE WATER RESISTIVE FLASHING FOR ROUGH OPENINGS

- 1. Liquid-applied window and door flashing shall be VaproLiqui-Flash™ by VaproShield, a liquid-applied vapor permeable air barrier flashing material with resistance to moisture and air leakage properties compatible with the primary weather resistant air barrier membrane.
- 2. Apply a 12-15 wet mil coating onto the installed VaproFlashing™ SA Self-Adhered flashing, 1 inch onto the face continuing into the rough opening, covering the 2 ¾ inch VaproFlashing™ SA Self-Adhered flashing and the exposed rough opening surface.

F. THROUGH-WALL FLASHING MEMBRANE

- 1. Apply through-wall self-adhered flashing membrane along the base of masonry veneer walls and over shelf angles as detailed by designer.
 - a. Press membrane firmly into place, overlap minimum 3 inches at all laps. Promptly roll all surfaces using a hand roller to ensure good adhesion.
 - b. Applications shall form a continuous flashing membrane and shall extend up a minimum of 8 inches up the back-up wall.
 - c. Seal the top edge of the membrane where it meets the substrate using VaproBond™. Trowel-apply a feathered edge to seal termination to shed water or install VaproTermination™ Bar and VaproBond™ sealant at the top edge.
 - d. Install through-wall flashing membrane ½ inch from outside edge of veneer. Provide "end dam" flashing as detailed by designer.

3.6 VERTICAL APPLICATIONS SUMMARY

- A. For vertical applications, align sheets with an 'inside' or 'outside' corner to avoid wrinkles and misalignment of subsequent applications.

- B. Measure and pre-cut into manageable sized fully self-adhered sheets to suit the application conditions.
- C. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.
- D. Roll up pre-cut material lengths with release paper facing OUTWARD.
- E. Starting at a corner of the roll, peel back approx. 6" of release film from across the width of the pre-cut material roll.
- F. Using hand pressure, lightly apply the exposed adhesive surface to the substrate.
- G. Allow the rolled up material to drop down the wall, with the remainder of the release film still attached (facing the wall), and extend down to lowest point of wall, checking for proper alignment, repositioning as necessary.
- H. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.
- I. Align and position fully self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch overlap at side and end laps of membrane.
- J. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.
- K. Install subsequent sheets of fully self-adhered vapor permeable air barrier sheets in overlapping weatherboard format. Ensure sheets lay smooth and flat to surfaces. Roll membrane and lap seams with two handed roller to ensure contact and adhesion.

3.7 HORIZONTAL APPLICATIONS

- A. For horizontal applications, align sheets and begin installation of water-resistive weather barrier at bottom or lowest point of wall.
- B. To avoid wrinkles and misalignment of subsequent applications, it is recommended to pre-mark or "Snap" a level line to work from.
- C. Measure and pre-cut into manageable sized sheets to suit the application conditions.
- D. Allow for excess material at bottom of wall to accommodate tie-ins and connections to adjacent surfaces.
- E. Align and position fully self-adhered membrane, remove release film and press firmly into place. Provide minimum 3 inch overlap at all side and end laps of membrane. Roll membrane and lapped seams with a two handed roller to ensure contact and adhesion.
- F. Continue to remove release film and apply pressure to ensure positive contact onto wall substrate.

- G. Install subsequent sheets of fully self-adhered vapor permeable air barrier sheets in overlapping weatherboard format. Ensure sheets lay smooth and flat to surfaces. Roll membrane and lapped seams with a two handed roller to ensure contact and adhesion.

3.9 FASTENING CLIPS AND MASONRY TIES

- A. Install clips and masonry ties over primary self-adhered vapor permeable air barrier membrane.
- B. Secure clips and masonry ties with corrosion-resistant, or stainless steel screws with gasketed fasteners.

3.10 PROTECTION

- A. Protect wall areas covered with self-adhered water-resistive vapor permeable air barrier from damage due to construction activities, high wind conditions, and extended exposure to inclement weather.
- B. Review condition of fully self-adhered water-resistive vapor permeable air barrier prior to installation of cladding. Repair, or remove and replace damaged sections with new membrane.
- C. Recommend to cap and protect exposed back-up walls against wet weather conditions during and after application of membrane, including wall openings and construction activity above completed fully self-adhered water-resistive vapor permeable air barrier installations.
- D. Remove and replace water-resistive weather barrier membrane affected by chemical spills or surfactants.

END OF SECTION 072727

SECTION 074213.13 - FORMED METAL WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Concealed-fastener, lap-seam metal wall panels.

1.3 PREINSTALLATION MEETINGS

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
- B. Shop Drawings:
 - 1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details.
 - 2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.
- C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied finishes.
 - 1. Include Samples of trim and accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish, prepared on Samples of size indicated below:
 - 1. Metal Panels: 12 inches long by actual panel width. Include fasteners, closures, and other metal panel accessories.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For each product, for tests performed by a qualified testing agency.
- C. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal panels to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.
- E. Copper Panels: Wear gloves when handling to prevent fingerprints and soiling of surface.

1.9 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.10 COORDINATION

- A. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.11 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.
 - b. Deterioration of metals and other materials beyond normal weathering.
 - 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E 1592:
 - 1. Wind Loads: As indicated on Drawings.
 - 2. Other Design Loads: As indicated on Drawings.
 - 3. Deflection Limits: For wind loads, no greater than 1/180 of the span.
 - 4. .
- B. Air Infiltration: Air leakage of not more than 0.06 cfm/sq. ft. when tested according to ASTM E 283 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 1.57 lbf/sq. ft..
- C. Water Penetration under Static Pressure: No water penetration when tested according to ASTM E 331 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 6.24 lbf/sq. ft..

- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

2.2 CONCEALED-FASTENER, LAP-SEAM METAL WALL PANELS

- A. General: Provide factory-formed metal panels designed to be field assembled by lapping and interconnecting side edges of adjacent panels and mechanically attaching through panel to supports using concealed fasteners in side laps. Include accessories required for weathertight installation.

- B. Flush-Profile, Concealed-Fastener Metal Wall Panels: Formed with vertical panel edges and a flat pan between panel edges; with flush joint between panels.

1. Basis-of-Design Product: Subject to compliance with requirements, provide PAC-CLAD; Petersen Aluminum Corporation; Flush wall panels. or comparable product by one of the following:
 - a. ATAS International, Inc.
 - b. CENTRIA Architectural Systems.
2. Aluminum Sheet: Coil-coated sheet, ASTM B 209, alloy as standard with manufacturer, with temper as required to suit forming operations and structural performance required.
 - a. Thickness: 0.040 inch.
 - b. Surface: Smooth, flat finish.
 - c. Exterior Finish: Two-coat fluoropolymer.
 - d. Color: As selected by Architect from manufacturer's full range.
3. Panel Coverage: 12 inches.
4. Panel Height: 1.0 inch.

2.3 MISCELLANEOUS MATERIALS

- A. Miscellaneous Metal Subframing and Furring: ASTM C 645, cold-formed, metallic-coated steel sheet, ASTM A 653/A 653M, G90 coating designation or ASTM A 792/A 792M, Class AZ50 aluminum-zinc-alloy coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.

- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal panels.

2. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- D. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.

2.4 FABRICATION

- A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. On-Site Fabrication: Subject to compliance with requirements of this Section, metal panels may be fabricated on-site using UL-certified, portable roll-forming equipment if panels are of same profile and warranted by manufacturer to be equal to factory-formed panels. Fabricate according to equipment manufacturer's written instructions and to comply with details shown.
- C. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- D. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- E. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
 3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
 4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.

5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

2.5 FINISHES

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Aluminum Panels and Accessories:
 1. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
 1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.
 2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal wall panel manufacturer.
 - a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.

- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C 754 and metal panel manufacturer's written recommendations.

3.3 METAL PANEL INSTALLATION

- A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Shim or otherwise plumb substrates receiving metal panels.
 - 2. Flash and seal metal panels at perimeter of all openings. Fasten with self-tapping screws. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
 - 3. Install screw fasteners in predrilled holes.
 - 4. Locate and space fastenings in uniform vertical and horizontal alignment.
 - 5. Install flashing and trim as metal panel work proceeds.
 - 6. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
 - 7. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
 - 8. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
- B. Fasteners:
 - 1. Aluminum Panels: Use aluminum or stainless-steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized-steel fasteners for surfaces exposed to the interior.
- C. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action as recommended in writing by metal panel manufacturer.
- D. Lap-Seam Metal Panels: Fasten metal panels to supports with fasteners at each lapped joint at location and spacing recommended by manufacturer.
 - 1. Lap ribbed or fluted sheets one full rib. Apply panels and associated items true to line for neat and weathertight enclosure.
 - 2. Provide metal-backed washers under heads of exposed fasteners bearing on weather side of metal panels.

3. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
 4. Install screw fasteners with power tools having controlled torque adjusted to compress washer tightly without damage to washer, screw threads, or panels. Install screws in predrilled holes.
 5. Flash and seal panels with weather closures at perimeter of all openings.
- E. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal wall panel manufacturer; or, if not indicated, provide types recommended by metal panel manufacturer.
- F. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints, and seams that are permanently watertight.
1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof performance.
 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with mastic sealant (concealed within joints).

3.4 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.
- C. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 074213.13

SECTION 075323 - ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Self-adhering, ethylene-propylene-diene-terpolymer (EPDM) roofing system.
 - 2. Vapor retarder.
 - 3. Roof insulation.
 - 4. Cover board.
- B. Related Requirements:
 - 1. Section 061053 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
 - 2. Section 076200 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashings.
 - 3. Section 077100 "Roof Specialties" for manufactured copings.
 - 4. Section 077129 "Manufactured Roof Expansion Joints" for manufactured roof expansion-joint assemblies.
 - 5. Section 079200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

1.3 DEFINITIONS

- A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to work of this Section.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Roofing Conference: Conduct conference at Project site.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, air barrier Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 - 3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

4. Examine deck substrate conditions and finishes, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. For insulation and roof system component fasteners, include copy of FM Approvals' RoofNav listing.

B. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:

1. Layout and thickness if insulation.
2. Base flashings and membrane terminations.
3. Flashing details at penetrations.
4. Tapered insulation, thickness, and slopes.
5. Roof plan showing orientation of steel roof deck and orientation of roof membrane and fastening spacings and patterns for mechanically fastened roofing system.
6. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.
7. Tie-in with air barrier.

C. Samples for Verification: For the following products:

1. Roof membrane and flashings of color required.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and manufacturer.

B. Manufacturer Certificates:

1. Performance Requirement Certificate: Signed by roof membrane manufacturer, certifying that roofing system complies with requirements specified in "Performance Requirements" Article.
 - a. Submit evidence of complying with performance requirements.
2. Special Warranty Certificate: Signed by roof membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.

- C. Product Test Reports: For components of roof membrane and insulation, for tests performed by a qualified testing agency, indicating compliance with specified requirements.
- D. Evaluation Reports: For components of roofing system, from ICC-ES.
 - 1. Field Test Reports:
 - 2. Fastener-pullout test results and manufacturer's revised requirements for fastener patterns.
- E. Sample Warranties: For manufacturer's special warranties.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For roofing system to include in maintenance manuals.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A qualified manufacturer that is UL listed for roofing system identical to that used for this Project.
- B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 - 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.10 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.
 - 1. Special warranty includes roof membrane, base flashings, roof insulation, fasteners, cover boards, and other components of roofing system.
 - 2. Warranty Period: 20 years from Date of Substantial Completion.
- B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, roof insulation, fasteners, cover boards, vapor retarders, and walkway products, for the following warranty period:
 - 1. Warranty Period: Two years from Date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing system and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and flashings shall remain watertight.
 - 1. Accelerated Weathering: Roof membrane shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
 - 2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D 3746, ASTM D 4272, or the Resistance to Foot Traffic Test in FM Approvals 4470.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.
- C. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

2.2 ETHYLENE-PROPYLENE-DIENE-TERPOLYMER (EPDM) ROOFING

- A. EPDM Sheet: ASTM D 4637/D 4637M, Type I, nonreinforced, self-adhering EPDM sheet.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Firestone Building Products; RubberGard EPDM SA or comparable product by one of the following:
 - a. Carlisle SynTec Incorporated.
 - b. Johns Manville; a Berkshire Hathaway company.
 2. Thickness: 60 mils, nominal.
 3. Exposed Face Color: Black.
 4. Source Limitations: Obtain components for roofing system from roof membrane manufacturer or manufacturers approved by roof membrane manufacturer.

2.3 AUXILIARY ROOFING MATERIALS

- A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.
1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: 60-mil- thick EPDM, partially cured or cured, according to application.
- C. Prefabricated Pipe Flashings: As recommended by roof membrane manufacturer.
- D. Roof Vents: As recommended by roof membrane manufacturer.
1. Size: Not less than 4-inch diameter.
- E. Seaming Material: Manufacturer's standard, synthetic-rubber polymer primer and 3-inch- wide minimum, butyl splice tape with release film.
- F. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- G. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
- H. Ballast Retaining Bar: Perimeter securement system consisting of a slotted extruded-aluminum retention bar with an integrated compression fastening strip.
1. Fasteners: 1-1/2-inch stainless steel fasteners with neoprene washers.
- I. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening components to substrate, and acceptable to roofing system manufacturer.
- J. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced

EPDM securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips, and other accessories.

2.4 VAPOR RETARDER

- A. Polyethylene Film: ASTM D 4397, 10 mil thick, minimum, with maximum permeance rating of 0.13 perm.
 - 1. Tape: Pressure-sensitive tape of type recommended by vapor retarder manufacturer for sealing joints and penetrations in vapor retarder.
 - 2. Adhesive: Manufacturer's standard lap adhesive, listed by FM Approvals for vapor retarder application.

2.5 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by EPDM roof membrane manufacturer.
- B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2, felt or glass-fiber mat facer on both major surfaces.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Firestone Building Products; ISO 95+ GL Insulation or comparable product by one of the following:
 - a. Carlisle SynTec Incorporated.
 - b. Johns Manville; a Berkshire Hathaway company.
 - 2. Compressive Strength: 20 psi.
 - 3. Thickness:
 - a. Base Layer: 1-1/2 inches.
 - 4. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4-inch per 12-inches unless otherwise indicated.
 - 5. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.

2.6 INSULATION ACCESSORIES

- A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with other roofing system components.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:

1. Bead-applied, low-rise, one-component or multicomponent urethane adhesive.
 2. Full-spread, spray-applied, low-rise, two-component urethane adhesive.
- D. Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, or ASTM C 1278/C 1278M, fiber-reinforced gypsum board.
1. Basis-of-Design Product: Subject to compliance with requirements, provide Georgia-Pacific Gypsum LLC; Dens Deck Prime. or comparable product by one of the following:
 - a. National Gypsum Company.
 - b. USG Corporation.
 2. Thickness: 1/2 inch.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.
 2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
 3. Verify that surface plane flatness and fastening of steel roof deck complies with requirements in Section 053100 "Steel Decking."
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

3.3 ROOFING INSTALLATION, GENERAL

- A. Install roofing system according to roofing system manufacturer's written instructions, FM Approvals' RoofNav assembly requirements, and FM Global Property Loss Prevention Data Sheet 1-29.

- B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- C. Coordinate installation and transition of roofing system component serving as an air barrier with air barrier specified under Section 072727 "Self-Adhering Water-Resistive Air Barrier Membrane."

3.4 VAPOR RETARDER INSTALLATION

- A. Polyethylene Film: Loosely lay polyethylene-film vapor retarder in a single layer over area to receive vapor retarder, side and end lapping each sheet a minimum of 2 and 6 inches, respectively.
 - 1. Extend vertically up parapet walls and projections to a minimum height equal to height of insulation and cover board.
 - 2. Continuously seal side and end laps with tape.
- B. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.

3.5 INSULATION INSTALLATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.
- B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Installation Over Metal Decking:
 - 1. Install base layer of insulation with end joints staggered not less than 12 inches in adjacent rows.
 - a. Locate end joints over crests of decking.
 - b. Where installing composite and non-composite insulation in two or more layers, install non-composite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
 - c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
 - d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
 - e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
 - 1) Trim insulation so that water flow is unrestricted.
 - f. Fill gaps exceeding 1/4 inch with insulation.

- g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
 - h. Mechanically attach base layer of insulation using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to metal decks.
 - 1) Fasten insulation to resist specified uplift pressure at corners, perimeter, and field of roof.
 - 2. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.
 - a. Install with long joints continuous and with end joints staggered not less than 12 inches in adjacent rows.
 - b. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
 - c. Make joints between adjacent insulation boards not more than 1/4 inch in width.
 - d. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.
 - e. Trim insulation so that water flow is unrestricted.
 - f. Fill gaps exceeding 1/4 inch with insulation.
 - g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.

3.6 INSTALLATION OF COVER BOARDS

- A. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.
 - 1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
 - 2. At internal roof drains, conform to slope of drain sump.
 - a. Trim cover board so that water flow is unrestricted.
 - 3. Cut and fit cover board tight to nailers, projections, and penetrations.

3.7 SELF-ADHERING ROOFING INSTALLATION

- A. Adhere roof membrane over area to receive roofing according to roofing system manufacturer's written instructions.
- B. Unroll roof membrane and allow to relax before installing.
- C. Start installation of roofing in presence of roofing system manufacturer's technical personnel.
- D. Accurately align roof membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- E. Fold roof membrane to expose half of sheet width's bottom surface.

1. Remove release liner on exposed half of sheet.
 2. Roll roof membrane over substrate while avoiding wrinkles.
- F. Fold remaining half of roof membrane to expose bottom surface.
1. Remove release liner on exposed half of sheet.
 2. Roll roof membrane over substrate while avoiding wrinkles.
- G. In addition to adhering, mechanically fasten roof membrane securely at terminations, penetrations, and perimeter of roofing.
- H. Apply roof membrane with side laps shingled with slope of roof deck where possible.
- I. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape.
1. Firmly roll side and end laps of overlapping roof membrane to ensure a watertight seam installation.
- J. Repair tears, voids, and lapped seams in roof membrane that do not comply with requirements.

3.8 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to roofing system manufacturer's written instructions.
- B. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.
- C. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
- D. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.9 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to inspect substrate conditions, surface preparation, roof membrane application, sheet flashings, protection, and drainage components, and to furnish reports to Architect.
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion, in presence of Architect, and to prepare inspection report.
- C. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.

- D. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.10 PROTECTING AND CLEANING

- A. Protect roofing system from damage and wear during remainder of construction period. When remaining construction does not affect or endanger roofing system, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION 075323

SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Manufactured through-wall flashing with snaplock receiver with counterflashing.
 - 2. Roof penetration flashing.

- B. Related Requirements:

- 1. Section 061053 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
 - 2. Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing" for materials and installation of sheet metal flashing and trim integral with roofing.
 - 3. Section 074213.13 "Formed Metal Wall Panels" for sheet metal flashing and trim integral with metal wall panels.
 - 4. Section 077129 "Manufactured Roof Expansion Joints."
 - 5. Section 077200 "Roof Accessories" for set-on-type curbs, equipment supports, roof hatches, vents, and other manufactured roof accessory units.
 - 6. Section 079513.13 "Interior Expansion Joint Cover Assemblies" for manufactured expansion-joint cover assemblies for interior floors, walls, and ceilings.
 - 7. Section 079513.16 "Exterior Expansion Joint Cover Assemblies" for manufactured expansion-joint cover assemblies for exterior building walls, soffits, and parapets.

1.3 COORDINATION

- A. Coordinate sheet metal flashing and trim layout and seams with sizes and locations of penetrations to be flashed, and joints and seams in adjacent materials.
- B. Coordinate sheet metal flashing and trim installation with adjoining roofing and wall materials, joints, and seams to provide leakproof, secure, and noncorrosive installation.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1. Review construction schedule. Verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review special roof details, roof drainage, roof-penetration flashing, equipment curbs, and condition of other construction that affect sheet metal flashing and trim.
3. Review requirements for insurance and certificates if applicable.
4. Review sheet metal flashing observation and repair procedures after flashing installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.

B. Shop Drawings: For sheet metal flashing and trim.

1. Include plans, elevations, sections, and attachment details.
2. Detail fabrication and installation layouts, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work.
3. Include identification of material, thickness, weight, and finish for each item and location in Project.
4. Include details for forming, including profiles, shapes, seams, and dimensions.
5. Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips, and other attachments. Include pattern of seams.
6. Include details of termination points and assemblies.
7. Include details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction from fixed points.
8. Include details of roof-penetration flashing.
9. Include details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counterflashings as applicable.
10. Include details of special conditions.
11. Include details of connections to adjoining work.
12. Detail formed flashing and trim at scale of not less than 1-1/2 inches per 12 inches.

C. Samples for Initial Selection: For each type of sheet metal and accessory indicated with factory-applied finishes.

D. Samples for Verification: For each type of exposed finish.

1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.
3. Unit-Type Accessories and Miscellaneous Materials: Full-size Sample.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For fabricator.
- B. Product Certificates: For each type of coping and roof edge flashing that is SPRI ES-1 tested.
- C. Sample Warranty: For special warranty.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sheet metal flashing and trim, and its accessories, to include in maintenance manuals.

1.8 QUALITY ASSURANCE

- A. Product Options: Information on Drawings and in Specifications establishes requirements for system's aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sight lines, to one another, and to adjoining construction. Performance characteristics are indicated by criteria subject to verification by one or more methods including preconstruction testing, field testing, and in-service performance.
 - 1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.
- B. Fabricator Qualifications: Employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
- C. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to extent necessary for period of sheet metal flashing and trim installation.

1.10 WARRANTY

- A. Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Sheet Metal Standard for Flashing and Trim: Comply with NRCA's "The NRCA Roofing Manual" and SMACNA's "Architectural Sheet Metal Manual" requirements for dimensions and profiles shown unless more stringent requirements are indicated.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces **<Insert temperature change>**.

2.2 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary protective film before shipping.
- B. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper as required to suit forming operations and performance required; with smooth, flat surface.
1. Exposed Coil-Coated Finish:

- a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 2. Color: As selected by Architect from manufacturer's full range **<Insert color>**.
 3. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil.
- C. Stainless-Steel Sheet: ASTM A 240/A 240M, Type 304, dead soft, fully annealed; with smooth, flat surface.
1. Finish: 2B (bright, cold rolled).
- D. Metallic-Coated Steel Sheet: Provide zinc-coated (galvanized) steel sheet according to ASTM A 653/A 653M, G90 coating designation; prepainted by coil-coating process to comply with ASTM A 755/A 755M.
1. Surface: Smooth, flat.
 2. Exposed Coil-Coated Finish:
 - a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 3. Color: As selected by Architect from manufacturer's full range **<Insert color>**.
 4. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil.

2.3 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating. Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on weather side of metal.

- b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
 - 2. Fasteners for Aluminum Sheet: Aluminum or Series 300 stainless steel.
 - 3. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
 - 4. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329.
- C. Sealant Tape: Pressure-sensitive, 100 percent solids, polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
- D. Elastomeric Sealant: ASTM C 920, elastomeric polyurethane polymer sealant; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.
- E. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- F. Epoxy Seam Sealer: Two-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior nonmoving joints, including riveted joints.
- G. Bituminous Coating: Cold-applied asphalt emulsion according to ASTM D 1187.
- H. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required for application.

2.4 MANUFACTURED SHEET METAL FLASHING AND TRIM

- A. Through-Wall, Ribbed, Sheet Metal Flashing: Manufacture through-wall sheet metal flashing for embedment in masonry, with ribs at 3-inch intervals along length of flashing to provide integral mortar bond. Manufacture through-wall flashing with interlocking counterflashing on exterior face, of same metal as flashing.
- 1. Stainless Steel: 0.016 inch thick.
 - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Cheney Flashing Company.
 - 2) Hohmann & Barnard, Inc.
 - 3) Keystone Flashing Company, Inc.
 - 4) Sandell Manufacturing Co., Inc.

2.5 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
 - 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 - 2. Obtain field measurements for accurate fit before shop fabrication.
 - 3. Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
 - 4. Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed to view.
- B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- C. Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
 - 1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.
 - 2. Use lapped expansion joints only where indicated on Drawings.
- D. Sealant Joints: Where movable, nonexpansion-type joints are required, form metal to provide for proper installation of elastomeric sealant according to cited sheet metal standard.
- E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- F. Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" for application, but not less than thickness of metal being secured.
- G. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- H. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use.
- I. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer.
- J. Do not use graphite pencils to mark metal surfaces.

2.6 MISCELLANEOUS SHEET METAL FABRICATIONS

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, substrate, and other conditions affecting performance of the Work.
 - 1. Verify compliance with requirements for installation tolerances of substrates.
 - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 - 1. Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
 - 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
 - 3. Space cleats not more than 12 inches apart. Attach each cleat with at least two fasteners. Bend tabs over fasteners.
 - 4. Install sealant tape where indicated.
 - 5. Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
 - 6. Torch cutting of sheet metal flashing and trim is not permitted.
 - 7. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or other corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal standard.
 - 1. Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates, install underlayment and cover with slip sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at maximum of 10 feet with no joints within 24 inches of corner or intersection.

1. Form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.
 2. Use lapped expansion joints only where indicated on Drawings.
- D. Fasteners: Use fastener sizes that penetrate wood blocking or sheathing not less than 1-1/4 inches for nails and not less than 3/4 inch for wood screws.
- E. Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of leakage. Cover and seal fasteners and anchors as required for a tight installation.
- F. Seal joints as required for watertight construction.
1. Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than 1 inch into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 deg F.
 2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."
- G. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets with solder to width of 1-1/2 inches; however, reduce pre-tinning where pre-tinned surface would show in completed Work.
1. Do not solder aluminum sheet.
 2. Do not pre-tin zinc-tin alloy-coated stainless steel.
 3. Do not use torches for soldering.
 4. Heat surfaces to receive solder, and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
 5. Stainless-Steel Soldering: Tin edges of uncoated sheets, using solder for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.

3.3 WALL FLASHING INSTALLATION

- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to cited sheet metal standard unless otherwise indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.
- B. Through-Wall Flashing: Installation of through-wall flashing is specified in Section 042000 "Unit Masonry."
- C. Opening Flashings in Frame Construction: Install continuous head, sill, jamb, and similar flashings to extend 4 inches beyond wall openings.

3.4 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines indicated on Drawings and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.
- B. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerances specified in MCA's "Guide Specification for Residential Metal Roofing."

3.5 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder.
- C. Clean off excess sealants.
- D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.
- E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

3.6 WASTE DISPOSAL

- A. Unless otherwise indicated, excess materials are Contractor's property. At completion of work, remove from Project site.

END OF SECTION 076200

SECTION 077100 - ROOF SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Copings.
 - 2. Roof-edge drainage systems.
 - 3. Reglets and counterflashings.
- B. Related Requirements:
 - 1. Section 061053 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking.
 - 2. Section 076200 "Sheet Metal Flashing and Trim" for custom- and site-fabricated sheet metal flashing and trim.
 - 3. Section 077129 "Manufactured Roof Expansion Joints" for manufactured roof expansion-joint cover assemblies.
 - 4. Section 079200 "Joint Sealants" for field-applied sealants between roof specialties and adjacent materials.
- C. Preinstallation Conference: Conduct conference at Project site.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, roofing-system testing and inspecting agency representative, roofing Installer, roofing-system manufacturer's representative, Installer, structural-support Installer, and installers whose work interfaces with or affects roof specialties, including installers of roofing materials and accessories.
 - 2. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
 - 3. Review special roof details, roof drainage, and condition of other construction that will affect roof specialties.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For roof specialties.

1. Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work.
 2. Include details for expansion and contraction; locations of expansion joints, including direction of expansion and contraction.
 3. Indicate profile and pattern of seams and layout of fasteners, cleats, clips, and other attachments.
 4. Detail termination points and assemblies, including fixed points.
 5. Include details of special conditions.
- C. Samples: For each type of roof specialty and for each color and texture specified.
- D. Samples for Initial Selection: For each type of roof specialty indicated with factory-applied color finishes.
- E. Samples for Verification:
1. Include Samples of each type of roof specialty to verify finish and color selection, in manufacturer's standard sizes.
 2. Include copings made from 12-inch lengths of full-size components in specified material, and including fasteners, cover joints, accessories, and attachments.
- 1.4 INFORMATIONAL SUBMITTALS
- A. Qualification Data: For manufacturer.
- B. Product Certificates: For each type of roof specialty.
- C. Product Test Reports: For copings and roof-edge flashings, for tests performed by a qualified testing agency.
- D. Sample Warranty: For manufacturer's special warranty.
- 1.5 CLOSEOUT SUBMITTALS
- A. Maintenance Data: For roofing specialties to include in maintenance manuals.
- 1.6 QUALITY ASSURANCE
- A. Manufacturer Qualifications: A qualified manufacturer offering products meeting requirements that are FM Approvals listed for specified class and SPRI ES-1 tested to specified design pressure.
- B. Source Limitations: Obtain roof specialties approved by manufacturer providing roofing-system warranty specified in Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing".

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Do not store roof specialties in contact with other materials that might cause staining, denting, or other surface damage. Store roof specialties away from uncured concrete and masonry.
- B. Protect strippable protective covering on roof specialties from exposure to sunlight and high humidity, except to extent necessary for the period of roof-specialty installation.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify profiles and tolerances of roof-specialty substrates by field measurements before fabrication and indicate measurements on Shop Drawings.
- B. Coordination: Coordinate roof specialties with flashing, trim, and construction of parapets, roof deck, roof and wall panels, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.9 WARRANTY

- A. Roofing-System Warranty: Roof specialties are included in warranty provisions in Section 075323 Ethylene-Propylene-Diene-Monomer (EPDM) Roofing."
- B. Special Warranty on Painted Finishes: Manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Fluoropolymer Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General Performance: Roof specialties shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.
- B. SPRI Wind Design Standard: Manufacture and install copings roof-edge specialties tested according to SPRI ES-1 and capable of resisting the following design pressures:
 - 1. Design Pressure: As indicated on Drawings.

- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Provide clips that resist rotation and avoid shear stress as a result of thermal movements. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

2.2 COPINGS

- A. Metal Copings: Manufactured coping system consisting of metal coping cap in section lengths not exceeding 12 feet, concealed anchorage; with corner units, end cap units, and concealed splice plates with finish matching coping caps.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Firestone Building Products "UNA-Edge CO Coping System" or comparable product by one of the following:
 - a. Metal-Era, Inc.
 - b. PAC-CLAD; Petersen Aluminum Corporation.
2. Formed Aluminum Sheet Coping Caps: Aluminum sheet, thickness as required to meet performance requirements.
 - a. Surface: Smooth, flat finish.
 - b. Finish: Two-coat fluoropolymer.
 - c. Color: As selected by Architect from manufacturer's full range.
3. Corners: Factory mitered and continuously welded.
4. Coping-Cap Attachment Method: Snap-on face leg hooked to continuous cleat with back leg fastener exposed, fabricated from coping-cap material.
 - a. Face-Leg Cleats: Concealed, continuous galvanized-steel sheet.

2.3 ROOF-EDGE DRAINAGE SYSTEMS

- A. Products: Subject to compliance with requirements, provide one of the following:
1. Firestone Building Products.
 2. Metal-Era, Inc.
 3. PAC-CLAD; Petersen Aluminum Corporation.
- B. Downspouts: Corrugated rectangular complete with machine-crimped elbows, manufactured from the following exposed metal. Furnish with metal hangers, from same material as downspouts, and anchors.
1. Formed Aluminum: 0.032 inch thick.
- C. Parapet Scuppers: Manufactured with closure flange trim to exterior, 4-inch- wide wall flanges to interior, and base extending 4 inches beyond cant or tapered strip into field of roof.

1. Zinc-Coated Steel: Nominal 0.028-inch thickness.
- D. Conductor Heads: Manufactured conductor heads, each with flanged back and stiffened top edge, and of dimensions and shape indicated, complete with outlet tube that nests into upper end of downspout.
 1. Formed Aluminum: 0.032 inch thick.
- E. Zinc-Coated Steel Finish: Two-coat fluoropolymer.
 1. Color: As selected by Architect from manufacturer's full range.
- F. Aluminum Finish: Two-coat fluoropolymer.
 1. Color: As selected by Architect from manufacturer's full range.

2.4 REGLETS AND COUNTERFLASHINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Firestone Building Products.
 2. Fry Reglet Corporation.
 3. Metal-Era, Inc.
- B. Reglets: Manufactured units formed to provide secure interlocking of separate reglet and counterflashing pieces, from the following exposed metal:
 1. Zinc-Coated Steel: Nominal 0.022-inch thickness.
 2. Corners: Factory mitered and continuously welded.
 3. Surface-Mounted Type: Provide reglets with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
 4. Concrete Type, Embedded: Provide temporary closure tape to keep reglet free of concrete materials, special fasteners for attaching reglet to concrete forms, and guides to ensure alignment of reglet section ends.
- C. Accessories:
 1. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where reglet is provided separate from metal counterflashing.
- D. Zinc-Coated Steel Finish: Two-coat fluoropolymer.
 1. Color: As selected by Architect from manufacturer's full range.

2.5 MATERIALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 coating designation.

- B. Aluminum Sheet: ASTM B 209, alloy as standard with manufacturer for finish required, with temper to suit forming operations and performance required.

2.6 MISCELLANEOUS MATERIALS

- A. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements. Furnish the following unless otherwise indicated:
 - 1. Exposed Penetrating Fasteners: Gasketed screws with hex washer heads matching color of sheet metal.
 - 2. Fasteners for Aluminum: Aluminum or Series 300 stainless steel.
 - 3. Fasteners for Stainless-Steel Sheet: Series 300 stainless steel.
 - 4. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Series 300 stainless steel or hot-dip zinc-coated steel according to ASTM A 153/A 153M or ASTM F 2329.
- B. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type joints with limited movement.

2.7 FINISHES

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- D. Coil-Coated Galvanized-Steel Sheet Finishes:
 - 1. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with ASTM A 755/A 755M and coating and resin manufacturers' written instructions.
 - a. Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
- E. Coil-Coated Aluminum Sheet Finishes:
 - 1. High-Performance Organic Finish: Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

- a. Two-Coat Fluoropolymer: AAMA 2605. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.
- B. Examine walls, roof edges, and parapets for suitable conditions for roof specialties.
- C. Verify that substrate is sound, dry, smooth, clean, sloped for drainage where applicable, and securely anchored.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, solder, protective coatings, separators, underlayments, sealants, and other miscellaneous items as required to complete roof-specialty systems.
 1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
 2. Provide uniform, neat seams with minimum exposure of solder and sealant.
 3. Install roof specialties to fit substrates and to result in weathertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
 4. Torch cutting of roof specialties is not permitted.
 5. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
 1. Coat concealed side of uncoated aluminum and stainless-steel roof specialties with bituminous coating where in contact with wood, ferrous metal, or cementitious construction.
 2. Bed flanges in thick coat of asphalt roofing cement where required by manufacturers of roof specialties for waterproof performance.
- C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.

1. Space movement joints at a maximum of 12 feet with no joints within 18 inches of corners or intersections unless otherwise indicated on Drawings.
 2. When ambient temperature at time of installation is between 40 and 70 deg F, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.
- D. Fastener Sizes: Use fasteners of sizes that penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Seal concealed joints with butyl sealant as required by roofing-specialty manufacturer.
- F. Seal joints as required for weathertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F.

3.3 COPING INSTALLATION

- A. Install cleats, anchor plates, and other anchoring and attachment accessories and devices with concealed fasteners.
- B. Anchor copings with manufacturer's required devices, fasteners, and fastener spacing to meet performance requirements.
1. Interlock face-leg drip edge into continuous cleat anchored to substrate at manufacturer's required spacing that meets performance requirements. Anchor back leg of coping with screw fasteners and elastomeric washers at manufacturer's required spacing that meets performance requirements.

3.4 ROOF-EDGE DRAINAGE-SYSTEM INSTALLATION

- A. General: Install components to produce a complete roof-edge drainage system according to manufacturer's written instructions. Coordinate installation of roof perimeter flashing with installation of roof-edge drainage system.
- B. Downspouts: Join sections with manufacturer's standard telescoping joints. Provide hangers with fasteners designed to hold downspouts securely to walls and 1 inch away from walls; locate fasteners at top and bottom and at approximately 60 inches o.c.
1. Provide elbows at base of downspouts at grade to direct water away from building.
 2. Connect downspouts to underground drainage system indicated.
- C. Parapet Scuppers: Install scuppers through parapet where indicated. Continuously support scupper, set to correct elevation, and seal flanges to interior wall face, over cants or tapered edge strips, and under roofing membrane.
1. Anchor scupper closure trim flange to exterior wall and seal or solder to scupper.
 2. Loosely lock front edge of scupper with conductor head.
 3. Seal or solder exterior wall scupper flanges into back of conductor head.

- D. Conductor Heads: Anchor securely to wall with elevation of conductor top edge 1 inch below scupper discharge.

3.5 REGLET AND COUNTERFLASHING INSTALLATION

- A. General: Coordinate installation of reglets and counterflashings with installation of base flashings.
- B. Embedded Reglets: See Section 042000 "Unit Masonry" for installation of reglets.
- C. Surface-Mounted Reglets: Install reglets to receive flashings where flashing without embedded reglets is indicated on Drawings. Install at height so that inserted counterflashings overlap 4 inches over top edge of base flashings.
- D. Counterflashings: insert counterflashings into reglets or other indicated receivers; ensure that counterflashings overlap 4 inches over top edge of base flashings. Lap counterflashing joints a minimum of 4 inches and bed with butyl sealant. Fit counterflashings tightly to base flashings.

3.6 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
- B. Clean and neutralize flux materials. Clean off excess solder and sealants.
- C. Remove temporary protective coverings and strippable films as roof specialties are installed. On completion of installation, clean finished surfaces, including removing unused fasteners, metal filings, pop rivet stems, and pieces of flashing. Maintain roof specialties in a clean condition during construction.
- D. Replace roof specialties that have been damaged or that cannot be successfully repaired by finish touchup or similar minor repair procedures.

END OF SECTION 077100

SECTION 077129 - MANUFACTURED ROOF EXPANSION JOINTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Flanged bellows-type roof expansion joints.
- B. Related Requirements:
 - 1. Section 061053 "Miscellaneous Rough Carpentry" for wooden curbs or cants for mounting roof expansion joints.
 - 2. Section 075323 "Ethylene-Propylene-Diene-Monomer (EPDM) Roofing."
 - 3. Section 076200 "Sheet Metal Flashing and Trim" for shop- and field-fabricated sheet metal expansion-joint systems, flashing, and other sheet metal items.
 - 4. Section 077100 "Roof Specialties."
 - 5. Section 079513.16 "Exterior Expansion Joint Cover Assemblies."

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For roof expansion joints.
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Include details of splices, intersections, transitions, fittings, method of field assembly, and location and size of each field splice.
 - 3. Provide isometric drawings of intersections, terminations, changes in joint direction or planes, and transition to other expansion joint systems depicting how components interconnect with each other and adjacent construction to allow movement and achieve waterproof continuity.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Sample Warranties: For special warranties.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Installer of roofing membrane.

1.6 WARRANTY

- A. Special Warranty: Manufacturer and Installer agree to repair or replace roof expansion joints and components that leak, deteriorate beyond normal weathering, or otherwise fail in materials or workmanship within specified warranty period.

- 1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes to prevent buckling, opening of joints, hole elongation, overstressing of components, failure of joint seals, failure of connections, and other detrimental effects.

- 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 FLANGED BELLOWS-TYPE ROOF EXPANSION JOINTS

- A. Flanged Bellows-Type Roof Expansion Joint: Factory-fabricated, continuous, waterproof, joint cover consisting of exposed membrane bellows laminated to flexible, closed-cell support foam, and secured along each edge to 3- to 4-inch- wide metal flange.

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Johns Manville; a Berkshire Hathaway company.
 - b. MM Systems Corporation.
 - c. Nystrom, Inc.
 - 2. Source Limitations: Obtain flanged bellows-type roof expansion joints approved by roofing manufacturer and that are part of roofing membrane warranty.
 - 3. Joint Movement Capability: Plus and minus 50 percent of joint size.
 - 4. Bellows: flexible membrane, nominal 60 mils thick.
 - 5. Flanges: Galvanized steel, 0.022 inch thick.
 - 6. Configuration: as indicated on Drawings.
 - 7. Corner, Intersection, and Transition Units: Provide factory-fabricated units for corner and joint intersections and horizontal and vertical transitions including those to other building expansion joints.
 - 8. Accessories: Provide splicing units, adhesives, and other components as recommended by roof-expansion-joint manufacturer for complete installation.

B. Materials:

1. Galvanized-Steel Sheet: ASTM A 653/A 653M, hot-dip zinc-coating designation G90.

2.3 MISCELLANEOUS MATERIALS

A. Adhesives: As recommended by roof-expansion-joint manufacturer.

B. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to withstand design loads.

1. Exposed Fasteners: Gasketed. Use screws with hex washer heads matching color of material being fastened.

C. Mineral-Fiber Blanket: ASTM C 665.

D. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joint openings, substrates, and expansion-control joint systems that interface with roof expansion joints, for suitable conditions where roof expansion joints will be installed.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Comply with manufacturer's written instructions for handling and installing roof expansion joints.
 1. Anchor roof expansion joints securely in place, with provisions for required movement. Use fasteners, protective coatings, sealants, and miscellaneous items as required to complete roof expansion joints.
 2. Install roof expansion joints true to line and elevation; and without warping, jogs in alignment, buckling, or tool marks.
 3. Provide for linear thermal expansion of roof expansion joint materials.
 4. Provide uniform profile of roof expansion joint throughout its length; do not stretch or squeeze membranes.
 5. Provide uniform, neat seams.
 6. Install roof expansion joints to fit substrates and to result in watertight performance.
- B. Directional Changes: Install factory-fabricated units at directional changes to provide continuous, uninterrupted, and watertight joints.

- C. Transitions to Other Expansion-Control Joint Assemblies: Coordinate installation of roof expansion joints with other exterior expansion-control joint assemblies specified in Section 079513.16 "Exterior Expansion Joint Cover Assemblies" to result in watertight performance. Install factory-fabricated units at transitions between roof expansion joints and exterior expansion-control joint systems.
- D. Splices: Splice roof expansion joints to provide continuous, uninterrupted, and waterproof joints.
 - 1. Install waterproof splices and prefabricated end dams to prevent leakage of secondary-seal membrane.
- E. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.

END OF SECTION 077129

SECTION 078413 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Penetrations in fire-resistance-rated walls.
 - 2. Penetrations in horizontal assemblies.
 - 3. Penetrations in smoke barriers.

- B. Related Requirements:

- 1. Section 078443 "Joint Firestopping" for joints in or between fire-resistance-rated construction, at exterior curtain-wall/floor intersections, and in smoke barriers.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: For each penetration firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing and inspecting agency.
 - 1. Engineering Judgments: Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping system, submit illustration, with modifications marked, approved by penetration firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly. Obtain approval of authorities having jurisdiction prior to submittal.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

- B. Product Certificates: For through-penetration firestop system products, signed by product manufacturer.
- C. Product Test Reports: For each penetration firestopping system, for tests performed by a qualified testing agency.

1.6 CLOSEOUT SUBMITTALS

- A. Installer Certificates: From Installer indicating that penetration firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: A firm that has been approved by FM Global according to FM Global 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements."
- B. Installer Responsibility: Assign installation of through-penetration firestop systems and fire-resistive joint systems in Project to a single qualified installer.
- C. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction indicated, through one source from a single manufacturer.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver through-penetration firestop products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, lot number, shelf life if applicable, qualified testing and inspecting agency's classification marking applicable to Project, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install penetration firestopping system when ambient or substrate temperatures are outside limits permitted by penetration firestopping system manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.
- B. Install and cure penetration firestopping materials per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.10 COORDINATION

- A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping systems can be installed according to specified firestopping system design.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping systems.
- C. Notify Owner's inspecting agency at least seven days in advance of through-penetration firestop system installations; confirm dates and times on days preceding each series of installations.
- D. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until each installation has been examined by Owner's inspecting agency and building inspector, if required by authorities having jurisdiction.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. General: For penetrations through the following fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.
 - 1. Fire-resistance-rated walls including fire walls and fire barriers.
 - 2. Fire-resistance-rated horizontal assemblies including floors and floor/ceiling assemblies.
- B. Rated Systems: Provide through-penetration firestop systems with the following ratings determined per ASTM E 119, ASTM E 814 and UL 1479:
 - 1. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, but not less than that equaling or exceed fire-resistance rating of constructions penetrated.
 - 2. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:
 - a. Penetrations located outside wall cavities.
 - b. Penetrations located outside fire-resistance-rated shaft enclosures.
- C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.
 - 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.

2. For floor penetrations with annular spaces exceeding 4-inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved, either by installing floor plates or by other means.
 3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- D. For through-penetration firestop systems exposed to view, provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.
- E. Fire-Test-Response Characteristics:
1. Perform penetration firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
 2. Test per testing standards referenced in "Penetration Firestopping Systems" Article. Provide rated systems complying with the following requirements:
 - a. Penetration firestopping systems shall bear classification marking of a qualified testing agency.
 - 1) UL in its "Fire Resistance Directory."

2.2 FIRESTOPPING, GENERAL

- A. Compatibility: Provide through-penetration firestop systems that are compatible with one another; with the substrates forming openings; and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.
- B. VOC Content: Provide penetration firestopping that complies with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
1. Architectural Sealants: 250 g/L.
 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 3. Sealant Primers for Porous Substrates: 775 g/L.

2.3 PENETRATION FIRESTOPPING SYSTEMS

- A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. 3M Fire Protection Products.
 - b. Hilti, Inc.

- c. Tremco, Inc.
- B. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated.
 - 1. Permanent forming/damming/backing materials.
 - a. Slag-/rock-wool-fiber insulation.
 - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
 - c. Fire-rated form board.
 - d. Fillers for sealants.
 - 2. Temporary forming materials.
 - 3. Substrate primers.
 - 4. Collars.
 - 5. Steel sleeves.

2.4 FILL MATERIALS

- A. General: Provide through-penetration firestop systems containing the types of fill materials required in the Through-Penetration Firestop System Schedule at the end of Part 3 by referencing the types of materials described in this Article. Fill materials are those referred to in directories of referenced testing and inspecting agencies as "fill," "void," or "cavity" materials.
- B. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer sleeve lined with an intumescent strip, a flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- C. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.
- D. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- E. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced intumescent elastomeric sheet bonded to galvanized-steel sheet.
- F. Intumescent Putties: Nonhardening, water-resistant, intumescent putties containing no solvents or inorganic fibers.
- G. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- H. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant

additives. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.

- I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants.
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a nonslumping, gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.
 - 2. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces.
 - 3. Grade for Vertical Surfaces: Nonsag formulation for openings in vertical and other surfaces.

2.5 MIXING

- A. Penetration Firestopping Materials: For those products requiring mixing before application, comply with penetration firestopping system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Before installing penetration firestopping systems, clean out openings immediately to comply with manufacturer's written instructions and with the following requirements:
 - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping materials.

2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping materials. Remove loose particles remaining from cleaning operation.
 3. Remove laitance and form-release agents from concrete.
- B. Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

3.3 INSTALLATION

- A. General: Install penetration firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications.
- B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings.
1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not forming permanent components of firestopping.
- C. Install fill materials by proven techniques to produce the following results:
1. Fill voids and cavities formed by openings, forming materials, accessories and penetrating items to achieve required fire-resistance ratings.
 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
 3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

- A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inch strokes.
1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 feet from end of wall and at intervals not exceeding 30 feet.
- B. Penetration Identification: Identify each penetration firestopping system with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of

penetration firestopping system edge so labels are visible to anyone seeking to remove penetrating items or firestopping systems. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.
3. Designation of applicable testing and inspecting agency.
4. Date of installation.
5. Manufacturer's name.
6. Installer's name.

3.5 FIELD QUALITY CONTROL

- A. Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E 2174.
- B. Where deficiencies are found or penetration firestopping system is damaged or removed because of testing, repair or replace penetration firestopping system to comply with requirements.
- C. Proceed with enclosing penetration firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

- A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping material and install new materials to produce systems complying with specified requirements.

3.7 PENETRATION FIRESTOPPING SYSTEM SCHEDULE

- A. Where UL-classified systems are indicated, they refer to system numbers in UL's "Fire Resistance Directory" under product Category XHEZ.
- B. Penetration Firestopping Systems with No Penetrating Items:
 1. UL-Classified Systems: C-AJ- 0001-0999.
 2. Type of Fill Materials: As required to achieve rating.

- C. Penetration Firestopping Systems for Metallic Pipes, Conduit, or Tubing:
 - 1. UL-Classified Systems: C-AJ- W-L- 1001-1999.
 - 2. Type of Fill Materials: As required to achieve rating.
- D. Penetration Firestopping Systems for Nonmetallic Pipe, Conduit, or Tubing:
 - 1. UL-Classified Systems: C-AJ- W-L- 2001-2999.
 - 2. Type of Fill Materials: As required to achieve rating.
- E. Penetration Firestopping Systems for Electrical Cables:
 - 1. UL-Classified Systems: C-AJ- W-L- 3001-3999.
 - 2. Type of Fill Materials: As required to achieve rating.
- F. Penetration Firestopping Systems for Cable Trays with Electric Cables:
 - 1. UL-Classified Systems: C-AJ- W-L- 4001-4999.
 - 2. Type of Fill Materials: As required to achieve rating.
- G. Penetration Firestopping Systems for Insulated Pipes:
 - 1. UL-Classified Systems: C-AJ- W-L- 5001-5999.
 - 2. Type of Fill Materials: As required to achieve rating.
- H. Penetration Firestopping Systems for Miscellaneous Electrical Penetrants:
 - 1. UL-Classified Systems: C-AJ- W-L- 6001-6999.
 - 2. Type of Fill Materials: As required to achieve rating.
- I. Penetration Firestopping Systems for Miscellaneous Mechanical Penetrants:
 - 1. UL-Classified Systems: C-AJ- W-L- 7001-7999.
 - 2. Type of Fill Materials: As required to achieve rating.
- J. Penetration Firestopping Systems for Groupings of Penetrants:
 - 1. UL-Classified Systems: C-AJ- W-L- 8001-8999.
 - 2. Type of Fill Materials: As required to achieve rating.

END OF SECTION 078413

SECTION 078443 - JOINT FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Joints in or between fire-resistance-rated constructions.
 - 2. Joints in smoke barriers.
- B. Related Requirements:
 - 1. Section 078413 "Penetration Firestopping" for penetrations in fire-resistance-rated walls, horizontal assemblies, and smoke barriers.
 - 2. Section 079513.13 "Interior Expansion Joint Cover Assemblies" for fire-resistive manufactured expansion-joint cover assemblies for interior floors, walls, and ceilings.
 - 3. Section 079513.16 "Exterior Expansion Joint Cover Assemblies" for fire-resistive manufactured expansion-joint cover assemblies for exterior building walls, soffits, and parapets.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: For each joint firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing agency.
 - 1. Engineering Judgments: Where Project conditions require modification to a qualified testing agency's illustration for a particular joint firestopping system condition, submit illustration, with modifications marked, approved by joint firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

- B. Product Test Reports: For each joint firestopping system, for tests performed by a qualified testing agency.

1.5 CLOSEOUT SUBMITTALS

- A. Installer Certificates: From Installer indicating that joint firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A firm that has been approved by FM Global according to FM Global 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with UL's "Qualified Firestop Contractor Program Requirements."

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install joint firestopping systems when ambient or substrate temperatures are outside limits permitted by joint firestopping system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Install and cure joint firestopping systems per manufacturer's written instructions using natural means of ventilation or, where this is inadequate, forced-air circulation.

1.8 COORDINATION

- A. Coordinate construction of joints to ensure that joint firestopping systems can be installed according to specified firestopping system design.
- B. Coordinate sizing of joints to accommodate joint firestopping systems.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics:
 - 1. Perform joint firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
 - 2. Test per testing standards referenced in "Joint Firestopping Systems" Article. Provide rated systems complying with the following requirements:
 - a. Joint firestopping systems shall bear classification marking of a qualified testing agency.

- 1) UL in its "Fire Resistance Directory."

2.2 JOINT FIRESTOPPING SYSTEMS

- A. Joint Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of assemblies in or between which joint firestopping systems are installed. Joint firestopping systems shall accommodate building movements without impairing their ability to resist the passage of fire and hot gases.
- B. Joints in or between Fire-Resistance-Rated Construction: Provide joint firestopping systems with ratings determined per ASTM E 1966 or UL 2079.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. 3M Fire Protection Products.
 - b. Hilti, Inc.
 - c. Tremco, Inc.
 2. Fire-Resistance Rating: Equal to or exceeding the fire-resistance rating of the wall, floor, or roof in or between which it is installed.
- C. Joints in Smoke Barriers: Provide fire-resistive joint systems with ratings determined per UL 2079 based on testing at a positive pressure differential of 0.30-inch wg.
 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. 3M Fire Protection Products.
 - b. Hilti, Inc.
 - c. Tremco, Inc.
 2. L-Rating: Not exceeding 5.0 cfm/ft. of joint at both ambient and elevated temperatures.
- D. Exposed Joint Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.
- E. Accessories: Provide components of fire-resistive joint systems, including primers and forming materials, that are needed to install elastomeric fill materials and to maintain ratings required. Use only components specified by joint firestopping system manufacturer and approved by the qualified testing agency for conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of the Work.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning: Before installing fire-resistive joint systems, clean joints immediately to comply with fire-resistive joint system manufacturer's written instructions and the following requirements:
 - 1. Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of elastomeric fill materials or compromise fire-resistive rating.
 - 2. Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with elastomeric fill materials. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form-release agents from concrete.
- B. Prime substrates where recommended in writing by joint firestopping system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

3.3 INSTALLATION

- A. General: Install fire-resistive joint systems to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming materials and other accessories of types required to support elastomeric fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
 - 1. After installing elastomeric fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of fire-resistive joint system.
- C. Install elastomeric fill materials for fire-resistive joint systems by proven techniques to produce the following results:
 - 1. Elastomeric fill voids and cavities formed by joints and forming materials as required to achieve fire-resistance ratings indicated.
 - 2. Apply elastomeric fill materials so they contact and adhere to substrates formed by joints.
 - 3. For elastomeric fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

- A. Joint Identification: Identify joint firestopping systems with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of joint edge so labels are visible to anyone seeking to remove or joint firestopping system. Use mechanical fasteners or self-

adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

1. The words "Warning - Joint Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.
3. Designation of applicable testing agency.
4. Date of installation.
5. Manufacturer's name.
6. Installer's name.

3.5 FIELD QUALITY CONTROL

- A. Inspecting Agency: Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E 2393.
- B. Where deficiencies are found or joint firestopping systems are damaged or removed due to testing, repair or replace joint firestopping systems so they comply with requirements.
- C. Proceed with enclosing joint firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

- A. Clean off excess elastomeric fill materials adjacent to joints as the Work progresses by methods and with cleaning materials that are approved in writing by joint firestopping system manufacturers and that do not damage materials in which joints occur.
- B. Provide final protection and maintain conditions during and after installation that ensure joint firestopping systems are without damage or deterioration at time of Substantial Completion. If damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated fire-resistive joint systems immediately and install new materials to produce fire-resistive joint systems complying with specified requirements.

3.7 JOINT FIRESTOPPING SYSTEM SCHEDULE

- A. Where UL-classified systems are indicated, they refer to system numbers in UL's "Fire Resistance Directory" under product Category XHBN.
- B. Head-of-Wall, Fire-Resistive Joint Firestopping Systems:
 1. UL-Classified Systems: HW-D 0000-0999.
 2. Assembly Rating: As indicated.
 3. Movement Capabilities: Class II - 25 percent compression or extension.
- C. Perimeter Joint Firestopping Systems:

1. UL-Classified Perimeter Fire-Containment Systems: CW-D S 1000-1999.
 - a. Integrity Rating: As indicated on Drawings for floor rating.
 - b. Insulation Rating: 1/4 hour.
 - c. Linear Opening Width: 6 inches, maximum.
 - d. Movement Capabilities: Class II - 7.5 percent compression or extension.

END OF SECTION 078443

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Silicone joint sealants.
- 2. Urethane joint sealants.
- 3. Latex joint sealants.
- 4. Preformed joint sealants.

- B. Related Requirements:

- 1. Section 042000 "Unit Masonry" for masonry control and expansion joint fillers and gaskets.
- 2. Section 088000 "Glazing" for glazing sealants.
- 3. Section 321373 "Concrete Paving Joint Sealants" for sealing joints in paved roads, parking lots, walkways, and curbing.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.5 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product.

- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified testing agency.
- B. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- C. Product Test Reports: For each kind of joint sealant, for tests performed by a qualified testing agency.
- D. Preconstruction Laboratory Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation are needed for adhesion.
- E. Sample Warranties: For special warranties.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.
- B. Product Testing: Test joint sealants using a qualified testing agency.
 - 1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.
 - 2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.
- C. Source Limitations: Obtain each type of joints sealant through one source from a single manufacturer.

1.8 PRECONSTRUCTION TESTING

- A. Preconstruction Laboratory Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
1. Adhesion Testing: Use ASTM C 794 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 2. Compatibility Testing: Use ASTM C 1087 to determine sealant compatibility when in contact with glazing and gasket materials.
 3. Stain Testing: Use ASTM C 1248 to determine stain potential of sealant when in contact with masonry substrates.
 4. Submit manufacturer's recommended number of pieces of each type of material, including joint substrates, joint-sealant backings, and miscellaneous materials.
 5. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 6. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures, including use of specially formulated primers.
 7. Testing will not be required if joint-sealant manufacturers submit data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, staining of, and compatibility with joint substrates and other materials matching those submitted.

1.9 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
 2. When joint substrates are wet.
 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.10 WARRANTY

- A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period for Urethane: Five years from date of Substantial Completion.

2. Warranty Period for Silicone: Twenty years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
 2. Disintegration of joint substrates from causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):
1. Architectural Sealants: 250 g/L.
 2. Sealant Primers for Nonporous Substrates: 250 g/L.
 3. Sealant Primers for Porous Substrates: 775 g/L.
- C. Low-Emitting Interior Sealants: Sealants and sealant primers for use inside the weatherproofing system shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- E. Stain-Test-Response Characteristics: Where sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- F. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 SILICONE JOINT SEALANTS

- A. Silicone, S, NS, 100/50, NT: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow Corning Corporation; 790.
 - b. Pecora Corporation; 890 NST.
 - c. Tremco Incorporated; Spectrem 1.

2.3 URETHANE JOINT SEALANTS

- A. Urethane, M, NS, 50, NT: Multicomponent, nonsag, plus 50 percent and minus 50 percent movement capability nontraffic-use, urethane joint sealant; ASTM C 920, Type M, Grade NS, Class 50, Use NT.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Corporation-Construction Systems; MasterSeal NP 2.
 - b. Pecora Corporation; Dynatrol II.
 - c. Sherwin Williams; Loxon 2K NS.
 - d. Tremco; Dymeric 240 FC.
- B. Urethane, M, P, 25, T, NT: Multicomponent, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type M, Grade P, Class 25, Uses T and NT.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. BASF Corporation-Construction Systems; MasterSeal SL 2.
 - b. Pecora Corporation; Dynatrol II-SG.
 - c. Sherwin Williams; Loxon 2K SL.
 - d. Tremco; THC-900.

2.4 LATEX JOINT SEALANTS

- A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. American Sealants, Inc.; ASI 174.
 - b. Pecora Corporation; AC-20+.
 - c. Sherwin Williams; 950A.
 - d. Tremco; Tremflex 834.

2.5 PREFORMED JOINT SEALANTS

- A. Preformed Foam Sealant: Manufacturer's standard preformed, precompressed, open-cell foam sealant that is manufactured from high-density urethane foam impregnated with a nondrying, water-repellent agent; is factory produced in precompressed sizes in roll or stick form to fit joint widths indicated; is coated on one side with a pressure-sensitive adhesive and covered with protective wrapping; develops a watertight and airtight seal when compressed to the degree specified by manufacturer; and complies with the following:
 - 1. Basis of Design Product: Subject to compliance with requirements, provide EMSEAL Joint Systems, Ltd.; Colorseal or one of the following:
 - a. MM Systems, Corp.; ColorJoint SIF Series.
 - b. JointMaster/InPro Corporation; Foam Seal Series 1200.
 - 2. Properties: Permanently elastic, mildew resistant, nonmigratory, non-staining, and compatible with joint substrates and other joint sealants.
 - a. Density: Manufacturer's standard.
 - 3. Width: As indicated.
 - 4. Color: As selected by Architect from manufacturer's full range.

2.6 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Non-staining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or

harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

- C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - 3. Remove laitance and form-release agents from concrete.
 - 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.
- G. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, producing seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in compliance with sealant manufacturer's written instructions.

1. Apply a thin bead of sealant to the end of the silicone facing only .
2. Peel off release paper to expose mounting adhesive on one face of material. Feed material into joint, working sequentially in one direction starting at the bottom of the joint. Recess 3/8-inch from wall surface.
3. When material is fully expanded against both sides of the joint, install corner caulking bead where the sealant facing meets the substrate.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces.
 1. Joint Locations:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Joints between different materials listed above.
 - c. .
 2. Joint Sealant: Urethane, M, P, 50, T, NT.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- B. Joint-Sealant Application: Exterior joints in horizontal traffic surfaces subject to water immersion.
 1. Joint Locations:
 - a. .
 - b. Other joints as indicated on Drawings.
 2. Joint Sealant: Urethane, immersible, S, P, 25, T, NT, I.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- C. Joint-Sealant Application: Exterior joints in vertical surfaces and horizontal nontraffic surfaces.

1. Joint Locations:
 - a. Construction joints in cast-in-place concrete.
 - b. Control and expansion joints in unit masonry.
 - c. Joints between metal panels.
 - d. Joints between different materials listed above.
 - e. Perimeter joints between materials listed above and frames of doors windows and louvers.
 - f. Control and expansion joints in ceilings and other overhead surfaces.
 - g. .
 - h. Other joints as indicated on Drawings.
 2. Joint Sealant: Silicone, nonstaining, S, NS, 50, NT.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- D. Joint-Sealant Application: Exterior vertical nontraffic seismic joints.
1. Joint Locations:
 - a. Seismic and expansion joints in exterior joints as indicated.
 2. Joint Sealant: Preformed foam sealant.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- E. Joint-Sealant Application: Interior joints in horizontal traffic surfaces.
1. Joint Locations:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. .
 - c. Other joints as indicated on Drawings.
 2. Joint Sealant: Urethane, S, P, 25, T, NT.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- F. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces.
1. Joint Locations:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Vertical joints on exposed surfaces of unit masonry concrete walls and partitions.
 - c. .
 - d. Other joints as indicated on Drawings.
 2. Joint Sealant: Urethane, S, NS, 25, NT.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.
- G. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement.

1. Joint Locations:
 - a. Control joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints between interior wall surfaces and frames of interior doors windows and elevator entrances.
 - c. .
 - d. Other joints as indicated on Drawings.
2. Joint Sealant: Acrylic latex.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

SECTION 079201 - SPRAY FOAM SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Polyurethane spray foam sealant.
- B. Related Requirements:
 - 1. Section 079200 "Joint Sealants" for sealants installed in interior and exterior surfaces.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide spray foam sealant engineered to fill voids and seal gaps without deteriorating substrates.

1.4 SUBMITTALS

- A. Product Data: For spray foam sealant.
- B. Product Certificates: For spray foam sealant and accessories, signed by product manufacturer.
- C. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming sealant substrates have been tested for compatibility and adhesion with spray from sealant.
- D. Certification from sealant manufacturer that products supplied comply with State of Connecticut regulations controlling the use of volatile organic compounds (VOC's).

1.5 QUALITY ASSURANCE

- A. Source Limitations: Obtain spray foam sealant through one source from a single manufacturer.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials in original containers in cool, dry area at room temperature between 60 and 70 deg. F. Do not store materials above 90 deg. F.

1.7 FIELD CONDITIONS

- A. Do not proceed with installation of spray foam sealant under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 45 deg. F.
 - 2. When joint substrates are wet.
 - 3. Contaminants capable of interfering with adhesion have not yet been removed from substrate.

PART 2 - PRODUCTS

2.1 SPRAY FOAM SEALANTS

- A. Polyurethane Spray Foam Sealant: Two-component, polyurethane foam sealant packaged in self-contained pressurized containers, gun-grade, containing no urea formaldehyde, and UL Classified.
 - 1. In accordance with ASTM E 84, provide products with a flame spread of 25 and smoke developed of 450.
 - 2. Properties:
 - a. Cure Time: 8-24 hours at 75 deg. F., 50% relative humidity.
 - b. Air permeability at 75 Pa per inch thickness: ASTM E 2178, less than 0.02 L/s/m².
 - c. Water Vapor Transmission, per inch thickness: ASTM E 96, less than 4 perms.
 - d. R-Value: 4.6 per inch, minimum.
 - e. Closed Cell Content: ASTM D 2856, 70% or greater.
 - f. Core Density: Minimum 1.7 lbs./cu.ft.
 - 3. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow Polyurethane Systems; Frothpak FS.
 - b. Todol Products, Inc.; Duo Fill 400.

- c. Zerodraft; Insulating Air Sealant.
- B. Cleaner Manufacturer's standard for cleaning substrates and to clean up foam spills, overspray, tools and nozzles before foam cures.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine voids and substrates to receive spray foam sealant, with Installer present, for compliance with requirements and conditions affecting foam sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected. Commencement of work indicates acceptance of substrates.

3.2 PREPARATION

- A. Remove foreign material that could interfere with adhesion of spray foam sealant, including dust, oil, grease, water, repellants, water, and surface dirt.
 - 1. Remove laitance and form-release agents from concrete.
 - 2. Clean nonporous surfaces with cleaner that does not stain, harm substrate, or leave residue capable of interfering with adhesion of spray foam sealants.

3.3 INSTALLATION

- A. General: Comply with spray foam sealant manufacturer's written instructions for products and applications indicated.
- B. Install foam sealant at exterior frames of louvers, glazed aluminum curtain wall system, and aluminum storefront and entrance frames.
 - 1. Fill cavities 30-40%, allowing foam to expand approximately three times its original dispensed volume.

3.4 CLEANING AND PROTECTING

- A. Protect adjacent surfaces from overspray. If required, clean spills before product cures.
- B. Protect spray foam from exposure to sunlight.
- C. Proceed with installation of joint sealants by Section 079200 "Joint Sealants."

END OF SECTION 079201

SECTION 079513.13 - INTERIOR EXPANSION JOINT COVER ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes interior expansion joint cover assemblies.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for expansion joint cover assemblies.
- B. Shop Drawings: For each expansion joint cover assembly.
 - 1. Include plans, elevations, sections, details, splices, block-out requirement, attachments to other work, and line diagrams showing entire route of each expansion joint.
 - 2. Where expansion joint cover assemblies change planes, provide isometric or clearly detailed drawing depicting how components interconnect.
- C. Samples: For each expansion joint cover assembly and for each color and texture specified, full width by 6 inches long in size.
- D. Samples for Initial Selection: For each type of exposed finish.
 - 1. Include manufacturer's color charts showing the full range of colors and finishes available for each exposed metal and elastomeric-seal material.
- E. Samples for Verification: For each type of expansion joint cover assembly, full width by 6 inches long in size.
- F. Expansion Joint Cover Assembly Schedule: Prepared by or under the supervision of the supplier. Include the following information in tabular form:
 - 1. Manufacturer and model number for each expansion joint cover assembly.
 - 2. Expansion joint cover assembly location cross-referenced to Drawings.
 - 3. Nominal, minimum, and maximum joint width.
 - 4. Movement direction.

5. Materials, colors, and finishes.
6. Product options.
7. Fire-resistance ratings.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each fire-resistance-rated expansion joint cover assembly, for tests performed by a qualified testing agency.

PART 2 - PRODUCTS

2.1 ASSEMBLY DESCRIPTION

- A. Furnish units in longest practicable lengths to minimize field splicing.
- B. Include factory-fabricated closure materials and transition pieces, T-joints, corners, curbs, cross-connections, and other accessories as required to provide continuous expansion joint cover assemblies.

2.2 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Expansion joint cover assemblies shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
- B. Expansion Joint Design Criteria:
 1. Nominal Joint Width: As indicated on Drawings.
 2. Minimum Joint Width: As indicated on Drawings.
 3. Maximum Joint Width: As indicated on Drawings.
 4. Movement Capability: As indicated on Drawings.
 5. Type of Movement: Seismic.

2.3 FLOOR EXPANSION JOINT COVERS

- A. Metal-Plate Floor Joint Cover: Metal cover plate fixed on one side of joint gap and free to slide on other.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide MM Systems Corporation; Model X-U4 or comparable product by one of the following:
 - a. Construction Specialties, Inc.
 - b. Nystrom, Inc.
 2. Application: Floor to floor.
 3. Installation: Surface mounted.
 4. Load Capacity: Heavy duty.

5. Fire-Resistance Rating: Not less than that indicated on Drawings.
 6. Cover-Plate Design: Serrated.
 7. Exposed Metal:
 - a. Aluminum: Mill.
- B. Center-Plate Floor Joint Cover: Assembly consisting of center plate that slides over metal frames fixed to sides of joint gaps.
1. Basis-of-Design Product: Subject to compliance with requirements, provide MM Systems Corporation; Model HFXEM 2-2 or comparable product by one of the following:
 - a. Construction Specialties, Inc.
 - b. Nystrom, Inc.
 2. Application: Floor to floor.
 3. Installation: Surface mounted Recessed.
 4. Load Capacity: Heavy duty.
 5. Fire-Resistance Rating: Not less than that indicated on Drawings.
 6. Cover-Plate Design: Plain.
 7. Exposed Metal:
 - a. Aluminum: Mill.
- C. Glide-Plate Floor Joint Cover: Assembly consisting of center plate that slides in and out of slots in metal frames fixed to sides of joint gap.
1. Basis-of-Design Product: Subject to compliance with requirements, provide MM Systems Corporation; Model HFXE 2-1 or comparable product by one of the following:
 - a. Construction Specialties, Inc.
 - b. Nystrom, Inc.
 2. Application: Floor to wall.
 3. Installation: Recessed.
 4. Load Capacity: Heavy duty.
 5. Fire-Resistance Rating: Not less than that indicated on Drawings.
 6. Cover-Plate Design: Plain.
 7. Exposed Metal:
 - a. Aluminum: Mill.
- 2.4 WALL EXPANSION JOINT COVERS
- A. Center-Plate Wall Joint Cover: Assembly consisting of center plate that slides over gaskets in metal frames fixed to sides of joint gaps.

1. Basis-of-Design Product: Subject to compliance with requirements, provide MM Systems Corporation; Model FX-L 2-1 or comparable product by one of the following:
 - a. Construction Specialties, Inc.
 - b. Nystrom, Inc.
 2. Application: Wall to corner.
 3. Fire-Resistance Rating: Not less than that indicated on Drawings.
 4. Exposed Metal:
 - a. Aluminum: Clear anodic, Class II.
- B. Glide-Plate Wall Joint Cover: Assembly consisting of center plate that slides in and out of slots in metal frames fixed to sides of joint gap.
1. Basis-of-Design Product: Subject to compliance with requirements, provide MM Systems Corporation; Model FX-K 2-2 or comparable product by one of the following:
 - a. Construction Specialties, Inc.
 - b. Nystrom, Inc.
 2. Application: Wall to wall.
 3. Fire-Resistance Rating: Not less than that indicated on Drawings.
 4. Exposed Metal:
 - a. Aluminum: Clear anodic, Class II.

2.5 CEILING EXPANSION JOINT COVERS

- A. Elastomeric-Seal Ceiling Joint Cover: Assembly consisting of elastomeric seal anchored to frames fixed to sides of joint gap.
1. Basis-of-Design Product: Subject to compliance with requirements, provide MM Systems Corporation; Model VSG-200 or comparable product by one of the following:
 - a. Construction Specialties, Inc.
 - b. Nystrom, Inc.
 2. Application: Ceiling to ceiling.
 3. Fire-Resistance Rating: Not less than that indicated on Drawings.
 - a. Aluminum: Manufacturer's standard.
 - 1) Color: White.
 4. Seal: Preformed elastomeric membranes or extrusions.
 - a. Color: White.
- B. Elastomeric-Seal Ceiling Joint Cover: Assembly consisting of elastomeric seal anchored to frames fixed to sides of joint gap.

1. Basis-of-Design Product: Subject to compliance with requirements, provide MM Systems Corporation; Model VSWL or comparable product by one of the following:
 - a. Construction Specialties, Inc.
 - b. Nystrom, Inc.
2. Application: Wall to ceiling.
3. Fire-Resistance Rating: Not less than that indicated on Drawings.
 - a. Aluminum: Manufacturer's standard.
 - 1) Color: White.
4. Seal: Preformed elastomeric membranes or extrusions.
 - a. Color: White.

2.6 MATERIALS

- A. Aluminum: ASTM B 221, Alloy 6063-T5 for extrusions; ASTM B 209, Alloy 6061-T6 for sheet and plate.
 1. Apply manufacturer's standard protective coating on aluminum surfaces to be placed in contact with cementitious materials.
- B. Elastomeric Seals: Manufacturer's standard preformed elastomeric membranes or extrusions to be installed in metal frames.
- C. Fire Barriers: Any material or material combination, when fire tested after cycling, designated to resist the passage of flame and hot gases through a movement joint and to comply with performance criteria for required fire-resistance rating.
- D. Moisture Barrier: Manufacturer's standard, flexible elastomeric material.

2.7 ALUMINUM FINISHES

- A. Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.

2.8 ACCESSORIES

- A. Moisture Barriers: Manufacturer's standard continuous, waterproof membrane within joint and attached to substrate on sides of joint.
- B. Manufacturer's standard attachment devices. Include anchors, clips, fasteners, set screws, spacers, and other accessories compatible with material in contact, as indicated or required for complete installations.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces where expansion joint cover assemblies will be installed for installation tolerances and other conditions affecting performance of the Work.
- B. Notify Architect where discrepancies occur that will affect proper expansion joint cover assembly installation and performance.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to expansion joint cover assembly manufacturer's written instructions.
- B. Coordinate and furnish anchorages, setting drawings, and instructions for installing expansion joint cover assemblies. Provide fasteners of metal, type, and size to suit type of construction indicated and to provide for secure attachment of expansion joint cover assemblies.

3.3 INSTALLATION

- A. Comply with manufacturer's written instructions for storing, handling, and installing expansion joint cover assemblies and materials unless more stringent requirements are indicated.
- B. Metal Frames: Perform cutting, drilling, and fitting required to install expansion joint cover assemblies.
 - 1. Repair or grout block out as required for continuous frame support using nonmetallic, shrinkage-resistant grout.
 - 2. Install frames in continuous contact with adjacent surfaces.
 - a. Shimming is not permitted.
 - 3. Install in true alignment and proper relationship to joints and adjoining finished surfaces measured from established lines and levels.
 - 4. Adjust for differences between actual structural gap and nominal design gap due to ambient temperature at time of installation.
 - 5. Cut and fit ends to accommodate thermal expansion and contraction of metal without buckling of frames.
 - 6. Locate anchors at interval recommended by manufacturer, but not less than 3 inches from each end and not more than 24 inches o.c.
- C. Seals: Install elastomeric seals and membranes in frames to comply with manufacturer's written instructions. Install with minimum number of end joints.

1. Provide in continuous lengths for straight sections.
 2. Seal transitions. Vulcanize or heat-weld field-spliced joints as recommended by manufacturer.
 3. Installation: Mechanically lock seals into frames or adhere to frames with adhesive or pressure-sensitive tape as recommended by manufacturer.
- D. Install with hairline mitered corners where expansion joint cover assemblies change direction or abut other materials.
- E. Terminate exposed ends of expansion joint cover assemblies with field- or factory-fabricated termination devices.
- F. Fire-Resistance-Rated Assemblies: Coordinate installation of expansion joint cover assembly materials and associated work so complete assemblies comply with performance requirements.
1. Fire Barriers: Install fire barriers to provide continuous, uninterrupted fire resistance throughout length of joint, including transitions and field splices.

3.4 PROTECTION

- A. Do not remove protective covering until finish work in adjacent areas is complete. When protective covering is removed, clean exposed metal surfaces to comply with manufacturer's written instructions.
- B. Protect the installation from damage by work of other Sections. Where necessary due to heavy construction traffic, remove and properly store cover plates or seals and install temporary protection over expansion joint cover assemblies. Reinstall cover plates or seals prior to Substantial Completion.

END OF SECTION 079513.13

SECTION 079513.16 - EXTERIOR EXPANSION JOINT COVER ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes exterior building expansion joint cover assemblies.
- B. Related Requirements:
 - 1. Section 077129 "Manufactured Roof Expansion Joints" for factory-fabricated roof expansion joint cover assemblies.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for expansion joint cover assemblies.
- B. Shop Drawings: For each expansion joint cover assembly.
 - 1. Include plans, elevations, sections, details, splices, block-out requirement, attachments to other work, and line diagrams showing entire route of each expansion joint.
- C. Samples: For each exposed expansion joint cover assembly and for each color and texture specified, full width by 6 inches long in size.
- D. Samples for Initial Selection: For each type of exposed finish.
 - 1. Include manufacturer's color charts showing the full range of colors and finishes available for each exposed metal and elastomeric seal material.
- E. Samples for Verification: For each type of expansion joint cover assembly, full width by 6 inches long in size.
- F. Expansion Joint Cover Assembly Schedule: Prepared by or under the supervision of the supplier. Include the following information in tabular form:
 - 1. Manufacturer and model number for each expansion joint cover assembly.

2. Expansion joint cover assembly location cross-referenced to Drawings.
3. Nominal, minimum, and maximum joint width.
4. Movement direction.
5. Materials, colors, and finishes.
6. Product options.
7. Fire-resistance ratings.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For each fire-resistance-rated expansion joint cover assembly, for tests performed by manufacturer and witnessed by a qualified testing agency.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain expansion control systems from single source from single manufacturer.

2.2 ASSEMBLY DESCRIPTION

- A. Furnish units in longest practicable lengths to minimize field splicing.
- B. Include factory-fabricated closure materials and transition pieces, T-joints, corners, curbs, cross-connections, and other accessories as required to provide continuous expansion joint cover assemblies.

2.3 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Expansion joint cover assemblies shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

2.4 EXTERIOR VERTICAL EXPANSION JOINT COVERS

- A. Cover plate, extruded aluminum, surface mount, seismic centering bar, integrated moisture barrier; accommodating seismic movement with lateral shear.
 1. Basis of Design Product: Subject to compliance with requirements, provide the products specified by MM Systems Corporation, or a comparable product by one of the following:
 - a. Construction Specialties, Inc.
 - b. Nystrom, Inc.
 2. Design Criteria:

- a. Nominal Joint Width: As indicated on Drawings.
- b. Minimum Joint Width: As scheduled.
- c. Maximum Joint Width: As scheduled.
- d. Movement Capability: As scheduled.
- e. Type of Movement: Seismic.
- f. Material:
 - 1) 6063-T6 Aluminum.
 - a) Finish: Mill.
- g. Attachment Method: Mechanical fasteners, SR-Sealant.
- h. Fire-Resistance Rating: Provide expansion control system and fire-barrier assembly with a rating not less than that of adjacent construction.
- i. Moisture Barrier: Manufacturer's standard.

B. Wall-to-Wall Joint Systems:

- 1. Basis-of-Design Product: Model WJK.

C. Wall-to-Wall Joint Systems (Corner):

- 1. Basis-of-Design Product: Model WJL.

2.5 MATERIALS

- A. Aluminum: ASTM B 221, Alloy 6063-T5 for extrusions; ASTM B 209, Alloy 6061-T6 for sheet and plate.
 - 1. Apply manufacturer's standard protective coating on aluminum surfaces to be placed in contact with cementitious materials.
- B. Stainless Steel: ASTM A 240/A 240M or ASTM A 666, Type 304 for plates, sheet, and strips.
- C. Elastomeric Seals: Manufacturer's standard preformed elastomeric membranes or extrusions to be installed in metal frames.
- D. Fire Barriers: Any material or material combination, when fire tested after cycling, designated to resist the passage of flame and hot gases through a movement joint and to comply with performance criteria for required fire-resistance rating.
- E. Moisture Barrier: Manufacturer's standard, flexible elastomeric material.

2.6 ALUMINUM FINISHES

- A. Mill finish.

2.7 ACCESSORIES

- A. Moisture Barriers: Manufacturer's standard continuous, waterproof membrane within joint and attached to substrate on sides of joint.
- B. Manufacturer's standard attachment devices. Include anchors, clips, fasteners, set screws, spacers, and other accessories compatible with material in contact, as indicated or required for complete installations.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces where expansion joint cover assemblies will be installed for installation tolerances and other conditions affecting performance of the Work.
- B. Notify Architect where discrepancies occur that will affect proper expansion joint cover assembly installation and performance.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to expansion joint cover assembly manufacturer's written instructions.
- B. Coordinate and furnish anchorages, setting drawings, and instructions for installing expansion joint cover assemblies. Provide fasteners of metal, type, and size to suit type of construction indicated and to provide for secure attachment of expansion joint cover assemblies.

3.3 INSTALLATION

- A. Comply with manufacturer's written instructions for storing, handling, and installing expansion joint cover assemblies and materials unless more stringent requirements are indicated.
- B. Metal Frames: Perform cutting, drilling, and fitting required to install expansion joint cover assemblies.
 - 1. Install in true alignment and proper relationship to joints and adjoining finished surfaces measured from established lines and levels.
 - 2. Adjust for differences between actual structural gap and nominal design gap due to ambient temperature at time of installation.
 - 3. Cut and fit ends to accommodate thermal expansion and contraction of metal without buckling of frames.
 - 4. Install frames in continuous contact with adjacent surfaces.

- a. Shimming is not permitted.
- 5. Locate anchors at interval recommended by manufacturer, but not less than 3 inches from each end and not more than 24 inches o.c.
- C. Seals: Install elastomeric seals and membranes in frames to comply with manufacturer's written instructions. Install with minimum number of end joints.
 - 1. Provide in continuous lengths for straight sections.
 - 2. Seal transitions. Vulcanize or heat-weld field-spliced joints as recommended by manufacturer.
 - 3. Installation: Mechanically lock seals into frames or adhere to frames with adhesive or pressure-sensitive tape as recommended by manufacturer.
- D. Install with hairline mitered corners where expansion joint cover assemblies change direction or abut other materials.
- E. Terminate exposed ends of expansion joint cover assemblies with field- or factory-fabricated termination devices.
- F. Fire-Resistance-Rated Assemblies: Coordinate installation of expansion joint cover assembly materials and associated work so complete assemblies comply with performance requirements.
 - 1. Fire Barriers: Install fire barriers to provide continuous, uninterrupted fire resistance throughout length of joint, including transitions and field splices.

3.4 CONNECTIONS

- A. Transition to Roof Expansion Joint Covers: Coordinate installation of exterior wall and soffit expansion joint covers with roof expansion joint covers specified in Section 077129 "Manufactured Roof Expansion Joints." Install factory-fabricated units at transition between exterior walls and soffits and roof expansion joint cover assemblies.

3.5 PROTECTION

- A. Do not remove protective covering until finish work in adjacent areas is complete. When protective covering is removed, clean exposed metal surfaces to comply with manufacturer's written instructions.
- B. Protect the installation from damage by work of other Sections.

END OF SECTION 079513.16

SECTION 084113 - ALUMINUM-FRAMED ENTRANCES AND STOREFRONTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Storefront framing.
 - 2. Manual-swing entrance doors.
- B. Related Requirements:
 - 1. Section 079200 "Joint Sealants" for installation of joint sealants installed with aluminum-framed systems and for sealants to the extent not specified in this Section.
 - 2. Section 087100 "Door Hardware" for hardware to the extent not specified in this Section.
 - 3. Section 088000 "Glazing" for glazing requirements to the extent not specified in this Section.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
- B. Shop Drawings: For aluminum-framed entrances and storefronts. Include plans, elevations, sections, full-size details, and attachments to other work.
 - 1. Include details of provisions for assembly expansion and contraction and for draining moisture occurring within the assembly to the exterior.
 - 2. Include full-size isometric details of each type of vertical-to-horizontal intersection of aluminum-framed entrances and storefronts, showing the following:
 - a. Joinery, including concealed welds.

- b. Anchorage.
 - c. Expansion provisions.
 - d. Glazing.
 - e. Flashing and drainage.
- 3. Show connection to and continuity with adjacent thermal, weather, air, and vapor barriers.
- 4. Include point-to-point wiring diagrams showing the following:
 - a. Power requirements for each electrically operated door hardware.
 - b. Location and types of switches, signal device, conduit sizes, and number and size of wires.
- C. Samples for Initial Selection: For units with factory-applied color finishes.
- D. Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.
- E. Fabrication Sample: Of each vertical-to-horizontal intersection of assemblies, made from 12-inch lengths of full-size components and showing details of the following:
 - 1. Joinery, including concealed welds.
 - 2. Anchorage.
 - 3. Expansion provisions.
 - 4. Glazing.
 - 5. Flashing and drainage.
- F. Delegated-Design Submittal: For aluminum-framed entrances and storefronts indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For aluminum-framed entrances and storefronts, for tests performed by a qualified testing agency.
- C. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For aluminum-framed entrances and storefronts to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Product Options: Information on Drawings and in Specifications establishes requirements for aesthetic effects and performance characteristics of assemblies. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.
 - 1. Do not change intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If changes are proposed, submit comprehensive explanatory data to Architect for review.

1.8 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of aluminum-framed entrances and storefronts that do not comply with requirements or that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures, including, but not limited to, excessive deflection.
 - b. Noise or vibration created by wind and thermal and structural movements.
 - c. Water penetration through fixed glazing and framing areas.
 - d. Failure of operating components.
 - 2. Warranty Period: 10 years from date of Substantial Completion.
- B. Special Finish Warranty: Standard form in which manufacturer agrees to repair finishes or replace aluminum that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain all components of aluminum-framed entrance and storefront system, including framing and accessories, from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design aluminum-framed entrances and storefronts.

- B. General Performance: Comply with performance requirements specified, as determined by testing of aluminum-framed entrances and storefronts representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
1. Aluminum-framed entrances and storefronts shall withstand movements of supporting structure, including, but not limited to, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads.
 2. Failure also includes the following:
 - a. Thermal stresses transferring to building structure.
 - b. Glass breakage.
 - c. Noise or vibration created by wind and thermal and structural movements.
 - d. Loosening or weakening of fasteners, attachments, and other components.
 - e. Failure of operating units.
- C. Structural Loads:
1. Wind Loads: As indicated on Drawings.
 2. Other Design Loads: As indicated on Drawings.
- D. Deflection of Framing Members: At design wind pressure, as follows:
1. Deflection Normal to Wall Plane: Limited to $1/175$ of clear span for spans of up to 13 feet 6 inches and to $1/240$ of clear span plus $1/4$ inch for spans greater than 13 feet 6 inches or an amount that restricts edge deflection of individual glazing lites to $3/4$ inch, whichever is less.
 2. Deflection Parallel to Glazing Plane: Limited to amount not exceeding that which reduces glazing bite to less than 75 percent of design dimension and that which reduces edge clearance between framing members and glazing or other fixed components to less than $1/8$ inch.
- E. Structural: Test according to ASTM E 330/E 330M as follows:
1. When tested at positive and negative wind-load design pressures, storefront assemblies, including entrance doors, do not evidence deflection exceeding specified limits.
 2. When tested at 150 percent of positive and negative wind-load design pressures, storefront assemblies, including entrance doors and anchorage, do not evidence material failures, structural distress, or permanent deformation of main framing members exceeding 0.2 percent of span.
 3. Test Durations: As required by design wind velocity, but not less than 10 seconds.
- F. Air Infiltration: Test according to ASTM E 283 for infiltration as follows:
1. Fixed Framing and Glass Area:
 - a. Maximum air leakage of 0.06 cfm/sq. ft. at a static-air-pressure differential of 6.24 lbf/sq. ft..

2. Entrance Doors:

- a. Single Doors: Maximum air leakage of 0.5 cfm/sq. ft. at a static-air-pressure differential of 1.57 lbf/sq. ft..

G. Water Penetration under Static Pressure: Test according to ASTM E 331 as follows:

1. No evidence of water penetration through fixed glazing and framing areas, including entrance doors, when tested according to a minimum static-air-pressure differential of 20 percent of positive wind-load design pressure, but not less than 6.24 lbf/sq. ft..

H. Seismic Performance: Aluminum-framed entrances and storefronts shall withstand the effects of earthquake motions determined according to the Connecticut State Building Code, as determined by the Fabricator's design engineer.

I. Energy Performance: Certify and label energy performance according to NFRC as follows:

1. Thermal Transmittance (U-factor): Fixed glazing and framing areas as a system shall have U-factor of not more than 0.45 Btu/sq. ft. x h x deg F as determined according to NFRC 100.
2. Condensation Resistance: Fixed glazing and framing areas as a system shall have an NFRC-certified condensation resistance rating of no less than 55 as determined according to NFRC 500.

J. Thermal Movements: Allow for thermal movements resulting from ambient and surface temperature changes.

1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.3 STOREFRONT SYSTEMS

A. Basis-of-Design Product: Subject to compliance with requirements, provide EFCO Corporation; Series 403T (Exterior) and Series 402NT (Interior) or comparable product by one of the following:

1. Kawneer North America, an Arconic company.
2. U.S. Aluminum; a brand of C.R. Laurence.

B. Framing Members: Manufacturer's extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.

1. Exterior Framing Construction: Thermally improved.
2. Interior Vestibule Framing Construction: Nonthermal.
3. Glazing System: Retained mechanically with gaskets on four sides.
4. Glazing Plane: Center.
5. Depth of Frame: Not less than 4-1/2".
6. Face of Frame: Not less than 2".
7. Finish: Color anodic finish.
8. Fabrication Method: Field-fabricated stick system.

9. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 10. Steel Reinforcement: As required by manufacturer.
- C. Backer Plates: Manufacturer's standard, continuous backer plates for framing members, if not integral, where framing abuts adjacent construction.
- D. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

2.4 ENTRANCE DOOR SYSTEMS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide EFCO Corporation; D518 Heavy Duty Entrance Door (Exterior Entrance Door) or comparable product by one of the following:
1. Kawneer North America, an Arconic company.
 2. U.S. Aluminum; a brand of C.R. Laurence.
- B. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing or automatic operation.
1. Door Construction: 2-inch overall thickness, with minimum 0.188-inch-thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
 2. Door Design: Wide stile; 5-inch nominal width.
 - a. Accessible Doors: Smooth surfaced for width of door in area within 10-inches above floor or ground plane.
 3. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets.
 - a. Provide nonremovable glazing stops on outside of door.
 4. Door Frames: Provide EFCO Corporation; Series 402 framing at all exterior doors.
 5. Provide an integral 1/2-inch diameter wire tube in doors to receive electrified locksets, panic bars, mortised electric locksets, or electric strikes in the inactive leaf of pairs of doors to accommodate wiring associated with power transfer hinges, knuckles, and electrified hardware within the door.
- C. Basis-of-Design Product: Subject to compliance with requirements, provide EFCO Corporation; D500 Wide Stile Door (Interior Vestibule Door) or comparable product by one of the following:
1. Kawneer North America, an Arconic company.
 2. U.S. Aluminum; a brand of C.R. Laurence.

- D. Entrance Doors: Manufacturer's standard glazed entrance doors for manual-swing or automatic operation.
 - 1. Door Construction: 1-3/4-inch overall thickness, with minimum 0.125-inch thick, extruded-aluminum tubular rail and stile members. Mechanically fasten corners with reinforcing brackets that are deeply penetrated and fillet welded or that incorporate concealed tie rods.
 - 2. Door Design: Wide stile; 5-inch nominal width, with mid- and bottom-rails as indicated.
 - a. Accessible Doors: Smooth surfaced for width of door in area within 10-inches above floor or ground plane.
 - 3. Glazing Stops and Gaskets: Square, snap-on, extruded-aluminum stops and preformed gaskets.
 - a. Provide nonremovable glazing stops on outside of door.

2.5 ENTRANCE DOOR HARDWARE

- A. Entrance Door Hardware: For hardware other than that furnished by this Section, as specified in Section 087100 "Door Hardware" and in the hardware sets include in the Door and Hardware Schedule.
- B. Cylinders: As specified in Section 087100 "Door Hardware."
- C. Weather Stripping: Manufacturer's standard replaceable components.
 - 1. Compression Type: Made of ASTM D 2000 molded neoprene or ASTM D 2287 molded PVC.
 - 2. Sliding Type: AAMA 701/702, made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.
- D. Weather Sweeps: Manufacturer's standard exterior-door bottom sweep with concealed fasteners on mounting strip.
- E. Silencers: BHMA A156.16, Grade 1.

2.6 GLAZING

- A. Glazing: Comply with Section 088000 "Glazing."
- B. Glazing Gaskets: Manufacturer's standard compression types; replaceable, molded or extruded, of profile hardness required to maintain watertight seal.
- C. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
- D. Bond-Breaker Tape: Manufacturer's standard TFE-fluorcarbon or polyethylene material to which sealants will not develop adhesion.

2.7 MATERIALS

- A. Sheet and Plate: ASTM B 209.
- B. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
- C. Extruded Structural Pipe and Tubes: ASTM B 429/B 429M.
- D. Structural Profiles: ASTM B 308/B 308M.

2.8 ACCESSORIES

- A. Interior Trim: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.
- B. Panning Trim: Extruded-aluminum profiles in sizes and configurations indicated on Drawings.
- C. Receptor System: Two-piece, snap-together, thermally broken, extruded-aluminum receptor system that anchors windows in place.
- D. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials.
 - 1. Use self-locking devices where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration.
 - 2. Reinforce members as required to receive fastener threads.
 - 3. Use exposed fasteners with countersunk Phillips screw heads, finished to match framing system.
- E. Anchors: Three-way adjustable anchors with minimum adjustment of 1 inch that accommodate fabrication and installation tolerances in material and finish compatible with adjoining materials and recommended by manufacturer.
- F. Joint Sealants: For installation at perimeter of aluminum-framed systems, furnished and installed by Section 079200 "Joint Sealants."
- G. Spray Foam Sealant: For installation at perimeter of aluminum-framed systems, furnished and installed by Section 079201 "Spray Foam Sealants."
- H. Bituminous Paint: Cold-applied asphalt-mastic paint containing no asbestos, formulated for 30-mil thickness per coat.

2.9 FABRICATION

- A. Form or extrude aluminum shapes before finishing.
- B. Weld in concealed locations to greatest extent possible to minimize distortion or discoloration of finish. Remove weld spatter and welding oxides from exposed surfaces by descaling or grinding.

- C. Fabricate components that, when assembled, have the following characteristics:
 - 1. Profiles that are sharp, straight, and free of defects or deformations.
 - 2. Accurately fitted joints with ends coped or mitered.
 - 3. Physical and thermal isolation of glazing from framing members.
 - 4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
 - 5. Provisions for field replacement of glazing from exterior.
 - 6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
- D. Mechanically Glazed Framing Members: Fabricate for flush glazing without projecting stops.
- E. Storefront Framing: Fabricate components for assembly using screw-spline system.
- F. Entrance Door Frames: Reinforce as required to support loads imposed by door operation and for installing entrance door hardware.
 - 1. At interior and exterior doors, provide compression weather stripping at fixed stops.
- G. Entrance Doors: Reinforce doors as required for installing entrance door hardware.
 - 1. At pairs of exterior doors, provide sliding-type weather stripping retained in adjustable strip and mortised into door edge.
 - 2. At exterior doors, provide weather sweeps applied to door bottoms.
- H. Entrance Door Hardware Installation: Factory install entrance door hardware to the greatest extent possible. Cut, drill, and tap for factory-installed entrance door hardware before applying finishes.
- I. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.10 ALUMINUM FINISHES

- A. Color Anodic Finish: AAMA 611, AA-M12C22A42/A44, Class I, 0.018 mm or thicker.
 - 1. Color: Black.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare surfaces that are in contact with structural sealant according to sealant manufacturer's written instructions, to ensure compatibility and adhesion. Preparation includes, but is not limited to, cleaning and priming surfaces.

3.3 INSTALLATION

- A. General:

- 1. Comply with manufacturer's written instructions.
 - 2. Do not install damaged components.
 - 3. Fit joints to produce hairline joints free of burrs and distortion.
 - 4. Rigidly secure nonmovement joints.
 - 5. Install anchors with separators and isolators to prevent metal corrosion and electrolytic deterioration and to prevent impeding movement of moving joints.
 - 6. Seal perimeter and other joints watertight unless otherwise indicated.

- B. Metal Protection:

- 1. Where aluminum is in contact with dissimilar metals, protect against galvanic action by painting contact surfaces with materials recommended by manufacturer for this purpose or by installing nonconductive spacers.
 - 2. Where aluminum is in contact with concrete or masonry, protect against corrosion by painting contact surfaces with bituminous paint.

- C. Set continuous sill members and flashing in full sealant bed, as specified in Section 079200 "Joint Sealants," to produce weathertight installation.

- D. Install components plumb and true in alignment with established lines and grades.

- E. Install glazing as specified in Section 088000 "Glazing."

- F. Install weatherseal sealant according to Section 079200 "Joint Sealants" and according to sealant manufacturer's written instructions to produce weatherproof joints. Install joint filler behind sealant as recommended by sealant manufacturer.

- G. Entrance Doors: Install doors to produce smooth operation and tight fit at contact points.

- 1. Exterior Doors: Install to produce weathertight enclosure and tight fit at weather stripping.
 - 2. Field-Installed Entrance Door Hardware: Install surface-mounted entrance door hardware according to entrance door hardware manufacturers' written instructions using concealed fasteners to greatest extent possible.

- H. Installation of perimeter joint sealants by Section 079200 "Joint Sealants," to produce weather-tight installation.

3.4 ERECTION TOLERANCES

- A. Erection Tolerances: Install aluminum-framed entrances and storefronts to comply with the following maximum tolerances:
1. Plumb: 1/8 inch in 10 feet; 1/4 inch in 40 feet.
 2. Level: 1/8 inch in 20 feet; 1/4 inch in 40 feet.
 3. Alignment:
 - a. Where surfaces abut in line or are separated by reveal or protruding element up to 1/2 inch wide, limit offset from true alignment to 1/16 inch.
 - b. Where surfaces are separated by reveal or protruding element from 1/2 to 1 inch wide, limit offset from true alignment to 1/8 inch.
 - c. Where surfaces are separated by reveal or protruding element of 1 inch wide or more, limit offset from true alignment to 1/4 inch.
 4. Location: Limit variation from plane to 1/8 inch in 12 feet; 1/2 inch over total length.

3.5 ADJUSTING, CLEANING, AND PROTECTION

- A. Adjust operating entrance door hardware to function smoothly as recommended by manufacturer.
1. For entrance doors indicated to be accessible to people with disabilities, adjust closers to provide a 3-second closer sweep period for doors to move from a 70-degree open position to 3-inches from the latch, measured to the leading door edge.
- B. Clean aluminum surfaces immediately after installing aluminum-framed systems. Avoid damaging protective coatings and finishes. Remove excess sealants, glazing materials, dirt, and other substances.
- C. Clean glass immediately after installation. Comply with manufacturer's written recommendations for final cleaning and maintenance. Remove non-permanent labels. and clean surfaces.
- D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.
- E. Protect aluminum framed surfaces from contact with contaminating substances resulting from construction operations. In addition, monitor surfaces adjacent to and below exterior concrete and masonry surfaces during construction for presence of dirt, scum, alkaline deposits, stains, and other contaminants. If contaminating substances do contact surfaces, remove contaminants immediately according to manufacturer's written recommendations.

END OF SECTION 084113

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. Section Includes

- 1. Furnishing and installation of all mechanical and electrical finish hardware necessary for all doors, and hardware as specified herein and as enumerated in hardware sets and as indicated and required by actual conditions at the building. The hardware shall include the furnishing of all necessary screws, bolts, expansion shields, drop plates, and all other devices necessary for the proper application of the hardware. Installation shall include field modification and preparation of existing doors and/or frames for new hardware being installed. Provide necessary fillers, Dutchmen, reinforcements, and fasteners for mounting new hardware and to cover existing door/frame preps.

B. Related Sections

- 1. Section 061053 "Miscellaneous Rough Carpentry"
- 2. Section 084113 "Aluminum-Framed Entrances and Storefronts"
- 3. Section 088000 "Glazing"

C. Specific Omissions: Hardware for the following is specified or indicated elsewhere, unless specifically listed in the hardware sets:

- 1. Windows
- 2. Cabinets of all kinds, including open wall shelving and locks.
- 3. Signage, except as noted.
- 4. Complete toilet accessories including coat hooks, unless noted otherwise.
- 5. Overhead doors, unless noted otherwise.

1.03 REFERENCES

A. Applicable state and local building codes and standards.

B. FIRE/LIFE SAFETY

- 1. NFPA - National Fire Protection Association

- a. NFPA 70 – National Electric Code
 - b. NFPA 80 - Standard for Fire Doors and Fire Windows
 - c. NFPA 101 - Life Safety Code
 - d. NFPA 105 - Smoke and Draft Control Door Assemblies
- C. UL - Underwriters Laboratories
 - 1. UL 10C - Positive Pressure Test of Fire Door Assemblies
 - 2. UL 1784 - Air Leakage Tests of Door Assemblies
 - 3. UL 305 - Panic Hardware
- D. Accessibility
 - 1. ADA - Americans with Disabilities Act
 - 2. ICC / ANSI A117.1 - Accessible and Usable Buildings and Facilities
- E. DHI - Door and Hardware Institute
 - 1. Sequence and Format for the Hardware Schedule
 - 2. Recommended Locations for Builders Hardware
- F. ANSI - American National Standards Institute
 - 1. ANSI/BHMA A156.1 - A156.29, and ANSI A156.31 - Standards for Hardware and Specialties

1.04 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 requirements. Prior to submittal field verify existing doors and/or frames receiving new hardware and/or existing conditions receiving new openings. Verify new hardware is compatible with the existing door/frame preparation and/or existing conditions. Advise architect within the submittal package of incompatibility or issues.
- B. Catalog Cuts: Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
- C. Final Hardware Schedule Content: Submit schedule with hardware sets in vertical format as illustrated by the Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening. Include the following information:
 - 1. Door Index; include door number, heading number, and Architects hardware set number.
 - 2. Opening Lock Function Spreadsheet; list locking device and function for each opening.

3. Type, style, function, size, and finish of each hardware item.
 4. Name and manufacturer of each item.
 5. Fastenings and other pertinent information.
 6. Location of each hardware set cross-referenced to indications on Drawings.
 7. Explanation of all abbreviations, symbols, and codes contained in schedule.
 8. Mounting locations for hardware, including what side of the door each closer is mounted on.
 9. Door and frame sizes, materials, handing, and degree of opening.
 10. Name and phone number for the local manufacturer's representative for each product.
- D. Key Schedule: After a keying meeting between representatives of the Owner, Architect, hardware supplier, and, if requested, the representative for the lock manufacturer, provide a keying schedule, listing the levels of keying, as well as an explanation of the key system's function, the key symbols used, and the door numbers controlled. Utilize ANSI A156.28 "Recommended Practices for Keying Systems" as a guideline for nomenclature, definitions, and approach for selecting the optimal keying system.
- E. Samples: If requested by the Architect, submit production sample or sample installations as requested of each type of exposed hardware unit in the finish indicated, and tagged with a full description for coordination with the schedule.
1. Samples will be returned to the supplier in like-new condition. Units that are acceptable to the Architect may, after final check of operations, be incorporated into the Work, within limitations of key coordination requirements.
- F. Templates: After final approval of the hardware schedule, provide templates for doors, frames, and other work specified to be factory prepared for the installation of door hardware.
- G. Riser and Wiring Diagrams: After final approval of the hardware schedule, submit riser and wiring diagrams as required for the proper installation of complete electrical, electromechanical, and electromagnetic products.
- H. Operations and Maintenance Data: Provide in accordance with Division 1 and include the following:
1. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 2. Catalog pages for each product.
 3. Name, address, and phone number of local representative for each manufacturer.
 4. Parts list for each product.

5. Copy of final approved hardware schedule, edited to reflect "As installed."
6. Copy of final keying schedule.
7. As installed "Wiring Diagrams" for each opening connected to power, both low voltage and 110 volts.
8. One (1) complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
9. Copy of warranties including appropriate reference numbers for manufacturers to identify the project.
- I. Certificates of Compliance: Upon request of Architect or Authority Having Jurisdiction certificates of compliance for fire-rated hardware and installation instructions shall be made available.

1.05 QUALITY ASSURANCE

- A. Substitutions: Products are to be those specified to ensure a uniform basis of acceptable materials. Requests for substitutions must be made in accordance with Division 1 requirements. If proposing a substitute product, submit product data for the proposed item with product data for the specified item and indicate basis for substitution and savings to be made. Provide sample if requested. Certain products have been selected for their unique characteristics and particular project suitability.
- B. Supplier Qualifications: A recognized architectural hardware supplier, with warehousing facilities in the Project's vicinity, that has a record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides a certified Architectural Hardware Consultant (AHC) available to the Owner, Architect, and Contractor, at reasonable times during the course of the Work for consultation.
- C. Single Source Responsibility: Obtain each type of hardware (latch and locksets, hinges, exit devices, closers, etc.) from a single manufacturer.
- D. Fire-Rated Openings: Provide door hardware for fire-rated openings that complies with NFPA Standard No. 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to the authorities having jurisdiction for use on types and sizes of doors indicated in compliance with requirements of fire-rated door and door frame labels.
- E. Electronic Security Hardware: When electrified hardware is included in the hardware specification, the hardware supplier must employ an individual knowledgeable in electrified components and systems, who is capable of producing wiring diagrams and consulting as needed. Coordinate installation of the electronic security hardware with the Architect and electrical engineers and provide installation and technical data to the Architect and other related subcontractors. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Tag each item or package separately with identification related to the final hardware schedule, and include installation instructions with each item or package.
- B. Each article of hardware shall be individually packaged in manufacturer's original packaging.
- C. Contractor will provide secure lock-up for door hardware delivered to the Project, but not yet installed. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- D. Items damaged in shipment shall be replaced promptly and with proper material and paid for by whomever did the damage or caused the damage to occur.
- E. Hardware shall be handled in a manner to avoid damage, marring, or scratching. Irregularities that occur to the hardware after it has been delivered to the Project shall be corrected, replaced, or repaired by the Contractor. Hardware shall be protected against malfunction due to paint, solvent, cleanser, or any chemical agent.
- F. No direct shipments will be allowed unless approved by the Contractor.

1.07 WARRANTY

- A. Provide manufacturer's warranties as specified in Division 1 and as follows:
 - 1. Closers: Lifetime warranty
 - 2. Locksets: Lifetime warranty
 - 3. Continuous & Butt Hinges: Lifetime warranty
 - 4. Exit Devices: 1 year.
 - 5. Other hardware: 1 year.
- B. No liability is to be assumed where damage or faulty operation is due to improper installation, improper use, or abuse.
- C. Products judged to be defective during the warranty period shall be replaced or repaired in accordance with the manufacturer's warranty, at no additional cost to the Owner.

1.08 MAINTENANCE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS**2.01 MANUFACTURERS**

- A. Note that even though an acceptable substitute manufacturer may be listed, the product must provide all the functions and features of the specified product or it will not be approved.
- B. Hand of Door: Drawings show direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.
- C. Where the hardware specified is not adaptable to the finished shape or size of the members requiring hardware, furnish suitable types having the same operation and quality as the type specified, subject to the Architect's approval.

2.02 MATERIALS

A. Fasteners

- 1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
- 2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work as closely as possible including "prepared for paint" surfaces to receive painted finish.
- 3. Provide concealed fasteners for hardware units that are exposed when door is closed except to the extent that no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless their use is the only means of reinforcing the work adequately to fasten the hardware securely. Review door specification and advise Architect if thru-bolts are required.
- 4. Hardware shall be installed with the fasteners provided by the hardware manufacturer.

B. Hinges

- 1. Provide five-knuckle, concealed ball bearing hinges of type, material, and height as outlined in the following guide for this specification:
 - a. 1-3/4 inch thick doors, up to and including 36 inches wide:
Exterior: standard weight, stainless steel, 4-1/2 inches high
Interior: standard weight, steel, 4-1/2 inches high
 - b. 1-3/4 inch thick doors over 36 inches wide:
Exterior: heavy weight, stainless steel, 5 inches high
Interior: heavy weight, steel, 5 inches high
- 2. Provide three hinges per door leaf for doors 90 inches or less in height, and one additional hinge for each 30 inches of additional door height.
- 3. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins

- b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
- 4. The width of hinges shall be 4-1/2 inches at 1-3/4 inch thick doors, and 5 inches at 2 inches or thicker doors. Adjust hinge width as required for door, frame, and/or wall conditions to allow proper degree of opening.
- 5. Acceptable manufacturers and/or products: Stanley CB series, Hager AB series, Bommer LB series.
- C. Continuous Hinges - Geared
 - 1. Provide aluminum geared continuous hinges conforming to ANSI A156.25, Grade 2.
 - 2. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum, with .25 inch diameter Teflon coated stainless steel hinge pin.
 - 3. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
 - 4. Hinges shall be capable of supporting door weights up to 450 pounds, and shall be successfully tested for 1,500,000 cycles.
 - 5. On fire-rated doors, provide aluminum geared continuous hinges that are classified for use on rated doors by a testing agency acceptable to the authority having jurisdiction.
 - 6. Provide aluminum geared continuous hinges with electrified option where specified. Provide with sufficient number and gage of concealed wires to accommodate electric function of specified hardware.
 - 7. Install hinges with fasteners supplied by manufacturer. Hole pattern shall be symmetrically patterned.
 - 8. Acceptable manufacturers and/or products: Stanley, Markar, Ives.
- D. Electric Power Transfer
 - 1. Provide power transfer sufficient for number and gage of wires to accommodate electric function of specified hardware.
 - 2. Electric power transfer is to be located per manufacturer's template and UL requirements, unless interference with operation of door or other hardware items.
 - 3. Acceptable manufacturers and/or products: Precision, Adams Rite, Von Duprin
- E. Flush Bolts

1. Provide automatic and manual flush bolts with forged bronze face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch steel or brass rods at doors up to 90 inches in height. Top rods at manual flush bolts for doors over 90 inches in height shall be increased by 6 inches for each additional 6 inches of door height. Provide dust-proof strikes at each bottom flush bolt.
2. Acceptable manufacturers and/or products: Trimco, Don-Jo Mfg., Burns.

F. Mortise Locks

1. Provide mortise locks certified as ANSI A156.13, Grade 1 Operational, Grade 2 Security, and manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance. Lock case shall be multi-function and field reversible for handing without opening the case. Cylinders: Refer to 2.04 KEYING.
2. Provide locks with a standard 2-3/4 inches backset with a full 3/4 inch throw stainless steel mechanical anti-friction latchbolt. Deadbolt shall be a full 1 inch throw, constructed of stainless steel.
3. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
4. Provide electrical options as scheduled. Provide electrified locksets with micro switch (RQE) option that monitors the retractor crank, and is actuated when rotation of the inside or outside lever rotates the retractor hub. Provide normally closed contacts or normally open contacts as required by security system.
5. Lever trim shall be solid brass, bronze, or stainless steel, cast or forged in the design specified, with wrought roses and external lever spring cages. Levers shall be thru-bolted to assure proper alignment, and shall have a 2-piece spindle.
 - a. Lever design shall be Best 14R.
 - b. Lever trim on the secure side of doors serving rooms considered by the authority having jurisdiction to be hazardous shall have a tactile warning.
6. Acceptable manufacturers and/or products: Best 45H series, Schlage L9000 series, Sargent 8200 series.

G. Exit Devices

1. Exit devices shall be tested to ANSI/BHMA A156.3 Grade 1, and UL listed for Panic Exit and/or Fire Exit Hardware.
2. Provide touchpad type exit devices, fabricated of stainless steel plated to the standard architectural finishes to match the balance of the door hardware.

3. Exit devices shall incorporate a device that eliminates noise associated with exit device operation. Only compression springs will be used in devices, latches, and outside trims or controls.
4. Devices to incorporate a deadlatching feature for security and/or for future addition of alarm kits and/or other electrical requirements.
5. Provide manufacturer's standard strikes.
6. Provide exit devices cut to door width and height. Locate exit devices at a height recommended by the exit device manufacturer, allowable by governing building codes, and approved by the Architect.
7. Where lever handles are specified as outside trim for exit devices, provide heavy-duty lever trims with forged or cast escutcheon plates. Provide vandal-resistant levers that will travel to a 90-degree down position when more than 35 pounds of torque are applied, and which can easily be re-set.
 - a. Lever style will match the lever style of the locksets.
 - b. Lever trim on doors serving rooms considered by the authority having jurisdiction to be hazardous shall have a tactile warning.
8. Exit devices for fire rated openings shall be UL labeled fire exit hardware.
9. Provide electrical options as scheduled.
10. Acceptable manufacturers and/or products: Precision Apex series; Von Duprin 98 series; Sargent 80 series.

H. Power Supplies

1. Provide power supplies, recommended and approved by the manufacturer of the electrified locking component, for the operation of electrified locks, electrified exit devices, magnetic locks, electric strikes, and other components requiring a power supply.
2. Provide the appropriate quantity of power supplies necessary for the proper operation of the electrified locking component and/or components as recommended by the manufacturer of the electrified locking components with consideration for each electrified component utilizing the power supply, the location of the power supply, and the approved wiring diagrams. Locate the power supplies as directed by the Architect.
3. Provide a power supply that is regulated and filtered 24 VDC, or as required, and UL class 2 listed.
4. Provide a power supply, where specified, with the internal capability of charging optional sealed backup batteries 24 VDC, or as required, in addition to operating the DC load.
5. Provide a power supply complete requiring only 120VAC to the fused input and shall be supplied in an enclosure.

6. Provide a power supply with emergency release terminals, where required, that allow the release of all devices upon activation of the fire alarm system complete with fire alarm input for initiating "no delay" exiting mode.
7. Acceptable manufacturers and/or products: Precision 8Q/MLR series, Dynalock 5000 series, Security Door Controls 600 series.

I. Door Closers – Heavy Duty

1. Provide door closers certified to ANSI/BHMA A156.4 Grade 1 requirements by a BHMA certified independent testing laboratory.
2. Door closers shall have fully hydraulic, full rack and pinion action with a high strength cast iron cylinder, and shall utilize full complement bearings at shaft. Cylinder body shall be 1-1/2 inch diameter, and double heat-treated pinion shall be 11/16 inch diameter.
3. Provide hydraulic fluid requiring no seasonal closer adjustment. Fluid shall be fireproof and shall pass the requirements of the UL10C "positive pressure" fire test.
4. Spring power shall be continuously adjustable over the full range of closer sizes, and allow for reduced opening force as required by accessibility codes and standards. Hydraulic regulation shall be by tamper-proof, non-critical valves. Closers shall have separate adjustment for latch speed, general speed, and backcheck.
5. Provide closers with a solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
6. Closers shall not incorporate Pressure Relief Valve (PRV) technology.
7. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other finish hardware items interfering with closer mounting.
8. Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Closers shall not be visible in corridors, lobbies and other public spaces unless approved by Architect.
9. Door closers meeting this specification: Stanley Commercial Hardware QDC100 series, LCN 4040XP series, Sargent 280 series.

J. Door Trim

1. Provide offset pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
2. Acceptable manufacturers and/or products: Trimco, Don-Jo Mfg., Burns.

K. Overhead Stops

1. Provide heavy duty concealed mounted overhead stop as specified for exterior and interior vestibule single acting doors.
2. Provide medium duty concealed mounted overhead stop for interior doors as specified. Provide medium duty concealed mounted overhead stop for interior doors and at any door that swings more than 140 degrees before striking a wall, open against equipment, casework, sidelights, and/or where conditions do not allow a wall stop or a floor stop presents a tripping hazard.
3. Acceptable manufacturers and/or products: ABH Manufacturing, Glynn-Johnson, Rixson.

L. Thresholds, Seals, Door Sweeps and Gasketing

1. Provide thresholds, weatherstripping (including door sweeps, seals, astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details.
2. Acceptable manufacturers and/or products: National Guard, Zero, Reese.

2.03 FINISHES

- A. Finish of all hardware shall be US32D Satin Stainless Steel (BHMA 630) with the exceptions as follows:
1. Aluminum Geared Continuous Hinges: US28 (BHMA 628).
 2. Flushbolts: US26D (BHMA 626/652).
 3. Mortise Locksets: US26D (BHMA 626/652).
 4. Door Closers: Powder Coat to Match.
 5. Thresholds: Mill Finish Aluminum.

2.04 KEYING

- A. Provide a cores and keys to match the Owner's Assa Abloy tiered master key system from the same manufacturer as the locks conforming to the following requirements:
1. Provide restricted patented removable core cylinders at all keyed items. Restriction shall control the access to the products by requiring a signed letter of authorization and/or authorization form from the Owner or authorized agent of the Owner. Patent shall protect against the unauthorized manufacturing and duplication of the products. Restricted patented cores shall not be operable by non-patented key blanks. Restricted patented cores shall incorporate a mechanism to check for the patented features on the keys. Provide construction cores with construction master keying for use during construction. The hardware supplier, accompanied by the Owner or Owner's security agent, shall install permanent keyed cores upon completion of the project. The temporary construction cores are to be returned to the hardware supplier.

2. Provide permanent cores and cylinders keyed by the manufacturer or authorized distributor as directed by the Owner. Provide owner with a copy of the bitting list, return receipt requested.
3. The hardware supplier, accompanied by a qualified factory representative for the manufacturer of the cores and cylinders, shall meet with Owner and Architect to review keying requirements and lock functions prior to ordering finish hardware. Submit a keying schedule to Architect for approval.
4. Provide cores and cylinders, unless noted otherwise, operated by a Grand Master Key System to be established for this project (Do not use the letter "I", "O", or "X" for any of the grand masters). Allow for twenty-four Master Keys under each Grand Master, and sixty-four changes under each master key. All cylinders shall be keyed in alike or different sets as noted by their respective key set number. Do not use the letter "I" or "O" in any of the master key sets.
5. Provide patented restricted keys as follows:
 - a. Ten grand master keys for each set.
 - b. Ten master keys for each set.
 - c. Three keys per core and/or cylinder.
 - d. Two construction core control keys
 - e. Two permanent core control keys
 - f. Six construction master keys for each type (Contractor is to provide one set of construction keys to Architect)
6. Visual key control:
 - a. Keys shall be stamped with their respective key set number and stamped "DO NOT DUPLICATE".
 - b. Grand master and master keys shall be stamped with their respective key set letters.
 - c. Do not stamp any keys with the factory key change number.
 - d. Do not stamp any cores with key set on face (front) of Core. Stamp on back or side of cores so not to be visible when core is in cylinder.
7. Deliver grand master keys, master keys, change keys, and/or key blanks from the factory or authorized distributor directly to the Owner in sealed containers, return receipt requested. Failure to comply with these requirements may be cause to require replacement of all or any part of the keying system that was compromised at no additional cost to the Owner.
8. Approved products: Assa Abloy tiered master key system, to match existing. Confirm all requirements with Owner.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of any hardware, examine all doors, frames, walls and related items for conditions that would prevent proper installation of finish hardware. Correct all defects prior to proceeding with installation.

3.02 INSTALLATION

A. Coordination:

1. Prior to installation of hardware, schedule and hold a meeting for the purpose of instructing installers on proper installation and adjustment of finish hardware. Representatives of locks, exit devices, closers, automatic operators, and electrified hardware shall conduct training; provide at least 10 days notice to representatives. After training a letter of compliance, indicating when the training was held and who was in attendance, shall be sent to the Architect.
- B. Hardware will be installed by qualified tradesmen, skilled in the application of commercial grade hardware. For technical assistance if necessary, installers may contact the manufacturer's rep for the item in question, as listed in the hardware schedule.
 - C. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.
 - D. Install each hardware item in compliance with the manufacturer's instructions and recommendations, using only the fasteners provided by the manufacturer.
 - E. Do not install surface mounted items until finishes have been completed on the substrate. Protect all installed hardware during painting.
 - F. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
 - G. Operating parts shall move freely and smoothly without binding, sticking, or excessive clearance.

3.03 ADJUSTING, CLEANING, AND DEMONSTRATING

- A. Adjust and check each operating item of hardware and each door, to insure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly.
- B. Where door hardware is installed more than one month prior to acceptance or occupancy of a space or area, return to the installation during the week prior to acceptance or occupancy and make a final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- C. Clean adjacent surfaces soiled by hardware installation.
- D. Instruct Owner's personnel in the proper adjustment, lubrication, and maintenance of door hardware and hardware finishes.

3.04 FIELD QUALITY CONTROL

- A. Prior to Substantial Completion, the installer, accompanied by representatives of the manufacturers of locks, exit devices, closer, and any electrified hardware, shall perform the following work:
 - 1. Examine and re-adjust each item of door hardware as necessary to restore function of doors and hardware to comply with specified requirements.
 - 2. Consult with and instruct Owner's personnel in recommended additions to the maintenance procedures.
 - 3. Replace hardware items that have deteriorated or failed due to faulty design, materials, or installation of hardware units.
 - 4. Prepare a written report of current and predictable problems of substantial nature in the performance of the hardware.
 - 5. At completion of project, a qualified factory representative for the manufacturers of locksets, closer, exit devices, and access control products shall arrange and hold a training session to instruct the Owner's personnel on the proper maintenance, adjustment, and/or operation of their respective products. After training a letter of compliance, indicating when the training was held and who was in attendance, shall be sent to the Architect.

3.05 PROTECTION

- A. Provide for the proper protection of complete items of hardware until the Owner accepts the project as complete. Damaged or disfigured hardware shall be replaced or repaired by the responsible party.

3.06 HARDWARE SCHEDULE

- A. Provide hardware for each door to comply with requirements of Section "Finish Hardware," hardware set numbers indicated in door schedule, and in the following schedule of hardware sets.
- B. It is intended that the following schedule includes complete items of finish hardware necessary to complete the work. If a discrepancy is found in the schedule, such as a missing item, improper hardware for a frame, door or fire codes, the preamble will be the deciding document.
- C. Locksets, exit devices, and other hardware items are referenced in the Hardware Sets for series, type, and function. Refer to the preamble for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets

SET #01 - EXTERIOR ALUMINUM PAIR WITH FOB READER
H.S. CHASE E.S. DOOR NO. 100

SPRAGUE E.S. DOOR NO. 001

F.J. KINGSBURY E.S. DOOR NO. 001

2 Continuous Hinge	661HD UL EPT PREP	AL
ST		
1 Exit Device	MLR TS 2803 x C03	630
PR		
1 Exit Device	MLR TS 2801	630
PR		
1 Rim Cylinder	AS REQUIRED	32D
SA		
2 Door Pull	1191-3	630
TR		
2 Door Closer	QDC115 R	689
SH		
2 Overhead Stop	CONCEALED HEAVY DUTY 1000 SERIES	US32D
AB		
2 Power Transfer	EPT-5	
PR		
1 Power Supply	RPSMLR2	
PR		
1 FOB Reader	PROVIDED/SPECIFIED BY SECURITY VENDOR	
2 Door Position Switch	PROVIDED/SPECIFIED BY SECURITY VENDOR	
1 Saddle Threshold	425 HD	AL
NA		

NOTE: ALL WIRING AND CONNECTIONS BY DIVISION 26 & 28.

OPERATIONAL DESCRIPTION:

IMMEDIATE EGRESS ALWAYS ALLOWED. ACCESS BY KEY OR BY FOB READER. FOB READER WILL RETRACT EXIT DEVICE LATCHBOLTS AND ALLOW ACCESS. REQUEST TO EXITS AND DOOR POSITION SWITCHES TO BE CONNECTED TO BUILDING'S SECURITY SYSTEM.

SET #01H - EXTERIOR SINGLE AT VESTIBULE WITH FOB READER

HOPEVILLE E.S. DOOR NO. 001

1 Continuous Hinge	661HD UL EPT PREP	AL
ST		
1 Exit Device	MLR TS 2108 x 4908D	630
PR		
1 Rim Cylinder	AS REQUIRED	32D
SA		
1 Door Closer	QDC115 R	689
SH		
1 Overhead Stop	CONCEALED HEAVY DUTY 1000 SERIES	US32D
AB		
1 Power Transfer	EPT-5	
PR		

1 Power Supply PR	RPSMLR2	
1 FOB Reader	PROVIDED/SPECIFIED BY SECURITY VENDOR	
1 Door Position Switch	PROVIDED/SPECIFIED BY SECURITY VENDOR	
1 Perimeter Seal NA	706E (HEAD & JAMBS)	AL
1 Door Sweep NA	C627A	AL
1 Saddle Threshold NA	425 HD	AL

NOTE: ALL WIRING AND CONNECTIONS BY DIVISION 26 & 28.

OPERATIONAL DESCRIPTION:

IMMEDIATE EGRESS ALWAYS ALLOWED. ACCESS BY KEY OR BY FOB READER. FOB READER WILL RETRACT EXIT DEVICE LATCHBOLTS AND ALLOW ACCESS. REQUEST TO EXITS AND DOOR POSITION SWITCHES TO BE CONNECTED TO BUILDING'S SECURITY SYSTEM.

SET #02 - INTERIOR ALUMINUM PAIR WITH PUSH/PULL HARDWARE

HOPEVILLE E.S. DOOR NO. 002

2 Continuous Hinge ST	661HD UL	AL
2 Push/Pull Set TR	1737	630
2 Door Closer SH	QDC115 R	689
2 Overhead Stop AB	CONCEALED HEAVY DUTY 1000 SERIES	US32D
1 Saddle Threshold NA	425 HD	AL

SET #03 - ELEVATOR VESTIBULE - SINGLE – INSWING

SPRAGUE DOOR NO. 002, 003

3 Hinges ST	CB179 SERIES AS SPECIFIED	US26D
1 Passage Set BE	45H-ON14R	626
1 Door Closer SH	QDC111 BF R	689
1 Door Stop TR	1211/1270CV AS REQUIRED	626
1 Saddle Threshold NA	425 HD	AL

END OF SECTION

SECTION 088000 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes:
 - 1. Glass for doors storefront framing.
 - 2. Glazing sealants and accessories.

1.3 DEFINITIONS

- A. Glass Manufacturers: Firms that produce primary glass, fabricated glass, or both, as defined in referenced glazing publications.
- B. Glass Thicknesses: Indicated by thickness designations in millimeters according to ASTM C 1036.
- C. IBC: International Building Code.
- D. Interspace: Space between lites of an insulating-glass unit.

1.4 COORDINATION

- A. Coordinate glazing channel dimensions to provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 2. Review temporary protection requirements for glazing during and after installation.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.

- B. Glass Samples: For each type of the following products; 12 inches square.
 - 1. Coated glass.
 - 2. Insulating glass.
- C. Glazing Schedule: List glass types and thicknesses for each size opening and location. Use same designations indicated on Drawings.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates: For glass.
 - 1. For solar-control low-e-coated glass, provide documentation demonstrating that manufacturer of coated glass is certified by coating manufacturer.
- C. Product Test Reports: For tinted glass coated glass insulating glass, for tests performed by a qualified testing agency.
- D. Sample Warranties: For special warranties.

1.8 QUALITY ASSURANCE

- A. Manufacturer Qualifications for Insulating-Glass Units with Sputter-Coated, Low-E Coatings: A qualified insulating-glass manufacturer who is approved and certified by coated-glass manufacturer.
- B. Installer Qualifications: A qualified installer who employs glass installers for this Project who are certified under the National Glass Association's Certified Glass Installer Program.
- C. Glass Testing Agency Qualifications: A qualified independent testing agency accredited according to the NFRC CAP 1 Certification Agency Program.
- D. Sealant Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.

1.9 PRECONSTRUCTION TESTING

- A. Preconstruction Adhesion and Compatibility Testing: Test each glass product, tape sealant, gasket, glazing accessory, and glass-framing member for adhesion to and compatibility with elastomeric glazing sealants.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Protect glazing materials according to manufacturer's written instructions. Prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.
- B. Comply with insulating-glass manufacturer's written instructions for venting and sealing units to avoid hermetic seal ruptures due to altitude change.

1.11 FIELD CONDITIONS

- A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.
 - 1. Do not install glazing sealants when ambient and substrate temperature conditions are outside limits permitted by sealant manufacturer or are below 40 deg F.

1.12 WARRANTY

- A. Manufacturer's Special Warranty for Coated-Glass Products: Manufacturer agrees to replace coated-glass units that deteriorate within specified warranty period. Deterioration of coated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in coating.
 - 1. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Laminated Glass: Manufacturer agrees to replace laminated-glass units that deteriorate within specified warranty period. Deterioration of laminated glass is defined as defects developed from normal use that are not attributed to glass breakage or to maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.
 - 1. Warranty Period: Five years from date of Substantial Completion.
- C. Manufacturer's Special Warranty for Insulating Glass: Manufacturer agrees to replace insulating-glass units that deteriorate within specified warranty period. Deterioration of insulating glass is defined as failure of hermetic seal under normal use that is not attributed to glass breakage or to maintaining and cleaning insulating glass contrary to manufacturer's written instructions. Evidence of failure is the obstruction of vision by dust, moisture, or film on interior surfaces of glass.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Vitro Architectural Glass; Clear Glass or comparable product by one of the following:
 - 1. Guardian Glass.
 - 2. Pilkington North America.
- B. Source Limitations for Glass: Obtain from single source from single manufacturer for each glass type.
 - 1. Obtain reflective-coated glass from single source from single manufacturer.
- C. Source Limitations for Glazing Accessories: Obtain from single source from single manufacturer for each product and installation method.

2.2 PERFORMANCE REQUIREMENTS

- A. General: Installed glazing systems shall withstand normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, or installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.
- B. Structural Performance: Glazing shall withstand the following design loads within limits and under conditions indicated determined according to the IBC and ASTM E 1300.
 - 1. Design Wind Pressures: As indicated on Drawings.
 - 2. Design Wind Pressures: Determine design wind pressures applicable to Project according to ASCE/SEI 7, based on heights above grade indicated on Drawings.
 - a. Wind Design Data: As indicated on Drawings.
- C. Safety Glazing: Where safety glazing is indicated, provide glazing that complies with 16 CFR 1201, Category II.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.
 - 1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- E. Thermal and Optical Performance Properties: Provide glass with performance properties specified, as indicated in manufacturer's published test data, based on procedures indicated below:
 - 1. For insulating-glass units, properties are based on units of thickness indicated for overall unit and for each lite.

2. U-Factors: Center-of-glazing values, according to NFRC 100 and based on LBL's WINDOW 5.2 computer program, expressed as Btu/sq. ft. x h x deg F.
3. Solar Heat-Gain Coefficient and Visible Transmittance: Center-of-glazing values, according to NFRC 200 and based on LBL's WINDOW 5.2 computer program.
4. Visible Reflectance: Center-of-glazing values, according to NFRC 300.

2.3 GLASS PRODUCTS, GENERAL

- A. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below unless more stringent requirements are indicated. See these publications for glazing terms not otherwise defined in this Section or in referenced standards.
 1. GANA Publications: "Laminated Glazing Reference Manual" and "Glazing Manual."
 2. IGMA Publication for Insulating Glass: SIGMA TM-3000, "North American Glazing Guidelines for Sealed Insulating Glass Units for Commercial and Residential Use."
- B. Safety Glazing Labeling: Where safety glazing is indicated, permanently mark glazing with certification label of the SGCC or another certification agency acceptable to authorities having jurisdiction or manufacturer. Label shall indicate manufacturer's name, type of glass, thickness, and safety glazing standard with which glass complies.
- C. Insulating-Glass Certification Program: Permanently marked either on spacers or on at least one component lite of units with appropriate certification label of IGCC.
- D. Strength: Where annealed float glass is indicated, provide annealed float glass, heat-strengthened float glass, or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where heat-strengthened float glass is indicated, provide heat-strengthened float glass or fully tempered float glass as needed to comply with "Performance Requirements" Article. Where fully tempered float glass is indicated, provide fully tempered float glass.

2.4 GLASS PRODUCTS

- A. Clear Annealed Float Glass: ASTM C 1036, Type I, Class 1 (clear), Quality-Q3.
- B. Fully Tempered Float Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated) unless otherwise indicated, Type I, Class 1 (clear) or Class 2 (tinted) as indicated, Quality-Q3.
 1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed unless otherwise indicated.

2.5 INSULATING GLASS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Vitro Architectural Glass; Solarban 60 or comparable product by one of the following:

1. Guardian Industries Corp.; Sun-Guard.
 2. Viracon, Inc.; VE 1-2M.
- B. Insulating-Glass Units: Factory-assembled units consisting of sealed lites of glass separated by a dehydrated interspace, qualified according to ASTM E 2190.
1. Overall Unit Thickness and Thickness of Each Lite: Dimensions indicated for insulating-glass units are nominal and the overall thickness of units are measured perpendicularly from outer surfaces of glass lites at unit's edge.
 2. Sealing System: Dual seal, with polyisobutylene and silicone primary and secondary sealants.
 3. Perimeter Spacer: Manufacturer's standard spacer material and construction.
 - a. Spacer Material: Aluminum with mill or clear anodic finish.
 - b. Corner Construction: Manufacturer's standard corner construction.
 4. Desiccant: Molecular sieve or silica gel, or a blend of both.

2.6 GLAZING SEALANTS

- A. General:
1. Compatibility: Compatible with one another and with other materials they contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
 2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
 3. Colors of Exposed Glazing Sealants: As selected by Architect from manufacturer's full range.
- B. Glazing Sealant: Neutral-curing silicone glazing sealant complying with ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.
1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Dow Corning Corporation; Dow Corning® 790 Silicone Building Sealant.
 - b. GE Construction Sealants; Momentive Performance Materials Inc.; SCS2700 SilPruf LM.
 - c. Pecora Corporation; 890NST.
 - d. Tremco Incorporated; Spectrem 1.

2.7 GLAZING TAPES

- A. Back-Bedding Mastic Glazing Tapes: Preformed, butyl-based, 100 percent solids elastomeric tape; non-staining and nonmigrating in contact with nonporous surfaces; with or without spacer

rod as recommended in writing by tape and glass manufacturers for application indicated; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 804.3 tape, where indicated.
 2. AAMA 806.3 tape, for glazing applications in which tape is subject to continuous pressure.
 3. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.
- B. Expanded Cellular Glazing Tapes: Closed-cell, PVC foam tapes; factory coated with adhesive on both surfaces; and complying with AAMA 800 for the following types:
1. AAMA 810.1, Type 1, for glazing applications in which tape acts as the primary sealant.
 2. AAMA 810.1, Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.8 MISCELLANEOUS GLAZING MATERIALS

- A. General: Provide products of material, size, and shape complying with referenced glazing standard, with requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.
- B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.
- C. Setting Blocks: Elastomeric material with a Shore, Type A durometer hardness of 85, plus or minus 5.
- D. Spacers: Elastomeric blocks or continuous extrusions of hardness required by glass manufacturer to maintain glass lites in place for installation indicated.
- E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).
- F. Cylindrical Glazing Sealant Backing: ASTM C 1330, Type O (open-cell material), of size and density to control glazing sealant depth and otherwise produce optimum glazing sealant performance.

2.9 FABRICATION OF GLAZING UNITS

- A. Fabricate glazing units in sizes required to fit openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing publications, to comply with system performance requirements.
1. Allow for thermal movements from ambient and surface temperature changes acting on glass framing members and glazing components.

- a. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- B. Clean-cut or flat-grind vertical edges of butt-glazed monolithic lites to produce square edges with slight chamfers at junctions of edges and faces.
- C. Grind smooth and polish exposed glass edges and corners.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine framing, glazing channels, and stops, with Installer present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
 - 2. Presence and functioning of weep systems.
 - 3. Minimum required face and edge clearances.
 - 4. Effective sealing between joints of glass-framing members.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.
- B. Examine glazing units to locate exterior and interior surfaces. Label or mark units as needed so that exterior and interior surfaces are readily identifiable. Do not use materials that leave visible marks in the completed Work.

3.3 GLAZING, GENERAL

- A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.
- B. Glazing channel dimensions provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.
- C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass includes glass with edge damage or other imperfections that, when installed, could weaken glass, impair performance, or impair appearance.

- D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction testing.
- E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.
- F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.
- G. Provide spacers for glass lites where length plus width is larger than 50 inches.
 - 1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
 - 2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.
- H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.
- I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.
- J. Set glass lites with proper orientation so that coatings face exterior or interior as specified.

3.4 TAPE GLAZING

- A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.
- B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.
- C. Cover vertical framing joints by applying tapes to heads and sills first, then to jambs. Cover horizontal framing joints by applying tapes to jambs, then to heads and sills.
- D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.
- E. Do not remove release paper from tape until right before each glazing unit is installed.
- F. Apply heel bead of elastomeric sealant.
- G. Center glass lites in openings on setting blocks, and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

- H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 SEALANT GLAZING (WET)

- A. Install continuous spacers, or spacers combined with cylindrical sealant backing, between glass lites and glazing stops to maintain glass face clearances and to prevent sealant from extruding into glass channel and blocking weep systems until sealants cure. Secure spacers or spacers and backings in place and in position to control depth of installed sealant relative to edge clearance for optimum sealant performance.
- B. Force sealants into glazing channels to eliminate voids and to ensure complete wetting or bond of sealant to glass and channel surfaces.
- C. Tool exposed surfaces of sealants to provide a substantial wash away from glass.

3.6 CLEANING AND PROTECTION

- A. Immediately after installation remove nonpermanent labels and clean surfaces.
- B. Protect glass from contact with contaminating substances resulting from construction operations. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains.
 - 1. If, despite such protection, contaminating substances do come into contact with glass, remove substances immediately as recommended in writing by glass manufacturer. Remove and replace glass that cannot be cleaned without damage to coatings.
- C. Remove and replace glass that is damaged during construction period.
- D. Wash glass on both exposed surfaces not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufacturer.

3.7 INSULATING GLASS SCHEDULE

- A. Glass Type 1 : Low-E-coated, clear insulating glass.
 - 1. Basis-of-Design Product: Vitro Architectural Glass; Solarban 60.
 - 2. Overall Unit Thickness: 1 inch.
 - 3. Minimum Thickness of Each Glass Lite: 1/4-inch.
 - 4. Outdoor Lite: Clear fully tempered float glass.
 - 5. Interspace Content: Argon.
 - 6. Indoor Lite: Clear fully tempered float glass.
 - 7. Low-E Coating: Sputtered on second surface.
 - 8. Winter Nighttime U-Factor: 0.29 maximum.

9. Summer Daytime U-Factor: 0.27 maximum.
10. Visible Light Transmittance: 70 percent minimum.
11. Solar Heat Gain Coefficient: 0.38 maximum.
12. Exterior Visible Light Reflectance: 11 percent maximum.
13. Safety glazing required.

END OF SECTION 088000

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Non-load-bearing steel framing systems for interior partitions.
- B. Related Requirements:
 - 1. Section 054000 "Cold-Formed Metal Framing" for exterior and interior load-bearing and exterior non-load-bearing wall studs; floor joists; roof rafters and ceiling joists; and roof trusses.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

- A. Product Certificates: For each type of code-compliance certification for studs and tracks.

PART 2 - PRODUCTS

2.1 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
 - 2. Protective Coating: ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise indicated.
- B. Studs and Tracks: ASTM C 645.
 - 1. Steel Studs and Tracks:

- a. Minimum Base-Metal Thickness: 0.0329 inch.
- b. Depth: As indicated on Drawings.

2.2 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
 - 1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
- B. Isolation Strip at Exterior Walls: Provide the following:
 - 1. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754.
 - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.4 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 - 1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.
- B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
 - 1. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
 - 2. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance-rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
- E. Direct Furring:
 - 1. Screw to wood framing.
 - 2. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- F. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Interior gypsum board.
- B. Related Requirements:
 - 1. Section 061600 "Sheathing" for gypsum sheathing for exterior walls.
 - 2. Section 092216 "Non-Structural Metal Framing" for non-structural steel framing and suspension systems that support gypsum board panels.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For the following products:
 - 1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

- C. Do not install panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

- A. Gypsum Board, Type X: ASTM C 1396/C 1396M.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Georgia-Pacific Gypsum LLC.
 - b. National Gypsum Company.
 - c. USG Corporation.
 - 2. Thickness: 5/8 inch.
 - 3. Long Edges: Tapered.
- B. Abuse-Resistant Gypsum Board: ASTM C 1396/C 1396M gypsum board, tested according to ASTM C 1629/C 1629M.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Georgia-Pacific Gypsum LLC.
 - b. National Gypsum Company.
 - c. USG Corporation.
 - 2. Core: 5/8 inch, Type X.
 - 3. Surface Abrasion: ASTM C 1629/C 1629M, meets or exceeds Level 2 requirements.
 - 4. Indentation: ASTM C 1629/C 1629M, meets or exceeds Level 1 requirements.
 - 5. Soft-Body Impact: ASTM C 1629/C 1629M, meets or exceeds Level 2 requirements.

6. Long Edges: Tapered.
7. Mold Resistance: ASTM D 3273, score of 10 as rated according to ASTM D 3274.

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet, rolled zinc, plastic, or paper-faced galvanized-steel sheet.
2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - d. Expansion (control) joint.

2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
3. Fill Coat: For second coat, use drying-type, all-purpose compound.
4. Finish Coat: For third coat, use drying-type, all-purpose compound.

2.6 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

- C. Thermal Insulation: As specified in Section 072100 "Thermal Insulation."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

- A. Comply with ASTM C 840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

3.3 APPLYING INTERIOR GYPSUM BOARD

- A. Install interior gypsum board in the following locations:
 - 1. Type X: As indicated on Drawings.
 - 2. Abuse-Resistant Type: As indicated on Drawings.
- B. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels vertically (parallel to framing) horizontally (perpendicular to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.
 - a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At stairwells and other high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
 - 3. On Z-shaped furring members, apply gypsum panels vertically (parallel to framing) with no end joints. Locate edge joints over furring members.
 - 4. Fastening Methods: Apply gypsum panels to supports with steel drill screws.
- C. Multilayer Application:
 - 1. On ceilings, apply gypsum board indicated for base layers before applying face layers on walls/partitions; apply face layers in same sequence. Apply base layers at right angles to framing members and offset face-layer joints one framing member, 16 inches minimum, from parallel base-layer joints, unless otherwise indicated or required by fire-resistance-rated assembly.
 - 2. On partitions/walls, apply gypsum board indicated for base layers and face layers vertically (parallel to framing) with joints of base layers located over stud or furring member and face-layer joints offset at least one stud or furring member with base-layer joints unless otherwise indicated or required by fire-resistance-rated assembly. Stagger joints on opposite sides of partitions.
 - 3. On Z-shaped furring members, apply base layer vertically (parallel to framing) and face layer either vertically (parallel to framing) or horizontally (perpendicular to framing) with vertical joints offset at least one furring member. Locate edge joints of base layer over furring members.
 - 4. Fastening Methods: Fasten base layers and face layers separately to supports with screws.

3.4 INSTALLING TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
 - 1. Cornerbead: Use at outside corners unless otherwise indicated.
 - 2. LC-Bead: Use at exposed panel edges.

3.5 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:
 - 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 - 2. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
 - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3.6 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.

2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes acoustical panels and exposed suspension systems for interior ceilings.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:
 - 1. Acoustical Panels: Set of 6-inch- square Samples of each type, color, pattern, and texture.
 - 2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch- long Samples of each type, finish, and color.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Ceiling suspension-system members.
 - 2. Method of attaching hangers to building structure.
 - 3. Minimum Drawing Scale: 1/8 inch = 1 foot.
- B. Product Test Reports: For each acoustical panel ceiling, for tests performed by a qualified testing agency.
- C. Evaluation Reports: For each acoustical panel ceiling suspension system and anchor and fastener type, from ICC-ES.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For finishes to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Acoustical Ceiling Units: Full-size panels equal to 2 percent of quantity installed.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.
- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.
- C. Handle acoustical panels carefully to avoid chipping edges or damaging units in any way.

1.9 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1.10 COORDINATION

- A. Coordinate layout and installation of acoustical panels and suspension system with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, and partition assemblies.

1.11 WARRANTY

- A. Special Warranty for Acoustical Panel Ceilings and Suspension Systems: Manufacturer's standard form in which manufacturer agrees to replace acoustical panel ceilings and suspension systems that fail in materials or workmanship within specified warranty period.
 - 1. Failure of ceiling panels includes sagging and warping, and growth of mold, mildew and stain causing bacteria.
 - 2. Failure of suspension systems includes rusting.

3. Warranty does not cover damages that may occur from vibrations, fire, water, freezing temperatures, accident or any form of abuse or exposure to abnormal conditions.
4. Warranty Period: 30 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Suspended ceilings shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
- B. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 1. Flame-Spread Index: Class A according to ASTM E 1264.
 2. Smoke-Developed Index: 50 or less.

2.3 ACOUSTICAL PANELS (Ceiling Type C-1)

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Armstrong World Industries, Inc; Canyon #1491 or comparable product by one of the following:
 1. American Gypsum.
 2. CertainTeed Corporation.
- B. Acoustical Panel Standard: Provide manufacturer's standard panels according to ASTM E 1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.
- C. Classification: Provide panels as follows:
 1. Type and Form: Type IV, mineral base with membrane-faced overlay; Form 2.
 2. Pattern: E (lightly textured).
- D. Color: White.
- E. Light Reflectance (LR): Not less than 0.80.
- F. Ceiling Attenuation Class (CAC): Not less than 35.
- G. Noise Reduction Coefficient (NRC): Not less than 0.60.
- H. Edge/Joint Detail: Square.

- I. Thickness: 5/8 inch.
- J. Modular Size: 24 by 48 inches [] [].
- K. Antimicrobial Treatment: Manufacturer's standard broad spectrum, antimicrobial formulation that inhibits fungus, mold, mildew, and gram-positive and gram-negative bacteria and showing no mold, mildew, or bacterial growth when tested according to ASTM D 3273, ASTM D 3274, or ASTM G 21 and evaluated according to ASTM D 3274 or ASTM G 21.

2.4 METAL SUSPENSION SYSTEM

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Armstrong World Industries, Inc; Prelude XL 15/16" Exposed Tee System or comparable product by one of the following:
 - 1. CertainTeed Corporation.
 - 2. USG Corporation.
- B. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C 635/C 635M and designated by type, structural classification, and finish indicated.
 - 1. High-Humidity Finish: Where indicated, provide coating tested and classified for "severe environment performance" according to ASTM C 635/C 635M.
- C. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch- wide metal caps on flanges.
 - 1. Structural Classification: Intermediate-duty system.
 - 2. End Condition of Cross Runners: Override (stepped) or butt-edge type.
 - 3. Face Design: Flat, flush.
 - 4. Cap Material: Cold-rolled steel.
 - 5. Cap Finish: Painted white.

2.5 ACCESSORIES

- A. Attachment Devices: Size for five times the design load indicated in ASTM C 635/C 635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
- B. Wire Hangers, Braces, and Ties: Provide wires as follows:
 - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.
 - 2. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C 635/C 635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.106-inch- diameter wire.
- C. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.

- D. Hold-Down Clips: Manufacturer's standard hold-down.
- E. Seismic Clips: Manufacturer's standard seismic clips designed to secure acoustical panels in place during a seismic event.
- F. Seismic Stabilizer Bars: Manufacturer's standard perimeter stabilizers designed to accommodate seismic forces.
- G. Seismic Struts: Manufacturer's standard compression struts designed to accommodate seismic forces.

2.6 METAL EDGE MOLDINGS AND TRIM

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Armstrong World Industries, Inc;[product name or designation] or comparable product by one of the following:
 - 1. CertainTeed Corporation.
 - 2. USG Corporation.
- B. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.
 - 1. Edge moldings shall fit acoustical panel edge details and suspension systems indicated and match width and configuration of exposed runners unless otherwise indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated and comply with layout shown on reflected ceiling plans.

3.3 INSTALLATION

- A. Install acoustical panel ceilings according to ASTM C 636/C 636M, seismic design requirements, and manufacturer's written instructions.
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 - 3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
 - 4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
 - 5. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
 - 6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 - 7. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
 - 8. Do not attach hangers to steel deck tabs.
 - 9. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 10. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
 - 11. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
- C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.
- D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.
 - 1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.

2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
 3. Do not use exposed fasteners, including pop rivets, on moldings and trim.
- E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.
- F. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.
1. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
 2. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.
 3. Install hold-down clips in areas indicated; space according to panel manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.

END OF SECTION 095113

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Resilient base
 - 2. Resilient molding accessories.

1.3 ACTION SUBMITTALS

- A. Samples for Verification: For each type of product indicated, in manufacturer's standard-size Samples but not less than 12 inches long, of each resilient product color, texture, and pattern required.

1.4 MATERIALS MAINTENANCE SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.5 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: As determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.7 PROJECT CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F, in spaces to receive resilient products during the following time periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. Until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F.
- C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 RESILIENT BASE

- A. Resilient Base:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. **Johnsonite (Basis of Design) RB-1**
- B. Resilient Base Standard: ASTM F 1861.
 - 1. Material Requirement: Thermoplastic Rubber
 - 2. Manufacturing Method: Group I (solid, homogeneous).
 - 3. Style: Cove (base with toe for hard surface, toeless for carpeted areas).
- C. Minimum Thickness: 1/8" (3.175mm).
- D. Height: 4 inches
- E. Lengths: coils in manufacturer's standard length.
- F. Outside Corners: Preformed.
- G. Inside Corners: Preformed.
- H. Finish: As selected by Architect from manufacturer's full range.
- I. Colors and Patterns: As selected by Architect from full range of industry colors.

2.2 RESILIENT MOLDING ACCESSORY

- A. Resilient Molding Accessory:
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Johnsonite.
 - b. Roppe Corporation, USA.
 - c. Berk Mercer Flooring Products
- B. Description: Carpet to VCT wheeled transition.
- C. Material: Rubber.
- D. Colors and Patterns: As specified by Architect from manufacturers full range.

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by manufacturer to suit resilient products and substrate conditions indicated.
 - 1. Adhesives shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24), except that adhesive for rubber stair treads shall have a VOC content of 60 g/L or less.
 - a. Cove Base Adhesives: Not more than 50 g/L.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Do not install resilient products until they are same temperature as the space where they are to be installed.
 - 1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.
- C. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Preformed Corners: Install preformed corners before installing straight pieces.

3.4 RESILIENT ACCESSORY INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient accessories.
- B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of carpet and resilient floor covering that would otherwise be exposed.

3.5 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protection of resilient products.

- B. Perform the following operations immediately after completing resilient product installation:
 - 1. Remove adhesive and other blemishes from exposed surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Cover resilient products until Substantial Completion.

END OF SECTION 096513

SECTION 096813 - TILE CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes modular, tufted carpet tile.
- B. Related Requirements:
 - 1. Section 096513 "Resilient Base and Accessories" for resilient wall base and accessories installed with carpet tile.

1.3 ACTION SUBMITTALS

- A. Samples: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
 - 1. Carpet Tile: Full-size Sample.
 - 2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch- long Samples.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:
 - 1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
 - 2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Carpet Tile: Full-size units equal to 5 percent of amount installed for each type indicated, but not less than 10 sq. yd.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who is certified by the International Certified Floorcovering Installers Association at the Master II certification level.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with CRI 104.

1.9 FIELD CONDITIONS

- A. Comply with CRI 104 for temperature, humidity, and ventilation limitations.
- B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at occupancy levels during the remainder of the construction period.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

PART 2 - PRODUCTS

2.1 ENTRY CARPET TILE / **EM-1**

- A. Basis-of-Design Product: Subject to compliance with requirements, provide **Tandus Centiva (Basis of Design)** or comparable product by one of the following:
 1. Mohawk Flooring
 2. Mannington Commercial
- B. Color: As selected by Architect from manufacturer's full range. **See finish legend, EM-1.**
- C. Pattern: As selected by Architect from manufacturer's full range. / **See finish legend, EM-1**
- D. Fiber Content: 100% Solution Dyed
- E. Pile Characteristic: Multi-level Patterned loop

- F. Density: 8,597
- G. Pile Thickness: 0.134 inches for finished carpet tile according to ASTM D 6859.
- H. Stitches: 11 per inch.
- I. Gage: 1/10 per inch.
- J. Weight: 29 oz.
- K. Primary Backing/Backcoating: Synthetic non-woven .
- L. Size: 24 by 24 inches.
- M. Performance Characteristics: As follows:
 - 1. Appearance Retention Rating: Severe traffic
 - 2. Critical Radiant Flux Classification: Not less than 0.45 W/sq. cm.
 - 3. Dry Breaking Strength: Not less than 100 lbf according to ASTM D 2646.
 - 4. Tuft Bind: Not less than 10 lbf according to ASTM D 1335.
 - 5. Dimensional Tolerance: Within 1/32 inch of specified size dimensions, as determined by physical measurement.
 - 6. Dimensional Stability: 0.2 percent or less according to ISO 2551 (Aachen Test).
 - 7. Resistance to Insects: Comply with AATCC 24.
 - 8. Noise Reduction Coefficient (NRC): .14 according to ASTM C 423.
 - 9. Colorfastness to Crocking: Not less than 4, wet and dry, according to AATCC 165.
 - 10. Colorfastness to Light: Not less than 4 after 60 AFU (AATCC fading units) according to AATCC 16, Option E.
 - 11. Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria, not less than 1-mm halo of inhibition for gram-negative bacteria, and no fungal growth, according to AATCC 174.
 - 12. Electrostatic Propensity: Less than 3.5 kV according to AATCC 134.
 - 13. Emissions: Provide carpet tile that complies with testing and product requirements of CRI's "Green Label Plus" program.

2.2 INSTALLATION ACCESSORIES

- A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.
- B. Adhesives: Water-resistant, mildew-resistant, non-staining, pressure-sensitive type to suit products and subfloor conditions indicated, that complies with flammability requirements for installed carpet tile and is recommended by carpet tile manufacturer for releasable installation.
 - 1. Adhesives shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

- C. Metal Edge/Transition Strips: Extruded aluminum with mill finish of profile and width shown, of height required to protect exposed edge of carpet, and of maximum lengths to minimize running joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance. Examine carpet tile for type, color, pattern, and potential defects.
- B. Concrete Subfloors: Verify that concrete slabs comply with ASTM F 710 and the following:
 - 1. Slab substrates are dry and free of curing compounds, sealers, hardeners, and other materials that may interfere with adhesive bond. Determine adhesion and dryness characteristics by performing bond and moisture tests recommended by carpet tile manufacturer.
 - 2. Subfloors are free of cracks, ridges, depressions, scale, and foreign deposits.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with CRI 104, Section 6.2, "Site Conditions; Floor Preparation," and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile installation.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider and protrusions more than 1/32 inch unless more stringent requirements are required by manufacturer's written instructions.
- C. Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by carpet tile manufacturer.
- D. Clean metal substrates of grease, oil, soil and rust, and prime if directed by adhesive manufacturer. Rough sand painted metal surfaces and remove loose paint. Sand aluminum surfaces, to remove metal oxides, immediately before applying adhesive.
- E. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. General: Comply with CRI 104, Section 14, "Carpet Modules," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: Peel & Stick; install carpet tiles without adhesive.
- C. Maintain dye lot integrity. Do not mix dye lots in same area.
- D. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.
- E. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on finish flooring as marked on subfloor. Use nonpermanent, non-staining marking device.
- G. Install pattern parallel to walls and borders.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive, seam sealer, and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with CRI 104, Section 16, "Protecting Indoor Installations."
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 099113 - EXTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following exterior substrates:
 - 1. Galvanized metal.
- B. Related Requirements:
 - 1. Section 055213 "Pipe and Tube Railings" for shop priming pipe and tube railings.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- D. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- E. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- F. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 2. Indicate VOC content.

- B. Samples for Initial Selection: For each type of topcoat product.
- C. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Apply coats on Samples in steps to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 EXTERIOR PAINTS

- A. Exterior Full-Gloss Acrylic Enamel: Factory-formulated full-gloss waterborne acrylic-latex enamel for exterior metal application.
 - 1. Benjamin Moore; Super Spec HP DTM Acrylic Gloss Enamel, P28: Applied at a dry film thickness of not less than 1.7 to 2.3 mils.

2. Glidden Professional Devoe Coatings; Devflex 659 High Performance Waterborne Acrylic Gloss Enamel: Applied at a dry film thickness of not less than 1.5 mils.
3. Pittsburgh Paints; 90-374 Series Pitt-Tech Interior/Exterior High Gloss DTM Industrial Enamels: Applied at a dry film thickness of not less than 3.0 mils.
4. Sherwin-Williams; DTM Acrylic Coating Gloss (Waterborne) B66W100 Series: Applied at a dry film thickness of not less than 2.4 mils.

2.2 EXTERIOR PRIMERS

- A. Exterior Galvanized Metal Primer: Factory-formulated galvanized metal primer for exterior application.
 1. Benjamin Moore; Super Spec HP Acrylic Metal Primer No. P04: Applied at a dry film thickness of not less than 2.0 mils.
 2. Glidden Professional Devoe Coatings; Devflex 4020PF Direct to Metal Primer & Flat Finish: Applied at a dry film thickness of not less than 2.2 mils.
 3. Pittsburgh Paints; 90-712 Pitt-Tech Interior/Exterior Primer/Finish DTM Industrial Enamel: Applied at a dry film thickness of not less than 3.0 mils.
 4. Sherwin-Williams; Pro Industrial Pro-Cryl Universal Acrylic Primer: Applied at a dry film thickness of not less than 2.0 mils.

2.3 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. Colors: As selected by Architect from manufacturer's full range.

2.4 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
 1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
 2. Testing agency will perform tests for compliance with product requirements.

3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- C. Proceed with coating application only after unsatisfactory conditions have been corrected.
 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable items same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed items with prime coat only.
 - 3. Paint both sides and edges of exterior doors and entire exposed surface of exterior door frames.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.5 EXTERIOR PAINTING SCHEDULE

- A. Zinc-Coated Metal: Provide the following finish systems over exterior zinc-coated metal surfaces:
 - 1. Full-Gloss Acrylic-Enamel Finish: Two finish coats over galvanized metal.
 - a. Primer: Manufacturer's recommended exterior galvanized metal primer.
 - b. Finish Coats: Exterior full-gloss acrylic enamel.

END OF SECTION 099113

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Concrete masonry units (CMU).

1.3 DEFINITIONS

- A. Gloss Level 1: Not more than 5 units at 60 degrees and 10 units at 85 degrees, according to ASTM D 523.
- B. Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- C. Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D 523.
- D. Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D 523.
- E. Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D 523.
- F. Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D 523.
- G. Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D 523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
- B. Samples for Initial Selection: For each type of topcoat product.
- C. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.
3. VOC content.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
 1. Architect will select one surface to represent surfaces and conditions for application of each paint system specified in Part 3.
 - a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft..
 - b. Other Items: Architect will designate items or areas required.
 2. Final approval of color selections will be based on mockups.
 - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.8 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1. Sherwin-Williams Company.
 - 2. Benjamin Moore & Co.
 - 3. ICI Paints.
- B. Products: Subject to compliance with requirements, provide product listed in other Part 2 articles for the paint category indicated.

2.2 PAINT, GENERAL

- A. MPI Standards: Provide products that comply with MPI standards indicated and that are listed in its "MPI Approved Products List."
- B. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- A. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24). Paints must be GreenGuard Certified or Equal.
 - 1. Flat Paints and Coatings: 50 g/L.
 - 2. Nonflat Paints and Coatings: 150 g/L.
 - 3. Dry-Fog Coatings: 400 g/L.
 - 4. Primers, Sealers, and Undercoaters: 200 g/L.
 - 5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
 - 6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
 - 7. Pretreatment Wash Primers: 420 g/L.
 - 8. Floor Coatings: 100 g/L.

9. Shellacs, Clear: 730 g/L.
10. Shellacs, Pigmented: 550 g/L.

B. Colors: As indicated in a color schedule.

1. 20 percent of surface area will be painted with deep tones.

2.3 BLOCK FILLERS

- A. Block Filler, Latex, Interior/Exterior: MPI #4.
1. Sherwin Williams, Prep Rite or equal.

2.4 PRIMERS/SEALERS

- A. Primer Sealer, Interior, Institutional Low Odor/VOC: MPI #149.

2.5 WATER-BASED PAINTS

- A. Latex, Interior, Flat, (Gloss Level 1): MPI #53.
1. Sherwin Williams, Pro Mar 200 Zero VOC's or equal.
- B. Latex, Interior, (Gloss Level 2): MPI #44.
1. Sherwin Williams, Pro Mar 200 Zero VOC's or equal.
- C. Latex, Interior, (Gloss Level 3): MPI #52.
1. Sherwin Williams, Pro Green 200 or equal.
- D. Latex, Interior, (Gloss Level 4): MPI #43.
1. Sherwin Williams, Pro Mar 200 Zero VOC's or equal.
- E. Latex, Interior, Semi-Gloss, (Gloss Level 5): MPI #54.
1. Sherwin Williams, Pro Green 200 or equal.
- F. Latex, Interior, Gloss, (Gloss Level 6, except minimum gloss of 65 units at 60 degrees): MPI #114.
1. Sherwin Williams, Pro Industrial or equal.
- G. Latex, Interior, Institutional Low Odor/VOC, Flat (Gloss Level 1): MPI #143.
1. Sherwin Williams, Pro Mar 200 Zero VOC's or equal.
- H. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 2): MPI #144.
1. Sherwin Williams, Pro Mar 200 Zero VOC's or equal.
- I. Latex, Interior, Institutional Low Odor/VOC, (Gloss Level 3): MPI #145.
1. Sherwin Williams, Pro Mar 200 Zero VOC's or equal.
- J. Latex, Interior, Institutional Low Odor/VOC, Semi-Gloss (Gloss Level 5): MPI #147.

1. Sherwin Williams, Pro Industrial or equal.
- K. Pre-Catalyzed Water-based Epoxy, 113.01, K46-150, Sherwin Williams Pro Industrial, MPI # 115.
 1. Sherwin Williams, Pro Industrial or equal.

2.6 SOURCE QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:
 1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
 2. Testing agency will perform tests for compliance with product requirements.
 3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with product requirements. Contractor shall remove non-complying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 1. Masonry (Clay and CMU): 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Proceed with coating application only after unsatisfactory conditions have been corrected.
 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Manual" applicable to substrates indicated.

- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed in equipment rooms:

- a. Equipment, including panel boards.
2. Paint the following work where exposed in occupied spaces:
 - a. Other items as directed by Architect.
3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. CMU Substrates:
 1. Institutional Low-Odor/VOC Latex System:
 - a. Block Filler: Block filler, latex, interior/exterior, MPI #4.
 - b. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
 - c. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3), MPI #145.
 - d. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5), MPI #147.

- e. Prime Coat: Primer, rust-inhibitive, water based MPI #107.
- f. Intermediate Coat: Latex, interior, institutional low odor/VOC, matching topcoat.
- g. Topcoat: Latex, interior, institutional low odor/VOC, (Gloss Level 3), MPI #145.
- h. Topcoat: Latex, interior, institutional low odor/VOC, semi-gloss (Gloss Level 5), MPI #147.

END OF SECTION 099123

SECTION 101423 - INTERIOR SIGNAGE

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 SCOPE

- A. Furnish all material, labor and engineering services necessary to program facility and to fabricate and install signage.

1.3 REFERENCES

- A. Signs and their installation shall comply with applicable provisions of the latest edition of the following standards and with requirements of authorities having jurisdiction:
 - 1. ADAAG – Americans with Disabilities Act Accessibility Guidelines; US Architectural and transportation Barriers Compliance Board.
 - 2. International Code Council/American National Standards Institute A117.1-Standard on Accessible and usable Buildings Facilities.
 - 3. National Fire Protection Association 101 Life Safety Code.

1.4 SUBMITTALS

- A. Signage schedule in manufacturer's format for verification of text/copy.
- B. Approval drawings showing materials, construction detail, lay-out, copy, size and mounting methods.
- C. Sample of two sign types for verification of materials, color, pattern, overall quality, and for adherence to drawings and requirements indicated.

1.5 QUALIFICATIONS

- A. Manufacturer specializing in manufacturing the products specified in this section with minimum five years experience. Obtain signs from one source and a single manufacturer.

1.6 SUBSTITUTIONS

A. Bidder must obtain prior approval from the Architect and/or Owner to bid alternates or substitutions to the specification.

1.7 WARRANTY

A. Provide manufacturer's warranty against defects in materials or workmanship for minimum 5 years.

PART 2 PRODUCTS

2.1 SIGN STANDARDS

A. It is the intent of these specifications to establish a sign standard for the Owner including but not limited to primary and secondary directories, wall mounted and all code compliant signage. While the Owner may not obtain all signs and sign types, the signage contractor shall design and submit approval drawings for all.

2.2 PANEL SIGNS: Provide smooth sign panel surfaces constructed to remain flat under installed conditions within a tolerance of plus or minus 1/16 inch measured diagonally from corner to corner, complying with the following requirements:

1. Provide manufacturer's standard one-piece construction:
 - a. Phenolic-Backed Photopolymer sheet: provide light sensitive, water-wash photopolymer face layer bonded to a phenolic base layer to produce a composite sheet with overall, face-layer, and base-layer thickness of 1/8"-inch; and type D Shore durometer hardness of 80.
2. Edge Condition: Square Cut.
3. Corner Condition: Square.
4. Mounting: Unframed.
 - a. Wall mounted with mechanical fasteners or two-face tape required by substrate.
5. Color: As selected by Architect from manufacturer's full range.
6. Font: As selected by Architect from manufacturer's full range.
7. Character proportion: Width to height ratio between 3:5 and 1:1, and stroke-width-to-height ratio between 1:5 and 1:10.
8. Size of characters and symbols:
 - a. Room numbers: 1-inch.

- b. Room letters: 5/8-inch minimum.
- 9. Pictograms: Accompanied by the equivalent verbal description placed directly below the pictogram. The border dimensions of the pictogram to be no less than 6 inches in height.
- 10. Finish and Contrast: Characters, symbols and backgrounds to be matte or other non-glare finish. Characters and symbols to be in contrasting color to the background; either light characters on a dark background or dark characters on a light background.
- 11. Tactile Characters: Characters and Grade 2 Braille raised 1/32 inch above surface with contrasting colors. Glue-on characters or etched backgrounds are not permitted.
 - a. Manufacturer's standard process for producing text and symbols complying with ADA-ABA Accessibility Guidelines (ADAAG), ICC/ANSI A117.1, and UFAS. produce precisely formed characters with square-cut edges free from burrs and cut marks; Braille dots with domed or rounded shape.
 - b. Braille to be separated from corresponding raised characters or symbols by 1/2-inch.
- 12. Quantities
 - a. **Code and Facility Signage (H.S. Chase Elementary School)**
 - a. Sign Type A Qty: 16 Room ID w/ Braille and Symbols
 - b. **Code and Facility Signage (Sprague Elementary School)**
 - a. Sign Type A Qty: 6 Room ID w/ Braille and Symbols
 - c. **Code and Facility Signage (Hopeville Elementary School)**
 - a. Sign Type A Qty: 12 Room ID w/ Braille and Symbols
 - d. **Code and Facility Signage (Kingsbury Elementary School)**
 - a. Sign Type A Qty: 10 Room ID w/ Braille and Symbols

PART 3 EXECUTION

3.1 SITE VISITS

A. Site visits – 3 site visits shall be required by the sign contractor.

- 1. Prior to submission of bid for site assessment and evaluation.
- 2. Post award for the purposes of meeting with Owners and project manager.
- 3. Final walk-through and punchlist.

B. Programming – sign contractor shall perform all wayfinding & programming. Programming shall include location plan, message schedule, fire/evacuation maps and insert graphics. All programming materials shall be submitted for approval.

3.2 CODE COMPLIANCE

- A. Signage should be installed 48”AFF to the center of the first line of text, or Braille.
- B. It shall be the responsibility of the successful bidder to meet any and all local, state, and federal code requirements in fabricating and installing signs.

3.3 DELIVERY, STORAGE, PROTECTION

A. Package to prevent damage or deterioration during shipment, handling, storage and installation. Products should remain in original packaging until removal is necessary. Store products in a dry, indoor location.

3.4 EXAMINATION

A. Installer shall examine signs for defects, damage and compliance with specifications. Installation shall not proceed until unsatisfactory conditions are corrected.

3.5 INSTALLATION

A. General: Installation locations shall be in accordance with ADA specifications. Locate signs where indicated using mounting methods in compliance with manufacturer's written instructions.

1. The signage contractor will coordinate installation schedules with the Owner and/or Construction Manager.
2. Installation shall be performed by manufacturer’s personnel trained and certified in manufacturer’s methods and procedures.
3. Installer to submit CAD generated location plan noting the location of all signage and cross referenced to message schedule for architect’s approval.
4. Installer to conduct a pre-installation survey prior to manufacturing to verify message schedule copy and sign location. Each location shall be noted using low tack vinyl. Full scale renderings of directories and directionals shall also be provided. Any location discrepancy or message issues shall be submitted to architect for review.
5. Signs shall be level, plumb, and at heights indicated with sign surfaces free from defects.
6. Install signs on walls adjacent to latch side of door where applicable. Where not indicated or possible, such as double doors, install signs on nearest adjacent walls.

- a. Locate sign with baseline of the lowest tactile character (Braille) 48" minimum above finish floor and the baseline of the highest tactile character not more than 60" above finish floor.
 - b. Locate signs so that the clear floor area 18 inches minimum by 18 inches minimum centered on the tactile character is provided beyond the arc of any door swing between the closed position and 45 degree open position.
 - c. At double doors with two active leafs, mount sign on wall to the right hand side of the door. At double doors with one active leaf, mount sign on inactive leaf unless otherwise indicated.
7. Wall-Mounted Signs: Comply with sign manufacturer's written instructions except where more stringent requirements apply.
- a. Mechanical fasteners: Use nonremovable mechanical fasteners placed through predrilled holes. Attach signs with fasteners and anchors suitable for secure attachment to substrate as recommended in writing by sign manufacturer.
8. Upon completion of the work, signage contractor shall remove unused or discarded materials, containers and debris from site.

3.6 STANDARDS MANUAL

A. Manufacturer shall provide a comprehensive Standards Manual in both a paper and PDF format. The manual shall include all renderings, drawings, location plan, message schedule, insert templates, mounting detail, and reorder information.

3.7 SCHEDULES

H.S. CHASE ELEMENTARY SCHOOL

Architectural Room Number-	Door # (Location)	Sign Text -1	Sign Text-2	Sign Text - 3	Sign Type	Quantity
ELEVATOR	1 PER FLOOR	ELEVATOR	-	-	A	4
ELEVATOR	1 PER FLOOR	AREA OF REFUGE	-	W/ADA SYMBOL	A	4
ELEVATOR	1 PER FLOOR	PUSH FOR	ASSISTANCE	-	A	4
ELEVATOR	1 PER FLOOR	NOT AN	EXIT	-	A	4

SPRAGUE ELEMENTARY SCHOOL

Architectural Room Number-	Door # (Location)	Sign Text -1	Sign Text-2	Sign Text - 3	Sign Type	Quantity
ELEVATOR	1 PER FLOOR	ELEVATOR	-	-	A	2
ELEVATOR	1 PER FLOOR	AREA OF REFUGE	-	W/ADA SYMBOL	A	2
ELEVATOR	1 PER FLOOR	PUSH FOR	ASSISTANCE	-	A	2

HOPEVILLE ELEMENTARY SCHOOL

Architectural Room Number-	Door # (Location)	Sign Text -1	Sign Text-2	Sign Text - 3	Sign Type	Quantity
ELEVATOR	1 PER FLOOR	ELEVATOR	-	-	A	3
ELEVATOR	1 PER FLOOR	AREA OF REFUGE	-	W/ADA SYMBOL	A	2
ELEVATOR	1 PER FLOOR	PUSH FOR	ASSISTANCE	-	A	3
001	002	ENTRANCE		W/ADA SYMBOL	A	1
001	001	EXIT		W/ ADA SYMBOL	A	1
002	002	EXIT		W/ ADA SYMBOL	A	1
001	EXISTING	STAIR		W/ STAIR SYMBOL	A	1

KINGSBURY ELEMENTARY SCHOOL

Architectural Room Number-	Door # (Location)	Sign Text -1	Sign Text-2	Sign Text - 3	Sign Type	Quantity
ELEVATOR	1 PER FLOOR	ELEVATOR	-	-	A	3
ELEVATOR	1 PER FLOOR	AREA OF REFUGE	-	W/ADA SYMBOL	A	2
ELEVATOR	1 PER FLOOR	PUSH FOR	ASSISTANCE	-	A	3
011	001	EXIT		W/ADA SYMBOL	A	1
011A	ELEV.	ELEVATOR		W/ ADA SYMBOL	A	1

END OF SECTION 101423

SECTION 142123.16 – MACHINE ROOM-LESS ELECTRIC TRACTION ELEVATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.01 SUMMARY

PART 1 - Section includes: Machine room-less electric traction passenger elevators as shown and specified. Elevator work includes:

1. Gearless electric traction passenger elevators.
2. Elevator car enclosures, hoistway entrances and signal equipment.
3. Operation and control systems.
4. Accessibility provisions for physically disabled persons.
5. Equipment, machines, controls, systems and devices as required for safely operating the specified elevators at their rated speed and capacity.
6. Materials and accessories as required to complete the elevator installation.

PART 2 - Related Sections:

1. Division 1 General Requirements: Meet or exceed all referenced sustainability requirements.
2. Division 3 Concrete: Installing inserts, sleeves and anchors in concrete.
3. Division 4 Masonry: Installing inserts, sleeves and anchors in masonry.
4. Division 5 Metals:
 - a. Providing hoist beams, pit ladders, steel framing, auxiliary support steel and divider beams for supporting guide-rail brackets.
 - b. Providing steel angle sill supports and grouting hoistway entrance sills and frames.
5. Division 9 Finishes: Providing elevator car finish flooring and field painting unfinished and shop primed ferrous materials.
6. Division 16 Sections:
 - a. Providing electrical service to elevators, including fused disconnect switches where permitted. (note: fused disconnect switch to be provided as part of elevator manufacture product)
 - b. Emergency power supply, transfer switch and auxiliary contacts.
 - c. Heat and smoke sensing devices.
 - d. Convenience outlets and illumination in control room (if applicable), hoistway and pit.
7. Division 22 Plumbing
 - a. Sump pit

8. Division 23 Heating, Ventilation and Air Conditioning
 - a. Heating and ventilating hoistways and/or control room.

PART 3 - Work Not Included: General contractor shall provide the following in accordance with the requirements of the Model Building Code and ANSI A17.1 Code. For specific rules, refer to ANSI A17.1, Part 2 for traction elevators. State or local requirements must be used if more stringent. The cost of this work is not included in the TK Elevator's proposal, since it is a part of the building construction.

1. A plumb and legal hoistway, properly framed and enclosed and including a pit of proper depth, and a pit ladder for each elevator. Hoistway walls require a minimum two hours of fire rating. Hoistway should be clear and plumb with variations not to exceed 1/2" at any point. Drains, lights, access doors, waterproofing and hoistway ventilation, as required.
2. Elevator controller space
 - a. Door jamb controller option - controller landing wall thickness must be a minimum of 8 1/2 inches thick. This is due to the controller being mounted on the top floor landing in the door frame on the return side of the door. For center opening doors, the controller is located on the right-hand frame (from inside the elevator cab looking out). Provide telephone line, light fixture (200 lx / 19 fc), and convenience outlet in the hoistway at the landing where the elevator controller is located. Final location must be coordinated with elevator contractor. These requirements must be coordinated between the general contractor and the elevator contractor.
 - b. Control room option - provide a suitable control closet with access and ventilation in accordance with all applicable codes and regulations. The control closet shall be maintained at a temperature between 32 F (0 C) and 104 F (40 C). To be measured at 6 feet (1830 mm) above the floor and 1 foot (305 mm) out from the front center of the car controller(s). Relative humidity is not to exceed 95% non-condensing. Local codes may require tighter temperature ranges, and higher ventilation levels, please check with your local code authority for the exact requirements in your area. If your control closet temperatures exceed these requirements, contact your local TK Elevator sales representative for assistance. All telephone wiring to controller room control panel, and installation of telephone instrument or other communication equipment in elevator cab with all connections to elevator in controller room.
3. Hoistway must be maintained between 32°F (0°C) and 122°F (50°C) measured at the machine.
4. Adequate supports to carry the loads of all equipment, including overhead machine and machine beams located in hoistway including supports for guide rail brackets.
5. Complete 3 phase connections from the electric power mains to each controller, including necessary circuit breakers and fused mainline disconnect switches unless otherwise specified herein by elevator manufacture.

6. Electric power of the same characteristics as the permanent supply without charge for the construction, testing and adjusting.
7. Provide proper piping and conduit.
8. Divider beams for rail bracket support as required.
9. Cutting of walls floor, etc. and removal of such obstructions as may be necessary for proper installation of the elevator.
10. Grouting of door sills, hoistway frames, and signal fixtures after installation of the elevator equipment.
11. All painting, except as otherwise specified.
12. Provide hoistway walls designed and constructed in accordance with the required fire rating (including those places where elevator fixture boxes, rail bracket fastenings, and any other penetration into the hoistway walls).
13. Temporary enclosures, barricades and other protection from open hoistways and elevator work area during the time the elevator is being installed to meet all permanent installation safety codes. A temporary work platform to be provided at the top landing across the hoistway; if required, it should conform to all code and safety requirements.
14. Smoke detector\ sensing devices and contacts wired to elevator control as required by local code. A means to automatically disconnect the main line power supply to the elevator prior to the application of water in the elevator controller room shall be furnished by the electrical contractor. This means shall not be self-resetting.
15. Before erection of rough walls and doors; erect hoistway sills, headers, and frames. After rough walls are finished; erect fascias and toe guards. Set sill level and slightly above finished floor at landings.
16. A standby power source, including necessary transfer switches and auxiliary contact, where elevator operation from an alternate power supply is required.
17. Adequate storage facilities for elevator equipment prior to and during installation at ground level within 150 feet of hoistway.
18. Setting of anchors and sleeves.
19. Install bevel guards at 75° on all recesses, projections or setbacks over 2" (4" for A17.1 2000 areas) except for loading or unloading.
20. For car light and fan: provide a feeder and branch wiring circuits to elevator control cabinet.
21. Locate a light fixture (200 lx / 19 fc) and convenience outlet in pit with switch located adjacent to the access door.
22. Where pit access is by means of the lowest hoistway entrance, a vertical ladder of non-combustible material extending 42" minimum, (48" minimum for A17.1-2000 areas) shall be provided at the same height, above sill of access door or handgrips.

1.02 SUBMITTALS

PART 1 - Product data: When requested, the elevator contractor shall provide standard cab, entrance and signal fixture data to describe product for approval.

PART 2 - Shop drawings:

SCHEDULE 0 - Show equipment arrangement in the corridor, pit, and hoistway and/or optional control room. Provide plans, elevations, sections and details of assembly, erection, anchorage, and equipment location.

SCHEDULE 1 - Indicate elevator system capacities, sizes, performances, safety features, finishes and other pertinent information.

SCHEDULE 2 - Show floors served, travel distances, maximum loads imposed on the building structure at points of support and all similar considerations of the elevator work.

SCHEDULE 3 - Indicate electrical power requirements and branch circuit protection device recommendations.

PART 3 - Powder Coat paint selection: Submit manufacturer's standard selection charts for exposed finishes and materials.

PART 4 - Plastic laminate selection: Submit manufacturer's standard selection charts for exposed finishes and materials.

PART 5 - Metal Finishes: Upon request, standard metal samples provided.

PART 6 - Operation and maintenance data. Include the following:

SCHEDULE 0 - Owner's manuals and wiring diagrams.

SCHEDULE 1 - Parts list, with recommended parts inventory.

1.03 QUALITY ASSURANCE

PART 7 - Manufacturer Qualifications: An approved manufacturer with minimum 15 years of experience in manufacturing, installing, and servicing elevators of the type required for the project.

SCHEDULE 1 - The manufacturer of machines, controllers, signal fixtures, door operators cabs, entrances, and all other major parts of elevator operating equipment.

PRODUCT DATA SHEET 1 - The major parts of the elevator equipment shall be manufactured by the installing company, and not be an assembled system.

SCHEDULE 2 - The manufacturer shall have a documented, on-going quality assurance program.

SCHEDULE 3 - ISO-9001:2000 Manufacturer Certified

SCHEDULE 4 - ISO-14001:2004 Environmental Management System Certified

SCHEDULE 5 - LEED Gold certified elevator manufacturing facility.

PART 8 - Installer Qualifications: The manufacturer or an authorized agent of the manufacturer with not less than 15 years of satisfactory experience installing elevators equal in character and performance to the project elevators.

PART 9 - Regulatory Requirements:

SCHEDULE 1 - ASME A17.1 Safety Code for Elevators and Escalators, latest edition or as required by the local building code.

SCHEDULE 2 - NFPA 70 National Electrical Code.

SCHEDULE 3 - NFPA 80 Fire Doors and Windows.

SCHEDULE 4 - Americans with Disabilities Act - Accessibility Guidelines (ADAAG)

SCHEDULE 5 - Section 407 in ICC A117.1, when required by local authorities

SCHEDULE 6 - CAN/CSA C22.1 Canadian Electrical Code

SCHEDULE 7 - CAN/CSA B44 Safety Code for Elevators and Escalators.

PART 10 - Fire-rated entrance assemblies: Opening protective assemblies including frames, hardware, and operation shall comply with ASTM E2074, CAN4-S104 (ULC-S104), UL10(b), and NFPA Standard 80. Provide entrance assembly units bearing Class B or 1 1/2 hour label by a Nationally Recognized Testing Laboratory (2 hour label in Canada).

PART 11 - Inspection and testing:

SCHEDULE 1 - Elevator Installer shall obtain and pay for all required inspections, tests, permits and fees for elevator installation.

SCHEDULE 2 - Arrange for inspections and make required tests.

SCHEDULE 3 - Deliver to the Owner upon completion and acceptance of elevator work.

PART 12 - Sustainable Product Qualifications:

SCHEDULE 1 - Environmental Product Declaration:

PRODUCT DATA SHEET 1 - GOOD: If Product Category Rules (PCR) are not available, produce a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that has at least a cradle to gate scope.

PRODUCT DATA SHEET 2 - BEST: If Product Category Rules (PCR) are available, produce and publish an Environmental Product Declaration (EPD) based on a critically reviewed life-cycle assessment conforming to ISO 14044, with external verification recognized by the EPD program operator.

SCHEDULE 2 - Material Transparency:

PRODUCT DATA SHEET 1 - GOOD: Provide Health Product Declaration at any level

PRODUCT DATA SHEET 2 - BETTER: Provide Health Product Declaration (HPD v2 or later). Complete, published declaration with full disclosure of known hazards, prepared using the Health Product Declaration Collaborative's "HPD builder" on-line tool.

PRODUCT DATA SHEET 3 - BEST: Cradle to Cradle Material Health Certificate v3, Bronze level or higher.

SCHEDULE 3 - LEED v4 – Provide documentation for all Building Product Disclosure AND Optimization credits in LEED v4 for product specified.

SCHEDULE 4 - Living Building Challenge Projects: Provide Declare label for products specified.

1.04 DELIVERY, STORAGE AND HANDLING

PART 13 - Manufacturing shall deliver elevator materials, components and equipment and the contractor is responsible to provide secure and safe storage on job site.

1.05 PROJECT CONDITIONS

PART 14 - Temporary Use: Elevators shall not be used for temporary service or for any other purpose during the construction period before Substantial Completion and acceptance by the purchaser unless agreed upon by Elevator Contractor and General Contractor with signed temporary agreement.

1.06 WARRANTY

PART 15 - Warranty: Submit elevator manufacturer's standard written warranty agreeing to repair, restore or replace defects in elevator work materials and workmanship not due to ordinary wear and tear or improper use or care for 12 months after final acceptance.

1.07 MAINTENANCE

PART 16 - Furnish maintenance and call back service for a period of 12 months for each elevator after completion of installation or acceptance thereof by beneficial use, whichever is earlier, during normal working hours excluding callbacks.

SCHEDULE 1 - Service shall consist of periodic examination of the equipment, adjustment, lubrication, cleaning, supplies and parts to keep the elevators in proper operation.

Maintenance work, including emergency call back repair service, shall be performed by trained employees of the elevator contractor during regular working hours.

SCHEDULE 2 - Submit parts catalog and show evidence of local parts inventory with complete list of recommended spare parts. Parts shall be produced by manufacturer of original equipment.

SCHEDULE 3 - Manufacturer shall have a service office and full time service personnel within a 100 mile radius of the project site.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- B. Manufacturer: Design based around TK Elevator's evolution 200 Self-Supported Machine Room-Less elevator or comparable product:

2.02 MATERIALS, GENERAL

PART 17 - All Elevator Cab materials including frame, buttons, lighting, wall and ceiling assembly, laminates and carpet shall have an EPD and an HPD, and shall meet the California Department of Public Health Standard Method V1.1-2010, CA Section 01350 as mentioned in 1.03.9 of this specification.

PART 18 - Colors, patterns, and finishes: As selected by the Architect from manufacturer's full range of standard colors, patterns, and finishes.

PART 19 - Steel:

SCHEDULE 1 - Shapes and bars: Carbon.

SCHEDULE 2 - Sheet: Cold-rolled steel sheet, commercial quality, Class 1, matte finish.

SCHEDULE 3 - Finish: Factory-applied powder coat for structural and architectural parts.

Color selection must be based on elevator manufacture's standard selections.

PART 20 - Plastic laminate: Decorative high-pressure type, complying with NEMA LD3, Type GP-50 General Purpose Grade, nominal 0.050" thickness. Laminate selection must be based on elevator manufacture's standard selections.

PART 21 - Flooring by others.

2.03 HOISTWAY EQUIPMENT

PART 22 - Platform: Fabricated frame of formed or structural steel shapes, gusseted and rigidly welded with a wood sub-floor. Underside of the platform shall be fireproofed. The car platform shall be designed and fabricated to support one-piece loads weighing up to 25% of the rated capacity.

PART 23 - Sling: Steel stiles bolted or welded to a steel crosshead and bolstered with bracing members to remove strain from the car enclosure.

PART 24 - Deflector Sheaves: None

PART 25 - Guide Rails: Dry, non-lubricated steel, fastened to the building with steel brackets.

PART 26 - Guides: Guide shoes or roller guides with a minimum of three tires shall be mounted on top and bottom of the car and counterweight frame and be held in contact with the guide rail by adjustable devices.

PART 27 - Buffers: Provide substantial buffers in the elevator pit. Mount buffers on continuous channels fastened to the elevator guide rail or securely anchored to the pit floor. Provide extensions if required by project conditions.

PART 28 - Machine: The hoisting machine shall be a compact energy efficient permanent magnet Gearless traction type, consisting of PMAC motor, brake and driving sheave mounted on a rigid bedplate in the top of the hoistway. A large solid, forged shaft shall serve as a support for the motor rotor assembly and for the drive sheave and brake system. It shall be supported by roller bearings mounted in the machine housing.

PART 29 - Drive System:

SCHEDULE 0 - The drive system shall be of the Variable Voltage Variable Frequency (VVVF) regenerative.

SCHEDULE 1 - The system shall be a vector controlled pulse-width modulated AC drive. The variable voltage variable frequency drive shall convert the AC power supply using a two-step process to a variable voltage variable frequency power supply for use by the hoist motor.

SCHEDULE 2 - The speed control shall be by means of vector control providing direct torque and field excitation automatically provided by permanent magnet. A digital absolute velocity encoder shall be provided giving feedback to the controller on armature position and motor speed.

SCHEDULE 3 - Dual solid state electronics (IGBT Insulated Gate Bipolar Transistor) in series shall be used in place of mechanical contactors.

PART 30 - Motor/Machine: The motor shall be PMAC, totally enclosed, non-ventilated with class "F" insulation. The motor armature shall be dynamically balanced and supported by roller bearings of ample capacity. The armature and driving sheave shall be properly balanced for smooth, high-speed elevator performance. The PM machine shall be mounted horizontally in the top of the hoistway in a unitized formed steel structure on bearing plates furnished by the elevator installer. The unitized formed steel structure shall be securely fastened to the supports supplied by other trades.

PART 31 - Brake: The brake shall be a spring applied electric brake; held open by an electro-magnet actuated by a digital brake controller and designed to make smooth, positive stops. The Brake shall be designed to automatically apply in the event of interruption of power supply from any cause. Operation and control of the brake shall be all digital. The setting and lifting of the brake shall be software based and all electronic. All adjustments and setup of the brake shall be made using a PC interface. No contactors or resistors shall be used in the actuation of the brake.

PART 32 - Suspension Belts and Governor Rope: Suspension belts shall be flat belts of polyurethane with an inner core of 14 steel cords with an FT1 fire rating such that hoistway sprinklers are not required by NFPA-13. Each belt shall have a suspension strength of 60 KN (13,488 pounds).

SCHEDULE 0 - Four to six belts shall be used depending on the car capacity.

SCHEDULE 1 - Suspension tension monitor shall detect differences in belt tension and for loss of tension. If fault is detected, the car shall stop at the nearest floor and an Out of Service call be registered.

SCHEDULE 2 - Trip criteria shall be monitored and data shall be stored in redundant non-volatile locations. Belts shall be replaced prior to the end of service life. Messages shall be issued at 180, 90, and 30 days prior to the last day of service life.

SCHEDULE 3 - Governor ropes shall be of iron construction.

SCHEDULE 4 - Any special tools, devices, software or equipment required for monitoring the wear of suspension shall be included with the installation of the equipment and become the property of the owner at time of elevator completion. This includes special ongoing monitoring systems, special tools and instruction needed to monitor the suspension system.

PART 33 - Counterweight: Counterbalance each elevator for smooth and economical operation by using iron or steel plate weights securely fastened in a steel counterweight frame. Counterweight shall equal the weight of the complete elevator car and approximately 50 percent of the specified capacity load.

PART 34 - Safety and Governor: Car safety shall be mounted on the bottom members of the car frame and be operated by a centrifugal speed governor. The governor shall be designed to cut off power to the motor and apply the brake whenever the governor indicates the car has excessive speed. The governor shall function when the car over speeds.

PART 35 - Emergency Terminal Limits: Place electric limit devices in the hoistway near the terminal landings. Limit switch(es) shall be designed to cut off the electric current and stop the car if it runs beyond either terminal landing.

PART 36 - Automatic Self-Leveling: Provide each elevator car with a self-leveling feature to automatically bring the car to the floor landings and correct for over travel or under travel. Self-leveling shall, within its zone, be automatic and independent of the operating device. The car shall be maintained approximately level with the landing irrespective of its load.

2.04 HOISTWAY ENTRANCES

PART 37 - Doors and Frames: Provide complete hollow metal type hoistway entrances at each hoistway opening bolted\knock down construction.

SCHEDULE 0 - Manufacturer's standard entrance design consisting of hangers, doors, hanger supports, hanger covers, fascia plates (where required), sight guards, and necessary hardware.

SCHEDULE 1 - Main landing door & frame finish: ASTM A1008 steel panels, factory applied powder coat finish with factory-applied powder coat finish entrance frame.

SCHEDULE 2 - Typical door & frame finish: ASTM A366 steel panels, factory applied powder coat enamel finish with factory-applied powder coat finish entrance frame.

PART 38 - Interlocks: Equip each hoistway entrance with an approved type interlock tested as required by code. Provide door restriction devices as required by code.

PART 39 - Door Hanger and Tracks: Provide sheave type two point suspension hangers and tracks for each hoistway horizontal sliding door.

SCHEDULE 0 - Sheaves: Polyurethane tires with ball bearings properly sealed to retain grease.

SCHEDULE 1 - Hangers: Provide an adjustable device beneath the track to limit the up-thrust of the doors during operation.

SCHEDULE 2 - Tracks: Drawn steel shapes, smooth surface and shaped to conform to the hanger sheaves.

PART 40 - Hoistway Sills: Extruded metal, with groove(s) in top surface. Provide mill finish on aluminum.

2.05 PASSENGER ELEVATOR CAR ENCLOSURE

PART 41 - Car Enclosure:

SCHEDULE 0 - Walls: Cab type TKAP, reinforced cold-rolled steel with two coats factory applied baked enamel finish, with applied vertical wood core panels covered on both sides with high pressure plastic laminate. **removable**

SCHEDULE 1 - Reveals and frieze: a. Reveals and frieze: Stainless steel, no. 4 brushed finish

SCHEDULE 2 - Canopy: Cold-rolled steel with hinged exit.

SCHEDULE 3 - Ceiling: Suspended type, LED lighting with translucent diffuser mounted in a metal frame. Framework shall be finished with a factory applied powder coat finish.

SCHEDULE 4 - Cab Fronts, Return, Transom, Soffit and Strike: Provide panels faced with brushed stainless steel

SCHEDULE 5 - Doors: Horizontal sliding car doors reinforced with steel for panel rigidity.

Hang doors on sheave type hangers with polyurethane tires that roll on a polished steel track and are guided at the bottom by non-metallic sliding guides.

PRODUCT DATA SHEET 0 - Door Finish: Stainless steel panels: No. 4 brushed finish.

PRODUCT DATA SHEET 1 - Cab Sills: Extruded aluminum, mill finish.

SCHEDULE 6 - Handrail: Provide 1.5' diameter cylindrical metal on side and rear walls on front opening cars and side walls only on front and rear opening cars. Handrails shall have a stainless steel, no. 4 brushed finish.

SCHEDULE 7 - Ventilation: Manufacturer's standard exhaust fan, mounted on the car top.

SCHEDULE 8 - Protection pads and buttons: Not required

PART 42 - Car Top Inspection: Provide a car top inspection station with an "Auto-Inspection" switch, an "emergency stop" switch, and constant pressure "up and down" direction and safety buttons to make the normal operating devices inoperative. The station shall give the inspector complete control of the elevator. The car top inspection station shall be mounted in the door operator assembly.

2.06 DOOR OPERATION

PART 43 - Door Operation: Provide a direct or alternating current motor driven heavy duty operator designed to operate the car and hoistway doors simultaneously. The door control system shall

be digital closed loop and the closed loop circuit shall give constant feedback on the position and velocity of the elevator door. The motor torque shall be constantly adjusted to maintain the correct door speed based on its position and load. All adjustments and setup shall be through the computer based service tool. Door movements shall follow a field programmable speed pattern with smooth acceleration and deceleration at the ends of travel. The mechanical door operating mechanism shall be arranged for manual operation in event of power failure. Doors shall automatically open when the car arrives at the landing and automatically close after an adjustable time interval or when the car is dispatched to another landing. AC controlled units with oil checks, or other deviations are not acceptable.

SCHEDULE 0 - No Un-Necessary Door Operation: The car door shall open only if the car is stopping for a car or hall call, answering a car or hall call at the present position or selected as a dispatch car.

SCHEDULE 1 - Door Open Time Saver: If a car is stopping in response to a car call assignment only (no coincident hall call), the current door hold open time is changed to a shorter field programmable time when the electronic door protection device is activated.

SCHEDULE 2 - Double Door Operation: When a car stops at a landing with concurrent up and down hall calls, no car calls, and no other hall call assignments, the car door opens to answer the hall call in the direction of the car's current travel. If an onward car call is not registered before the door closes to within 6 inches of fully closed, the travel shall reverse and the door shall reopen to answer the other call.

SCHEDULE 3 - Nudging Operation: The doors shall remain open as long as the electronic detector senses the presence of a passenger or object in the door opening. If door closing is prevented for a field programmable time, a buzzer shall sound. When the obstruction is removed, the door shall begin to close at reduced speed. If the infra-red door protection system detects a person or object while closing on nudging, the doors shall stop and resume closing only after the obstruction has been removed.

SCHEDULE 4 - Door Reversal: If the doors are closing and the infra-red beam(s) is interrupted, the doors shall reverse and reopen. After the obstruction is cleared, the doors shall begin to close.

SCHEDULE 5 - Door Open Watchdog: If the doors are opening, but do not fully open after a field adjustable time, the doors shall recycle closed then attempt to open six times to try and correct the fault.

SCHEDULE 6 - Door Close Watchdog: If the doors are closing, but do not fully close after a field adjustable time, the doors shall recycle open then attempt to close six times to try and correct the fault.

SCHEDULE 7 - Door Close Assist: When the doors have failed to fully close and are in the recycle mode, the door drive motor shall have increased torque applied to possibly overcome mechanical resistance or differential air pressure and allow the door to close.

PART 44 - Door Protection Device: Provide a door protection system using microprocessor controlled infra-red light beams. The beams shall project across the car opening detecting the

presence of a passenger or object. If door movement is obstructed, the doors shall immediately reopen.

2.07 CAR OPERATING STATION

PART 45 - Car Operating Station, General: The main car control in each car shall contain the devices required for specific operation mounted in an integral swing return panel requiring no applied faceplate. Wrap return shall have a brushed stainless steel finish. The main car operating panel shall be mounted in the return and comply with handicap requirements. Pushbuttons that illuminate using long lasting LED's shall be included for each floor served, and emergency buttons and switches shall be provided per code. Switches for car light and accessories shall be provided.

PART 46 - Emergency Communications System: Integral phone system provided.

PART 47 - Auxiliary Operating Panel:

PART 48 - Column Mounted Car Riding Lantern: A car riding lantern shall be installed in the elevator cab and located in the entrance. The lantern, when illuminated, will indicate the intended direction of travel. The lantern will illuminate and a signal will sound when the car arrives at a floor where it will stop. The lantern shall remain illuminated until the door(s) begin to close.

PART 49 - Special Equipment: Not Applicable

2.08 CONTROL SYSTEMS

PART 50 - Controller: The elevator control system shall be microprocessor based and software oriented. The system shall operate in real time, continuously analyzing the car(s) changing position, condition, and work load. All controller and operational circuits including the brake control and drive system shall be digital. Control of the elevator shall be automatic in operation by means of push buttons in the car numbered to correspond to floors served, for registering car stops, and by "up-down" push buttons at each intermediate landing and "call" push buttons at terminal landings.

SCHEDULE 1 - Momentary pressing of one or more buttons shall dispatch the car to the designated landings in the order in which the landings are reached by the car, irrespective of the sequence in which the buttons are pressed. Each landing call shall be canceled when answered.

SCHEDULE 2 - When the car is traveling in the up direction, it shall stop at all floors for which car buttons or "up" hall buttons have been pressed. The car shall not stop at floors where "down" buttons have been pressed, unless the stop for that floor has been registered by a car button or unless the down call is at the highest floor for which any buttons have been pressed. Pressing the "up" button when the car is traveling in the down direction shall not intercept the travel unless the stop for that floor has been

registered by a car button or unless the up call is the lowest for which any button has been pressed.

SCHEDULE 3 - When the car has responded to its highest or lowest stop, and stops are registered for the opposite direction, its direction of travel shall reverse automatically and it shall then answer the calls registered for that direction. If both up and down calls are registered at an intermediate floor, only the call corresponding to the direction of car travel shall be canceled upon the stopping of the car at the landing.

SCHEDULE 4 - A car that is stopping for the last hall call in the preference direction, and that hall call is for the opposite direction with no onward car calls, shall reverse preference when the selector position advances to the landing at which the car is committed to stop. A car that is stopping for the last hall call in the preference direction, and that hall call is for the same direction, shall hold its preference until the door is almost closed allowing time for a passenger to register an onward car call which shall maintain the preference. If no car call is registered before the door is almost closed, the car shall lose its preference and shall be available to accept calls in either direction.

PART 51 - Operation: Selective Collective – ETA based. The system is optimized to get a car to the floor where a hall call has been registered, in the shortest time. The system receives input information from standard call pushbuttons located in the hall, car position and car load information from individual car loadweighers.

SCHEDULE 0 - When group operation is required, the group supervisory operation shall be embedded within selected car controllers. No separate group controller shall be supplied. The microprocessor shall constantly scan the system for hall calls. When hall calls are registered, the control system shall immediately calculate the estimated time for arrival using such information as, number of floors to travel from the current position, the time it takes to travel one floor at top speed, calls assigned to a car, and car reversal time to respond to a call in the opposite direction of travel. When a car's status changes or additional hall calls are registered, the estimated time of arrival shall be recalculated and calls reassigned if necessary.

SCHEDULE 1 - Traffic Pattern: The microprocessor shall provide flexibility to meet well defined patterns of traffic, including up peak, down peak, and heavy interfloor demands, and adjust for indeterminate variations in these patterns which occur in buildings.

SCHEDULE 2 - Artificial Intelligence: Artificial Intelligence shall be an integral part of the group control system software. The enhanced artificial intelligence shall optimize the interfloor traffic performance. Inputs for the artificial intelligence shall include accurate passenger load from an electronic loadweigher, probable car calls generated from each hall call, type of building and observed traffic patterns.

PART 52 - Load Weighing Device: Provide a load weighing device on each car which, when the particular car is filled to an adjustable percentage of the capacity load, shall cause the car to

bypass landing calls but not car calls. The passed landing calls shall remain registered for the next following car.

SCHEDULE 0 - The device shall be unaffected by the action of compensating chain or rope.

The device shall detect a 50 pound (23 Kg.) load change under all conditions.

SCHEDULE 1 - The load sensor shall use a load cell to accurately measure the weight in the car. The information shall be transferred via a serial link to the elevator controller.

PART 53 - Anti-Nuisance Call Control: The microprocessor control system shall evaluate the number of people on the car and compare that value to the number of car calls registered. If the number of car calls exceeds the number of people by a field programmable value, the car calls shall be canceled after the first call has been answered.

PART 54 - Position Selector: The position selector shall be part of the microprocessor system. The car position in the hoistway shall be digitized through a primary position encoder. The microprocessor control system shall store the floor position and slow down points in memory.

PART 55 - Motion Control: The drive control system shall be dual-loop feedback system based primarily on car position. The velocity profile shall be calculated by the microprocessor control system producing extremely smooth and accurate stops. The velocity encoder shall permit continuous comparison of machine speed to velocity profile and to actual car speed. This accurate position/velocity feedback shall permit a fast and accurate control of acceleration and retardation.

PART 56 - Motor Pre-Torque: Current shall be applied to the elevator drive before the brake is released and the speed pattern is dictated to eliminate roll back and sling shot effects of unbalanced loads in the car. The electronic loadweigher shall determine the load on the car determining a pre-torque reference to send to the drive.

PART 57 - Emergency Power Operation: This operation is only available with Green Drive. Once the loss of normal power has been detected, the elevator car is moved up or down to the next available landing, depending on the load in the car and will open the doors. After passengers have exited the elevator, the doors are closed. It is NOT designed to lower the car to a specified landing such as Battery Lowering used for Hydraulic applications. For a Green Drive auto rescue, an isolation transformer is NOT required, unless building power voltage matching is necessary. A single rescue unit is not capable of rescuing a group of cars --- this is a per car option. Maximum travel on rescue operation is 160 feet. This feature is included in the elevator contract and does not utilize a building-supplied standby power source.

PART 58 - Destination Dispatch: Not Applicable

PART 59 - Automatic Light and Fan shut down: The control system shall evaluate the system activity and automatically turn off the cab lighting and ventilation fan during periods of inactivity. The settings shall be field programmable.

PART 60 - Special Operation: Not Applicable

2.09 HALL STATIONS

PART 61 - Hall Stations, General: Buttons shall illuminate to indicate call has been registered at that floor for the indicated direction.

SCHEDULE 0 - Provide one pushbutton riser with faceplates having a brushed stainless steel finish.

PRODUCT DATA SHEET 0 - Phase 1 firefighter's service key switch, with instructions, shall be incorporated into the hall station at the designated level.

PART 62 - Floor Identification Pads: Provide door jamb pads at each floor. Jamb pads shall comply with Americans with Disabilities Act (ADA) requirements.

PART 63 - Hall Position Indicator: Not Applicable

PART 64 - Hall lanterns: Not Applicable

PART 65 - Special Equipment: Not Applicable

2.10 CONTROLLER LOCATION

PART 66 - Door Jamb Mount is integrated with controller in the door jamb. Power disconnect is provided by the elevator contractor and included with the integrated assembly.

PART 3 EXECUTION

3.01 EXAMINATION

PART 67 - Before starting elevator installation, inspect hoistway, hoistway openings, pits and/or control room, as constructed, verify all critical dimensions, and examine supporting structures and all other conditions under which elevator work is to be installed. Do not proceed with elevator installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

PART 68 - Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 INSTALLATION

PART 69 - Install elevator systems components and coordinate installation of hoistway wall construction.

SCHEDULE 1 - Work shall be performed by competent elevator installation personnel in accordance with ASME A17.1, manufacturer's installation instructions and approved shop drawings.

SCHEDULE 2 - Comply with the National Electrical Code for electrical work required during installation.

PART 70 - Perform work with competent, skilled workmen under the direct control and supervision of the elevator manufacturer's experienced foreman.

PART 71 - Supply in ample time for installation by other trades, inserts, anchors, bearing plates, brackets, supports, and bracing including all setting templates and diagrams for placement.

PART 72 - Welded construction: Provide welded connections for installation of elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance, and replacement of worn parts. Comply with AWS standards for workmanship and for qualification of welding operators.

PART 73 - Coordination: Coordinate elevator work with the work of other trades, for proper time and sequence to avoid construction delays. Use benchmarks, lines, and levels designated by the Contractor, to ensure dimensional coordination of the work.

PART 74 - Install machinery, guides, controls, car and all equipment and accessories to provide a quiet, smoothly operating installation, free from side sway, oscillation or vibration.

PART 75 - Alignment: Coordinate installation of hoistway entrances with installation of elevator guide rails for accurate alignment of entrances with cars. Where possible, delay final adjustment of sills and doors until car is operable in shaft. Reduce clearances to minimum safe, workable dimensions at each landing.

PART 76 - Erect hoistway sills, headers, and frames before erection of rough walls and doors; erect fascia and toe guards after rough walls finished. Set sill units accurately aligned and slightly above finish floor at landings.

PART 77 - Lubricate operating parts of system, including ropes, as recommended by the manufacturer.

3.03 FIELD QUALITY CONTROL

PART 78 - Acceptance testing: Upon completion of the elevator installation and before permitting use of elevator, perform acceptance tests as required and recommended by Code and governing

regulations or agencies. Perform other tests, if any, as required by governing regulations or agencies.

PART 79 - Advise Owner, Contractor, Architect, and governing authorities in advance of dates and times tests are to be performed on the elevator.

3.04 ADJUSTING

PART 80 - Make necessary adjustments of operating devices and equipment to ensure elevator operates smoothly and accurately.

3.05 CLEANING

PART 81 - Before final acceptance, remove protection from finished surfaces and clean and polish surfaces in accordance with manufacturer's recommendations for type of material and finish provided. Stainless steel shall be cleaned with soap and water and dried with a non-abrasive surface; it shall not be cleaned with bleach-based cleansers.

PART 82 - At completion of elevator work, remove tools, equipment, and surplus materials from site. Clean equipment rooms and hoistway. Remove trash and debris.

SCHEDULE 0 - Use environmentally preferable and low VOC emitting cleaners for each application type. Cleaners that contain solvents, pine and/or citrus oils are not permitted.

3.06 PROTECTION

PART 83 - At time of Substantial Completion of elevator work, or portion thereof, provide suitable protective coverings, barriers, devices, signs, or other such methods or procedures to protect elevator work from damage or deterioration. Maintain protective measures throughout remainder of construction period.

3.07 DEMONSTRATION

PART 84 - Instruct Owner's personnel in proper use, operations, and daily maintenance of elevators. Review emergency provisions, including emergency access and procedures to be followed at time of failure in operation and other building emergencies. Train Owner's personnel in normal procedures to be followed in checking for sources of operational failures or malfunctions.

PART 85 - Make a final check of each elevator operation, with Owner's personnel present, immediately before date of substantial completion. Determine that control systems and operating devices are functioning properly.

3.08 ELEVATOR SCHEDULE

PART 86 - Elevator Qty. 1

SCHEDULE 1 - Elevator Model: evolution 200

SCHEDULE 2 - Elevator Type: Gearless Traction Machine Room-Less, Passenger

SCHEDULE 3 - Rated Capacity: 3500 lbs.

SCHEDULE 4 - Rated Speed: 200 ft./min.

SCHEDULE 5 - Operation System: TAC32T

SCHEDULE 6 - Travel: 40'-0"

SCHEDULE 7 - Landings: 4 total

SCHEDULE 8 - Openings:

PRODUCT DATA SHEET 1 - Front: 1

PRODUCT DATA SHEET 2 - Rear: 1

SCHEDULE 9 - Clear Car Inside: 6'-8" wide x 5'-5 1/2" deep

SCHEDULE 10 - Inside clear height: 7'-4" standard

SCHEDULE 11 - Door clear height: 7'-0" standard

SCHEDULE 12 - Hoistway Entrance Size: 3'-6" wide x 7'-0" high

SCHEDULE 13 - Door Type: One-speed | LH Side opening

SCHEDULE 14 - Power Characteristics: 208 volts, 3 Phase, 60 Hz.

PRODUCT DATA SHEET 1 - Note: Isolation Transformer required for jobs with less than
480vac, 3 Phase building power.

SCHEDULE 15 - Seismic Requirements: No

SCHEDULE 16 - Hoistway Dimensions: 8'-6" wide x 7'-10" deep

PRODUCT DATA SHEET 1 - Note: Hoistway dimensions listed above are for non-seismic
requirements only. If you have chosen a seismic option, please consult your local TK
Elevator Sales Representative for the proper hoistway dimensions.

SCHEDULE 17 - Pit Depth: 5'-0"

SCHEDULE 18 - Button & Fixture Style: Traditional Signal Fixtures

SCHEDULE 19 - Special Operations: None

3.09 SPECIAL CONDITIONS (Note: Add Special Conditions as Needed)

END OF SECTION 142100

SECTION 142400 – MACHINE ROOM-LESS HYDRAULIC TRACTION ELEVATORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.01 SUMMARY

PART 1 - Section includes: Machine room-less hydraulic passenger elevators as shown and specified.

Elevator work includes:

1. Standard pre-engineered hydraulic passenger elevators.
2. Elevator car enclosures, hoistway entrances and signal equipment.
3. Operation and control systems.
4. Jack(s).
5. Accessibility provisions for physically disabled persons.
6. Equipment, machines, controls, systems and devices as required for safely operating the specified elevators at their rated speed and capacity.
7. Materials and accessories as required to complete the elevator installation.

PART 2 - Related Sections:

1. Division 1 General Requirements: Meet or exceed all referenced sustainability requirements.
2. Division 3 Concrete: Installing inserts, sleeves and anchors in concrete.
3. Division 4 Masonry: Installing inserts, sleeves and anchors in masonry.
4. Division 5 Metals:
 - a. Providing hoist beams, pit ladders, steel framing, auxiliary support steel and divider beams for supporting guide-rail brackets.
 - b. Providing steel angle sill supports and grouting hoistway entrance sills and frames.
5. Division 9 Finishes: Providing elevator car finish flooring and field painting unfinished and shop primed ferrous materials.
6. Division 16 Sections:
 - a. Providing electrical service to elevators, including fused disconnect switches where permitted. (note: fused disconnect switch to be provided as part of elevator manufacture product, see section 2.11 Miscellaneous elevator components for further details.)
 - b. Emergency power supply, transfer switch and auxiliary contacts.
 - c. Heat and smoke sensing devices.
 - d. Convenience outlets and illumination in control room (if applicable), hoistway and pit.

7. Division 22 Plumbing
 - a. Sump pit and oil interceptor.
8. Division 23 Heating, Ventilation and Air Conditioning
 - a. Heating and ventilating hoistways and/or control room.

PART 3 - Work Not Included: General contractor shall provide the following in accordance with the requirements of the Model Building Code and ANSI A17.1 Code. For specific rules, refer to ANSI A17.1, Part 3 for hydraulic elevators. State or local requirements must be used if more stringent. The cost of this work is not included in the TK Elevator's proposal, since it is a part of the building construction.

1. Elevator hoist beam to be provided at top of elevator shaft. Beam must be able to accommodate proper loads and clearances for elevator installation and operation.
2. Supply in ample time for installation by other trades, inserts, anchors, bearing plates, brackets, supports and bracing including all setting templates and diagrams for placement.
3. Hatch walls require a minimum two hours of fire rating. Hoistway should be clear and plumb with variations not to exceed 1/2" at any point.
4. Elevator hoistways shall have barricades, as required.
5. Install bevel guards at 75° on all recesses, projections or setbacks over 2" (4" for A17.1 2000 areas) except for loading or unloading.
6. Provide rail bracket supports at pit, each floor and roof. For guide rail bracket supports, provide divider beams between hoistway at each floor and roof.
7. Pit floor shall be level and free of debris. Reinforce dry pit to sustain normal vertical forces from rails and buffers.
8. Where pit access is by means of the lowest hoistway entrance, a vertical ladder of non-combustible material extending 42" minimum, (48" minimum for A17.1-2000 areas) shall be provided at the same height, above sill of access door or handgrips.
9. All wire and conduit should run remote from the hoistways.
10. When heat, smoke or combustion sensing devices are required, connect to elevator control cabinet terminals. Contacts on the sensors should be sided for 12 volt D.C.
11. Install and furnish finished flooring in elevator cab.
12. Finished floors and entrance walls are not to be constructed until after sills and door frames are in place. Consult elevator contractor for rough opening size. The general contractor shall supply the drywall framing so that the wall fire resistance rating is maintained, when drywall construction is used.
13. Where sheet rock or drywall construction is used for front walls, it shall be of sufficient strength to maintain the doors in true lateral alignment. Drywall contractor to coordinate with elevator contractor.
14. Before erection of rough walls and doors; erect hoistway sills, headers, and frames. After rough walls are finished; erect fascias and toe guards. Set sill level and slightly above finished floor at landings.

15. To maintain legal fire rating (masonry construction), door frames are to be anchored to walls and properly grouted in place.
16. The elevator wall shall interface with the hoistway entrance assembly and be in strict compliance with the elevator contractor's requirements.
17. General Contractor shall fill and grout around entrances, as required.
18. All walls and sill supports must be plumb where openings occur.
19. Locate a light fixture (200 lx / 19 fc) and convenience outlet in pit with switch located adjacent to the access door.
20. Provide telephone line, light fixture (200 lx / 19 fc), and convenience outlet in the hoistway at the landing where the elevator controller is located. Typically, this will be at the landing above the 1st floor. Final location must be coordinated with elevator contractor.
21. As indicated by elevator contractor, provide a light outlet for each elevator, in center of hoistway.
22. For signal systems and power operated door: provide ground and branch wiring circuits.
23. For car light and fan: provide a feeder and branch wiring circuits to elevator control cabinet.
24. Controller landing wall thickness must be a minimum of 8 1/2 inches thick. This is due to the controller being mounted on the second floor landing in the door frame on the return side of the door. For center opening doors, the controller is located on the right hand frame (from inside the elevator cab looking out). These requirements must be coordinated between the general contractor and the elevator contractor.
25. Cutting, patching and recesses to accommodate hall button boxes, signal fixtures, etc..

1.02 SUBMITTALS

PART 1 - Product data: When requested, the elevator contractor shall provide standard cab, entrance and signal fixture data to describe product for approval.

PART 2 - Shop drawings:

SCHEDULE 0 - Show equipment arrangement in the corridor, pit, and hoistway and/or optional control room. Provide plans, elevations, sections and details of assembly, erection, anchorage, and equipment location.

SCHEDULE 1 - Indicate elevator system capacities, sizes, performances, safety features, finishes and other pertinent information.

SCHEDULE 2 - Show floors served, travel distances, maximum loads imposed on the building structure at points of support and all similar considerations of the elevator work.

SCHEDULE 3 - Indicate electrical power requirements and branch circuit protection device recommendations.

PART 3 - Powder Coat paint selection: Submit manufacturer's standard selection charts for exposed finishes and materials.

PART 4 - Plastic laminate selection: Submit manufacturer's standard selection charts for exposed finishes and materials.

PART 5 - Metal Finishes: Upon request, standard metal samples provided.

PART 6 - Operation and maintenance data. Include the following:

SCHEDULE 0 - Owner's manuals and wiring diagrams.

SCHEDULE 1 - Parts list, with recommended parts inventory.

1.03 QUALITY ASSURANCE

PART 1 - Manufacturer Qualifications: An approved manufacturer with minimum 15 years of experience in manufacturing, installing, and servicing elevators of the type required for the project.

SCHEDULE 1 - The manufacturer of machines, controllers, signal fixtures, door operators cabs, entrances, and all other major parts of elevator operating equipment.

PRODUCT DATA SHEET 1 - The major parts of the elevator equipment shall be manufactured by the installing company, and not be an assembled system.

SCHEDULE 2 - The manufacturer shall have a documented, on-going quality assurance program.

SCHEDULE 3 - ISO-9001:2000 Manufacturer Certified

SCHEDULE 4 - ISO-14001:2004 Environmental Management System Certified

SCHEDULE 5 - LEED Gold certified elevator manufacturing facility.

PART 2 - Installer Qualifications: The manufacturer or an authorized agent of the manufacturer with not less than 15 years of satisfactory experience installing elevators equal in character and performance to the project elevators.

PART 3 - Regulatory Requirements:

SCHEDULE 1 - ASME A17.1 Safety Code for Elevators and Escalators, latest edition or as required by the local building code.

SCHEDULE 2 - Building Code: National.

SCHEDULE 3 - NFPA 70 National Electrical Code.

SCHEDULE 4 - NFPA 80 Fire Doors and Windows.

SCHEDULE 5 - Americans with Disabilities Act - Accessibility Guidelines (ADAAG)

SCHEDULE 6 - Section 407 in ICC A117.1, when required by local authorities

SCHEDULE 7 - CAN/CSA C22.1 Canadian Electrical Code

SCHEDULE 8 - CAN/CSA B44 Safety Code for Elevators and Escalators.

SCHEDULE 9 - California Department of Public Health Standard Method V1.1-2010, CA Section 01350

PART 4 - Fire-rated entrance assemblies: Opening protective assemblies including frames, hardware, and operation shall comply with ASTM E2074, CAN4-S104 (ULC-S104), UL10(b), and NFPA

Standard 80. Provide entrance assembly units bearing Class B or 1 1/2 hour label by a Nationally Recognized Testing Laboratory (2 hour label in Canada).

PART 5 - Inspection and testing:

SCHEDULE 1 - Elevator Installer shall obtain and pay for all required inspections, tests, permits and fees for elevator installation.

SCHEDULE 2 - Arrange for inspections and make required tests.

SCHEDULE 3 - Deliver to the Owner upon completion and acceptance of elevator work.

PART 6 - Sustainable Product Qualifications:

SCHEDULE 1 - Environmental Product Declaration:

PRODUCT DATA SHEET 1 - GOOD: If Product Category Rules (PCR) are not available, produce a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that has at least a cradle to gate scope.

PRODUCT DATA SHEET 2 - BEST: If Product Category Rules (PCR) are available, produce and publish an Environmental Product Declaration (EPD) based on a critically reviewed life-cycle assessment conforming to ISO 14044, with external verification recognized by the EPD program operator.

SCHEDULE 2 - Material Transparency:

PRODUCT DATA SHEET 1 - GOOD: Provide Health Product Declaration at any level

PRODUCT DATA SHEET 2 - BETTER: Provide Health Product Declaration (HPD v2 or later). Complete, published declaration with full disclosure of known hazards, prepared using the Health Product Declaration Collaborative's "HPD builder" on-line tool.

PRODUCT DATA SHEET 3 - BEST: Cradle to Cradle Material Health Certificate v3, Bronze level or higher.

SCHEDULE 3 - LEED v4 – Provide documentation for all Building Product Disclosure AND Optimization credits in LEED v4 for product specified.

SCHEDULE 4 - Living Building Challenge Projects: Provide Declare label for products specified.

1.04 DELIVERY, STORAGE AND HANDLING

PART 1 - Manufacturing shall deliver elevator materials, components and equipment and the contractor is responsible to provide secure and safe storage on job site.

1.05 PROJECT CONDITIONS

PART 1 - Temporary Use: Elevators shall not be used for temporary service or for any other purpose during the construction period before Substantial Completion and acceptance by the purchaser unless agreed upon by Elevator Contractor and General Contractor with signed temporary agreement.

1.06 WARRANTY

PART 1 - Warranty: Submit elevator manufacturer's standard written warranty agreeing to repair, restore or replace defects in elevator work materials and workmanship not due to ordinary wear and tear or improper use or care for 12 months after final acceptance.

1.07 MAINTENANCE

PART 1 - Furnish maintenance and call back service for a period of 12 months for each elevator after completion of installation or acceptance thereof by beneficial use, whichever is earlier, during normal working hours excluding callbacks.

SCHEDULE 1 - Service shall consist of periodic examination of the equipment, adjustment, lubrication, cleaning, supplies and parts to keep the elevators in proper operation.

Maintenance work, including emergency call back repair service, shall be performed by trained employees of the elevator contractor during regular working hours.

SCHEDULE 2 - Submit parts catalog and show evidence of local parts inventory with complete list of recommended spare parts. Parts shall be produced by manufacturer of original equipment.

SCHEDULE 3 - Manufacturer shall have a service office and full time service personnel within a 100 mile radius of the project site.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- B. Manufacturer: Design based around TK Elevator's Endura Machine Room-Less hydraulic elevator or comparable product:

2.02 MATERIALS, GENERAL

PART 1 - All Elevator Cab materials including frame, buttons, lighting, wall and ceiling assembly, laminates and carpet shall have an EPD and an HPD, and shall meet the California Department of Public Health Standard Method V1.1-2010, CA Section 01350 as mentioned in 1.03.9 of this specification.

PART 2 - Colors, patterns, and finishes: As selected by the Architect from manufacturer's full range of standard colors, patterns, and finishes.

PART 3 - Steel:

SCHEDULE 1 - Shapes and bars: Carbon.

SCHEDULE 2 - Sheet: Cold-rolled steel sheet, commercial quality, Class 1, matte finish.

SCHEDULE 3 - Finish: Factory-applied powder coat for structural and architectural parts.

Color selection must be based on elevator manufacture's standard selections.

PART 4 - Plastic laminate: Decorative high-pressure type, complying with NEMA LD3, Type GP-50 General Purpose Grade, nominal 0.050" thickness. Laminate selection must be based on elevator manufacture's standard selections.

PART 5 - Flooring by others.

2.03 HOISTWAY EQUIPMENT

PART 1 - Platform: Fabricated frame of formed or structural steel shapes, gusseted and rigidly welded with a wood sub-floor. Underside of the platform shall be fireproofed. The car platform shall be designed and fabricated to support one-piece loads weighing up to 25% of the rated capacity.

PART 2 - Sling: Steel stiles bolted or welded to a steel crosshead and bolstered with bracing members to remove strain from the car enclosure.

PART 3 - Guide Rails: Steel, omega shaped, fastened to the building structure with steel brackets.

PART 4 - Guides: Slide guides shall be mounted on top and bottom of the car.

PART 5 - Buffers: Provide substantial buffers in the elevator pit. Mount buffers on continuous channels fastened to the elevator guide rail or securely anchored to the pit floor. Provide extensions if required by project conditions.

PART 6 - Jack: A jack unit shall be of sufficient size to lift the gross load the height specified. Factory test jack to ensure adequate strength and freedom from leakage. Brittle material, such as gray cast iron, is prohibited in the jack construction. Provide the following jack type: Twin post holeless telescopic 3-stage. Two jacks piped together, mounted one on each side of the car with each having three telescopic sections designed to extend in a synchronized manner when oil is pumped into the Assembly. Each jack section will be guided from within the casing or the plunger assembly used to house the section. Each plunger shall have a high pressure sealing system which will not allow for seal movement or displacement during the course of operation. A follower guide shall be furnished for the top of the lower two plungers and be guided by rollers running inside a steel guide channel which is firmly attached to the guide rail system. This plunger guide system shall maintain a stabilized support for the plunger sections. Each Jack Assembly shall have check valves built into the assembly to allow for automatically re-syncing the three plunger sections by moving the jack to its fully contracted position..

PART 7 - Automatic Self-Leveling: Provide each elevator car with a self-leveling feature to automatically bring the car to the floor landings and correct for over travel or under travel. Self-leveling shall, within its zone, be automatic and independent of the operating device. The car shall be maintained approximately level with the landing irrespective of its load.

PART 8 - Wiring, Piping, and Oil: Provide all necessary hoistway wiring in accordance with the National Electrical Code. All necessary code compliant pipe and fittings shall be provided to connect the power unit to the jack unit. Provide proper grade inherently biodegradable oil as specified by the manufacturer of the power unit (see Power Unit section 2.04.G for further details)

PART 9 - Pit moisture/water sensor located approximately 1 foot above the pit floor to be provided. Once activated, elevator will perform "flooded pit operation", which will run the car up to the designated floor, cycle the doors and shut down and trip the circuit breaker shunt to remove 3 phase power from all equipment, including pit equipment.

PART 10 - Motorized oil line shut-off valve shall be provided that can be remotely operated from the controller landing service panel. Also a means for manual operation at the valve in the pit is required.

2.04 POWER UNIT

PART 1 - Power Unit (Oil Pumping and Control Mechanism): A self-contained unit located in the elevator pit consisting of the following items:

SCHEDULE 1 - NEMA 4/Sealed Oil reservoir with tank cover including vapor removing tank breather

SCHEDULE 2 - An oil hydraulic pump.

SCHEDULE 3 - An electric motor.

SCHEDULE 4 - Electronic oil control valve with the following components built into single housing; high pressure relief valve, check valve, automatic unloading up start valve, lowering and leveling valve, and electro-magnetic controlling solenoids.

PART 2 - Pump: Positive displacement type pump specifically manufactured for oil-hydraulic elevator service. Pump shall be designed for steady discharge with minimum pulsation to give smooth and quiet operation. Output of pump shall not vary more than 10 percent between no load and full load on the elevator car.

PART 3 - Motor: Standard manufacture motor specifically designed for oil-hydraulic elevator service. Duty rating – motors shall be capable of 80 starts per hour with a 30% motor run time during each start.

PART 4 - Oil Control Unit: The following components shall be built into a single housing. Welded manifolds with separate valves to accomplish each function are not acceptable. Adjustments shall be accessible and be made without removing the assembly from the oil line.

SCHEDULE 1 - Relief valve shall be adjustable and be capable of bypassing the total oil flow without increasing back pressure more than 10 percent above that required to barely open the valve.

SCHEDULE 2 - Up start and stop valve shall be adjustable and designed to bypass oil flow during start and stop of motor pump assembly. Valve shall close slowly, gradually diverting oil to or from the jack unit, ensuring smooth up starts and up stops.

SCHEDULE 3 - Check valve shall be designed to close quietly without permitting any perceptible reverse flow.

SCHEDULE 4 - Lowering valve and leveling valve shall be adjustable for down start speed, lowering speed, leveling speed and stopping speed to ensure smooth "down" starts and stops. The leveling valve shall be designed to level the car to the floor in the direction the car is traveling after slowdown is initiated.

SCHEDULE 5 - Provided with constant speed regulation in both up and down direction. Feature to compensate for load changes, oil temperature, and viscosity changes.

SCHEDULE 6 - Solid State Starting: Provide an electronic starter featuring adjustable starting currents.

SCHEDULE 7 - A secondary hydraulic power source (powered by 110VAC single phase) must be provided. This is required to be able to raise (reposition) the elevator in the event of a system component failure (i.e. pump motor, starter, etc.)

SCHEDULE 8 - Oil Type: Provide a zinc free, inherently biodegradable lubricant formulated with premium base stocks to provide outstanding protection for demanding hydraulic systems, especially those operating in environmentally sensitive areas.

2.05 HOISTWAY ENTRANCES

PART 1 - Doors and Frames: Provide complete hollow metal type hoistway entrances at each hoistway opening bolted\knock down construction.

SCHEDULE 1 - Manufacturer's standard entrance design consisting of hangers, doors, hanger supports, hanger covers, fascia plates (where required), sight guards, and necessary hardware.

SCHEDULE 2 - Main landing door & frame finish: ASTM A1008 steel panels, factory applied powder coat finish with factory-applied powder coat finish entrance frame.

SCHEDULE 3 - Typical door & frame finish: ASTM A366 steel panels, factory applied powder coat enamel finish with factory-applied powder coat finish entrance frame.

PART 2 - Integrated Control System: the elevator controller to be mounted to hoistway entrance above 1st landing. The entrance at this level, shall be designed to accommodate the control system and provide a means of access to critical electrical components and troubleshooting features. See section 2.09 Control System for additional requirements.

PART 3 - At the controller landing, the hoistway entrance frame shall have space to accommodate and provide a lockable means of access (group 2 security) to a 3 phase circuit breaker. See section 2.11 Miscellaneous Elevator Components for further details

PART 4 - Interlocks: Equip each hoistway entrance with an approved type interlock tested as required by code. Provide door restriction devices as required by code.

PART 5 - Door Hanger and Tracks: Provide sheave type two point suspension hangers and tracks for each hoistway horizontal sliding door.

SCHEDULE 0 - Sheaves: Polyurethane tires with ball bearings properly sealed to retain grease.

SCHEDULE 1 - Hangers: Provide an adjustable device beneath the track to limit the up-thrust of the doors during operation.

SCHEDULE 2 - Tracks: Drawn steel shapes, smooth surface and shaped to conform to the hanger sheaves.

PART 6 - Hoistway Sills: Extruded metal, with groove(s) in top surface. Provide mill finish on aluminum.

2.06 PASSENGER ELEVATOR CAR ENCLOSURE

PART 1 - Car Enclosure:

SCHEDULE 1 - Walls: Cab type TKAP, reinforced cold-rolled steel with two coats factory applied baked enamel finish, with applied vertical wood core panels covered on both sides with high pressure plastic laminate.

SCHEDULE 2 - Reveals and frieze: a. Reveals and frieze: Stainless steel, no. 4 brushed finish

SCHEDULE 3 - Canopy: Cold-rolled steel with hinged exit.

SCHEDULE 4 - Ceiling: Suspended type, LED lighting with translucent diffuser mounted in a metal frame. Framework shall be finished with a factory applied powder coat finish.

SCHEDULE 5 - Cab Fronts, Return, Transom, Soffit and Strike: Provide panels faced with brushed stainless steel

SCHEDULE 6 - Doors: Horizontal sliding car doors reinforced with steel for panel rigidity.

Hang doors on sheave type hangers with polyurethane tires that roll on a polished steel track and are guided at the bottom by non-metallic sliding guides.

PRODUCT DATA SHEET 0 - Door Finish: Stainless steel panels: No. 4 brushed finish.

PRODUCT DATA SHEET 1 - Cab Sills: Extruded aluminum, mill finish.

SCHEDULE 7 - Handrail: Provide 1.5' diameter cylindrical metal on side and rear walls on front opening cars and side walls only on front and rear opening cars. Handrails shall have a stainless steel, no. 4 brushed finish.

SCHEDULE 8 - Ventilation: Manufacturer's standard exhaust fan, mounted on the car top.

SCHEDULE 9 - Protection pads and buttons: Not required

PART 2 - Car Top Inspection: Provide a car top inspection station with an "Auto-Inspection" switch, an "emergency stop" switch, and constant pressure "up and down" direction and safety buttons to make the normal operating devices inoperative. The station shall give the inspector complete

control of the elevator. The car top inspection station shall be mounted in the door operator assembly.

2.07 DOOR OPERATION

PART 1 - Door Operation: Provide a direct or alternating current motor driven heavy duty operator designed to operate the car and hoistway doors simultaneously. The door control system shall be digital closed loop and the closed loop circuit shall give constant feedback on the position and velocity of the elevator door. The motor torque shall be constantly adjusted to maintain the correct door speed based on its position and load. All adjustments and setup shall be through the computer based service tool. Door movements shall follow a field programmable speed pattern with smooth acceleration and deceleration at the ends of travel. The mechanical door operating mechanism shall be arranged for manual operation in event of power failure. Doors shall automatically open when the car arrives at the landing and automatically close after an adjustable time interval or when the car is dispatched to another landing. AC controlled units with oil checks, or other deviations are not acceptable.

SCHEDULE 1 - No Un-Necessary Door Operation: The car door shall open only if the car is stopping for a car or hall call, answering a car or hall call at the present position or selected as a dispatch car.

SCHEDULE 2 - Door Open Time Saver: If a car is stopping in response to a car call assignment only (no coincident hall call), the current door hold open time is changed to a shorter field programmable time when the electronic door protection device is activated.

SCHEDULE 3 - Double Door Operation: When a car stops at a landing with concurrent up and down hall calls, no car calls, and no other hall call assignments, the car door opens to answer the hall call in the direction of the car's current travel. If an onward car call is not registered before the door closes to within 6 inches of fully closed, the travel shall reverse and the door shall reopen to answer the other call.

SCHEDULE 4 - Nudging Operation: The doors shall remain open as long as the electronic detector senses the presence of a passenger or object in the door opening. If door closing is prevented for a field programmable time, a buzzer shall sound. When the obstruction is removed, the door shall begin to close at reduced speed. If the infra-red door protection system detects a person or object while closing on nudging, the doors shall stop and resume closing only after the obstruction has been removed.

SCHEDULE 5 - Door Reversal: If the doors are closing and the infra-red beam(s) is interrupted, the doors shall reverse and reopen. After the obstruction is cleared, the doors shall begin to close.

SCHEDULE 6 - Door Open Watchdog: If the doors are opening, but do not fully open after a field adjustable time, the doors shall recycle closed then attempt to open six times to try and correct the fault.

SCHEDULE 7 - Door Close Watchdog: If the doors are closing, but do not fully close after a field adjustable time, the doors shall recycle open then attempt to close six times to try and correct the fault.

SCHEDULE 8 - Door Close Assist: When the doors have failed to fully close and are in the re-cycle mode, the door drive motor shall have increased torque applied to possibly overcome mechanical resistance or differential air pressure and allow the door to close.

PART 2 - Door Protection Device: Provide a door protection system using microprocessor controlled infra-red light beams. The beams shall project across the car opening detecting the presence of a passenger or object. If door movement is obstructed, the doors shall immediately reopen.

2.08 CAR OPERATING STATION

PART 1 - Car Operating Station, General: The main car control in each car shall contain the devices required for specific operation mounted in an integral swing return panel requiring no applied faceplate. Wrap return shall have a brushed stainless steel finish. The main car operating panel shall be mounted in the return and comply with handicap requirements. Pushbuttons that illuminate using long lasting LED's shall be included for each floor served, and emergency buttons and switches shall be provided per code. Switches for car light and accessories shall be provided.

PART 2 - Emergency Communications System: Integral phone system provided.

PART 3 - Auxiliary Operating Panel:

PART 4 - Column Mounted Car Riding Lantern: A car riding lantern shall be installed in the elevator cab and located in the entrance. The lantern, when illuminated, will indicate the intended direction of travel. The lantern will illuminate and a signal will sound when the car arrives at a floor where it will stop. The lantern shall remain illuminated until the door(s) begin to close.

PART 5 - Special Equipment: Not Applicable

2.09 CONTROL SYSTEMS

PART 1 - Controller: Shall be integrated in a hoistway entrance jamb. Should be microprocessor based, software oriented and protected from environmental extremes and excessive vibrations in a NEMA 1 enclosure. Control of the elevator shall be automatic in operation by means of push buttons in the car numbered to correspond to floors served, for registering car stops, and by "up-down" push buttons at each intermediate landing and "call" push buttons at terminal landings.

PART 2 - Service Panel – to be located outside the hoistway in the controller entrance jamb and shall provide the following functionality/features:

SCHEDULE 0 - Access to main control board and CPU

SCHEDULE 1 - Main controller diagnostics

SCHEDULE 2 - Main controller fuses

SCHEDULE 3 - Universal Interface Tool (UIT)

SCHEDULE 4 - Remote valve adjustment

SCHEDULE 5 - Electronic motor starter adjustment and diagnostics

SCHEDULE 6 - Operation of pit motorized shut-off valve with LED feedback to the state of the valve in the pit

SCHEDULE 7 - Operation of auxiliary pump/motor (secondary hydraulic power source)

SCHEDULE 8 - Operation of electrical assisted manual lowering

SCHEDULE 9 - Provide male plug to supply 110VAC into the controller

SCHEDULE 10 - Run/Stop button

PART 3 - Automatic Light and Fan shut down: The control system shall evaluate the system activity and automatically turn off the cab lighting and ventilation fan during periods of inactivity. The settings shall be field programmable.

PART 4 - Emergency Power Operation: (10-DOA) Upon loss of the normal power supply, building-supplied standby power is available on the same wires as the normal power supply. Once the loss of normal power is detected and standby power is available, the elevator is lowered to a pre-designated landing and the doors are opened. After passengers have exited the elevator, the doors are closed and the car is shut down. When normal power is restored, the elevator automatically resumes operation.

PART 5 - Special Operation: Not Applicable

2.10 HALL STATIONS

PART 1 - Hall Stations, General: Buttons shall illuminate to indicate call has been registered at that floor for the indicated direction.

SCHEDULE 1 - Provide one pushbutton riser with faceplates having a brushed stainless steel finish.

PRODUCT DATA SHEET 1 - Phase 1 firefighter's service key switch, with instructions, shall be incorporated into the hall station at the designated level.

PART 2 - Floor Identification Pads: Provide door jamb pads at each floor. Jamb pads shall comply with Americans with Disabilities Act (ADA) requirements.

PART 3 - Hall Position Indicator: Not Applicable

PART 4 - Hall lanterns: Not Applicable

PART 5 - Special Equipment: Not Applicable

2.11 MISCELLANEOUS ELEVATOR COMPONENTS

PART 1 - Oil Hydraulic Silencer: Install multiple oil hydraulic silencers (muffler device) at the power unit location. The silencers shall contain pulsation absorbing material inserted in a blowout proof housing.

PART 2 - Lockable three phase circuit breaker with auxiliary contact with shunt trip capability to be provided. Circuit breaker to be located behind locked panel (Group 2 security access) at controller landing entrance jamb and should be sized according to the National Electrical Code.

PART 3 - Lockable single phase 110V circuit breaker for cab light and fan to be provided. Circuit breaker to be located behind locked panel (Group 2 security access) at controller landing entrance jamb should be sized according to the National Electrical Code

PART 3 EXECUTION

3.01 EXAMINATION

PART 1 - Before starting elevator installation, inspect hoistway, hoistway openings, pits and/or control room, as constructed, verify all critical dimensions, and examine supporting structures and all other conditions under which elevator work is to be installed. Do not proceed with elevator installation until unsatisfactory conditions have been corrected in a manner acceptable to the installer.

PART 2 - Installation constitutes acceptance of existing conditions and responsibility for satisfactory performance.

3.02 INSTALLATION

PART 1 - Install elevator systems components and coordinate installation of hoistway wall construction.

SCHEDULE 1 - Work shall be performed by competent elevator installation personnel in accordance with ASME A17.1, manufacturer's installation instructions and approved shop drawings.

SCHEDULE 2 - Comply with the National Electrical Code for electrical work required during installation.

PART 2 - Perform work with competent, skilled workmen under the direct control and supervision of the elevator manufacturer's experienced foreman.

PART 3 - Supply in ample time for installation by other trades, inserts, anchors, bearing plates, brackets, supports, and bracing including all setting templates and diagrams for placement.

PART 4 - Welded construction: Provide welded connections for installation of elevator work where bolted connections are not required for subsequent removal or for normal operation, adjustment, inspection, maintenance, and replacement of worn parts. Comply with AWS standards for workmanship and for qualification of welding operators.

PART 5 - Coordination: Coordinate elevator work with the work of other trades, for proper time and sequence to avoid construction delays. Use benchmarks, lines, and levels designated by the Contractor, to ensure dimensional coordination of the work.

PART 6 - Install machinery, guides, controls, car and all equipment and accessories to provide a quiet, smoothly operating installation, free from side sway, oscillation or vibration.

PART 7 - Alignment: Coordinate installation of hoistway entrances with installation of elevator guide rails for accurate alignment of entrances with cars. Where possible, delay final adjustment of sills and doors until car is operable in shaft. Reduce clearances to minimum safe, workable dimensions at each landing.

PART 8 - Erect hoistway sills, headers, and frames before erection of rough walls and doors; erect fascia and toe guards after rough walls finished. Set sill units accurately aligned and slightly above finish floor at landings.

PART 9 - Lubricate operating parts of system, where recommended by manufacturer.

3.03 FIELD QUALITY CONTROL

PART 1 - Acceptance testing: Upon completion of the elevator installation and before permitting use of elevator, perform acceptance tests as required and recommended by Code and governing regulations or agencies. Perform other tests, if any, as required by governing regulations or agencies.

PART 2 - Advise Owner, Contractor, Architect, and governing authorities in advance of dates and times tests are to be performed on the elevator.

3.04 ADJUSTING

PART 1 - Make necessary adjustments of operating devices and equipment to ensure elevator operates smoothly and accurately.

3.05 CLEANING

PART 1 - Before final acceptance, remove protection from finished surfaces and clean and polish surfaces in accordance with manufacturer's recommendations for type of material and finish

provided. Stainless steel shall be cleaned with soap and water and dried with a non-abrasive surface; it shall not be cleaned with bleach-based cleansers.

PART 2 - At completion of elevator work, remove tools, equipment, and surplus materials from site. Clean equipment rooms and hoistway. Remove trash and debris.

SCHEDULE 0 - Use environmentally preferable and low VOC emitting cleaners for each application type. Cleaners that contain solvents, pine and/or citrus oils are not permitted.

3.06 PROTECTION

PART 1 - At time of Substantial Completion of elevator work, or portion thereof, provide suitable protective coverings, barriers, devices, signs, or other such methods or procedures to protect elevator work from damage or deterioration. Maintain protective measures throughout remainder of construction period.

3.07 DEMONSTRATION

PART 1 - Instruct Owner's personnel in proper use, operations, and daily maintenance of elevators. Review emergency provisions, including emergency access and procedures to be followed at time of failure in operation and other building emergencies. Train Owner's personnel in normal procedures to be followed in checking for sources of operational failures or malfunctions.

PART 2 - Make a final check of each elevator operation, with Owner's personnel present, immediately before date of substantial completion. Determine that control systems and operating devices are functioning properly.

3.08 ELEVATOR SCHEDULE

PART 1 - Elevator Qty. 1

SCHEDULE 1 - Elevator Model: endura MRL Twinpost above-ground 2-stage

SCHEDULE 2 - Elevator Type: Hydraulic Machine Room-Less, Passenger

SCHEDULE 3 - Rated Capacity: 3500 lbs.

SCHEDULE 4 - Rated Speed: 150 ft./min.

SCHEDULE 5 - Operation System: TAC32H

SCHEDULE 6 - Travel: 28'-0"

SCHEDULE 7 - Landings: 4 total

SCHEDULE 8 - Openings:

PRODUCT DATA SHEET 1 - Front: 1

PRODUCT DATA SHEET 2 - Rear: 1

SCHEDULE 9 - Clear Car Inside: 6'-8" wide x 5'-5 1/2" deep

SCHEDULE 10 - Inside clear height: 7'-4" standard

SCHEDULE 11 - Door clear height: 7'-0" standard

SCHEDULE 12 - Hoistway Entrance Size: 3'-6" wide x 7'-0" high

SCHEDULE 13 - Door Type: One-speed | LH Side opening

SCHEDULE 14 - Power Characteristics: 208 volts, 3 Phase, 60 Hz.

SCHEDULE 15 - Seismic Requirements: No

SCHEDULE 16 - Hoistway Dimensions: 8'-4" wide x 7'-10 3/4" deep

SCHEDULE 17 - Pit Depth: 4'-0"

SCHEDULE 18 - Button & Fixture Style: Traditional Signal Fixtures

SCHEDULE 19 - Special Operations: None

3.09 SPECIAL CONDITIONS (Note: Add Special Conditions as Needed)

END OF SECTION 142100

SECTION 14 42 00 - WHEELCHAIR LIFTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contractor, Subcontractors, and/or suppliers providing goods or services referenced in or related to this Section shall also be bound by the Documents identified in Division 01 Section "Summary", Paragraph 1.1A, entitled "Related Documents."

1.2 SUMMARY

- A. Section Includes:
 - 1. Vertical platform lifts.
- B. Related Sections:
 - 1. Division 26 Sections for electrical service to lifts, including fused disconnect switches.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include rated capacities, operating characteristics, dimensions, electrical characteristics, safety features, controls, and finishes.
- B. Shop Drawings: For each lift. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 2. Wiring Diagrams: For power, signal, and control wiring.
- C. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
 - 1. Metal Finish: Manufacturer's standard-size unit, not less than 3 inches square.
 - 2. Tubular Products and Running Trim: Manufacturer's standard-size unit, 6 inches long.
 - 3. Hardware: Manufacturer's standard, exposed, door-operating device.
- D. Qualification Data: For qualified Installer.

- E. Manufacturer Certificates: Signed by lift manufacturer certifying that runway, ramp or pit, and dimensions as shown on Drawings and that electrical service as shown and specified are adequate for lift being provided.
- F. Inspection and Acceptance Certificates and Operating Permits: As required by authorities having jurisdiction for normal, unrestricted use of lifts.
- G. Operation and Maintenance Data: For each type of lift to include in operation and maintenance manuals. Include the following:
 - 1. Parts list with sources indicated.
 - 2. Recommended parts inventory list.
- H. Warranty: Sample of special warranty.
- I. Continuing maintenance proposal.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
 - 1. Maintenance Proximity: Not more than two hours' normal travel time from Installer's place of business to Project site.
- B. Regulatory Requirements: Comply with the following:
 - 1. ASME A18.1, "Safety Standard for Platform Lifts and Stairway Chairlifts."
 - 2. Connecticut State Building Code and ICC/ANSI A117.1.
 - 3. 2010 ADA Standards.

1.5 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of lifts that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

1.6 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion, provide 12 months' full maintenance by skilled employees of lift Installer. Include quarterly preventive maintenance and repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as required for proper lift operation at rated speed and capacity. Provide parts and supplies the same as those used in the manufacture and installation of original equipment.

- B. Continuing Maintenance Proposal: From Installer to Owner, in the form of a standard bi-yearly maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for agreement period and for future renewal options.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Steel Tubing: ASTM A 500.
- C. Steel Pipe: ASTM A 53/A 53M; standard weight (Schedule 40) unless otherwise indicated or required by structural loads.
- D. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, commercial steel (CS), Type B, exposed, matte finish.
- E. Galvanized-Steel Sheet: ASTM A 653/A 653M, G90 zinc coating,
- F. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:
 - 1. ASTM A 123/A 123M, for galvanizing steel and iron products.
 - 2. ASTM A 153/A 153M, for galvanizing steel and iron hardware.
- G. Inserts: Furnish required concrete inserts and similar anchorage devices for installing structural members, guide rails, machines, and other lift components.
- H. Expansion Anchors: Anchor-bolt-and-sleeve assembly of material indicated below with capability to sustain a load equal to 10 times the load imposed as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
 - 1. Material: Group 1, Alloy 304 or Alloy 316, stainless-steel bolts and nuts complying with ASTM F 593 and ASTM F 594.

2.2 VERTICAL PLATFORM LIFTS

- A. Vertical Platform Lifts: Manufacturer's standard pre-engineered lift systems as indicated.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide **Garaventa; Genesis OPAL** or comparable product by the following, or equal:
 - a. Savaria Corporation.
- B. Number of Stops: Two.

- C. Travel Distance: As indicated, field verify.
- D. Platform Size: 36 by 48-7/8 inches.
- E. Rated Speed: 20 fpm.
- F. Rated Load: 750 lbs. capacity.
- G. Power Supply: 120 V, 60 Hz, 1 phase.
- H. Emergency Operation: Provide emergency manual operation and emergency battery power system to raise or lower units in case of malfunction or power loss.
 - 1. Provide emergency battery power system as a means of egress, to raise or lower units in case of malfunction or power loss.
 - a. Provide standby power operation for a minimum of 30 minutes.
- I. Emergency Operation: Provide emergency manual operation and emergency battery power system to raise or lower units in case of malfunction or power loss.
- J. Self-Supporting Units: Support vertical loads of units only at base, with lateral support only at landing levels.
- K. Hydraulic pump unit: Include motor with adequate size oil reservoir for full piston stroke. Hydraulic connections to be metal and have rated pressures to withstand the working pressure times the appropriate safety factor. Equip hydraulic leaf chain with slack chain safety device and stainless steel linkage.
- L. Door Operation and Clear Opening Width: Low-energy, power-operated doors that remain open for 20 seconds minimum; end door with minimum 32-inch clear opening width and side door with minimum 42-inch clear opening width.
 - 1. Platform Controls: Directional paddle switch, on/off key switch, emergency stop switch with alarm and illuminated alarm button.
 - 2. Landing Controls: Directional paddle switch, on/off key switch, emergency stop switch with alarm mounted inside door frames.
 - 3. Constant pressure operations.
 - 4. Mount all door operation controls at 48 inches above finish floor, maximum.
- M. Platform: Galvanized-steel sheet, 12 gauge, with black rubber flooring.
 - 1. Provide grab rail mounted at 36-inches above platform surface.
 - 2. Equip platform underpanel with obstruction sensors.
- N. Platform Enclosure: Rectangular steel-tube frame with flush steel-sheet panels of 18 gauge steel sheet.
 - 1. Height: 42- inches minimum.

2. Mainframe Support Tubing: A combination of square and rectangular tubing with a minimum 0.120 wall thickness.
 3. Carriage Arms: Steel flat bar with ½-inch thick steel flat bar uprights. Provide cam rollers for axial carriage guidance and wear pads for horizontal stability.
- O. Provide removable machine tower sides with front and back covers fabricated from 14 gauge steel sheet.
- P. Equip lift with a 42-inch high upper landing gate and a lower landing gate which remains at lower level to prevent access to the underside of the platform while in raised position. Fabricate gate from steel tubing with steel panel infill. Provide all gates with combination mechanical lock with electrical contacts.
- Q. Fixed Ramp: Provide fixed ramp matching platform to provide transition from floor to lift platform at bottom landing, as required if installation of recessed pit is not provided.
1. Ramp Size: End ramps a minimum of 32 inches wide; length as required for slope.
 2. Ramp Slope: Maximum 1:12.
 3. Ramp Finish: Finish ramps to match lift platform.

2.3 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.4 FINISHES

- A. Steel Factory Finish:
1. Powder-Coat Finish: Immediately after cleaning and pretreating, apply manufacturer's standard, thermosetting polyester or acrylic urethane powder coating with a cured film thickness not less than 1.5 mils.
 2. Color: Manufacturer's standard.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, critical dimensions, and other conditions affecting performance.
- B. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance.
- C. Proceed with installation only after unsatisfactory conditions have been corrected. Commencement of work indicates acceptance of substrates.

3.2 INSTALLATION

- A. Wiring Method: Conceal conductors and cables within housings of units or building construction. Do not install conduit exposed to view in finished spaces. Bundle, lace, and train conductors to terminal points with no excess and without exceeding manufacturer's limitations on bending radii.
- B. Coordinate runway doors with platform travel and positioning, for accurate alignment and minimum clearance between platforms, runway doors, sills, and door frames.
- C. Position sills accurately and fill space under sills solidly with nonshrink, nonmetallic grout.
- D. Coordinate platform doors with platform travel and positioning.
- E. Adjust stops for accurate stopping and leveling at each landing, within required tolerances.
 - 1. Leveling Tolerance: 1/4 inch up or down, regardless of load and direction of travel.
- F. Lubricate operating parts of lift, including drive mechanism, guide rails, hinges, safety devices, and hardware.
- G. Test safety devices and verify smoothness of required protective enclosures and fascias

3.3 FIELD QUALITY CONTROL

- A. Acceptance Testing: On completion of lift installation and before permitting use of lifts, perform acceptance tests as required and recommended by ASME A18.1 and authorities having jurisdiction.
- B. Operating Test: In addition to above testing, load lifts to rated capacity and operate continuously for 30 minutes between lowest and highest landings served. Readjust stops, signal equipment, and other devices for accurate stopping and operation of system.

- C. Advise Owner, Architect, and authorities having jurisdiction in advance of dates and times tests are to be performed on lifts.

3.4 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain lifts. Include a review of emergency systems and emergency procedures to be followed at time of operational failure and other building emergencies.
- B. Check operation of lifts with Owner's personnel present and before date of Substantial Completion. Determine that operating systems and devices are functioning properly.
- C. Check operation of lifts with Owner's personnel present not more than one month before end of warranty period. Determine that operating systems and devices are functioning properly.

END OF SECTION 14 42 00

SECTION 27 5129

EMERGENCY 2-WAY COMMUNICATION SYSTEMS

PART 1 GENERAL

1.1 GENERAL PROVISIONS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections with DIVISION 1 - GENERAL REQUIREMENTS, which are hereby made a part of this Section of the Specifications.
- B. Attention is directed Section 26 0400 – GENERAL CONDITIONS FOR ELECTRICAL TRADES, which is hereby made a part of this Section of the Specifications.

1.2 SUMMARY

- A. Section includes a complete emergency call system, including master station, call stations, wiring and accessories.
- B. Related Sections:
 - 1. Division 01 – General Requirements
 - 2. Section 26 0400 – General Conditions for Electrical Trades
 - 3. Section 27 0529 – Hangers and Supports for Communications Systems.
 - 4. Section 27 0533 – Raceway and Boxes for Communications Systems.
 - 5. Section 27 0553 – Identification for Communications Systems.
 - 6. Section 27 1000 – Structured Cabling (for Ethernet cable requirements).

1.3 REFERENCE STANDARDS (follow the most currently adopted amended version)

- A. NFPA 70 - National Electrical Code.
- B. All system components, where applicable standards have been established, shall follow the recommendations of the Underwriters' Laboratories and the National Electrical Code, and must bear the UL label.
- C. The system shall comply with the Americans with Disabilities Act sections 4.3.11.4 and 4.3.11.5.

1.4 SYSTEM DESCRIPTION

- A. The Contractor shall furnish and install an emergency call system complete including, but not limited to, outlet boxes, conduit, wiring, telephones, Master Station, and Area Stations, and all other equipment necessary to provide a complete and operating Emergency Call System. Equipment furnished under this section shall be the standard product of a single manufacturer.

- B. The base station is to be located at a central control point in the lobby adjacent to the fire alarm annunciator or as indicated by the local authority having jurisdiction.
- C. Call station phones shall be located at the elevator lobbies on all floors above the level of egress as indicated on the drawings.
- D. The base station must be capable of handling a minimum of five (5) call station phones. Visual indicators on the base station allow rescue personnel to know which call station phone needs assistance. The base station must allow rescue personnel to speak to all elevator lobby phones or individual elevator lobby phones.
- E. The emergency communication hardware shall comply with the Americans with Disabilities Act (ADA). The call station phones shall have the ability to be programmed with up to 5 emergency phone numbers (base station counts as first number). Upon activation of the emergency push button, a call will be automatically placed to the base station. If no one answers at the Base station, the call station phone must dial a secondary location outside of the building to activate two-way off-site person to person voice communications.

1.5 SUBMITTALS

- A. Division 01 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate cable routing and connections.
- C. Product Data: For each item of equipment.
- D. Manufacturer's Installation Instructions.
- E. Project Record Documents: Accurately record actual locations of devices and wiring.
- F. Operation Data: Include instructions for routine operation of master and remote stations.
- G. Maintenance Data: Include instructions for minor troubleshooting, preventive maintenance, and cleaning.
- H. Submit project-specific riser diagram with locations and quantities of speakers and head-end devices.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this Section with minimum three years of documented experience.
- B. Supplier Qualifications: Company authorized by manufacturer and specializing in supplying products specified in this Section with minimum three years documented experience.

- C. Installer Qualifications: Company specializing in installing the products specified in this Section with minimum three years documented experience.
- D. Products: Listed, classified, and labeled as suitable for the purpose intended.
- E. Product Listing Organization Qualifications: An organization recognized by OSHA as a Nationally Recognized Testing Laboratory (NRTL) and acceptable to authorities having jurisdiction.

1.7 CLOSEOUT SUBMITTALS

- A. Division 01– General Requirements
- B. Project Record Documents: Accurately record actual locations of devices and wiring.
- C. Operation Data: Include instructions for routine operation of master and remote stations.
- D. Maintenance Data: Include instructions for minor troubleshooting, preventive maintenance, and cleaning.

1.8 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials and products in unopened, factory labeled packages. Store and handle in strict compliance with manufacturer's instructions and recommendations. Protect from all possible damage. Sequence deliveries to avoid delays, but minimize on-site storage.

1.9 COORDINATION

- A. Coordinate the installation of cable and equipment with other construction activities and the work of other sections.

1.10 WARRANTY

- A. Contractor's Warranty: Warranty the installation to be free of defect for a period of two (2) years.
- B. Equipment Warranty: Each piece of equipment shall carry a two(2) year manufacturer's warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Emergency 2-Way Communication System:
 - 1. Rath SmartRescue (Basis of Design)
 - 2. Cornell
 - 3. Housing Devices

4. Substitutions – See Division 1 – Product Requirements.

2.2 CONSTRUCTION:

- A. The base station shall have a steel backbox and powder coated steel housing, for flush mounting, red coil cord, red emergency handset, be 120vac powered and include a rechargeable battery to maintain backup power for a minimum of 4 hours of talk time.
- B. Provide battery backed-up power supply adequate to power the base station and up to five (5) call station phones.
- C. The base station must include connections for up to two (2) elevator machine room phones.
- D. The call station phones shall include a steel backbox and brushed stainless steel faceplate.
- E. The call station phones must be in full compliance with Americans with Disabilities Act (ADA). Call station phones require a hands-free speakerphone with an LED to indicate status of call.
- F. The call station phones must allow the programming in of a specific voice message indicating the location of the phone.
- G. The call station phones must be programmable to check the status of the incoming telephone line every 10 minutes up to every 23 hours.
- H. The base station must provide an audible and visual indicator that an call station phone has been activated.

2.3 Mounting:

- A. The base station is to be flush mounted on a wall.
- B. Call station phones shall be flush mounted on a wall.

2.4 Electrical:

- A. The base station is to be powered by 120vac when used with supplied step down power supply.
- B. Call station phones are to be powered by the central power supply at the base station.
- C. Call station phones must have a battery backup capable of providing up to 4 hours of electrical backup in case of building power failure
- D. Base station must have a battery backup capable of providing up to 4 hours of electrical backup in case of building power failure.
- E. System shall be in compliance with all state and local electrical codes.

2.5 Communications:

- A. Call station phones shall be an ADA compliant and vandal resistant speakerphone.
- B. The base station must allow for calls to be placed on analog, digital, or VoIP communication lines.
- C. Call station phones shall be hands-free and be a push-button-once to talk system. Once the button has been pushed, the call station phones will call the base station. If no answer at the base station, it will automatically call pre-programmed emergency numbers. The call station phones must be capable of being programmed with up to 5 emergency numbers (base station counts as first number).
- D. Call station phones shall have location message capability. Call station phones must include a minimum 18 second recordable message, programmable to play 1 time or continuously until interrupted. Call station phones shall notify called party of the location of the elevator upon receipt of call.
- E. Call station phones shall be capable of allowing the called party to replay the location message if necessary to ensure an understanding of the call station location.
- F. If the building location does not have a 24/7 attendant on duty, the call station phones must dial a location outside of the building to activate two-way off-site person to person voice communications.
- G. Once a call has been made (button pushed), the call can only be terminated by the called party.
- H. Call station phones must have a red LED that will light up upon push of the button. The light shall be a solid color when the call station phones are activated, and will flash when call has been answered.
- I. The call station phones must be capable of being programmed and re-programmed on-site and remotely.

2.6 Standard Base Station features:

- A. Flush or surface mount.
- B. Operating temperature of between -40°F to +150°F (-40° to + 65° C).
- C. All or individual elevator call.
- D. Battery backup.

2.7 Standard Call Station Phone features:

- A. Five number programming.
- B. Operating temperature of between -40°F to +150°F (-40° to + 65° C).

- C. Location message.
- D. Telephone line verification.
- E. Battery backup (4 hours).
- F. On-site or remote programmable.
- G. 120vac or 24vac/dc power.
- H. EEPROM memory to protect programming.

2.8 Graphics:

- A. Base Station must include wording identifying the number of each Elevator Phone, instructions on how to operate the Base Station and light an LED when a particular Elevator Phone has been activated.
- B. Call station phone wording must include "Emergency Phone", the International Phone Symbol, and raised Braille lettering.

2.9 BATTERY BACKUP SYSTEM

- A. Model: 2500-PWR24U or approved equal.
- B. Provide a battery backup system that distributes continuous power to the Area of Refuge Call system in the event of a power failure.
- C. The battery backup system shall monitor for:
 - 1. AC power failure.
 - 2. AC and DC surge suppression.
 - 3. No/low battery indications.
- D. The battery backup system shall include:
 - 1. Two (2) 12VDC sealed lead-acid batteries (sized as required for min. of 4 hours talk time with all stations active).
- E. Ratings:
 - 1. Input voltage: 120VAC.
 - 2. Output: 8.5 A @ 24 VDC.
 - 3. Full operation capability: 4 hours.
- F. System shall also include integral amplifier that processes audio signaling for the entire system:
 - 1. Output: 5W.
 - 2. Voltage: 24 VDC.
- G. The Battery backup system shall be mounted in a separate enclosure. Location shall be wall mounted above an accessible ceiling at the base station location.

2.10 CABLING

- A. All cable shall be as recommended by the manufacturer or an approved equivalent. All Area Station wiring must be home run with individually jacketed cable.
- B. All cables run in underground conduits must be suitable for wet locations and appropriately grounded as per EIA and NEC recommendations. See wiring diagrams for details.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Verify field measurements are as shown on Drawings.
- C. Verify that required utilities are available, in proper location, and ready for use.
- D. Beginning of installation means installer accepts conditions.

3.2 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Complete system shall be installed in strict accordance with manufacturer's recommendations.
- C. All wiring shall be installed in raceways where routed through ceiling areas.
- D. Base station and call station phone mounting shall be in accordance with the ADA.
- E. Provide all necessary programming for a complete system, including programming of recorded voice messages and dial out numbers.
- F. System wiring shall be in accordance with good engineering practices as established by the EIA and NEC. Wiring shall meet all established state and local electrical codes. All wiring shall test free from shorts and grounded as specified.
- G. Coordinate with the Authority Having Jurisdiction and install fireman's locking mechanism and cylinder.

3.3 FIELD QUALITY CONTROL

- A. See Division 01 - General Requirements.
- B. Provide the services of the manufacturer's technical representative to make final connections to units, prepare and start systems, and perform field inspection and testing.

- C. Perform operational test on completed installation to verify proper operation.
- D. Replace equipment, components, and wiring to eliminate audible noise, clicks, pops, or hum when system is in standby or operation.

3.4 ADJUSTING

- A. Adjust controls and configuration switches for operation as indicated.

3.5 DOCUMENTATION

- A. Provide copies of all manuals and two (2) sets of as-built documents, in hard copy and electronic format. As-built documentation shall include location and types of hardware provided and installed as well as the interconnection of each device.

3.6 TRAINING:

- A. The Owner may assign personnel to participate with the contractor during installation. Without delaying the work, familiarize the Owner's personnel with the installation, equipment, and maintenance.
- B. Provide training to personnel selected by the Owner on operation and basic maintenance of all systems and equipment.
- C. Include 2 hours of training Owner's staff.

END OF SECTION

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Excavating and filling for rough grading the Site.
 - 2. Preparing subgrades for slabs-on-grade walks turf and grasses.
 - 3. Excavating and backfilling for buildings and structures.
 - 4. Drainage course for concrete slabs-on-grade.
 - 5. Subbase course for concrete walks.
 - 6. Subsurface drainage backfill for walls and trenches.

- B. Related Requirements:

- 1. Section 312319 "Dewatering" for lowering and disposing of ground water during construction.
 - 2. Section 315000 "Excavation Support and Protection" for shoring, bracing, and sheet piling of excavations.
 - 3. Section 329200 "Turf and Grasses" for finish grading in turf and grass areas, including preparing and placing planting soil for turf areas.

1.3 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.

- 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.

- B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.

- C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.

- D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.

- E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.

- F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.
 - 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, shall be without additional compensation.
- G. Fill: Soil materials used to raise existing grades.
- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- I. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- J. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- K. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of the following manufactured products required:
 - 1. Geotextiles.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified testing agency.
- B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:
 - 1. Classification according to ASTM D 2487.
 - 2. Laboratory compaction curve according to ASTM D 1557.

1.6 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
 - 1. Do not proceed with work on adjoining property until directed by Architect.
- C. Utility Locator Service: Notify "Call Before You Dig" for area where Project is located before beginning earth-moving operations.
- D. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified in Section 015000 "Temporary Facilities and Controls" are in place.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D 2487, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D 2487, or a combination of these groups.
 - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 294/D 2940M 0; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.

- F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940/D 2940M; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
- H. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and zero to 5 percent passing a No. 8 sieve.
- I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D 448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and zero to 5 percent passing a No. 4 sieve.
- J. Sand: ASTM C 33/C 33M; fine aggregate.
- K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.2 GEOTEXTILES

- A. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications, made from polyolefins or polyesters; with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
 - 1. Survivability: Class 2; AASHTO M 288.
 - 2. Survivability: As follows:
 - a. Grab Tensile Strength: 247 lbf; ASTM D 4632.
 - b. Sewn Seam Strength: 222 lbf; ASTM D 4632.
 - c. Tear Strength: 90 lbf; ASTM D 4533.
 - d. Puncture Strength: 90 lbf; ASTM D 4833.
 - 3. Apparent Opening Size: No. 60 sieve, maximum; ASTM D 4751.
 - 4. Permittivity: 0.02 per second, minimum; ASTM D 4491.
 - 5. UV Stability: 50 percent after 500 hours' exposure; ASTM D 4355.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth-moving operations.

- C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.3 EXPLOSIVES

- A. Explosives: Do not use explosives.

3.4 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
 - 1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.

3.5 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
 - 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 SUBGRADE INSPECTION

- A. Notify Architect when excavations have reached required subgrade.
- B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
- C. Proof-roll subgrade below the building slabs and pavements with a pneumatic-tired and loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 - 1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 - 2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.
- D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.8 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.
 - 1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

3.9 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.10 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
 - 2. Surveying locations of underground utilities for Record Documents.

3. Testing and inspecting underground utilities.
4. Removing concrete formwork.
5. Removing trash and debris.
6. Removing temporary shoring, bracing, and sheeting.
7. Installing permanent or temporary horizontal bracing on horizontally supported walls.

- B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.11 SOIL FILL

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
1. Under grass and planted areas, use satisfactory soil material.
 2. Under walks and pavements, use satisfactory soil material.
 3. Under steps and ramps, use engineered fill.
 4. Under building slabs, use engineered fill.
 5. Under footings and foundations, use engineered fill.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.12 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.13 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.

3.14 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 1. Provide a smooth transition between adjacent existing grades and new grades.
 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:
 1. Turf or Unpaved Areas: Plus or minus 1 inch.
 2. Walks: Plus or minus 1 inch.
- C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.15 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

- A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:
 1. Install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
 2. Shape subbase course and base course to required crown elevations and cross-slope grades.
 3. Place subbase course and base course 6 inches or less in compacted thickness in a single layer.
 4. Place subbase course and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
 5. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

- C. Pavement Shoulders: Place shoulders along edges of subbase course and base course to prevent lateral movement. Construct shoulders, at least 12 inches wide, of satisfactory soil materials and compact simultaneously with each subbase and base layer to not less than 95 percent of maximum dry unit weight according to ASTM D 1557.

3.16 DRAINAGE COURSE UNDER CONCRETE SLABS-ON-GRADE

- A. Place drainage course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place and compact drainage course under cast-in-place concrete slabs-on-grade as follows:
 - 1. Install subdrainage geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
 - 2. Place drainage course 6 inches or less in compacted thickness in a single layer.
 - 3. Place drainage course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
 - 4. Compact each layer of drainage course to required cross sections and thicknesses to not less than 95 percent of maximum dry unit weight according to ASTM D 698.

3.17 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.18 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

SECTION 31 2310 - EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Preparation and grading subgrades for pavements.

B. Contractor shall coordinate work between all Subcontractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 GENERAL

A. Contractor is advised that lines and grades, as shown on the Drawings, are subject to change. Although it is intended to adhere to what is shown on Drawings, Engineer reserves the right to make changes in lines and grades of utilities or other subsurface construction when such changes may be necessary or advantageous.

B. In open trenching on public roadways, Contractor shall be governed by the conditions, restrictions and regulations made by the local or state authority as applicable. All such regulations shall be in addition to those set down in the Specifications.

1.3 EXCAVATION CLASSIFICATIONS

A. Excavation - Excavation shall be unclassified and no consideration will be given to the nature of the materials. Excavation shall comprise and include the satisfactory removal and disposal of all materials encountered regardless of the nature of the materials and shall be understood to include but not limited to earth, fill, boulders, foundations, pavements, curbs, piping, cobbles, stones, footings, bricks, concrete, previously abandoned drainage structures and utility structures abandoned and not removed by the utility and debris.

B. Common Excavation - Excavation of all materials that can be excavated, moved, loaded, transported, and unloaded using heavy equipment or that can be excavated and dumped into place or loaded onto hauling equipment by excavation equipment (shovel, bucket, backhoe, dragline, or clam shell) or moved with dozer-type equipment, appropriate to the material type, character, and nature of the materials. The presence of isolated boulders or rock fragments larger than 1 cubic yard is not in itself sufficient cause to change the classification of the surrounding material. All Common Excavation shall be included in the Base Bid.

C. Rock Excavation - Rock Excavation as defined herein. The excavation and removal of isolated boulders or rock fragments larger than 1 cubic yard encountered in materials otherwise conforming to the definition of Common Excavation shall be classified as rock excavation. The presence of isolated boulders or rock fragments larger than 1 cubic yard is not in itself sufficient cause to change the classification of the surrounding material.

1.4 REFERENCES

- A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- B. State of Connecticut Department of Transportation (ConnDOT)
 - 1. Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, Form 817, 2016 and any supplements.
- C. Code of Federal Regulations (CFR)
 - 1. 29 CFR 1926, Safety and Health Regulations for Construction
- D. American Concrete Institute (ACI)
 - 1. ACI 229R-99 - Controlled Low-Strength Materials (CLSM).
- E. American Association of State Highway and Transportation Officials (AASHTO)
 - 1. AASHTO Method T 90 - Determining the Plastic Limit and Plasticity Index of Soils.
 - 2. AASHTO T104 - Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.
 - 3. AASHTO Method T146 - Standard Method of Test for Wet Preparation of Disturbed Soil Samples for Test.
- F. ASTM International (ASTM).
 - 1. ASTM D422 - Standard Test Method for Particle-Size Analysis of Soils.
 - 2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.
 - 3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³(2,700 kN-m/m³)).
 - 4. ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System).
 - 5. ASTM D2922 - Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 - 6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).
 - 7. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth).

1.5 DEFINITIONS

- A. Backfill: Soil material or flowable concrete used to fill an excavation.

- B. Bedding Course: Layer placed over the excavated sub-grade in a trench before laying pipe.
- C. Benching: A method of limiting cave-in potential by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.
- D. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Clearing: Clearing shall consist in the felling, cutting up, and satisfactory disposal of trees and other vegetation designated for removal in accordance with these specifications.
- F. Drainage Course: Layer supporting basement grade used to minimize capillary flow of pore water.
- G. Earth Retention Systems: Any structural system, such as sheeting and bracing or cofferdams, designed to retain in-situ soils in place and prevent the collapse of the sides of an excavation in order to protect employees and adjacent structures.
- H. Excavation: Any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.
 - 1. Additional Excavation: Excavation beyond required dimensions or below subgrade elevations that is requested and/or directed by Engineer. Additional Excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
 - 2. Bulk Excavation: Excavations more than 10 feet in width and pits more than 30 feet in either length or width.
 - 3. Unauthorized Excavation: Excavation below the elevations specified on the plans, beyond the limits indicated on the plans, or where no dimensions are indicated, beyond depths, elevations, and dimensions reasonably necessary for construction of the work without the request and/or direction of the Engineer. Unauthorized excavation, as well as any remedial work directed by Engineer, or if applicable Geotechnical Engineer, shall be without additional compensation.
- I. Fill: Soil materials used to raise existing grades.
- J. Finished Grade: The proposed final elevations shown on the Drawings or called for in the Specifications.
- K. Geotechnical Engineer: A qualified and licensed entity designated for the project as the authority on the assessment, design, and oversight of soil and/or rock conditions and construction affected by such conditions.
- L. Geotechnical Testing Agency: An independent testing agency employed by Owner, or by Contractor is called-for, and qualified according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548.

- M. Grubbing: Grubbing shall consist of the removal of roots 1 ½ inch and larger, organic matter and debris, and stumps having a diameter of three inches or larger, to a depth of at least 18 inches below the surface and or subgrade; whichever is lower, and the disposal thereof.
- N. Protective System: A method of protecting employees from cave-ins, from material that could fall or roll from an excavation face or into an excavation, or from the collapse of adjacent structures. Protective systems include earth retention systems, sloping and benching systems, shield systems, and other systems that provide the necessary protection.
- O. Regular Excavation: Removal and disposal of any and all material above subgrade elevation, except solid rock and undercut excavation, located within the limits of construction.
- P. Rock: Solid ledges, bedded deposits, unstratified masses and conglomerations of material so firmly cemented as to possess the characteristics of solid rock which cannot be removed without systematic drilling or hoe ramming. All boulders containing a volume of more than one (1) cubic yard shall be considered rock.
- Q. Rock Excavation: Removal and satisfactory disposal of Rock, which, in the opinion of Engineer, cannot be excavated except by drilling, wedging, jack hammering or hoe ramming or the excavation of boulders or rock fragments containing a volume of more than one (1) cubic yard. The presence of isolated boulders or rock fragments larger than 1 cubic yard is not in itself sufficient cause to change the classification of the surrounding material.
- R. Licensed Professional Engineer: A person who is licensed as a professional engineer in the state where the work is to be performed. However, a professional engineer, registered in any state is deemed to be a "registered professional engineer" within the meaning of this standard when approving designs for "manufactured protective systems" or "tabulated data" to be used in interstate commerce.
- S. Satisfactory Materials: Earth material that meets the classification, use, and/or gradation requirements herein that does not contain limestone, shale, clay, ash, slag, friable material, organic or vegetative materials, topsoil, wood, trash, broken concrete, masonry rubble, trash, refuse, or frozen materials.
- T. Shield System: A structure that is designed to withstand the forces imposed on it by a cave-in and thereby protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along as work progresses. Additionally, shields can be either pre-manufactured or job-built in accordance with 29 CFR 1926.652(c)(3) or (c)(4). Shields used in trenches are usually referred to as "trench boxes" or "trench shields."
- U. Sloping: A method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.
- V. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.

- W. Sub-grade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below drainage fill.
- X. Surplus Material: Excavated acceptable material that cannot be utilized elsewhere on the site as backfill or embankment fill, or as otherwise directed by the Engineer.
- Y. Temporary Dewatering System: A system to lower and control water to maintain stable, undisturbed subgrades at the lowest excavation levels. Dewatering shall be provided for all pipelines, structures and for all other miscellaneous excavations.
- Z. Testing Laboratory: A qualified entity engaged to perform specific laboratory tests.
- AA. Testing Agency: A qualified entity engaged to collect samples, perform specific in-field tests, and/or inspections. The Testing Laboratory may provide the services of the Testing Agency.
- BB. Trench: A narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench (measured at the bottom) is not greater than 15 feet.
- CC. Unacceptable Material: Soil material that contains organic silt, peat, vegetation, wood or roots, stones or rock fragments over six (6) inches in diameter or exceeding 40 percent by weight of the backfill material, porous biodegradable matter, loose or soft fill, construction debris, or refuse, or material which cannot be compacted to the specified or indicated density.

1.6 SUBMITTALS

- A. Site Characterization of Off-Site Borrow Sources: The following information shall be submitted to Engineer for review at least two weeks prior to use of an off-site borrow source:
 - 1. Location and name of the borrow source site.
 - 2. Owner and contact information for the borrow source site.
 - 3. Present and past usage of the source site and materials.
 - 4. Any previously existing report(s) associated with an assessment of the source site as relates to the presence of oils, hazardous materials, or other organic and non-organic constituents which may be considered contaminants.
 - 5. Location within the site from which the material will be obtained.
- B. Chemical Testing Data: For each type/classification of earth material proposed and each source of earth material proposed: Submit a letter signed by an authorized representative of material supplier stating that such proposed material is free of oils, hazardous materials, or other organic and non-organic constituents which may be considered contaminants.
- C. Material Testing Data: Provide results for all proposed bedding, fill, aggregates, and backfill. Submit complete laboratory reports.
 - 1. Gradation analysis.
 - 2. Soil classification and Moisture-Dry Density Curve.

3. Loss on Abrasion.
4. Soundness.

1.7 SAFETY

- A. Contractor shall conduct all excavation activities in conformance with applicable regulations, including those relating to warning signs, excavation safety, sheeting, shoring, and stabilization.
- B. Contractor shall provide and maintain barricades, signs, lights, etc., required for the protection of personnel, materials and property. Temporary barricades, etc. shall conform all applicable codes and regulations, and shall be lighted at night with lanterns, flares and reflectorized paint as required for safety. Adapt barricades, signs, lights, etc. to evolving site conditions throughout the progress of the work.
- C. Provide other safety devices as required, including adaptation of such safety devices to changing site conditions, to prevent unauthorized entry to construction areas and open excavations. Provide warning signs and other temporary construction safety devices necessary for proper completion of the work in compliance with applicable safety regulations.
- D. Contractor shall properly design and furnish all labor, materials, equipment, and tools necessary to construct permanent or temporary excavation support systems, including, but not necessarily limited to, sheet piling, trench shields, trench boxes, timber trench shoring, pneumatic/hydraulic shoring, steel sheeting or sheeting using other materials, sloping, and benching.
- E. Any time an excavation is to remain open, at a minimum, provide full enclosure with safety barriers and fencing, warning signs, and additional safety control measures as appropriate for the condition.

1.8 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods required for proper performance of the work in this Section. Use equipment of adequate size, capacity and quantity to accomplish the work of this Section in a timely manner.
- B. Utility Mark-out
 1. Prior to commencing work, comply with utility mark-out requirements of the Call-Before-You-Dig System (1-800-922-4455).
 2. Verify the location of all subsurface utilities marked through the Call-Before-You-Dig System.
 3. Not all subsurface facilities or structures will be identified through the Call-Before-You-Dig System. Confirm the location of other subsurface utilities and other subsurface facilities or structures prior to commencing work. Field-mark utilities as required.

- C. Codes and Standards: Perform the work of this Section in accordance with all applicable codes, standards, and the requirements of authorities having jurisdiction.
- D. Engineer reserves the right to perform all in-field testing specified in this Section and reserves the right to determine the suitability of all materials to be used for fills and reject any fill not meeting the specifications.
- E. Field Density testing and subgrade observation shall be performed by the designated entity
- F. Weather Limitations:
 - 1. Material excavated when frozen or when air temperature is less than 32 degrees Fahrenheit (32 F) shall not be used as fill or backfill until material completely thaws.
 - 2. Material excavated during inclement weather shall not be used as fill or backfill until after material drains and dries sufficiently for proper compaction.

1.9 TESTING

- A. The Owner will retain a testing entity to perform sampling and testing of the work under this Section during construction. The testing entity's presence does not constitute supervision or direction of Contractor's work. Neither the presence of the testing entity nor any observations and testing performed by him, nor any notice or failure to give notice shall excuse Contractor from conformance with these Specifications or from defects discovered in his work. Contractor shall remain responsible for all pre-construction sampling and testing.
- B. Borrow and Fill: Contractor shall provide testing as defined below.
 - 1. Gradation analysis for each type of borrow and on-site fill materials by ASTM D422.
 - 2. Soil classification (ASTM D2487) and Moisture-Dry Density Curve (Proctor Test-Modified) by ASTM D1557 for all proposed fill and backfill materials at the frequency specified below:
 - a. For suitable soil materials removed during Trench Excavation, perform one test for every 1,000 cubic yards of similar soil type. Similarity of soil types will be as determined by the Engineer.
 - b. For borrow materials, perform tests from each proposed source, at a rate of one test for every 1,000 cubic yards of soil type. Similarity of soil types will be as determined by the Engineer.
 - 3. Loss on Abrasion: Where called-for, AASHTO Method T 96.
 - 4. Soundness: Where called-for, AASHTO Method T 104.
- C. Compaction Testing: Owner will conduct compaction testing (i.e. ASTM D2922 and ASTM D3017 or ASTM D1556) at the frequency indicated below.
 - 1. If testing indicates that compacted subgrade, backfill, or fill are below specified density, additional compaction and/or replacement of material shall be provided at no expense to Owner.
- D. Chemical Testing: Prior to delivery of any earth material to the Project Site, Contractor shall conduct chemical testing to demonstrate that such material is free of oils, hazardous materials, or other organic and non-organic constituents which may be considered contaminants.

1.10 EXCAVATED MATERIAL

- A. Placement
 - 1. Excavated material shall be so placed as not to interfere with travel or movement on existing streets, driveways, sidewalks or other areas designated to remain undisturbed. Excavated material shall not be deposited on private property without the written consent of the property owner(s) and approval of Engineer.
 - 2. No excavated material shall be stored on top of installed pipe or other construction. Contractor shall consider surcharge loads when stockpiling excavated material adjacent

to trenches, and take any measure required to prevent cave-in, including but not limited to, trench support systems and/or stockpiling excavated material remote from trench.

- B. Suitable excavated material may be used for Common Fill or Backfill on other parts of the Work, if specifically approved by Engineer.
- C. Material excavated from private property shall belong to the property Owner, or his representative, and shall be disposed of by the Contractor, as required by said Owner or his representative. If the Contractor fails to promptly remove such surplus material, Engineer may have the same done and charge the cost thereof as money paid to the Contractor.
- D. Contractor shall be responsible for the proper disposal of all unsuitable excavated materials. Engineer shall determine what is suitable or unsuitable material where questions arise. Generally, unsuitable material shall include, but not be limited to, pavement (bituminous and concrete), large boulders, pipe, conduit and metal.
- E. Contractor shall submit to Engineer, for approval, the location(s) to be utilized during the Contract period for waste material disposal. This approval must occur before any export of waste material from the project site. Any change in the disposal site during construction shall be submitted for approval.

1.11 SHEETING, SHORING AND BRACING

- A. Provide earth retention systems as required by federal, state and local regulations. Shoring and bracing of trenches and other excavations shall be in accordance with the latest OSHA Standards and Interpretations, and to all other applicable codes, rules and regulations of federal, state and local authorities.

1.12 DRAINAGE

- A. At all times during construction, Contractor shall temporarily provide, place and maintain ample means and devices with which to remove promptly, and dispose of properly, all water entering trenches and other excavations, or water that may flow along or across the site of the Work, and keep said excavations dry until the structures, pipes, and appurtenances to be built therein have been completed to such extent that they will not be damaged. At the conclusion of the work, Contractor shall remove such temporary means and devices.
- B. All groundwater which may be found in the trenches and foundation excavations, and any water which may get into them from any cause whatsoever, shall be pumped or bailed out, so that the trench shall be dry during pipe laying and backfilling and during the placement of concrete.
- C. All water pumped or drained from the Work shall be managed in accordance with applicable discharge permits, without undue interference with other work or damage to pavements, other surfaces, or property.

1.13 COORDINATION

- A. Prior to commencing earthwork operations, meet with representatives of governing authorities, Engineer, testing entity, and other pertinent entities.

1. Review earthwork procedures and responsibilities including Contractor's schedule of operations, scheduling observation and testing procedures and requirements.
 2. Notify participants at least three (3) working days prior to convening conference. Record discussions and agreements and furnish copies to each participant.
 3. Contractor shall at all times so conduct his work as to insure the least possible inconvenience to the general public and the residents in the vicinity of the work. Fire hydrants on or adjacent to the work shall be kept accessible to firefighting equipment at all times. Temporary provisions shall be made by Contractor to ensure the proper functioning of all gutters, sewer inlets, drainage ditches, and irrigation ditches, which shall not be obstructed except as approved by Engineer.
- B. Benchmark/Monument Protection: Protect and maintain benchmarks, monuments or other established reference points and property corners. If disturbed or destroyed, replace at no cost to Owner.
- C. Provide five (5) days advance notice to Engineer and testing entity for any proposed earthwork operation requiring observation and/or testing.

PART 2 PRODUCTS

2.1 SOIL MATERIALS

- A. All materials used in the work of this Section shall be Satisfactory Material, and any material that does not meet this classification shall be considered an Unsatisfactory Material and shall not be used.
- B. Unsatisfactory Soils: Soil materials not meeting the requirements for Satisfactory Soils.
1. Unsatisfactory soils also include satisfactory soils not maintained within two (2) percent of optimum moisture content at time of compaction.

2.2 COMMON FILL/ORDINARY BORROW

- A. Earth materials classified by ASTM D 2487 as GW, GP, GM, GP-GM, GW-GM, GP-GC, SW, SP, and SM that are free of clay.
- B. Common Fill material is subject to the approval of Engineer and may be either material removed from excavations or borrow from off site. It shall have physical properties such that it can be readily spread and after it has been placed and properly compacted, it will form a dense, stable fill.
- C. Common Fill shall be graded as follows:

Gradation of Common Fill

Sieve	Percent Passing by Weight
6"	100
3.5 "	50-100

3/4"	50-90
No. 4	25-55
No. 200	0-20

1. Less than twenty (20) percent of material by weight passing the No. 4 sieve shall pass the No. 200 sieve.
2. Common Fill shall not be used at locations where use of select fill is indicated.

2.3 COMMON FILL/ORDINARY BORROW

- A. Satisfactory Material that is well-graded meeting ASTM D 2487 classification group GW, GP, GM, SW, SP, and SM. No particle shall exceed 6-inches in size and no greater than 10% by weight of the material shall pass the No. 100 sieve and no greater than 5% by weight of the material shall pass the No. 200 sieve.
- B. Common Fill is subject to the approval of Engineer and may be either material removed from on-site excavations or borrow pits or imported from off-site, approved sources. It shall have physical properties such that it can be readily spread and after it has been placed and properly compacted, it will form a dense, stable fill.

2.4 GRANULAR FILL

- A. Broken or crushed stone, gravel, or a mixture thereof.
- B. Broken or crushed stone
 1. The product resulting from the artificial crushing of rocks, boulders or large cobblestones, substantially all faces of which have resulted from the crushing operation. Broken or crushed stone shall consist of sound, tough, durable stone, reasonably free from soft, thin, elongated, laminated, friable, micaceous or disintegrated pieces.
- C. Bank or crushed gravel
 1. Sound, tough, durable particles of crushed or uncrushed gravel, free from soft, thin, elongated or laminated pieces and vegetable or other deleterious substances. Crushed gravel shall be the manufactured product resulting from the deliberate mechanical crushing of gravel with at least 50% of the gravel retained on the No. 4 sieve having at least one fractured face.
- D. Granular Fill shall be graded as follows:

Gradation of Granular Fill (ConnDOT Grading "A")

Sieve	Percent Passing by Weight
3 1/2"	100
1 1/2"	55-100
1/4"	25-60
No. 10	15-45
No. 40	5-25

No. 100	0-10
No. 200	0-5

- E. Reclaimed material shall not be considered acceptable for use as granular fill.

2.5 SCREENED GRAVEL AND CRUSHED STONE

- A. Screened gravel, well graded in size from 3/8 inch to 3/4 inch. The gravel shall consist of clean, hard, and durable particles or fragments. Crushed rock of suitable size and grading may be used instead of screened gravel.
- B. Screened Gravel shall be graded as follows:

Gradation of Screened Gravel (ConnDOT Gradation No. 6)

Sieve	Percent Passing by Weight
1"	100
3/4"	90-100
1/2"	20-55
3/8"	0-15
No. 4	0-5

2.6 PROCESSED AGGREGATE BASE

- A. Coarse aggregates and fine aggregates shall be combined and mixed by approved methods so that the resulting material shall conform to the following gradation:

Gradation of Processed Aggregate Base

Sieve	Percent Passing by Weight
2 1/2"	100
2"	95-100
3/4"	50-75
1/4"	25-45
No. 40	5-20
No. 100	2-12

- B. Coarse Aggregate: Either gravel, broken stone or a combination thereof. When tested by means of the Los Angeles Machine, using AASHTO Method T 96, the coarse aggregate shall not have a loss of more than 50%.
- If gravel is used for the coarse aggregate, it shall consist of sound, tough, durable particles of crushed or uncrushed gravel or a mixture thereof, free from soft, thin, elongated or laminated pieces, lumps of clay, loam and vegetable or other deleterious substances.

2. If broken stone is used for the coarse aggregate, it shall consist of sound, tough, durable fragments of rock of uniform quality throughout. It shall be free from soft disintegrated pieces, mud, dirt, organic or other injurious material.
 3. Soundness for Gravel and Broken Stone: When tested by magnesium sulfate solution for soundness using AASHTO Method T 104, the coarse aggregate shall show a loss of not more than 15% at the end of 5 cycles.
- C. Fine Aggregate: Natural sand, stone sand, screenings or any combination thereof. The fine aggregate shall be limited to material 95% of which passes a No. 4 (4.75-mm) sieve having square openings and not more than 8% of which passes a No. 200 (75- μ m) sieve. The material shall be free from clay, loam and deleterious materials.
1. Plasticity: When natural sand is used, the fine aggregate shall conform to the following:
 - a. When the fraction of the dry sample passing the No. 100 mesh sieve is 4% or less by weight (mass), no plastic limit test will be made.
 - b. When the fraction of the dry sample passing the No. 100 mesh sieve is greater than 4% and not greater than 8% by weight (mass), that fraction shall not have sufficient plasticity to permit the performing of the plastic limit test using AASHTO Method T 90.
 - c. When the fraction of the dry sample passing the No. 100 mesh sieve is greater than 8% by weight (mass), the sample will be washed; and the additional material passing the No. 100 mesh sieve shall be determined by AASHTO Method T 146, except that the No. 100 mesh sieve will be substituted for the No. 40 mesh sieve where the latter is specified in AASHTO Method T 146. The combined materials that passed the No. 100 mesh sieve shall not have sufficient plasticity to permit the performing of the plastic limit test using AASHTO Method T 90.
 2. Plasticity: When screenings or any combination of screenings and natural sand or any combination of stone sand and natural sand are used, the following requirements shall apply:
 - a. When the fraction of the dry sample passing the No. 100 mesh sieve is 6% or less by weight (mass), no plastic limit test will be made.
 - b. When the fraction of the dry sample passing the No. 100 mesh sieve is greater than 6% and not greater than 10% by mass, that fraction shall not have sufficient plasticity to permit the performing of the plastic limit test, using AASHTO Method T 90.
 - c. When the fraction of the dry sample passing the No. 100 mesh sieve is greater than 10% by weight (mass), the sample shall be washed; and additional material passing the No. 100 mesh sieve shall be determined by AASHTO Method T 146, except that the No. 100 mesh sieve shall be substituted for the No. 40 mesh sieve where the latter is specified in AASHTO Method T 146. The combined materials that have passed the No. 100 mesh sieve shall not have sufficient

plasticity to permit the performing of the plastic limit test using AASHTO Method T 90.

PART 3 EXECUTION

3.1 PREPARATION

- A. Notify "Call-Before-You-Dig" to request a utility mark-out for the Project Site prior to any earth disturbance. Provide written confirmation to Engineer that such mark-out has been completed.
- B. Verify site conditions before proceeding with demolition work. Field check the accuracy of the Drawings and inspect structures, utilities, and other site features prior to start of work and notify Engineer in writing, of any discrepancies or hazardous conditions.
- C. Take precautions for preventing injuries to persons or damage to property in or about the work. Protect structures, utilities, sidewalks, pavements and other improvements from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.
- D. Protect sub-grades and foundation soils against freezing temperatures or frost. Provide protective insulating materials as necessary.
- E. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- F. When excavations are to be made in paved surfaces, the pavement shall be removed so as to provide a clean uniform edge with a minimum disturbance of remaining pavement. Saw cutting the pavement to provide a clean, uniform edge shall unless otherwise indicated.
- G. If pavement is removed in large pieces, it shall not be mixed with other excavated material, but shall be disposed of away from the site of the Work before the remainder of the excavation is made.

3.2 PROTECTION OF EXISTING FEATURES

A. General

- 1. Protect all existing improvements from damage unless those improvements are specifically designated for permanent removal, relocation, or temporary removal and replacement.
- 2. As excavation approaches underground structures, digging by machinery shall be discontinued and the excavation shall be done by means of hand tools.
- 3. Pavements: On paved surfaces to remain, do not use or operate tractors, bulldozers, or other power operated equipment, the treads or wheels of which are so shaped as to cut or otherwise damage such surfaces. All surfaces, which have been damaged by Contractor's operations, shall be restored to a condition at least equal to that in which they were found immediately prior to the beginning of operations. Suitable materials and methods shall be used for such restoration.

B. Utilities

1. Existing utilities remaining in service, including those remaining in service until after relocation, and relocated utilities shall be protected from damage. Before excavating near any existing utilities, notify the utility owner, coordinate protective work and comply with the utility owners' requirements. Coordinate with respective utility owners/operators as required.
2. Safeguard and protect from damage or movement any existing services, utilities, and utility structures uncovered or encountered which are to remain in service.
3. All utility services shall be supported by suitable means so that the services shall not fail when tamping and settling occurs.
4. Where known utilities are encountered, notify Engineer and document location and type of utility before proceeding with work in such area.
5. When uncharted or incorrectly charted piping or utilities are encountered during excavation, stop work and notify Engineer immediately. Cooperate with the utility owners in maintaining their utilities in operation prior to resuming work.

C. Retaining Structures: Provide bracing, shoring, sheeting, sheet piling, underpinning or other retaining structures necessary to guard against any movement or settlement of existing or new construction, utility systems, paving, or other improvements. Assume responsibility for the strength and adequacy of retaining structures, and for the safety and support of construction, utilities or paving, and for any movement, settlement or damage thereto. Retain the services of a licensed engineer as required to design bracing, shoring, sheeting, sheet piling, underpinning or other retaining structures.

D. Replacement and Relocation

1. In case of damage, Contractor shall notify the appropriate party so that proper steps may be taken to repair any and all damage done. When the Owner does not wish to make the repairs themselves, all damage shall be repaired by Contractor, or, if not promptly done by him, Engineer may have the repairs made at the expense of Contractor.
2. If certain existing structures are encountered that in the opinion of Engineer require temporary or permanent relocation or removal, Engineer may order in writing that Contractor undertake all or part of such work or to assist the Owner in performing such work. For such occurrences, Contractor shall be compensated as applicable, as extra work.
3. In removing existing structures, Contractor shall use care to avoid damage to the material, and Engineer shall include for payment only those new materials, which, in his judgment, are necessary to replace those unavoidably damaged.
4. The structures to which the provisions of the preceding two paragraphs shall apply include structures which (1) are not indicated on the Drawings or otherwise provided for, (2) encroach upon or are encountered near and substantially parallel to the edge of the excavation, and (3) in the opinion of Engineer will impede progress to such an extent that satisfactory construction cannot proceed until they have been changed in location,

removed (to be later restored), or replaced. (See Item 3.19, "Sub Surface Obstructions" also).

3.3 DEWATERING

- A. Comply with all applicable permit requirements.
- B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrade and from flooding Project site and surrounding area.
- C. Protect sub-grades from softening, undermining, washout and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
 - 2. Install de-watering system to keep subgrades dry and convey ground water away from excavations.

3.4 EXCAVATION

- A. Dust Control: During the progress of the Work, Contractor shall conduct his operations and maintain the area of his activities in order to minimize the creation and dispersion of dust. Refer to Section 01 5714- Temporary Dust Control.
- B. Excavate to the exact elevations shown on the plans, or as directed by Engineer. Where no dimensions are indicated, make excavations in such manner, and to such depths, elevations, and dimensions, that will give suitable room for construction of the work indicated on the Drawings. As applicable for utility installations, comply with trench limits shown on the Drawings.
- C. Furnish and place all sheeting, bracing, and supports, and render the bottom of the excavation firm and dry, and in all respects, acceptable for construction of the work.
- D. If Contractor excavates below the elevations specified on the plans, beyond the limits indicated on the plans, or where no dimensions are indicated, beyond depths, elevations, and dimensions reasonably necessary for construction of the work, Contractor shall bring the excavation back to the proper elevation and/or dimension by backfilling with Suitable Material that is approved by Engineer in accordance with the backfilling provisions specified herein. Engineer, or if applicable Geotechnical Engineer, shall have sole authority in determining the specific composition of such Suitable Material.
 - 1. Any increase in cost resulting from Unauthorized Excavation, including but not necessarily limited to backfilling, haul-off, increasing the size of footings or foundations, testing, schedule impact, or administrative impact shall be at Contractor's sole expense.
- E. If utilities are to be laid in new embankments, or other new fill areas which are more than 12 inches deep below the invert of the pipe, the fill material shall be placed and properly compacted to final grade or to a height of at least 3 feet above the top elevation of the pipe, whichever is the lesser, before laying pipe. Particular care shall be taken to ensure maximum

consolidation of material under the pipe location. The pipe trench shall then be excavated as though in undisturbed material.

3.5 APPROVAL OF SUBGRADE

- A. Protect subgrade from disturbance at all times. Reconstruct sub-grades damaged by freezing temperatures, frost, rain, accumulated water or construction activities, as directed by Engineer. Excavation and replacement with structural fill of any disturbed or softened materials resulting from inadequate preparation, inadequate dewatering, or inadequate protection, shall be at Contractor's sole expense.

3.6 FILL AND BACKFILL

- A. Fill: Contractor shall remove loam and topsoil, loose vegetable matter, stumps, large roots, etc., from areas upon which embankments will be built or material will be placed as fill to adjust subgrade prior to final grading. The subgrade shall be prepared by forking, furrowing, or plowing such that the first layer of the new material placed thereon, will be well bonded to it.
- B. Backfill: Common Fill material may be used as backfill when indicated on the Drawings or when authorized by Engineer (or as applicable Geotechnical Engineer) if Contractor can achieve required minimum dry density after compaction. Backfilling shall be done as promptly as is consistent with non-injury to pipe or structures, but no backfilling shall be done before Engineer (or as applicable Geotechnical Engineer) gives permission.
- C. Frozen material shall not be placed in any fill or backfill, nor shall any fill or backfill be placed upon frozen material. Previously frozen material shall be removed, or shall be otherwise treated as required, before new fill or backfill is placed.
- D. After the subgrade has been prepared, fill material shall be placed thereon and built up in successive layers not exceeding twelve (12) inches before compaction until it has reached the required elevation.
 - 1. When gravel fill or other material is used for foundation of structures, it shall be spread in layers of uniform thickness not exceeding six (6) inches before compaction.
- E. Upon completion of filling and backfilling, all surplus material shall be removed and surfaces to remain which are affected in any way by the work restored to the condition in which they were before ground was broken. All surplus materials shall become the property of Contractor. If Contractor fails to promptly remove such surplus materials, Engineer may have the same done and charge all associated costs to Contractor, including deduction from payments due.

3.7 BACKFILLING AT STRUCTURES

- A. No backfill shall be deposited against concrete until the concrete has obtained sufficient strength to withstand the earth pressure placed upon it and in no case less than seven days, nor before carrying out and satisfactorily completing the tests for watertight structures specified elsewhere.
- B. Prior to placing backfill, subgrade shall be thoroughly compacted. Soft or loose material evident during compaction shall be removed and replaced with Granular Fill.

- C. Fill placed around arches, rigid frames, box culverts and piers shall be deposited on both sides of the structure to approximately the same elevation at the same time. Each layer of backfill shall be spread to a thickness not exceeding 6 inches deep after compaction and shall be thoroughly compacted by the use of power rollers or other motorized vehicular equipment, by tamping with mechanical rammers or vibrators, or by pneumatic tampers. Any equipment not principally manufactured for compaction purposes or which is not in proper working order in all respects shall not be used within the area described above.
- D. Bring backfill to sub-grade elevations. Slope backfill at exterior of building to drain water away from building.

3.8 COMPACTION

- A. Each layer of fill or backfill material shall be compacted by the use of compaction equipment consisting of rollers, compactors or a combination thereof. Earth-moving and other equipment not specifically manufactured for compaction purposes will not be considered as compaction equipment. At such points as cannot be reached by mobile mechanical equipment, or where such equipment is not permitted, the materials shall be thoroughly compacted by the use of suitable power- driven tampers.
- B. Previously placed or new materials shall be moistened by sprinkling, if required, to ensure proper bond and compaction. No compacting shall be done when the material is too wet, from either rain or application of water, to compact it properly. At such times the work shall be suspended until the previously placed and new materials have dried out sufficiently to permit proper compaction, or such other precautions shall be taken as may be necessary to obtain proper compaction.
- C. Special attention shall be given to compaction in places close to walls where motorized vehicular compaction equipment cannot reach. Within 3 feet of the back face of walls and within a greater distance at angle points of walls, each layer of backfill shall be compacted by mechanical rammers, vibrators or pneumatic tampers.
- D. Each layer of fill or backfill shall be compacted at optimum moisture content. No subsequent layer shall be placed until the specified compaction is obtained for the previous layer.
- E. Compaction Density: Compaction density shall be expressed as a percentage of maximum dry density at optimum moisture content according to ASTM D 1557 Method C. Density indicated is minimum required.
 - 1. Under structures, building slabs, and steps: 95 %
 - 2. At building foundations: 95 %

END OF SECTION

SECTION 312319 - DEWATERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes construction dewatering.
- B. Related Requirements:
 - 1. Section 312000 "Earth Moving" for excavating, backfilling, site grading, and controlling surface-water runoff and ponding.

1.3 FIELD CONDITIONS

- A. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from this data.
 - 1. The geotechnical report is included elsewhere in Project Manual.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.
 - 1. Continuously monitor and maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, prevention of flooding in excavation, and prevention of damage to subgrades and permanent structures.
 - 2. Prevent surface water from entering excavations by grading, dikes, or other means.
 - 3. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation.
 - 4. Remove dewatering system when no longer required for construction.

- B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning dewatering. Comply with water- and debris-disposal regulations of authorities having jurisdiction.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.
 - 1. Prevent surface water and subsurface or ground water from entering excavations, from ponding on prepared subgrades, and from flooding site or surrounding area.
 - 2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.
- B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- C. Protect and maintain temporary erosion and sedimentation controls, which are specified in Section 015000 "Temporary Facilities and Controls," during dewatering operations.

3.2 OPERATION

- A. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.
- B. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.
- C. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches below overlying construction.

3.3 PROTECTION

- A. Protect and maintain dewatering system during dewatering operations.
- B. Promptly repair damages to adjacent facilities caused by dewatering.

END OF SECTION 312319

SECTION 31 4143 - SHEETING AND STAYBRACING

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Shoring and bracing necessary to protect existing buildings, existing culvert, streets, walkways, utilities, and other improvements and excavation against loss or ground caving embankments.
2. Maintenance of shoring and bracing.
3. Removal of shoring and bracing, as required.

1.2 REFERENCES

- A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- B. State of Connecticut Department of Transportation (ConnDOT)
 1. Standard Specifications for Roads, Bridges and Incidental Construction, Form 817, 2016 and any supplements.
- C. Code of Federal Regulations (CFR)
 1. 29 CFR 1926, Safety and Health Regulations for Construction.

1.3 DESCRIPTION OF THE WORK

- A. Contractor shall install sheeting or staybracing as necessary in order to comply with the Applicable Safety Code; to accommodate traffic; to permit access to existing utilities; to provide an opening of proper depth and width in which to install the proposed pipes and other underground structures; and to protect his workmen, employees of the Owner and (Insert Name), State and the public, from death or injury from bank failure, earth collapse or earth movement of any nature whatsoever. In general, all trenches and excavations over 5 feet in depth, any other unstable excavations or excavations in unstable material, shall be protected against the hazard of collapse.

1.4 SHEETING/STAYBRACING DESIGN

- A. Contractor shall be entirely and solely responsible for the adequacy and sufficiency of all supports and for all sheeting, bracing, shoring, underpinning, cofferdamming, etc. The Contractor shall assume the entire and sole responsibility for damages on account of injury to persons or damage to adjacent pavements and public and private property (including but not limited to, the Work under construction, existing buildings, facilities, etc.) which injury or damage results directly from said Contractor's failure to install, or to leave in place, adequate and sufficient supports, sheeting, bracing, underpinning, cofferdamming, etc.

- B. Contractor shall submit, in triplicate, a detailed written description of the equipment and sheeting methods he proposes to use to Engineer prior to the installation of any sheeting and/or shoring. These plans should include, but not be limited to, the type of sheeting or shoring, sizes and dimensions, bracing, spacing, methods of installation and removal, etc.
- C. All sheeting shall be designed and sealed by a Professional Engineer licensed to practice in the State where the Work is being performed. He shall be known as the Contractor's Engineer. Sheeting computations and sketches shall be submitted for Engineer's review.

1.5 SHEETING LEFT-IN-PLACE

- A. Sheeting, shoring or other timbering may be left-in-place at the option of the Contractor when needed to protect other existing facilities or the Work built or to be built under this Contract. However, steel sheeting left-in-place will be paid for only where specifically shown as "Steel Sheeting Left-in-Place" on the Contract Drawings or where ordered by Engineer.
- B. It is expressly understood and agreed that removing or leaving-in-place any sheeting or shoring, etc., as noted above, shall not relieve the Contractor from any responsibility for any loss damage whatever due to omission of, or failure of, the sheeting, etc., failure to leave it in place, or the settling of the backfill, or any movement of the ground or any structure or object adjacent to any trench or excavation made by Contractor. Engineer will not order sheeting left-in-place at the expense of the Owner in order to accommodate the convenience of the Contractor or to save him the cost of its removal.

1.6 RESPONSIBILITY OF ENGINEER

- A. There shall be no obligation on the part of Engineer to issue orders for sheeting, staybracing or sheeting left-in-place and/or to pass upon sufficiency and adequacy of sheeting; nor shall the failure on the part of Engineer to give such orders relieve the Contractor from liability for damages occasioned by negligence, or otherwise growing out of the Contractor's failure to either install sufficient and adequate sheeting and/or staybracing or to leave in place in the excavation sufficient and adequate support to prevent the caving in or moving of the ground adjacent to the sides of the excavation during and after the backfilling operation.

PART 2 PRODUCTS

2.1 WOOD STAYBRACING

- A. Wood Staybracing

2.2 STEEL SHEETING

- A. Steel sheeting: continuous and interlocking sheets, ASTM A-328.

2.3 TRENCH BOXES

- A. Trench boxes shall not be used unless requested by the Contractor and authorized by Engineer. If authorized, they shall be used only when the protection of workmen is involved, not for support of existing adjacent utilities, structures, embankments, etc. A trench protected by the use of a trench box shall not be considered a sheeted trench.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Unless expressly authorized by Engineer, sheeting shall be driven ahead of the excavation to avoid loss of material from behind the sheeting. If it is necessary to excavate below the sheeting to facilitate driving, care shall be taken to avoid trimming behind the face along which the sheeting will be driven. Care shall be taken to prevent voids outside of the sheeting.
- B. All sheeting and staybracing shall be securely installed and properly braced in accordance with the Applicable Safety Code. Engineer may direct the Contractor at any time in writing to have sheeting, bracing, etc. in place to be embedded in backfill or concrete for the purpose of preventing subsequent injury to structures and property.
- C. The depth of pilot cuts for trenches/structures shall not exceed five (5) feet in depth at any time. Engineer may reduce the depth of the pilot cut should the soil and subsurface conditions warrant such action. Sheeting must be driven by drop hammer or other methods approved in writing by Engineer below the area of the pilot cut. Driving of sheeting above the pilot cut is subject to the directions of Engineer. Engineer may direct the Contractor to use other types of equipment, and to revise the procedure during the excavation of the pilot cut and the driving of the sheeting should it be found necessary to do so.
- D. Vibratory driving hammers shall not be used unless specifically authorized by Engineer.
- E. Where sheeting is specified to be left-in-place, it shall be wood sheeting unless otherwise specifically noted on the Contract Drawings. Where wooden sheeting cannot be driven due to the nature of the material, then steel sheeting may be driven and removed in lieu of the wooden sheeting providing the following procedures are followed:
 - 1. Simultaneously with the withdrawal of sheeting and as each layer is compacted in accordance with Section 312310 - Earthwork; or
 - 2. The trench/area will be backfilled to the surface. If the sheeting is to be withdrawn, backfilling will proceed up to each set of rangers and braces; the rangers and braces will be removed; the backfilling will proceed up to the next set of rangers and braces, etc. up to the top of the excavation. The backfill material shall be compacted to 98% of the maximum dry density as determined by AASHTO T 99, Method C. Alternate sections of sheeting from the left side and right side of the trench/area shall be removed and the cavity remaining there from shall be jetted thoroughly by high-pressure water, starting at the toe of the sheeting and being drawn to the surface. Sand shall be inserted with the jetting process.
 - 3. Where the bottom of the excavation is not free draining material (some areas of organic material or miscellaneous fill) or where granular backfill is not available or ordered by Engineer, the jetting shall be very carefully done with a minimum amount of water being expended. In such locations, the Contractor may request the approval of Engineer for other compaction methods in the sheeting cavity.
 - 4. Contractor shall remove the sheeting and/or staybracing from the excavation, except where it is specifically indicated on the Contract Drawings "To be Left- in-Place", or

the Contractor may elect to leave in place the sheeting and/or staybracing for his own convenience, or to serve his own interest to protect existing facilities, the Work built or to be built under this Contract, or for the safety of the public, etc., at no cost to the Owner. No sheeting or bracing which is within three feet of the existing or proposed finished grade may be left-in-place without the prior permission of Engineer. This may require the Contractor cut off sheeting at this elevation and at no additional cost to the Owner.

5. Where sheeting, regardless of the type of sheeting used, is left in place, as specified or ordered or at the Contractor's convenience/option, unless otherwise specifically permitted in writing by Engineer, all elements such as rangers, braces, wales, etc. shall be left in place except as specified hereinbefore; and, except such temporary braces required to be removed to make way for the structure/utility. Where it is necessary to remove such temporary braces, the sheeting shall be rebraced, but in no case shall the sheeting be braced against the sides of the structure/utility to be constructed unless approved in writing by the owner of the structure/utility. Where lagging and "soldier" beams are used, the "soldier" beams and all the braces shall also be left in place.
6. Where wood sheeting has been driven below the excavation bottom to provide for a "toe-in", no wood sheeting below the top of pipe or structure shall be removed, but it shall be cut off at this elevation and the remaining sheeting above this line removed as described herein. There will be no payment made for this work, nor for the wood sheeting left-in-place.
7. Sheeting shall be cut away and removed from in front of capped outlets or other braces or inlets set in the pipe for future connections.
8. All sheeting, shoring and bracing removed shall be carefully removed from the excavation in such a manner as not to endanger the completed work or any adjacent pavements, buildings, structures, utilities, property, etc. The sheeting shall be withdrawn to such an extent that it is just above the backfill material being compacted and all voids left or caused by the withdrawal of such sheeting, shall be immediately refilled with approved material and compacted at no additional cost to the Owner.
9. Where the excavation is to be left open during non-working hours, the sheeting shall extend 42 inches above existing grade to protect pedestrian and vehicular traffic from the open excavation.

END OF SECTION

SECTION 32 1216 - BITUMINOUS CONCRETE PAVEMENT

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Bituminous concrete paving for parking areas.
2. Installation of bituminous concrete overlays over existing pavement, including surface preparation, truing and leveling pavement, tack coating and all other associated items and operations necessary and required to complete the installation.

1.2 REFERENCES

- A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.
- B. Code of Federal Regulations (CFR).
 1. 29 CFR 1926, Safety and Health Regulations for Construction.
- C. State of Connecticut Department of Transportation (ConnDOT).
 1. Standard Specifications for Roads, Bridges and Incidental Construction, Form 817, 2016 and any supplements.
 2. Standard Specifications for Roads, Bridges and Incidental Construction, Form 817, 2016, Supplemental Section 4.06 – Bituminous Concrete (Revised 3/17/14).
 3. Standard Specifications for Roads, Bridges and Incidental Construction, Form 817, 2016, Supplemental Section M.04 – Bituminous Concrete (Revised 1/28/15).
- D. American Association of State Highway and Transportation Officials (AASHTO).
 1. AASHTO M-17 - Standard Specification for Mineral Filler for Bituminous Paving Mixtures.
 2. AASHTO M 82, Cutback Asphalt (Medium-Curing Type) .
 3. AASHTO M-208 - Standard Method of Test for Unconfined Compressive Strength of Cohesive Soil-ASTM Designation D 2166.
 4. AASHTO M-320 - Standard Specification for Performance-Graded Asphalt Binder.
 5. AASHTO R-26 - Standard Recommended Practice for Certifying Suppliers of Performance-Graded Asphalt Binders.

6. AASHTO R-29 - Standard Practice for Grading or Verifying the Performance Grade of an Asphalt Binder.
7. AASHTO T-27 - Sieve Analysis of Fine and Course Aggregates.
8. AASHTO T-84 - Specific Gravity and Absorption of Fine Aggregates.
9. AASHTO T-85 - Specific Gravity and Absorption of Coarse Aggregates.
10. AASHTO T-96 - Standard Method of Test for Resistance to Degradation of small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
11. AASHTO T 104 Standard Method of Test for Soundness of Aggregate by Use of Sodium Sulfate or Magnesium Sulfate.
12. AASHTO T-209 - Maximum Specific Gravity and Density of Bituminous Paving Mixtures.
13. AASHTO T-245 - Standard Method of Test for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus.

E. American Society for Testing and Materials (ASTM)

1. ASTM D1188 - Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Coated Samples.
2. ASTM D2726 - Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures.

1.3 SPECIFICATIONS

- A. All work performed under this Section shall conform to the Standard Specifications for Roads, Bridges and Incidental Construction, Form 817, 2016, Supplemental Section 4.06 – Bituminous Concrete (Revised 3/17/14). This Specification is hereby incorporated into this Section by reference.

1.4 TESTING

- A. Owner will retain a testing entity to perform observation and testing of the work under this Section. The testing entity's presence does not constitute supervision or direction of Contractor's work. Neither the presence of the testing entity nor any observations and testing performed by him, nor any notice or failure to give notice shall excuse Contractor from conformance with these Specifications or from defects discovered in his work.
- B. Each week, Contractor shall advise the University Representative of anticipated testing requirements during the following week, based on anticipated construction activities. The Contractor shall also notify the University Representative and testing laboratory 24 hours before the expected time of testing.

PART 2 PRODUCTS

2.1 GENERAL

- A. All work performed under this Section shall conform to the Standard Specifications for Roads, Bridges and Incidental Construction, Form 817, 2016, Supplemental Section M.04 – Bituminous Concrete (Revised 1/28/15). This Specification is attached hereto and is hereby incorporated into this Section.

PART 3 EXECUTION

3.1 GENERAL

- A. Contractor shall install all pavements as specified in the location and to the grades as shown on the Drawings and/or approved by Engineer. Materials, methods of construction, and type and thickness of pavement courses shall be as shown on the Details of the Drawings and as specified herein.
- B. Owner and its representatives shall have access to all parts of the Work under construction at all times.

3.2 SPECIFICATIONS

- A. Execute the work of this Section in accordance with the Standard Specifications for Roads, Bridges and Incidental Construction, Form 817, 2016, Supplemental Section 4.06 – Bituminous Concrete (Revised 3/17/14). This Specification is attached hereto and is hereby incorporated into this Section.

END OF SECTION

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes Concrete Paving.
 - 1. Walks.
- B. Related Requirements:
 - 1. Section 321373 "Concrete Paving Joint Sealants" for joint sealants in expansion and contraction joints within concrete paving and in joints between concrete paving and asphalt paving or adjacent construction.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.
- B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified ready-mix concrete manufacturer.
- B. Material Certificates: For the following, from manufacturer:
 - 1. Cementitious materials.
 - 2. Steel reinforcement and reinforcement accessories.
 - 3. Admixtures.

C. Material Test Reports: For each of the following:

1. Aggregates

1.6 QUALITY ASSURANCE

A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").

1.7 FIELD CONDITIONS

A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

B. Cold-Weather Concrete Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:

1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
2. Do not use frozen materials or materials containing ice or snow.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.

C. Hot-Weather Concrete Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:

1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Comply with ACI 301 unless otherwise indicated.

2.2 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
 - 1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. Do not use notched and bent forms.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

- A. Plain-Steel Welded-Wire Reinforcement: ASTM A 1064/A 1064M, fabricated from galvanized-steel wire into flat sheets.
- B. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 plain-steel bars; zinc coated (galvanized) after fabrication according to ASTM A 767/A 767M, Class I coating. Cut bars true to length with ends square and free of burrs.
- C. Tie Bars: ASTM A 615/A 615M, Grade 60; deformed.
- D. Zinc Repair Material: ASTM A 780/A 780M.

2.4 CONCRETE MATERIALS

- A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:
 - 1. Portland Cement: ASTM C 150/C 150M, portland cement Type II.
- B. Normal-Weight Aggregates: ASTM C 33/C 33M, Class 4S, uniformly graded. Provide aggregates from a single source with documented service-record data of at least 10 years' satisfactory service in similar paving applications and service conditions using similar aggregates and cementitious materials.
 - 1. Maximum Coarse-Aggregate Size: 3/4 inch nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Air-Entraining Admixture: ASTM C 260/C 260M.
- D. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
- E. Water: Potable and complying with ASTM C 94/C 94M.

2.5 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- B. Water: Potable.
- C. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.

2.6 RELATED MATERIALS

- A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork in preformed strips.

2.7 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301, for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
 - 2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.
- B. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- C. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.

2.8 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

- B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.
 - 1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph.
 - 2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
 - 3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Section 312000 "Earth Moving."
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded-wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.
- E. Zinc-Coated Reinforcement: Use galvanized-steel wire ties to fasten zinc-coated reinforcement. Repair cut and damaged zinc coatings with zinc repair material.

3.5 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.
 - 1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.
 - 1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.
 - 2. Provide tie bars at sides of paving strips where indicated.
 - 3. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.
- C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
 - 1. Locate expansion joints at intervals of 50 feet unless otherwise indicated.
 - 2. Extend joint fillers full width and depth of joint.
 - 3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 - 4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
 - 5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 - 6. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows, to match jointing of existing adjacent concrete paving:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 3/8-inch radius. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving-tool marks on concrete surfaces.
 - a. Tolerance: Ensure that grooved joints are within 3 inches either way from centers of dowels.
- E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 3/8-inch radius. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.
- B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.
- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating joint devices.
- H. Screed paving surface with a straightedge and strike off.
- I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
- J. Slip-Form Paving: Use design mixture for automatic machine placement. Produce paving to required thickness, lines, grades, finish, and jointing.
 - 1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of slip-form paving machine during operations.

3.7 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true

planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.

1. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.

3.8 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture curing moisture-retaining-cover curing or a combination of these as follows:
 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period, using cover material and waterproof tape.

3.9 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 and as follows:
 1. Elevation: 3/4 inch.
 2. Thickness: Plus 3/8 inch, minus 1/4 inch.
 3. Surface: Gap below 10-feet- long; unleveled straightedge not to exceed 1/2 inch.
 4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.
 5. Lateral Alignment and Spacing of Dowels: 1 inch.

6. Vertical Alignment of Dowels: 1/4 inch.
7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.
8. Joint Spacing: 3 inches.
9. Contraction Joint Depth: Plus 1/4 inch, no minus.
10. Joint Width: Plus 1/8 inch, no minus.

3.10 REPAIR AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.
- B. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.
- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Cold-applied joint sealants.
 - 2. Joint-sealant backer materials.
- B. Related Requirements:
 - 1. Section 079200 "Joint Sealants" for sealing nontraffic and traffic joints in locations not specified in this Section.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates: For each type of joint sealant and accessory.

1.5 QUALITY ASSURANCE

- A. Product Testing: Test joint sealants using a qualified testing agency.

1.6 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.2 COLD-APPLIED JOINT SEALANTS

- A. Single-Component, Nonsag, Silicone Joint Sealant: ASTM D 5893/D 5893M, Type NS.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Dow Corning Corporation; Dow Corning® 888 Silicone Joint Sealant. or comparable product by one of the following:
 - a. Crafco Inc.
 - b. Pecora Corporation.

2.3 JOINT-SEALANT BACKER MATERIALS

- A. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.
- B. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D 5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions.
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
- B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

- A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
- B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions.
- C. Install joint-sealant backings to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of joint-sealant backings.
 - 2. Do not stretch, twist, puncture, or tear joint-sealant backings.
 - 3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install joint sealants immediately following backing installation, using proven techniques that comply with the following:
 - 1. Place joint sealants so they fully contact joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:

1. Remove excess joint sealant from surfaces adjacent to joints.
 2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING AND PROTECTION

- A. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.
- B. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

3.5 PAVING-JOINT-SEALANT SCHEDULE

- A. Joint-Sealant Application: Joints within concrete paving[<PJS-#>].
1. Joint Location:
 - a. Expansion and isolation joints in concrete paving.
 - b. Contraction joints in concrete paving.
 - c. Other joints as indicated.
 2. Joint Sealant: Single-component, nonsag, silicone joint sealant.
 3. Joint-Sealant Color: Manufacturer's standard.

END OF SECTION 321373

SECTION 32 1723 - PAVEMENT MARKINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Temporary or permanent painted pavement markings, including but not limited to parking stalls.
2. Maintaining access for vehicular and pedestrian traffic as required for other construction activities. Utilize flagmen, barricades, warning signs, and warning lights as required.

B. Contractor shall coordinate work between all Subcontractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 SUBMITTALS

A. Submit material specifications and shop drawings for all materials furnished under this Section.

B. Submit material certificates signed by the material producer and Contractor, certifying that materials comply with these Specifications.

1.3 REFERENCES

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. State of Connecticut Department of Transportation (ConnDOT)

1. Standard Specifications for Roads, Bridges and Incidental Construction, Form 817, 2016 and any supplements.

C. Code of Federal Regulations (CFR)

1. 29 CFR 1926, Safety and Health Regulations for Construction

D. ASTM International (ASTM)

1. ASTM C501 - Standard Test Method for Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser.
2. ASTM D211 - Standard Specification for Chrome Yellow and Chrome Orange Pigments.
3. ASTM D476 - Standard Classification for Dry Pigmentary Titanium Dioxide Products.

4. ASTM D562 - Standard Test Method for Consistency of Paints Measuring Krebs Unit (KU) Viscosity Using a Stormer-Type Viscometer.
 5. ASTM D605 - Standard Specification for Magnesium Silicate Pigment (Talc).
 6. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
 7. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics.
 8. ASTM D711 - Standard Test Method for No-Pick-Up Time of Traffic Paint.
 9. ASTM D869 - Standard Test Method for Evaluating Degree of Settling of Paint.
 10. ASTM D1475 - Standard Test Method for Density of Liquid Coatings, Inks, and Related Products.
 11. ASTM D1763 - Standard Specification for Epoxy Resins.
 12. ASTM D2240 - Standard Test Method for Rubber Property- Durometer Hardness.
 13. ASTM D2486 - Standard Test Methods for Scrub Resistance of Wall Paints.
 14. ASTM D4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
 15. ASTM D4505 - Standard Specification for Preformed Retroreflective Pavement Marking Tape for Extended Service Life.
 16. ASTM E303 - Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester.
 17. ASTM G153 - Standard Practice for Operating Enclosed Carbon Arc Light Apparatus for Exposure of Nonmetallic Materials.
- E. American Association of State High and Transportation Officials (AASHTO)
1. AASHTO M 247 - Standard Specification for Glass Beads Used in Traffic Paints.
- F. American Concrete Institute
1. ACI 503R - Use of Epoxy Compounds with Concrete.
- G. United States General Services Administration, Federal Specifications.
1. Federal Specification TT-P-1952D - Paint, Traffic and Air Field Marking, Water Emulsion Base.
- H. United States General Services Administration, Federal Standards.
1. Federal Standard No. 595 - Colors Used in Government Procurement.

1.4 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods required for proper performance of the work in this Section. Use equipment of adequate size, capacity and quantity to accomplish the work of this Section in a timely manner.
- B. Contractor shall furnish one technical expert, who shall be fully knowledgeable about all equipment operations and application techniques, to oversee the work of this Section.

PART 2 PRODUCTS

2.1 WATERBORNE PAVEMENT MARKING PAINT

A. General

- 1. White and yellow fast-drying waterborne pavement marking paint, low VOC, ready-mixed, one component, 100 percent acrylic, Federal Specification TT-P-1952D.
- 2. Paint shall be capable of being applied with paint striping equipment at ambient temperatures.
- 3. Weight per gallon shall not be less than 12.5 pounds/gallon when tested in accordance with ASTM D 1475.
- 4. Colors: ASTM D211 and per Federal Standard No. 595.

B. Manufacture

- 1. Paint shall be formulated and manufactured from first-grade raw materials and shall be free from defects and imperfections that might adversely affect the serviceability of the finished product. The materials shall not exhibit settling or jellying after storage in the sealed containers as received that will affect the performance of the products. The paint shall provide the proper anchorage, refraction and reflection for the finished glass spheres when applied as specified.

C. Composition

- 1. Composition of the paint shall be at the discretion of the manufacturer, provided that the finished product meets the requirements of any applicable Federal, State or Local regulations for products of this type and the requirements as follows:
 - a. Paint shall not contain more than 0.06% lead.
 - b. Total nonvolatile shall not be less than 70% by weight (mass).
 - c. Pigment shall be 45-55% by weight (mass).
 - d. Resin solids shall be composed of 100% acrylic emulsion polymer.
 - e. Volatile organic compounds shall not exceed 150 grams/liter, excluding water.
 - f. Closed-cup flash point shall not be less than 100°F (38°C), and weight per gallon shall not be less than 12.5 pounds/gallon when tested in accordance with ASTM D 1475.

D. Viscosity

1. Consistency of the paint shall not be less than 80, nor more than 90 Kreb units when tested in accordance with ASTM D562. The paint shall have good spraying characteristics when the material is heated to application temperature of 130°F to 145°F.

E. Flexibility

1. Paint shall not show cracking or flaking when subjected to the TT-P-1952D flexibility test in which the panels used shall be tin plates that are 3 inches x 5 inches in area and 35 - 31 U.S. Gauge in thickness. The tin panels shall be lightly buffed with steel wool and thoroughly cleaned with solvent before being used for tests.

F. Dry Opacity

1. Both white and yellow paints shall have a minimum contrast ratio of 0.96. Contrast ratio shall be determined by applying a wet film thickness of 0.005 inches (127 microns) to a standard hiding power chart. After drying, the black and white reflectance values shall be determined using a suitable reflectometer and the contrast ratio determined.

G. Bleeding

1. Paints shall have a minimum bleeding ratio of 0.97 when tested in accordance with FS TT-P-1952D.

H. Abrasion Resistance

1. No less than 210 liters of sand shall be required to remove paint film when tested in accordance with TT-P-1952D.

I. Color

1. White: No darker or yellower than FS 595, No. 17778, latest issue, when the material is placed in a type EH weatherometer for a period of 500 hours and weathered according to ASTM G153.
2. Color determination shall be made without beads, after a minimum of 24 hours. If not a visual match, the diffuse day color of the paint shall conform to the CIE Chromaticity coordinate limits as follows:

Paint CIE Chromaticity Coordinate Limits

	x	Y	x	y	x	y	x	y	Brightness
White	0.305	0.295	0.360	0.360	0.388	0.377	0.280	0.310	84.0 Min
Yellow	0.485	0.455	0.506	0.452	0.484	0.428	0.477	0.438	50.0 Min

3. Paint shall not discolor in sunlight and shall maintain colorfastness throughout its life, approximately two years.

J. Glass Bead Adhesion

1. Paint with glass beads conforming to M.07.30, applied at the rate of 6.0 pounds/gallon of paint, shall require not less than 150 liters of sand to remove paint film and glass beads.

K. Scrub Resistance

1. Paint shall pass 300 cycles minimum when tested in accordance with ASTM D2486.

L. Drying time

1. Reflectorized line shall dry to no pick up in 15 minutes or less as tested by ASTM D711 when applied at the ratio provided for specified glass spheres to paint (the paint at 15+ 1 mil (381 millimeters + 25 millimeters) wet film thickness equivalent to 100-115 square foot/gallon and the glass spheres at the equivalent rate of 6.0 pounds/gallon.

2.2 HOT-APPLIED WATERBORNE PAVEMENT MARKING PAINT

A. General

1. White and yellow fast-drying waterborne pavement marking paint, low VOC, ready-mixed, one component, 100 percent acrylic, Federal Specification TT-P-1952D.
2. Paint shall be capable of being applied with paint striping equipment at an application temperature of 130°F to 145°F.
3. Color: ASTM D211 and per Federal Standard No. 595.
4. Glass Beads: AASHTO M 247, Type 1.

B. Manufacture

1. Paint shall be formulated and manufactured from first-grade raw materials and shall be free from defects and imperfections that might adversely affect the serviceability of the finished product. The materials shall not exhibit settling or jellying after storage in the sealed containers as received that will affect the performance of the products. The paint shall provide the proper anchorage, refraction and reflection for the finished glass spheres when applied as specified.

C. Composition

1. Composition of the paint shall be at the discretion of the manufacturer, provided that the finished product meets the requirements of any applicable Federal, State or Local regulations for products of this type and the requirements as follows:
 - a. Paint shall not contain more than 0.06% lead.
 - b. Total nonvolatile shall not be less than 76% by weight (mass).
 - c. Pigment shall be 58-63% by weight (mass).

- d. Resin solids shall be composed of 100% acrylic emulsion polymer.
- e. Volatile organic compounds shall not exceed 150 grams/liter, excluding water.
- f. Closed-cup flash point shall not be less than 100°F, and weight per gallon shall not be less than 12.5 pounds/gallon when tested in accordance with ASTM D 1475.

D. Viscosity

- 1. Consistency of the paint shall not be less than 80, nor more than 90 Kreb units when tested in accordance with ASTM D562. The paint shall have good spraying characteristics when the material is heated to application temperature of 130°F to 145°F.

E. Flexibility

- 1. Paint shall not show cracking or flaking when subjected to the TT-P-1952D flexibility test in which the panels used shall be tin plates that are 3 inches x 5 inches (76 millimeters x 127 millimeters) in area and 35 - 31 U.S. Gauge in thickness. The tin panels shall be lightly buffed with steel wool and thoroughly cleaned with solvent before being used for tests.

F. Dry Opacity

- 1. Both white and yellow paints shall have a minimum contrast ratio of 0.96. Contrast ratio shall be determined by applying a wet film thickness of 0.005 inches (127 microns) to a standard hiding power chart. After drying, the black and white reflectance values shall be determined using a suitable reflectometer and the contrast ratio determined.

G. Bleeding

- 1. Paints shall have a minimum bleeding ratio of 0.97 when tested in accordance with FS TT-P- 1952D.

H. Abrasion Resistance

- 1. No less than 210 liters of sand shall be required to remove paint film when tested in accordance with TT-P-1952D.

I. Color

- 1. White: No darker or yellower than FS 595, No. 17778, latest issue, when the material is placed in a type EH weatherometer for a period of 500 hours and weathered according to ASTM G153.
- 2. If not a visual match, the diffuse day color of the paint shall conform to the CIE Chromaticity coordinate limits as follows:

Paint CIE Chromaticity Coordinate Limits

	x	Y	x	y	x	y	x	y	Brightness
--	---	---	---	---	---	---	---	---	------------

White	0.305	0.295	0.360	0.360	0.388	0.377	0.280	0.310	84.0 Min
Yellow	0.485	0.455	0.506	0.452	0.484	0.428	0.477	0.438	50.0 Min

3. Paint shall not discolor in sunlight and shall maintain colorfastness throughout its life, approximately two years. Color determination shall be made without beads, after a minimum of 24 hours.

J. Glass Bead Adhesion

1. Paint with glass beads shall require not less than 150 liters of sand to remove paint film and glass beads.

K. Scrub Resistance

1. Paint shall pass 300 cycles minimum when tested in accordance with ASTM D2486.

L. Drying time

1. Reflectorized line shall dry to no pick up in 120 seconds or less when applied at the ratio provided for specified glass spheres to paint (the paint at 15+ 1 mil (381 millimeters + 25 millimeters) wet film thickness equivalent to 100-115 square foot/gallon (2.45-2.82 square meters/liter) and the glass spheres at the equivalent rate of 6.0 pounds/gallon (0.72 kilograms/liter). The paint shall be applied with equipment so as to have the paint at a temperature of 130°F to 145°F (54°C to 63°C) at the spray gun.

2.3 GLASS BEADS

- A. Beads shall be transparent, clean, colorless glass, smooth and spherically shaped, free of milkiness, pits, or excessive air bubbles.

B. Quality Assurance Control

1. Beads shall be segregated into maximum lots of 2,500 pounds (1125 kilograms) and lot numbers shall be stamped onto each lot. Each lot shall be tested for gradation, rounds and embedment coating.

- C. Gradation - The glass spheres shall meet the following gradation requirements:

Glass sphere gradation (ConnDOT Grading "A")

Sieve Size	% Passing
20 (850 um)	100

30 (600 um)	80-95
50 (300 um)	9-42
80 (180 um)	0-10

Glass sphere gradation (ConnDOT Grading "B")

Sieve Size	% Retained
10 (2.0 mm)	0
12 (1.7 mm)	0-5
14 (1.4 mm)	5-20
16 (1.18 mm)	40-80
18 (1.0 mm)	10-40
20 (850 um)	0-5
Pan	0-2

- D. Roundness: Glass beads shall have a minimum of 80% rounds per screen for two highest sieve quantities and no more than 3% angular particles per screen for Grading "B". The remaining sieve fractions shall typically be no less than 75% rounds.
- E. Refractive Index: Glass beads shall have a refractive index of 1.50 to 1.52.

PART 3 EXECUTION

3.1 GENERAL

- A. Pavement markings shall be applied in accordance with the details shown on the plans and the control points established by the Contractor and approved by the Engineer.
- B. No paint shall be applied to new bituminous pavement until the top course has cured at least one week minimum.

- C. Pavement areas to be painted shall be dry and sufficiently cleaned of sand and road debris so as to provide an acceptable bond between the paint and the pavement.
- D. All painting shall be performed in a neat and workmanlike manner. The lines shall be sharp and clear with no feathered edging or fogging and precautions shall be taken to prevent tracking by tires of the striping equipment. Paint shall be applied as shown on the Drawings with no unsightly deviations.
- E. Contractor shall protect the buildings, walks, pavement, curbing, trees, shrubs, mulch, etc. from over-spray of paint and damage by his operations.
- F. Operations shall be conducted only when the road surface temperature is at least 40°F or as allowed by Engineer. They shall be discontinued during periods of rain, and shall not continue until Engineer determines that the pavement surface is dry enough to achieve adhesion.
- G. After application, paint shall be protected from crossing vehicles using traffic cones or other acceptable method for a time at least equivalent to the drying or curing time of the paint.
- H. The material shall be applied to the pavement by equipment used specifically for the application of pavement markings and shall be of a standard commercial manufacturer.
- I. Contractor shall provide survey control for layout of pavement markings by utilizing his own surveyor or hiring a registered land surveyor. The cost of this survey control shall be included in other items of work.

3.2 WATERBORNE PAVEMENT MARKINGS

- A. Painted legend, arrows, and markings includes paint installed with a hand striping machine such as: stop bars, crosswalks, parking stalls, lane arrows, legends, markings within gore areas, and painting of paved islands or medians.
- B. Painted pavement markings and hot applied painted pavement markings include paint installed with a truck-mounted painting machine such as center lines, lane lines and shoulder lines.
- C. Waterborne Paint, Ambient Temperature
 - 1. Apply paint at a rate of 100 to 115 square feet per gallon, with glass beads applied at a rate of 6 pounds per gallon of paint for painted pavement markings and painted legend, arrows, and markings
- D. Waterborne Paint, Hot-Applied
 - 1. Hot-applied paint shall be applied at a temperature of 130°F to 145°F at the spray gun.
 - 2. Apply paint at a rate of 8 pounds per gallon of paint for hot-applied painted pavement markings.

END OF SECTION

SECTION 323113 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Chain-link fences.
 - 2. Swing gates.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for the following:
 - a. Fence and gate posts, rails, and fittings.
 - b. Chain-link fabric, reinforcements, and attachments.
 - c. Accessories:
 - d. Gates and hardware.
- B. Shop Drawings: For each type of fence and gate assembly.
 - 1. Include plans, elevations, sections, details, and attachments to other work.
 - 2. Include accessories, hardware, gate operation, and operational clearances.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For.
- B. Product Certificates: For each type of chain-link fence, and gate.
- C. Product Test Reports: For framework strength according to ASTM F 1043, for tests performed by a qualified testing agency.
- D. Sample Warranty: For special warranty.

1.5 FIELD CONDITIONS

- A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.6 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure to comply with performance requirements.
 - b. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - c. .
 - 2. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

- A. General: Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle or twist according to "CLFMI Product Manual" and requirements indicated below:
 - 1. Fabric Height: As indicated on Drawings.
 - 2. Steel Wire for Fabric: Wire diameter of 0.120 inch.
 - a. Mesh Size: 1-3/4 inches.
 - b. Zinc-Coated Fabric: ASTM A 392, Type II, Class 1, 1.2 oz./sq. ft. with zinc coating applied before weaving.
 - 3. Selvage: Twisted top and knuckled bottom.

2.2 FENCE FRAMEWORK

- A. Posts and Rails : ASTM F 1043 for framework, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:
 - 1. Fence Height: As indicated on Drawings.
 - 2. Heavy-Industrial-Strength Material: Group IA, round steel pipe, Schedule 40.

- a. Line Post: 2.375 inches in diameter.
 - b. End, Corner, and Pull Posts: 2.875 inches in diameter.
3. Horizontal Framework Members: top and bottom rails according to ASTM F 1043.
 - a. Top Rail: 1.66 inches in diameter.
4. Brace Rails: ASTM F 1043.
5. Metallic Coating for Steel Framework:
 - a. Type A: Not less than minimum 2.0-oz./sq. ft. average zinc coating according to ASTM A 123/A 123M or 4.0-oz./sq. ft. zinc coating according to ASTM A 653/A 653M.

2.3 SWING GATES

- A. General: ASTM F 900 for gate posts and single swing gate types.
 1. Gate Leaf Width: 36 inches.
 2. Framework Member Sizes and Strength: Based on gate fabric height as indicated.
- B. Pipe and Tubing:
 1. Zinc-Coated Steel: ASTM F 1043 and ASTM F 1083; protective coating and finish to match fence framework.
 2. Gate Posts: Round tubular steel.
 3. Gate Frames and Bracing: Round tubular steel.
- C. Frame Corner Construction: Welded.
- D. Extended Gate Posts and Frame Members: Fabricate gate posts and frame end members to extend **[12 inches] [as indicated] <Insert dimension>** above top of chain-link fabric at both ends of gate frame to attach barbed **[wire] [tape]** assemblies.
- E. Hardware:
 1. Hinges: 180-degree inward swing.
 2. Latch: Permitting operation from both sides of gate.
 3. Lock: Manufacturer's standard internal device.

2.4 FITTINGS

- A. Provide fittings according to ASTM F 626.
- B. Post Caps: Provide for each post.
 1. Provide line post caps with loop to receive tension wire or top rail.

- C. Rail and Brace Ends: For each gate, corner, pull, and end post.
- D. Rail Fittings: Provide the following:
 - 1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.
 - 2. Rail Clamps: Line and corner boulevard clamps for connecting bottom rails to posts.
- E. Tie Wires, Clips, and Fasteners: According to ASTM F 626.
 - 1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, according to the following:
 - a. Hot-Dip Galvanized Steel: 0.148-inch- diameter wire; galvanized coating thickness matching coating thickness of chain-link fence fabric.
- F. Finish:
 - 1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz./sq. ft. of zinc.

2.5 GROUT AND ANCHORING CEMENT

- A. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout, recommended in writing by manufacturer, for exterior applications.
- B. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating, and that is recommended in writing by manufacturer for exterior applications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and conditions, with Installer present, for compliance with requirements for site clearing, earthwork, pavement work, and other conditions affecting performance of the Work.
 - 1. Do not begin installation before final grading is completed unless otherwise permitted by Architect.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, lawn sprinkler system, underground structures, benchmarks, and property monuments.

3.3 CHAIN-LINK FENCE INSTALLATION

- A. Install chain-link fencing according to ASTM F 567 and more stringent requirements specified.
- B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed soil.
- C. Post Setting: Set posts in concrete at indicated spacing into firm, undisturbed soil.
 - 1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete or mechanical devices.
 - 2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect aboveground portion of posts from concrete splatter.
 - a. Concealed Concrete: Place top of concrete [2 inches] below grade to allow covering with surface material.
- D. Terminal Posts: Install terminal end, corner, and gate posts according to ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more. For runs exceeding 500 feet, space pull posts an equal distance between corner or end posts.
- E. Line Posts: Space line posts uniformly at 10 feet o.c.
- F. Post Bracing and Intermediate Rails: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
 - 1. Locate horizontal braces at midheight of fabric 72 inches or higher, on fences with top rail, and at two-third fabric height on fences without top rail. Install so posts are plumb when diagonal rod is under proper tension.
- G. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fence posts. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.
- H. Intermediate and Bottom Rails: Secure to posts with fittings.
- I. Chain-Link Fabric: Apply fabric to outside of enclosing framework. Leave 1-inch bottom clearance between finish grade or surface and bottom selvage unless otherwise indicated. Pull fabric taut and tie to posts, rails, and tension wires. Anchor to framework so fabric remains under tension after pulling force is released.

- J. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.
- K. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric according to ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
 - 1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to braces at 24 inches o.c.
- L. Fasteners: Install nuts for tension bands and carriage bolts on the side of fence opposite the fabric side.

3.4 GATE INSTALLATION

- A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation.

3.5 ADJUSTING

- A. Gates: Adjust gates to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.
- B. Lubricate hardware and other moving parts.

END OF SECTION 323113

SECTION 32 3300 - BOLLARDS

PART 1 GENERAL

1.1 SUMMARY

A. Section includes:

1. Installation of traffic control bollards

B. Contractor shall coordinate work between all Subcontractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

1.2 REFERENCES

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. ASTM International (ASTM).

1. ASTM A366—Standard Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
2. ASTM A500—Standard Specification for Cold-Formed Welded and Seamless Carbon Tubing in Rounds and Shapes.
3. ASTM D1640—Standard Test Methods for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature.
4. ASTM D5893—Standard Specification for Cold Applied, Single Component, Chemically Curing Silicone Joint Sealant for Portland Cement Concrete Pavements.

C. State of Connecticut

1. State Building Code, including all Amendments, Supplements, and Errata.

D. United States Code of Federal Regulations (CFR)

1. 29 CFR 1926, Safety and Health Regulations for Construction.

E. United States General Services Administration, Federal Standards.

1. Federal Standard No. 595—Colors Used in Government Procurement.

1.3 PERFORMANCE REQUIREMENTS

A. Bollard installs as a single unit with specified dimensions and is secured in the ground.

1.4 SUBMITTALS

- A. Submit Shop Drawings, manufacturer's literature, material certificates or other data indicating compliance with these Specifications.
- B. Submit testing data for concrete as required by Section 03 3200—Site Cast-in-Place Concrete.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Supply: Bollard units of all types must be supplied by a single manufacturer having the resources to provide consistent quality in appearance and physical properties.
- B. Materials shall be wrapped for shipment and storage, delivered to the jobsite in manufacturer's original packaging.
- C. Store units to avoid damage from moisture, abrasion, and other construction activities.

PART 2 PRODUCTS

2.1 STEEL BOLLARDS

- A. New single bit cast steel tube as shown on the Drawings, free from surface blemishes and defects where exposed to view in the finished installation.
- B. Steel Tube: ASTM A500, dimensions as indicated on the Drawings.
- C. Painting and Cleaning: After fabrication of units, all tool marks and surface imperfections shall be removed and exposed faces of all welded joints dressed smooth. Coat with a standard rust-inhibitive primer.
- D. Primed (Standard): Apply standard rust inhibitive primer per manufacturer standard application instructions.

2.2 CONCRETE

- A. Concrete shall be as specified in Section 03 3200—Site-Cast-in-Place Concrete.

2.3 PRIMER

- A. Waterborne primer, acrylic or modified acrylic, suitable for use on exterior metal surfaces.
- B. Drying time. The dry-to-touch time shall be a maximum of one hour, and the dry-to-recoat time shall be a maximum of 4 hours when tested in accordance with ASTM D1640.

2.4 PAINT

- A. Waterborne paint, acrylic or modified acrylic, suitable for use on exterior metal surfaces
- B. Color: FS 13591 (yellow).
- C. Drying time. The dry-to-touch time shall be a maximum of one hour, and the dry-to-recoat time shall be a maximum of 4 hours when tested in accordance with ASTM D1640.

2.5 JOINT FILLER

- A. One-part, cold-applied silicone that cures to a durable, flexible, low modulus silicone rubber joint seal, ASTM D5893.

PART 3 EXECUTION

3.1 INSTALLATION

- A. Install bollards at the locations indicated on the Drawings.
- B. Install bollards level and true to the specific depths and exposures as indicated on the Drawings.
- C. Provide temporary bracing as required to maintain desired installation until concrete has cured.
- D. Protect newly-installed bollards from damage or movement.

3.2 PAINTING

- A. Primer: If not factory primed, apply primer in accordance with manufacturer's guidelines. Apply primer at temperatures between 50°F and 100°F and a relative humidity no higher than 85 percent.
- B. Paint: Apply paint of the color selected in accordance with manufacturer's guidelines. Apply paint at temperatures between 50°F and 100°F and a relative humidity no higher than 85 percent. Protect freshly-painted surfaces from damage.

END OF SECTION

SECTION 329200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Seeding.
 - 2. Erosion-control material(s).

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- C. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- D. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For landscape Installer.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.

- C. Product Certificates: For fertilizers, from manufacturer.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.
 - 1. Professional Membership: Installer shall be a member in good standing of either the Professional Landcare Network or the American Nursery and Landscape Association.
 - 2. Experience: Five years' experience in turf installation in addition to requirements in Section 014000 "Quality Requirements."
 - 3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 - 4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the Professional Landcare Network:
 - a. Landscape Industry Certified Technician - Exterior.
 - b. Landscape Industry Certified Lawncare Manager.
 - c. Landscape Industry Certified Lawncare Technician.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.
- B. Bulk Materials:
 - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 - 3. Accompany each delivery of bulk materials with appropriate certificates.

1.9 FIELD CONDITIONS

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.

1. Spring Planting: April 1 - June 15.
 2. Fall Planting: August 15 - October 1.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and germination tolerances.
- B. Seed Species:
1. Quality: State-certified seed of grass species as listed below for solar exposure.
 2. Sun and Partial Shade: Proportioned by weight as follows:
 - a. 50 percent Kentucky bluegrass (*Poa pratensis*).
 - b. 30 percent chewings red fescue (*Festuca rubra* variety).
 - c. 10 percent perennial ryegrass (*Lolium perenne*).
 - d. 10 percent redtop (*Agrostis alba*).

2.2 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

2.3 EROSION-CONTROL MATERIALS

- A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.
- B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb/sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.
- C. Erosion-Control Mats: Cellular, nonbiodegradable slope-stabilization mats designed to isolate and contain small areas of soil over steeply sloped surface, of 3-inch nominal mat thickness. Include manufacturer's recommended anchorage system for slope conditions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.
 - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
 - 2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 - 3. Uniformly moisten excessively dry soil that is not workable or which is dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

3.2 PREPARATION

- A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect grade stakes set by others until directed to remove them.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 TURF AREA PREPARATION

- A. Placing Planting Soil: Place manufactured planting soil over exposed subgrade.
- B. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- C. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 PREPARATION FOR EROSION-CONTROL MATERIALS

- A. Prepare area as specified in "Turf Area Preparation" Article.

- B. For erosion-control mats, install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.
- C. Fill cells of erosion-control mat with planting soil and compact before planting.
- D. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
- E. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.5 SEEDING

- A. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph.
 - 1. Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 2. Do not use wet seed or seed that is moldy or otherwise damaged.
 - 3. Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.
- B. Sow seed at a total rate of 3 to 4 lb/1000 sq. ft..
- C. Rake seed lightly into top 1/8 inch of soil, roll lightly, and water with fine spray.
- D. Protect seeded areas with slopes exceeding 1:4 with erosion-control blankets and 1:6 with erosion-control fiber mesh installed and stapled according to manufacturer's written instructions.
- E. Protect seeded areas from hot, dry weather or drying winds by applying planting soil within 24 hours after completing seeding operations. Soak areas, scatter mulch uniformly to a thickness of 3/16 inch, and roll surface smooth.

3.6 TURF MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
 - 1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
 - 2. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

- B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
 - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 - 2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.
- C. Turf Postfertilization: Apply commercial fertilizer after initial mowing and when grass is dry.
 - 1. Use fertilizer that provides actual nitrogen of at least 1 lb/1000 sq. ft. to turf area.

3.7 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Architect:
 - 1. Satisfactory Seeded Turf: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding 90 percent over any 10 sq. ft. and bare spots not exceeding 5 by 5 inches.
- B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

3.8 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.
- C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
- D. Remove nondegradable erosion-control measures after grass establishment period.

END OF SECTION 329200

SECTION 33 4000 - STORM DRAINAGE SYSTEM

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Installation of new storm drain pipe, area drains and dry wells.
2. Connection of exterior building roof drains and perimeter drains.
3. Installation of under-drains.

B. Contractor shall coordinate work between all Contractors, sections, and trades required for the proper completion of the work.

C. Contractor is responsible for all health and safety.

D. Contractor is solely responsible for obtaining permits or approvals which may be required to perform the work of this section, including all costs, fees and taxes required or levied. Notify and obtain such permits or approvals from all agencies having jurisdiction prior to starting work.

1.2 REFERENCE STANDARDS

A. Reference herein to any technical society, organization, group or regulation are made in accordance with the following abbreviations and, unless otherwise noted or specified, all work under this Section shall conform to the latest edition as applicable.

B. Code of Federal Regulations (CFR)

1. 29 CFR 1926, Safety and Health Regulations for Construction.

C. ASTM International (ASTM)

1. ASTM A36—Standard Specification for Carbon Structural Steel.
2. ASTM A48—Standard Specification for Gray Iron Castings.
3. ASTM A123—Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
4. ASTM A307—Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
5. ASTM A536—Standard Specification for Ductile Iron Castings.
6. ASTM A615—Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement.

7. ASTM C12—Standard Practice for Installing Vitrified Clay Pipe Lines.
8. ASTM C14—Standard Specification for Concrete Sewer, Storm Drain, and Culvert Pipe.
9. ASTM C55—Standard Specification for Concrete Building Brick.
10. ASTM C76—Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
11. ASTM C94—Standard Specification for Ready-Mixed Concrete.
12. ASTM C139—Standard Specification for Concrete Masonry Units for Construction of Catch Basins and Manholes.
13. ASTM C150—Standard Specification for Portland Cement.
14. ASTM C207—Standard Specification for Hydrated Lime for Masonry Purposes.
15. ASTM C270—Standard Specification for Mortar for Unit Masonry.
16. ASTM C387—Standard Specification for Packaged, Dry, Combined Materials for Mortar and Concrete.
17. ASTM C425—Standard Specification for Compression Joints for Vitrified Clay Pipe and Fittings.
18. ASTM C443—Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
19. ASTM C443—Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
20. ASTM C478—Standard Specification for Precast Reinforced Concrete Manhole Sections.
21. ASTM F493—Standard Specification for Solvent Cements for Chlorinated Poly(Vinyl Chloride) (CPVC) Plastic Pipe and Fittings.
22. ASTM C507—Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe.
23. ASTM C564—Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
24. ASTM F656—Standard Specification for Primers for Use in Solvent Cement Joints of Poly(Vinyl Chloride) (PVC) Plastic Pipe and Fittings.
25. ASTM C700—Standard Specification for Vitrified Clay Pipe, Extra Strength, Standard Strength, and Perforated.
26. ASTM C877—Standard Specification for External Sealing Bands for Concrete Pipe, Manholes, and Precast Box Sections.

27. ASTM C890—Standard Practice for Minimum Structural Design Loading for Monolithic or Sectional Precast Concrete Water and Wastewater Structures.
28. ASTM C913—Standard Specification for Precast Concrete Water and Wastewater Structures.
29. ASTM C923—Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.
30. ASTM C990—Standard Specification for Joints for Concrete Pipe, Manholes and Precast Box Sections Using Preformed Flexible Joint Sealants.
31. ASTM C1479—Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations
32. ASTM C 1628—Standard Specification for Joints for Concrete Gravity Flow Sewer Pipe, Using Rubber Gaskets.
33. ASTM D1784—Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
34. ASTM D1785—Standard Specification for Poly(Vinyl Chloride) (PVC), Plastic Pipe, Schedules 40, 80, and 120.
35. ASTM D2235—Standard Specification for Solvent Cement for Acrylonitrile-Butadiene-Styrene (ABS) Plastic Pipe and Fittings.
36. ASTM D2241—Standard Specification for Poly (Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series).
37. ASTM D2321—Standard Practice for Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
38. ASTM D2412—Determination of External Loading Characteristics of Plastic Pipe by Parallel-Plate Loading.
39. ASTM D2466—Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40.
40. ASTM D2467—Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80.
41. ASTM D2564—Standard Specification for Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Piping Systems.
42. ASTM D2855—Standard Practice for Making Solvent-Cemented Joints with Poly(Vinyl Chloride) (PVC) Pipe and Fittings.
43. ASTM D2665—Standard Specification for Poly (Vinyl Chloride) (PVC) Plastic Drain, Waste, and Vent Pipe and Fittings.

44. ASTM D2729—Standard Specification for Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings.
45. ASTM D2855—Standard Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.
46. ASTM D3212—Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
47. ASTM D3350—Standard Specification for Polyethylene Plastics Pipe and Fittings Materials.
48. ASTM D4396—Standard Specification for Rigid Poly (Vinyl Chloride) (PVC) and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds for Plastic Pipe and Fittings Used in Nonpressure Applications.
49. ASTM F402—Safe Handling of Solvent Cements, Primers, and Cleaners Used for Joining Thermoplastic Pipe and Fittings.
50. ASTM F405—Corrugated Polyethylene (PE) Tubing and Fittings.
51. ASTM F477—Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
52. ASTM F656—Standard Specification for Primers for Use in Solvent Cement Joints of Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.
53. ASTM F679—Standard Specification for Poly (Vinyl Chloride) (PVC) Large-Diameter Plastic Gravity Sewer Pipe and Fittings.
54. ASTM F714—Polyethylene (PE) Plastic Pipe (SDR-PR) Based on Outside Diameter.
55. ASTM F758—Smooth-Wall Poly (Vinyl Chloride) (PVC) Plastic Underdrain Systems for Highway, Airport, and Similar Drainage.
56. ASTM F894—Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe.
57. ASTM F1803—Standard Specification for Poly (Vinyl Chloride)(PVC) Closed Profile Gravity Pipe and Fittings Based on Controlled Inside Diameter.
58. ASTM F2306—Standard Specification for 12 to 60 inch [300 to 1500 mm] Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
59. ASTM F2648—Standard Specification for 2 to 60 inch [50 to 1500 mm] Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications.

D. American Concrete Pipe Association (ACPA).

1. ACPA 01-103—Concrete Pipe and Box Culvert Installation (latest revision and applicable supplements thereto).
- E. American Association of State High and Transportation Officials (AASHTO).
 1. AASHTO H20—Standard Specifications for HS-20, Highway Loading.
 2. AASHTO M105—Standard Specification for Gray Iron Castings.
 3. AASHTO M198—Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets.
 4. AASHTO M252—Standard Specification for Corrugated Polyethylene Drainage Pipe.
 5. AASHTO M294—Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm Diameter.
- F. Corrugated Polyethylene Pipe Association (CPPA), division of the Plastics Pipe Institute (PPI).
 1. Recommended Installation Practices for Corrugated Polyethylene Pipe and Fittings (latest revision and applicable supplements thereto).
- G. State of Connecticut Department of Transportation (ConnDOT)
 1. Standard Specifications for Roads, Bridges, Facilities, and Incidental Construction, Form 817, 2016 and any supplements.

1.3 SUBMITTALS

- A. Shop Drawings:
 1. Submit shop drawings, descriptive literature, or both, showing pipe materials and appurtenances to be furnished. Shop drawings shall be submitted to Engineer for approval prior to ordering materials.
 2. Shop drawings showing the configuration, dimensions, layout, and spacing of major and minor components such as pipe, joints, couplings, restraints, and other proposed details of assembly. Show in large-scale details any unique assembly, pipe/pipe transitions, pipe/structure transitions, and/or installation requirements.
- B. Copies of manufacturer-provided installation instructions, operation instructions, and maintenance material for all equipment furnished under this Section.
- C. Manufacturer's warranties and associated warranty registration data in Owner's name. Submit two (2) copies of each warranty to Engineer in the manufacture/supplier standard form or if there is no standard form available, in a form specified by Engineer.
- D. As-Built Drawings.

1.4 QUALITY ASSURANCE

- A. Use adequate numbers of skilled workmen who are trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and methods required

for proper performance of the work in this Section. Use equipment of adequate size, capacity and quantity to accomplish the work of this Section in a timely manner.

- B. Codes and Standards: Perform earthwork complying with requirements of authorities having jurisdiction.
- C. Sample pipe for testing, when requested by Engineer, shall be furnished by Contractor in sufficient numbers. The Contractor and/or the pipe manufacturer shall make the facilities and services for making the load tests available.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Storage

- 1. Manufacturer shall package the pipe and other drainage materials in a manner designed to deliver the pipe to the Project Site neatly, intact, and without physical damage. Transportation carrier shall use an appropriate method to ensure the pipe is properly supported, stacked, and restrained during transport. Inspect materials delivered to site for damage; store with minimum of handling.
- 2. Unloading of the pipe and other drainage materials should be controlled so as not to collide with the other pipe sections or fittings, and care should be taken to avoid chipping or spalling, especially to the spigots and bells. For manhole sections, cone sections, bases, fittings and other precast appurtenances, utilize lifting holes or lifting eyes provided.
- 3. In cold weather conditions, use caution to prevent impact damage. Handling methods considered acceptable for warm weather may be unacceptable during cold weather.
- 4. Storage:
 - a. Store materials on site in enclosures or under protective coverings. Do not store materials directly on the ground. Keep inside of pipes and fittings free of dirt and debris.
 - b. Pipe shall be stored on clean, level ground to prevent undue scratching or gouging.
 - c. Store solvents, solvent compounds, lubricants, elastomeric gaskets, and any similar materials under cover out of direct sunlight. Provide additional storage measures in accordance with the manufacturer's recommendations. Discard materials if storage period exceeds the recommended shelf life. Solvents in use shall be discarded when the recommended pot life is exceeded.
 - d. Metal Items: Check upon arrival; identify and segregate as to types, functions, and sizes. Store off the ground in a manner affording easy accessibility and not causing excessive rusting or coating with grease or other objectionable materials.
 - e. Cement, Aggregate, and Reinforcement: As specified in Section 033200—Site Cast-in-Place Concrete.
 - f. Store manhole units in an upright position.

PART 2 MATERIALS**2.1 GENERAL**

- A. Products furnished under this Section which are damaged or found defective in any way prior to being set in place and final acceptance, may be rejected. Engineer may reject an entire lot of pipe should the sample pipe from such lot fail to meet requirements.

2.2 CORRUGATED POLYETHYLENE PIPE

- A. Pipe: High density polyethylene, corrugated, smooth interior, ASTM D3350, Cell Classification 424420C.
 - 1. Four (4) inch through 10 inch diameter pipe: AASHTO M252, Type S.
 - 2. 12 inch through 60 inch diameter pipe: AASHTO M294, Type S or ASTM F2306.
- B. Joints: Bell-and-spigot joint, AASHTO M252, AASHTO M294, or ASTM F2306. Bell shall be an integral part of the pipe and provide a minimum pull-apart strength of 400 pounds. Bell-and-spigot joint shall incorporate a gasket making it silt-tight. Gaskets shall be installed in the bell, or on the pipe by the pipe manufacturer.
 - 1. Four-inch (4") through 60-inch (60") diameter pipe joint, watertight, ASTM D3212. Gaskets: polyisoprene, ASTM F477. Gaskets shall be installed by the pipe manufacturer and covered with a removable, protective wrap to ensure the gasket is free from debris. A joint lubricant available from the manufacturer shall be used on the gasket and bell during assembly.
 - 2. 12-inch (12") through 60-inch (60") diameter pipe shall have a reinforced bell with a bell tolerance device. The bell tolerance device shall be installed by the manufacturer.
 - 3. Coupling bands shall conform to the manufacturer's specifications. Couplers shall cover not less than one corrugation on each section of pipe.
- C. Fittings: AASHTO M252, AASHTO M294, or ASTM F2306. Bell and spigot connections shall utilize a spun-on or welded bell and valley or saddle gasket meeting the watertight joint performance requirements of AASHTO M252, AASHTO M294 or ASTM F2306.
- D. Saddle Tee
 - 1. Saddle tees shall be manufactured saddle tees designed to connect to the corrugated polyethylene pipe.
 - 2. Fittings shall conform to AASHTO M 294. Fabricated fittings shall be welded on the interior and exterior of all junctions.
 - 3. A soil-tight seal shall be obtained with the coupling at the saddle tee stub to the storm service pipe.

2.3 JOINT LUBRICANT

- A. As specified by pipe manufacturer, ANSI/AWWA C111/A21.11.

2.4 YARD DRAIN/AREA DRAIN

- A. Configured as indicated on the Drawings. Pre-cast concrete.
- B. Frame and Grate
 - 1. Grates for drain basins shall be capable of supporting H-20 wheel loading for traffic areas or H-10 loading for pedestrian areas.
 - 2. 12" and 15" square grates will be hinged to the frame using pins. Metal used in the manufacture of the castings shall conform to ASTM A536 grade 70-50-05 for ductile iron.
 - 3. Grates shall be provided painted black.

2.5 MASONRY UNITS

- A. Brick: ASTM C32 Grade MS or ASTM C62 Grade SW.
- B. Concrete block: Solid block, ASTM C139.

2.6 MORTAR

- A. Mortar: ASTM C387.
 - 1. Portland Cement: ASTM C150, Type I.
 - 2. Sand: ASTM C144.
 - 3. Hydrated Lime: ASTM C207.
 - 4. Water: Potable.
 - 5. Mix proportions for manhole rims and covers: 1 part portland cement, 2 parts sand, and $\frac{1}{4}$ part hydrated lime by dry volume. Hydrated lime shall not exceed 10 percent by weight of the total dry mix. Quantity of water in mixture shall be sufficient to produce a stiff, workable mortar, but in no case shall exceed $5\frac{1}{2}$ gallons of water per sack of cement.
 - 6. Mix Proportions for invert construction: 1 part portland cement and 2 parts sand by volume. Quantity of water in mixture shall be sufficient to produce a stiff, workable mortar, but in no case shall exceed $5\frac{1}{2}$ gallons of water per sack of cement.

2.7 BEDDING

- A. Bedding for HDPE pipes: Bedding, Haunching and Initial Backfill shall consist of ConnDOT No. 6, No. 67, or No. 8 aggregate, or other materials meeting the requirements of ASTM D2321 for Class IA, Class IB, Class II, or Class III unless otherwise specified by the pipe manufacturer.
- B. Bedding for Area Drains: Screened Gravel or Crushed Stone, well graded in size from $\frac{3}{4}$ inch to $\frac{3}{8}$ inch consisting of clean, hard, and durable fragments. No limestone shall be permitted.

PART 3 EXECUTION

3.1 PIPE INSTALLATION

- A. As soon as the excavation is completed to the normal grade of the bottom of the trench, the Contractor shall immediately place the bedding material in the trench. Then the pipe shall be firmly bedded in the compacted bedding material to conform accurately to the lines and grade indicated on the Drawings.
- B. Install pipe, fittings, and accessories in accordance with manufacturer's instructions.
 - 1. Concrete pipe shall be installed per ASTM C1479, as may be modified by the pipe manufacturer's instructions.
 - 2. HDPE pipe shall be installed per ASTM D2321, as may be modified by the pipe manufacturer's instructions.
- C. Notch under pipe bells and joints, where applicable to provide for uniform bearing under entire length of pipe.
- D. Excavation, backfilling and compaction shall be as specified in Section 312310—Earthwork of these Specifications.
- E. Maintain optimum moisture content of bedding material to attain required compaction density.

3.2 AREA DRAINS

- A. Area drains shall be constructed at the locations and to the lines, grades and dimensions noted on the Drawings, or as required.
- B. Precast concrete construction shall be done in a manner to insure watertight construction and all leaks in precast concrete shall be sealed. If required, precast concrete shall be repaired or replaced to obtain watertight construction.
- C. Concrete barrels and cones shall be precast concrete sections.
 - 1. Bases shall be either precast with a barrel integrally cast with the base, or poured concrete suitably shaped by means of accurate bell-rung forms to receive the barrel sections. Manhole invert channels in manholes shall be formed in concrete.
 - 2. Precast manholes shall have an adjustment ring at the top of the cone to permit the frame and cover to meet the finished surface. This shall consist of courses of brick or reinforced grading rings not to exceed 11 inches.
- D. Stubs shall be short pieces cut from the bell ends of the appropriate size and class of pipe. Concrete stubs shall be plugged with brick masonry unless otherwise directed.
- E. Inverts shall conform accurately to the size of the adjoining pipes.
 - 1. Inverts shall be constructed of concrete developing 3,500 psi with the concrete being placed to the spring line of the pipe form.

2. Smooth plastic pipe, matching the dimension of the outlet pipe, shall be used to form the invert.
 3. Side inverts and main inverts, where the direction changes, shall be laid out in smooth curves of the longest possible radius, which is tangent, within the manhole, to the centerline of adjoining pipelines.
 4. Invert shelves shall be graded to provide a 1-inch per 1-foot wash from the manhole walls.
- F. Sections shall contain manhole steps accurately positioned and embedded in the concrete when the section is cast. Precast-reinforced concrete manhole sections shall be set so as to be vertical and with sections and steps in true alignment.
- G. All holes in sections used for their handling shall be thoroughly plugged with rubber plugs, made specifically for this purpose, or with mortar. The mortar shall be one part cement to 1½ parts sand, mixed slightly damp to the touch (just short of “balling”), hammered into the holes until it is dense and an excess of paste appears on the surface, and then finished smooth and flush with the adjoining surfaces.
- H. The Contractor may, as an alternate to suitable nonshrink mortar joints, use premolded elastomeric-sealed joints for pipe into precast manhole bases.
1. All materials, accessories and construction methods used in making the joints shall be supplied or approved by the manufacturer of the premolded elastomeric-sealed joint.
- I. Openings for pipe and materials to be embedded in the walls of the base for these joints shall be cast in the base at the required locations during the manufacture of the base. Incorrectly cast and patched pipe openings will be rejected.
- J. Risers and tops shall be installed using approved “o-ring” type, neoprene gaskets for sealing joints. Units shall be installed level and plumb. Water shall not be permitted to rise over newly made joints nor until after inspection as to their acceptability. All jointing shall be done in a manner to insure water tightness.
- K. Openings shall be provided in the risers to receive entering pipes. These openings may be made at the place of manufacture. The openings shall be sized to provide a uniform 1 inch maximum annular space between the outside of the pipe wall and the opening in the riser. After the pipe is in position, the annular space shall be solidly filled with nonshrink mortar. Care shall be taken to assure that the openings are located to permit setting of the entering pipe at its correct elevation as indicated.
- L. Openings, which are cut in the risers in the field, shall be carefully made by coring so as not to damage the riser. Damaged risers will be rejected and shall be replaced at no additional expense to the Owner.
- M. Where required by the Drawings, a slot and opening shall be cast in the catch basin wall suitable for mounting the cast iron hood and discharge pipe. The hood hinge may be furnished to the precast supplier by the Contractor for incorporation into the casting during manufacture.

3.3 CONCRETE MASONRY UNITS

- A. Concrete Masonry unit construction shall be soaked in water before laying. As circular concrete block walls are laid-up, the horizontal joints and keyways shall be flushed full with mortar. As rectangular blocks are laid-up, all horizontal and vertical joints shall be flushed full with mortar. Plastering of the outside of block structures will not be required. The joints in precast units shall be wetted and completely mortared immediately prior to setting a section. No structure shall be backfilled until all mortar has completely set.

3.4 CASTINGS

- A. Cast-iron frames for grates and covers shall be well bedded in cement mortar and accurately set to the grades indicated or as directed. The frames shall be encased with a thick cement-mortar collar around the entire perimeter of the frames.
- B. All voids between the bottom flange shall be completely filled to make a watertight fit. A ring of mortar, at least one inch thick and pitched to shed water away from the frame shall be placed over and around the outside of the bottom flange. The mortar shall extend to the outer edge of the masonry all around its circumference and shall be finished smooth. No visible leakage will be permitted.
- C. Structures within the limits of bituminous concrete pavement shall be temporarily set at the elevation of the bottom of the binder course or as ordered. After the binder course has been compacted, these structures shall be set at their final grade. Backfill necessary around such structures after the binder course has been completed shall be made with Class A concrete unless otherwise ordered.

3.5 CLEANING

- A. At the completion of the Work, clean all piping, structures and open drainage courses, through and to which water from this construction is directed, to the satisfaction of Engineer.

3.6 AS-BUILT DRAWINGS

- A. Contractor shall be solely responsible for complying with the requirements of local permitting authorities for preparation and submittal of as-built drawings. The requirements for the preparation of as-built drawings as defined herein shall be considered the minimum requirements of Engineer, but shall in no way relive Contractor from satisfying the requirements of local permitting authorities.
- B. As work progresses, record the following on two (2) sets of Drawings:
 - 1. All changes and deviations from the design in location, grade, size, material, or other feature as appropriate.
 - 2. Any uncharted locations of utilities or other subsurface feature encountered during installation, including the characteristics of such uncharted utility or subsurface feature such as utility type, size, depth, material of construction, etc.
- C. Recording of changes shall be clearly and neatly marked in red pen or pencil. All changes shall be noted on the appropriate Drawing sheets.

- D. Make measurements from fixed, permanent points on the Project Site to accurately locate the work completed. Such measurements shall consist of at least three (3) ties showing the distance of each item relative to each of the fixed, permanent points.
- E. As-Built drawings shall be complete and shall indicate the true measurement and location, horizontal and vertical, of all new construction. As-Built drawings shall also contain any additional information required by Engineer.

END OF SECTION

WASHINGTON
ELEMENTARY SCHOOL

685 BALDWIN STREET
WATERBURY, CT 06706

ELEVATOR ADDITION
STATE PROJECT NO.
151-0304 CV
CONSTRUCTION DOCUMENTS
SEPTEMBER 1, 2022
ISSUED FOR BID 11/28/22

M.E.P. ENGINEER
CES ENGINEERING SVCS, LLC
811 MIDDLE STREET
MIDDLETOWN, CT 06457

ARCHITECT
FRIAR ARCHITECTURE INC.
21 TALCOTT NOTCH ROAD
FARMINGTON, CONNECTICUT 06032

RZ DESIGN ASSOCIATES, INC.
750 OLD MAIN STREET
SUITE 202
ROCKY HILL, CT 06067

MAYOR
NEIL O'LEARY

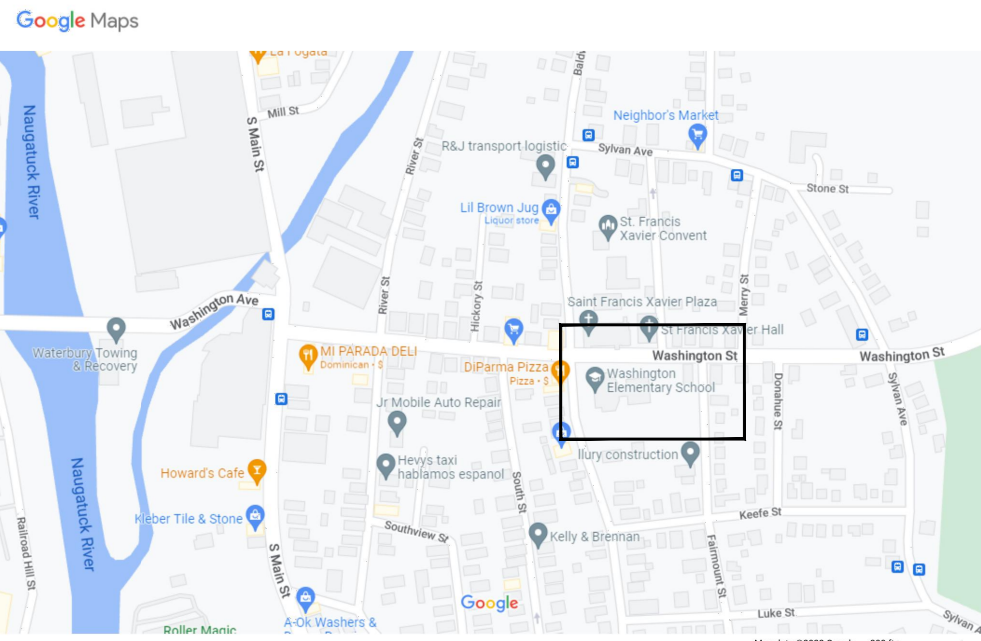
CIVIL ENGINEER
ALFRED BENESCH & CO.
120 HEBRON AVENUE, 2ND FLOOR
GLASTONBURY, CT 06033

SUPERINTENDENT OF SCHOOLS
DR. VERNA D. RUFFIN

BOARD OF EDUCATION
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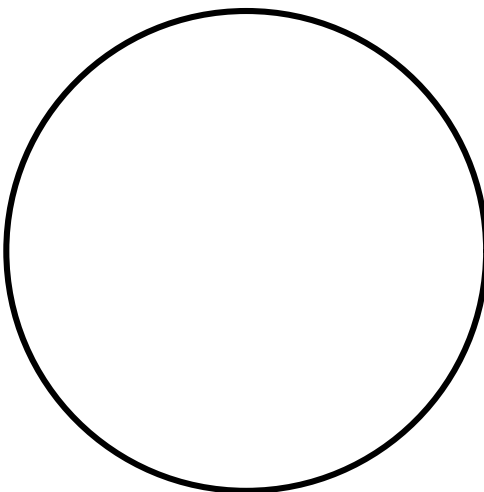
INDEX OF DRAWINGS

COVER SHEET	
R1.1	NOTES, LEGENDS & REFERENCE INFORMATION
R1.2	CODE INFORMATION, WALL TYPES, UL RATINGS
R1.3	EGRESS PLANS
CIVIL	
C1.0	SITE PLAN
C2.0	SITE DETAILS
ARCHITECTURAL	
D1.1	DEMOLITION PLANS
A1.1	CONSTRUCTION FLOOR PLANS
A2.1	ROOF PLAN & DETAILS
A3.1	EXTERIOR BUILDING ELEVATIONS
A4.1	ELEVATOR SECTIONS
A5.1	SECTION DETAILS
A6.1	ENLARGED FLOOR PLANS
A8.1	DOOR & WINDOW ELEVATIONS & DETAILS
A9.1	REFLECTED CEILING PLANS
A12.1	FINISH PLANS & SCHEDULE
STRUCTURAL	
S0.1	STRUCTURAL NOTES & SPECIFICATIONS
S1.0	STRUCTURAL FOUNDATION PLAN
S1.1	STRUCTURAL LOW ROOF FRAMING
S1.2	STRUCTURAL HIGH ROOF FRAMING
S2.0	STRUCTURAL DETAILS
S2.1	STRUCTURAL BUILDING SECTIONS
S2.2	STRUCTURAL WALL SECTIONS
SD1.0	STRUCTURAL DEMOLITION PLAN
FIRE PROTECTION	
FP0.0	FIRE PROTECTION ABBREVIATIONS, NOTES AND SYMBOLS
FP0.1	FIRE PROTECTION SPECIFICATIONS
FPD1.0	FIRE PROTECTION BASEMENT DEMOLITION PLAN
FP1.0	FIRE PROTECTION BASEMENT PLAN
MECHANICAL	
M0.0	MECHANICAL ABBREVIATIONS, NOTES AND SYMBOLS
M0.1	MECHANICAL SPECIFICATIONS
MD1.0	MECHANICAL BASEMENT DEMOLITION PLAN
MD1.1	MECHANICAL FIRST FLOOR DEMOLITION PLAN
MD1.2	MECHANICAL SECOND FLOOR DEMOLITION PLAN
M1.0	MECHANICAL BASEMENT FLOOR PLAN
M1.1	MECHANICAL FIRST FLOOR PLAN
M1.2	MECHANICAL SECOND FLOOR PLAN
ELECTRICAL	
E0.0	ELECTRICAL ABBREVIATIONS, NOTES AND SYMBOLS
E0.1	ELECTRICAL SPECIFICATIONS
ED1.0	ELECTRICAL BASEMENT DEMOLITION PLAN
ED1.1	ELECTRICAL FIRST FLOOR DEMOLITION PLAN
ED1.2	ELECTRICAL SECOND FLOOR DEMOLITION PLAN
EL1.0	ELECTRICAL LIGHTING BASEMENT FLOOR PLAN
EL1.1	ELECTRICAL LIGHTING FIRST FLOOR PLAN
EL1.2	ELECTRICAL LIGHTING SECOND FLOOR PLAN
EP1.0	ELECTRICAL POWER BASEMENT FLOOR PLAN
EP1.1	ELECTRICAL POWER FIRST FLOOR PLAN
EP1.2	ELECTRICAL POWER SECOND FLOOR PLAN
ES.0	ELECTRICAL DETAILS
E6.0	ELECTRICAL SCHEDULES AND DIAGRAMS



SITE LOCATION MAP

SET NUMBER



MOUNTING HEIGHTS

ELECTRICAL MOUNTING HEIGHTS

ALL MOUNTING HEIGHTS TO BE COORDINATED WITH BLOCK COURSING AS OCCURS. CONSULT ARCHITECT IF EXISTING CONDITIONS DIFFER.

ALL DIMENSIONS ARE TO THE CENTER OF THE DEVICE UNLESS OTHERWISE NOTED. SEE ELECTRICAL DRAWINGS FOR TYPES AND LOCATIONS.

RECEPTACLES: 18" A.F.F. (AT LOCATIONS ABOVE CASEWORK, MOUNT BOTTOM OF RECEPTACLE AT 2" ABOVE BACKSPASH. AT LOCATIONS BELOW CASEWORK, MOUNT AT 24" A.F.F.)

WIREMOLD: 24" A.F.F. (AT LOCATIONS ABOVE CASEWORK, MOUNT BOTTOM OF WIREMOLD AT 2" ABOVE BACKSPASH)

EXTERIOR RECEPTACLES: 24" A.F.G. (20" A.F.F.)

SWITCHES: 48" A.F.F.

BOILER EMERGENCY SWITCHES : 60" A.F.F.

DATA / PHONE OUTLETS: 18" A.F.F.

TV OUTLETS: 18" A.F.F. OR 18" BELOW FINISHED CEILING*
* FIELD VERIFY CEILING HEIGHTS WITH COORDINATION DRAWINGS

WALL PHONE: 48" A.F.F. TO CENTER OF EARPIECE

SECURITY KEYPAD: 48" A.F.F.

MICROPHONE WALL JACK : 18" A.F.F.

FIRE ALARM PULL STATION: 48" A.F.F.

FIRE ALARM VISUAL/AUDIO INDICATING UNITS: 6'-8" TO BOTTOM OF UNIT

AREA OF REFUGE CALL STATION: 48" A.F.F.

EMERGENCY SHUT-OFF SWITCH / PUSH BUTTON: 48" A.F.F.

EMERGENCY CALL SWITCH: 36" A.F.F.

EMERGENCY CALL BELL / LIGHT: +/- 7'-6" A.F.F., CENTER ABOVE DOOR

WALL MOUNTED EXIT SIGNS: 7'-6" A.F.F.

WALL MOUNTED CLOCKS AND SPEAKERS: +/- 7'-6" A.F.F.

NOTES

CONSTRUCTION NOTES

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL CODES AND ORDINANCES.
- DO NOT SCALE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION OF DIMENSIONS FROM THE ARCHITECT BEFORE CONTINUING WITH CONSTRUCTION.
- CONTRACT DRAWINGS MAY VARY FROM ACTUAL FIELD CONDITIONS. CONTRACTOR SHALL CORRECT DIMENSIONS OF ALL MATERIALS TO CARRY OUT THE INTENT OF THE CONTRACT DRAWINGS. VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN FIELD BEFORE ORDERING ANY MATERIALS. CONTRACTOR SHALL NOTIFY ARCHITECT PROMPTLY OF ANY CRITICAL DISCREPANCIES BEFORE PROCEEDING WITH WORK.
- ALL NEW WORK SHALL BE IMPLEMENTED SO AS TO PROVIDE A SMOOTH AND CONTINUOUS SURFACE WITH ALL EXISTING CONDITIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK NECESSARY TO ACHIEVE THIS REQUIREMENT, EVEN THOUGH PROCEDURES ARE NOT DETAILED FOR EACH SPECIFIC CONDITION OR COMBINATION OF CONDITIONS. QUALITY OF WORKMANSHIP, MATERIALS AND FINISHES SHALL BE EQUAL TO THE LEVEL ESTABLISHED FOR SIMILAR CONSTRUCTION, EXCEPT WHERE EXISTING APPEARANCE IS TO BE MATCHED TO ACHIEVE CONTINUITY.
- CUTTING AND PATCHING SHALL BE THE RESPONSIBILITY OF THE TRADE WHOSE WORK RESULTS IN THE NEED FOR CUTTING AND PATCHING UNLESS A SPECIFIC CONTRACTOR IS CALLED OUT ON THE DRAWINGS. ALL HOLES LEFT BY REMOVING MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT, ETC. SHALL BE PATCHED.
- UNLESS OTHERWISE NOTED OR DIMENSIONED, NEW PARTITIONS SHALL BE CENTERED ON BUILDING COLUMN GRID OR WINDOW MULLIONS.
- CONTRACTOR SHALL PROVIDE WOOD BLOCKING AT WALLS AS REQUIRED TO SUPPORT PIPING, CABINETS TV BRACKETS AND RELATED ITEMS.
- WHERE REQUIRED, SEISMIC BRACING SHALL BE PROVIDED AT SUSPENDED CEILINGS. SEE A9.2.
- ALL EGRESS DOORS SHALL BE NON-LOCKING IN DIRECTION OF TRAVEL.
- ALL PARTITIONS ARE TO EXTEND TO UNDERSIDE OF DECK ABOVE.

DEMOLITION NOTES

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL NATIONAL, STATE, LOCAL CODES & ORDINANCES.
- THE DEMOLITION PLANS ARE DIAGRAMMATIC AND INTENDED TO HOW THE GENERAL EXTENT OF THE WORK ONLY. THE CONTRACTOR SHALL INCLUDE ALL DEMOLITION WORK REQUIRED TO ACCOMPLISH THE INTENT OF THE PLANS AND SPECIFICATIONS.
- ALL DEMOLISHED ITEMS SHALL BE REMOVED FROM BUILDING / SITE UNLESS NOTED OTHERWISE. COORDINATE WITH OWNER FOR DELIVERY OF ITEMS NOTED TO REMAIN OWNERS PROPERTY. THE PROJECT SITE / BUILDING SHALL BE CLEANED OF DEBRIS ON A DAILY BASIS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING AND SUPPORT (TEMPORARY OR PERMANENT) FOR ALL PORTIONS OF CONSTRUCTION DURING DEMOLITION AND CONSTRUCTION.
- ALL ABANDONED MECHANICAL / ELECTRICAL / PLUMBING LINES SHALL BE CAPPED OFF BEHIND FINISHES, UNLESS NOTED OTHERWISE. REFER TO MECHANICAL / ELECTRICAL / PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
- CONTRACTOR SHALL SAWCUT ALL MASONRY OR CONCRETE OPENINGS INDICATED. MASONRY SHALL BE TOOTHED IN AND / OR RETURNED TO FINISHED OPENING.
- ALL OPENINGS WHERE EXISTING CONSTRUCTION HAS BEEN REMOVED, AND WHICH ARE NOT NOTED TO REMAIN, SHALL BE FILLED AND / OR PATCHED TO MATCH THE ADJACENT EXISTING OR NEW FINISH, INCLUDING ANY FIRE RATINGS REQUIRED.
- ALL AREAS OF FLOORS, WALLS AND CEILINGS DISTURBED BY DEMOLITION SHALL BE FILLED, PATCHED OR OTHERWISE REFINISHED TO MATCH EXISTING OR NEW FINISH AS DESIGNATED, INCLUDING ALL REQUIRED RATINGS.
- CONTRACTOR MUST VERIFY LOCATIONS OF ALL EXISTING STRUCTURAL, MECHANICAL, PLUMBING & ELECTRICAL ELEMENTS PRIOR TO START OF DEMOLITION.

GENERAL NOTES

- DIMENSION CRITERIA
 - FROM FACE OF METAL STUD TO FACE OF METAL STUD.
 - FROM FACE OF METAL STUD TO FACE OF CONCRETE MASONRY UNIT.
 - FROM FACE OF CONCRETE MASONRY UNIT TO FACE OF CONCRETE MASONRY UNIT.
- REFER TO SHEET R1.2 FOR WALL TYPES.

SYMBOLS LEGEND

ARCHITECTURAL SYMBOLS

BUILDING SECTION		SECTION NUMBER	
WALL SECTION		SECTION NUMBER	
COLUMN CENTERLINE		NUMBERS - (VERT.) LETTERS - (HORIZ.)	
DETAIL DESIGNATION, PLAN DETAIL, LARGE SCALE PLANS		DETAIL NUMBER SHEET NUMBER	
INTERIOR ELEVATIONS		ELEVATION NUMBER SHEET NUMBER	
CASEWORK ELEVATIONS		ELEVATION NUMBER	
CEILING DESIGNATION		CEILING TYPE (LETTER) CEILING HEIGHT (NUMBER)	
ROOM NUMBER		NUMBER	
DOOR NUMBER		NUMBER/TYPE	
WINDOW DESIGNATION		LETTER/TYPE	
DEMOLITION TAG		NUMBER	
WALL TYPES		NUMBER	
PHOTO LOCATION		PHOTO NUMBER	
REVISION NUMBER		NUMBER	
DATUM / ELEVATION / LEVEL LINE			
EXISTING CONSTRUCTION TO REMAIN			
NEW STUD CONSTRUCTION			
NEW CONCRETE BLOCK			
NEW FACE BRICK			
SOFFITS / OVERHANG ABOVE			
AREA OF REFUGE WHEELCHAIR SPACE ACCESS, CLEAR FLOOR SPACE ASSEMBLY WHEELCHAIR SEAT 30"x48" CLEAR FLOOR SPACE			
ACCESSIBLE ELEMENT			

ARCHITECTURAL MATERIALS

ACOUSTICAL TILE		PLASTER	
ALUMINUM		PLYWOOD (SMALL)	
BATT INSULATION		RIGID INSULATION	
BITUMINOUS		ROUGH WOOD (CONTINUOUS)	
BRASS OR BRONZE		ROUGH WOOD (INTERRUPTED)	
CARPET		RUBBLE	
CAST STONE		SHEATHING INSUL.	
CERAMIC TILE		SLATE, FLAGGING, SOAPSTONE	
C.M.U.		STEEL	
CONCRETE		STRUCTURAL CLAY	
EARTH		STRUCT. GLAZED FACING TILE	
FACE BRICK		TERRA-COTTA	
FACE GRAIN		TERRAZZO	
FINISHED WOOD		ELEVATIONS	
FIRE BRICK		BRICK	
GLASS BLOCK		CONCRETE BLOCK	
GLAZED BRICK (CALL OUT)		CERAMIC TILE	
GLAZING		GLASS	
GRAVEL		METAL PANEL CORRUGATED	
GYPNUM BOARD		SLATE, FLAGGING, SOAPSTONE	
MARBLE		SHINGLES	
METAL LATH		FLAT METAL PANEL	
METAL (SMALL)			

ABBREVIATIONS

ABOVE FINISH FLOOR	A.F.F.	MASONRY	MAS.
ABOVE FINISH GRADE	A.F.G.	MASONRY OPENING	M.O.
ACOUSTIC	AC.	MATERIAL	MATL.
ACOUSTIC TILE	A.C.T.	MAXIMUM	MAX.
AIR CONDITIONING	A.C.	MECHANICAL	MECH.
AIR HANDLING UNIT	A.H.U.	METAL	MET.
ALTERNATE	ALT.	MEZZANINE	MEZZ.
ALUMINUM	ALUM.	MINIMUM	MIN.
ANCHOR, ANCHORAGE	ANCH.	MISCELLANEOUS	MISC.
ANCHOR BOLTS	AB		
ANGLE	L		
ANODIZED	ANOD.	OFFICE	OFF.
APPROVED	APPD.	ON CENTER	O.C.
ARCHITECTURAL / ARCHITECT	ARCH.	OPPOSITE HAND	O.H.
ASBESTOS	ASB.	OPENING	OPG.
ASPHALT	ASPH.	OUTSIDE DIAMETER	O.D.
ASSEMBLY	ASSY.		
ASSISTANT	ASST		
AT	@		
AUTOMATIC	AUTO.		
BEAM	BM.	PAINTED	PTD.
BEARING	BRG.	PAIR	PR.
BETWEEN	BET.	PAPER TOWEL DISPENSER	P.T.D.
BEVEL / BEVELED	BEV.	PERPENDICULAR	PERP.
BITUMINOUS	BIT.	PLASTER	PLAS.
BLOCK	BLK.	PLASTIC LAMINATE	P.LAM.
BLOCKING	BLKG.	PLATE	PL.
BOARD	BD.	PLUMBING	PLBG.
BOTTOM OF	B/O	PLYWOOD	PLYWD.
BOTTOM	BOTT.	PREFAB	P.C.
BUILDING	BLDG.	PREFABRICATED	PREFAB.
BUILT-UP ROOF	B.U.R.	PROJECT, PROJECTION	PROJ.
		POINT	PT.
CABINET	CAB.	QUANTITY	QTY.
CABINET UNIT HEATER	C.U.H.	QUARRY TILE	Q.T.
CAP.	CAP.		
CEILING	CLG.		
CEILING HEIGHT	CLG. HGT.		
CEMENT	CEM.	RADIUS	RAD.
CENTER	CTR.	RAIN WATER LEADER	RWL.
CENTERLINE	CL	RECEIVING	RECV.
CERAMIC	CT	REFRIGERATOR	REF.
CHALKBOARD	C.B.D.	REINFORCED / REINFORCING	REINF.
CHANNEL	CH.	REQUIRED	REQ'D.
CLOSET	CLOS.	REVISION, REVISED	REV.
COLUMN	COL.	RISER	R
CONFERENCE	CONF.	ROOF DRAIN	R.D.
CONTROL OR	C.J.	ROOM	RM.
CONSTRUCTION JOINT	CONT.	SANITARY NAPKIN DISPENSER	S.N.D.
CONTINUOUS	CONTR.	SANITARY NAPKIN RECEPTACLE	S.N.R.
CONTRACTOR	CORR.	SCHEDULE	SCHED.
CORRIDOR	CRS.	SCUPPER	SC.
COURSE / COURSES		SECTION	SECT.
DAMP PROOFING	DAMPR.	SEISMIC JOINT	S.J.
DEGREE	DEG.	SERVICE SINK	S.S.
DEMOLITION	DEMO.	SHEET	SHT.
DEPARTMENT	DEPT.	SIMILAR	SIM.
DETAIL	DET.	SOAP DISPENSER	S.D.
DIAMETER	DIA.	SOUND TRANSMISSION CLASS	S.T.C.
DIMENSION	DIM.	SPECIFICATIONS	SPEC.
DISTANCE	DIST.	SPLASH BLOCK	S.B.
DOOR	DR.	SQUARE	SQ.
DOUBLE	DBL.	SQUARE INCH (S)	SQ.IN.
DOUBLE HUNG	D.H.	SQUARE YARD (S)	SQ.YD.
DOWN	DN.	SQUARE FEET (FOOT)	S.F.
DOWNSPOUT	D.S.	STAINLESS STEEL	ST. STL.
DRAWING	DWG.	STANDARD	STD.
DRINKING FOUNTAIN	D.F.	STEEL	STL.
		STORAGE	STOR.
EACH	EA.	STRUCTURAL	STRUCT.
ELECTRIC / ELECTRICAL	ELEC.	STRUCTURAL GLAZED FACING TILE	SGFT.
ELECTRIC WATER COOLER	EW.C.	STRUCTURAL STEEL	STRUCT. STL.
ELEVATION	EL.	SUSPEND, SUSPENSION	SUSP.
ELEVATOR	ELEV.	SURFACE	SURF.
EXISTING FIRE EXTINGUISHER	EXFE	SYSTEM	SYS.
EMERGENCY	EMG.		
EQUAL	EQ.		
EQUIPMENT	EQUIP.	TACKBOARD	T.BD.
EXISTING	EXIST.	TELEPHONE	TEL.
EXISTING TO REMAIN	ETR.	TEMPERATURE/TEMPORARY	TEMP.
EXPANSION	EXP.	TONGUE & GROOVE	T & G
EXPANSION JOINT	E.J.	THRESHOLD	THLD.
EXTERIOR	EXT.	THICK	THK.
EXTERIOR INSULATION		TOILET	TLT.
FINISH SYSTEM	EIFS.	TOP OF	T/O
		TREAD	T.
EQUIPMENT	EQUIP.	TYPICAL	TYP.
EXISTING	EXIST.		
EXISTING TO REMAIN	ETR.		
EXPANSION	EXP.		
EXPANSION JOINT	E.J.	UNDERWRITER'S LABORATORIES	U.L.
FEET, FOOT	FT.	UNIT HEATER	U.H.
FINISH, FINISHED	FIN.	UNIT VENTILATOR	U.V.
FIRE DAMPER	FD.	UNLESS NOTED OTHERWISE	U.N.O.
FIRE EXTINGUISHER	FE.	URNAL	UR.
FIRE RETARDANT	FR.		
FIREPROOFING	FPRFG.	VENT THRU ROOF	V.T.R.
FIXTURE	FIXT.	VERIFY IN FIELD	V.I.F.
FLASHING	FLASH.	VERTICAL	VERT.
FLOOR	FL.	VINYL ASBESTOS TILE	V.A.T.
FLOOR DRAIN	FD.	VINYL COMPOSITION TILE	V.C.T.
FLOOR FINISH	FLR. FIN.		
FOOTING	FTG.	WATER CLOSET	W.C.
FOUNDATION	FDN.	WATERPROOFING	W.P.
FURNISH / FURNISHED	FURN.	WELDED WIRE FABRIC	W.W.F.
FURRED / FURRING	FURR.	WHITE BOARD	WB.
		WOOD	WD.
GAUGE	GA.		
GALVANIZED	GALV.		
GYPNUM BOARD	GYP.BD.		
HANDRAIL	HR.		
HANDICAPPED	H.C.		
HEIGHT	HGT.		
HIGH-POINT	HP.		
HOLLOW METAL	HM.		
HORIZONTAL	HORIZ.		
HOSE BIB	HB.		
INCH OR INCHES	IN. OR "		
INCLUDE / INCLUDING	INCL.		
INFORMATION	INFO.		
INSIDE DIAMETER	I.D.		
INSULATION	INSUL.		
INTERIOR	INT.		
JOINT	JT.		
KICKPLATE	KP.		
LABORATORY	LAB.		
LAVATORY	LAV.		
LIGHTING	LTG.		
MACHINE	MACH.		
MAINTENANCE	MAINT.		
MANUFACTURER	MFR.		
MARKER BOARD	M.BD.		

DATE:	9/1/2022
DRAWN BY:	JIM
SCALE:	N.T.S.
REVIEWED BY:	RWR
PROJECT NO.	2021-091A
	(R1.1) REFERENCE SHEET

REVISED	DESCRIPTION
NO.	DATE
1	11/28/72
	ISSUED FOR BID

NOTES, LEGENDS & REFERENCE INFORMATION

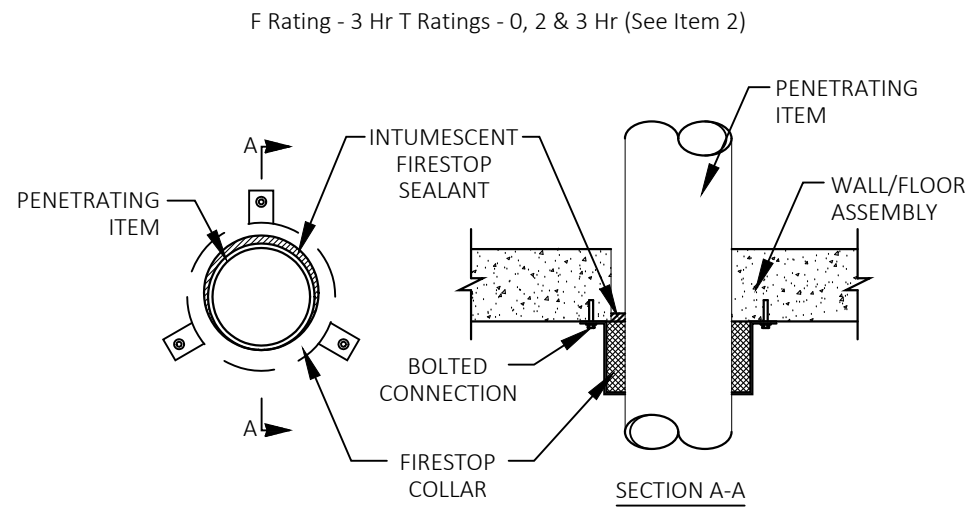
STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

ARCHITECT'S SEAL

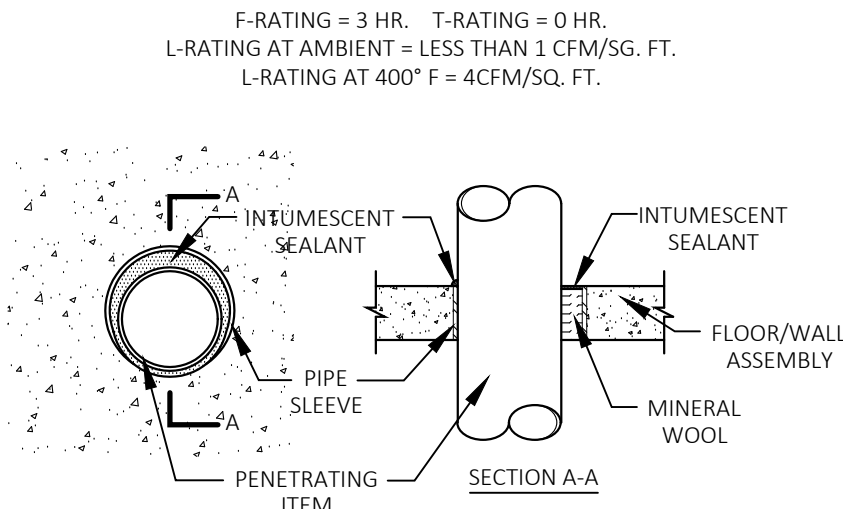
FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
R1.1

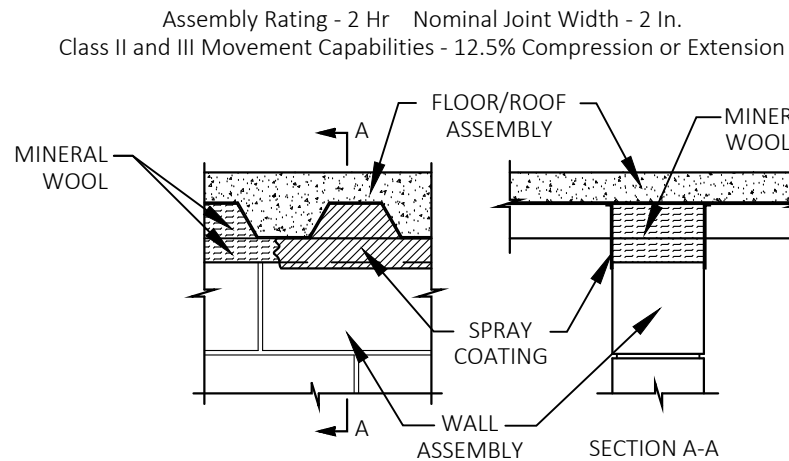
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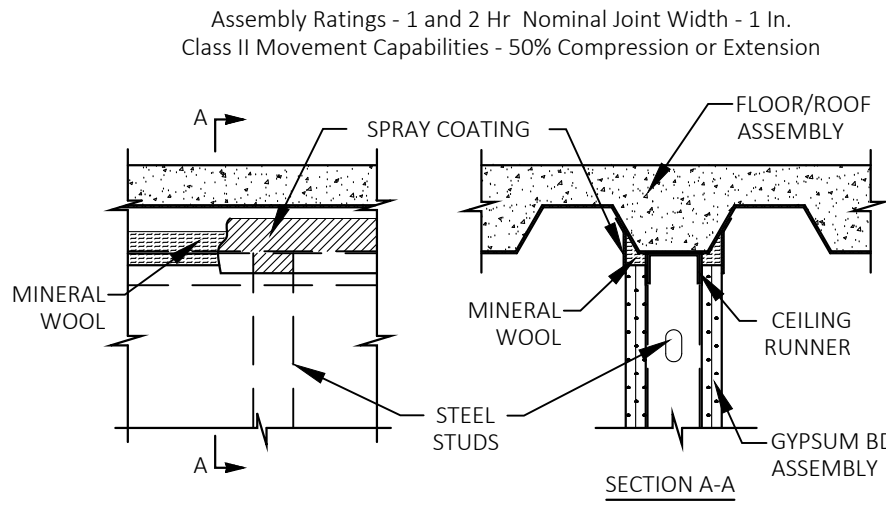
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PLASTIC PIPE THROUGH CONCRETE
CONC. FLOOR/WALL



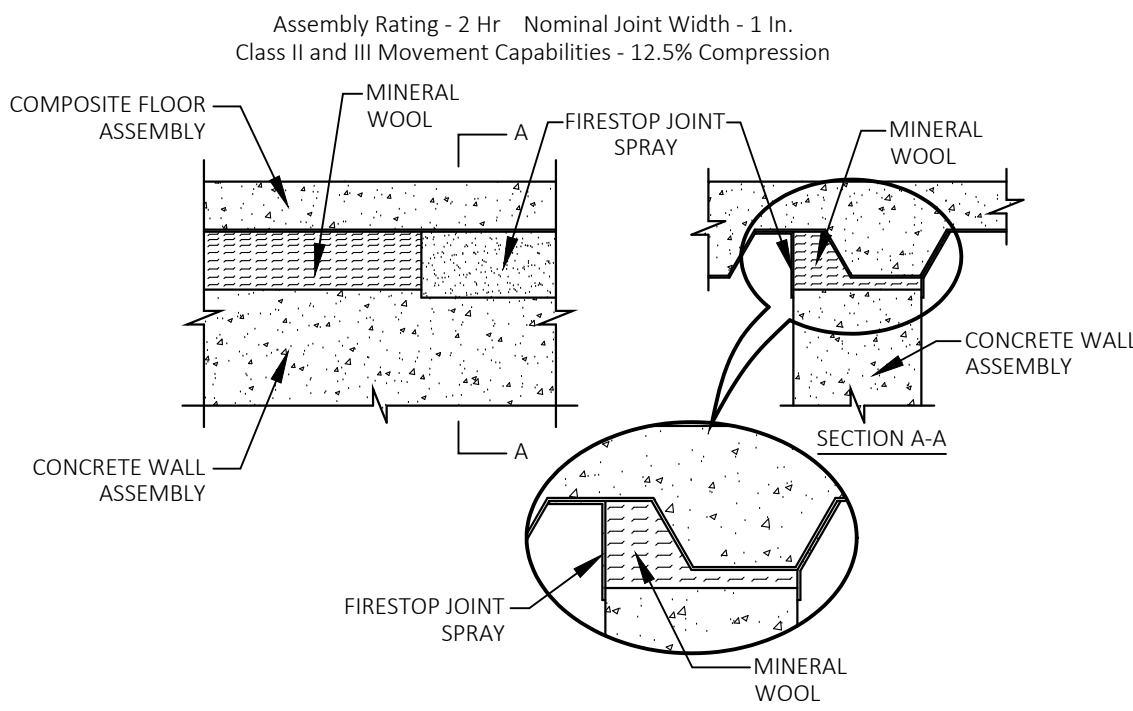
System No: C-AJ-1226
METAL PIPE THROUGH A SLEEVE IN
CONC. FLOOR/WALL



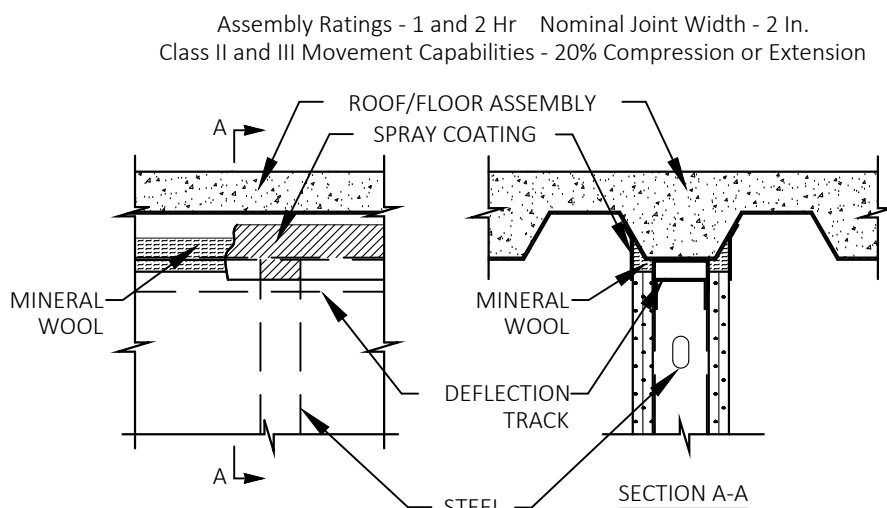
System No: HW-D-0098
TOP OF WALL JOINT
2HR CONCRETE/BLOCK WALL ASSEMBLY



System No: HW-D-0049
TOP OF WALL JOINT
1 OR 2HR GYPSUM WALL ASSEMBLY



System No: HW-D-0181
TOP OF WALL JOINT
2HR CONCRETE/BLOCK WALL ASSEMBLY



System No: HW-D-0089
TOP OF WALL JOINT
1 OR 2HR GYPSUM WALL ASSEMBLY

CODE INFORMATION

Date of Original Construction 1920 Renovation 2023

1. GROUP CLASSIFICATION (Primary) (Incidental) E

2. CONSTRUCTION TYPE (Chapter 6) Minimum Type Required: 2B ASSUMED Actual Type Provided: (existing) 2B ASSUMED (new) 2B ASSUMED

3. BUILDING HEIGHT (Chapter 5) Allowable Height (story/feet) 2 STORIES/55 FEET Actual Height (story/feet) 2 STORIES/51 FEET (Stories Above Grade) 2

4. BUILDING AREA (Chapter 5) Building Area: (Total) Existing Construction 25,856 s.f. New Construction 204 s.f. Total Floor 26,060 s.f.

8. FIRE-RESISTANCE RATED REQUIREMENTS FOR BUILDING ELEMENTS (Table 601)

1) Structural frame: including columns, girders, trusses 0 Hr(s)

2) Bearing Walls: Exterior 0 Hr(s) Interior 0 Hr(s)

3) Nonbearing walls and partitions (Exterior) see Table 602

4) Nonbearing walls and partitions (Interior) 0 Hr(s)

5) Floor Construction (including supporting beams and joists) 0 Hr(s)

6) Roof Construction, (including supporting beams and joists) 0 Hr(s)

13. SPRINKLER PROTECTION X Entire Building None

14. CODES TO WHICH THIS PROJECT WAS DESIGNED Dated: 2015 w/ 2018 Supplement 2015 w/ 2018 Supplement 2017 w/current amendment Current Rehabilitation Act of 1973 and Americans With Disabilities Act of 1990 with all amendments 2010 ADA Other

15. THRESHOLD BUILDING CONDITIONS Yes X No

16. BUILDING AREAS FOR GRANT CALCULATIONS (ENTIRE FACILITY)

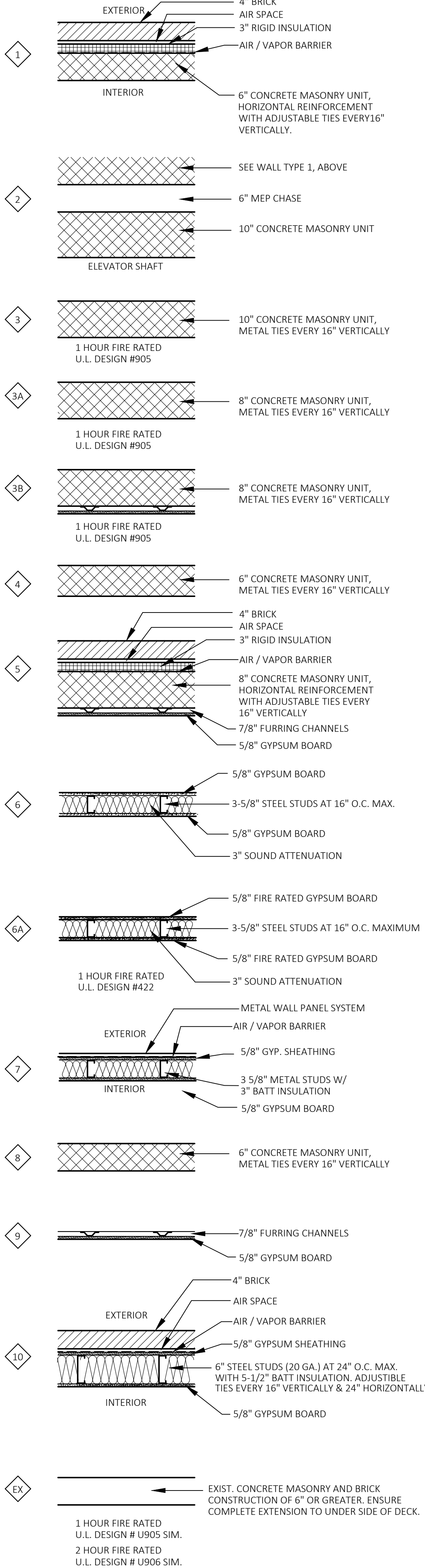
EXISTING UNRENOVATED CONSTRUCTION	25,856
EXISTING BEING DEMOLISHED	0
TOTAL EXISTING CONSTRUCTION	(0)
TOTAL NEW CONSTRUCTION	25,856
TOTAL FACILITY	204
	26,060

CODE INFORMATION

2015 International Building Code *	2015 International Residential Code *
2015 International Mechanical Code *	2015 International Existing Building Code *
2015 International Plumbing Code *	2009 Accessible and Usable Buildings and Facilities (ICC A117.1-2009) *
2015 International Energy Conservation Code *	2017 National Electrical Code (NFPA 70) *
2013 Installation of Sprinkler Systems (NFPA 13)	2015 International Fire Code *

* With Connecticut Amendments and General Statute requirements

WALL TYPES



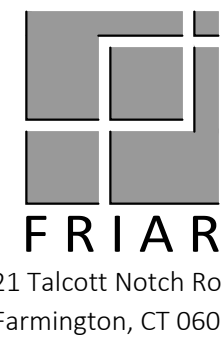
DATE: 9/1/2022
DRAWN BY: JIM
SCALE: N.T.S.
REVIEWED BY: JMY
PROJECT NO. 2021-091A
(R1.1) WALL TYPE & UL

REVISIONS
NO. DATE DESCRIPTION
1 11/28/22 ISSUED FOR BID

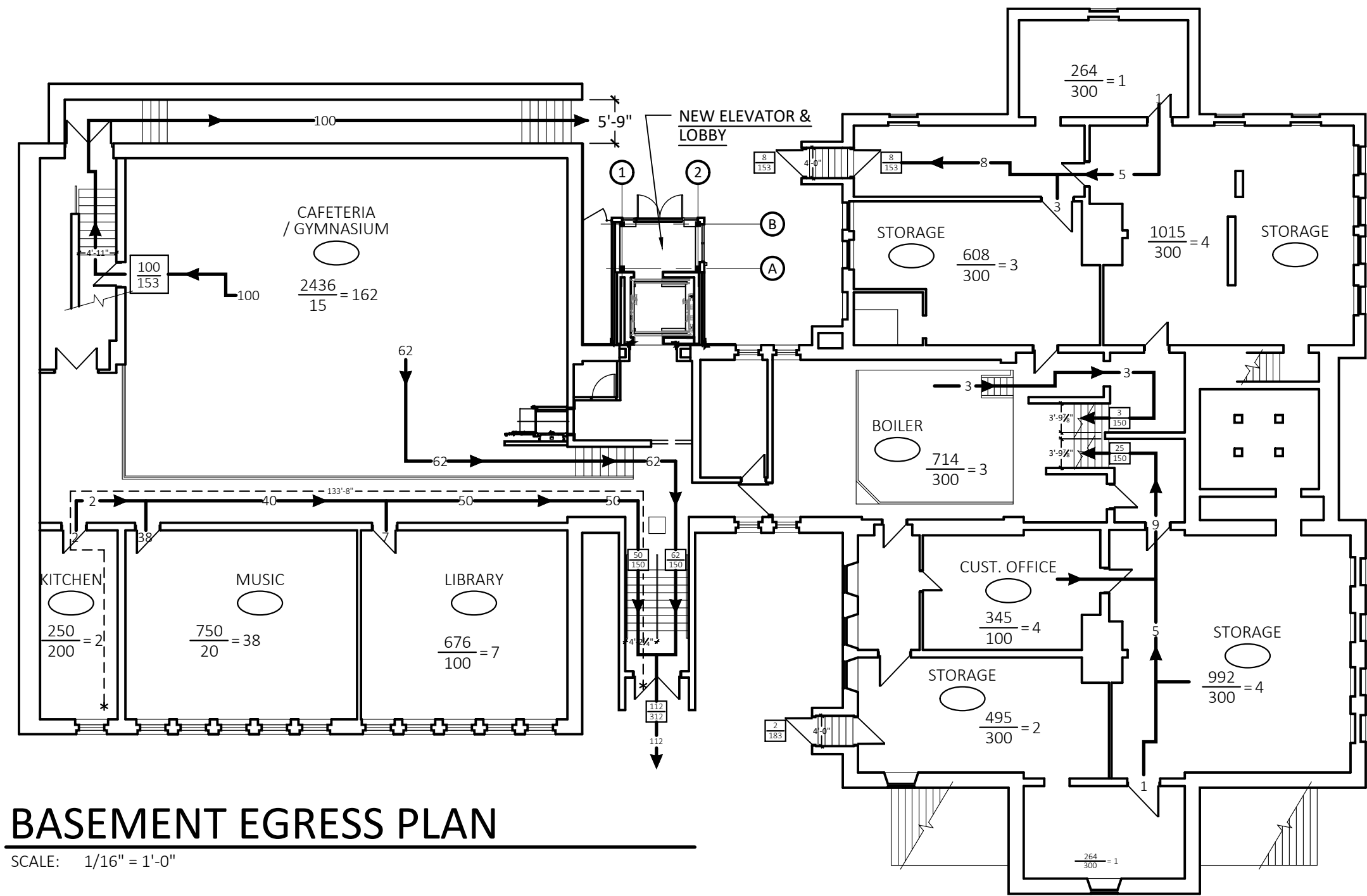
CODE INFORMATION,
WALL TYPES, UL RATINGS

STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

ARCHITECT'S SEAL

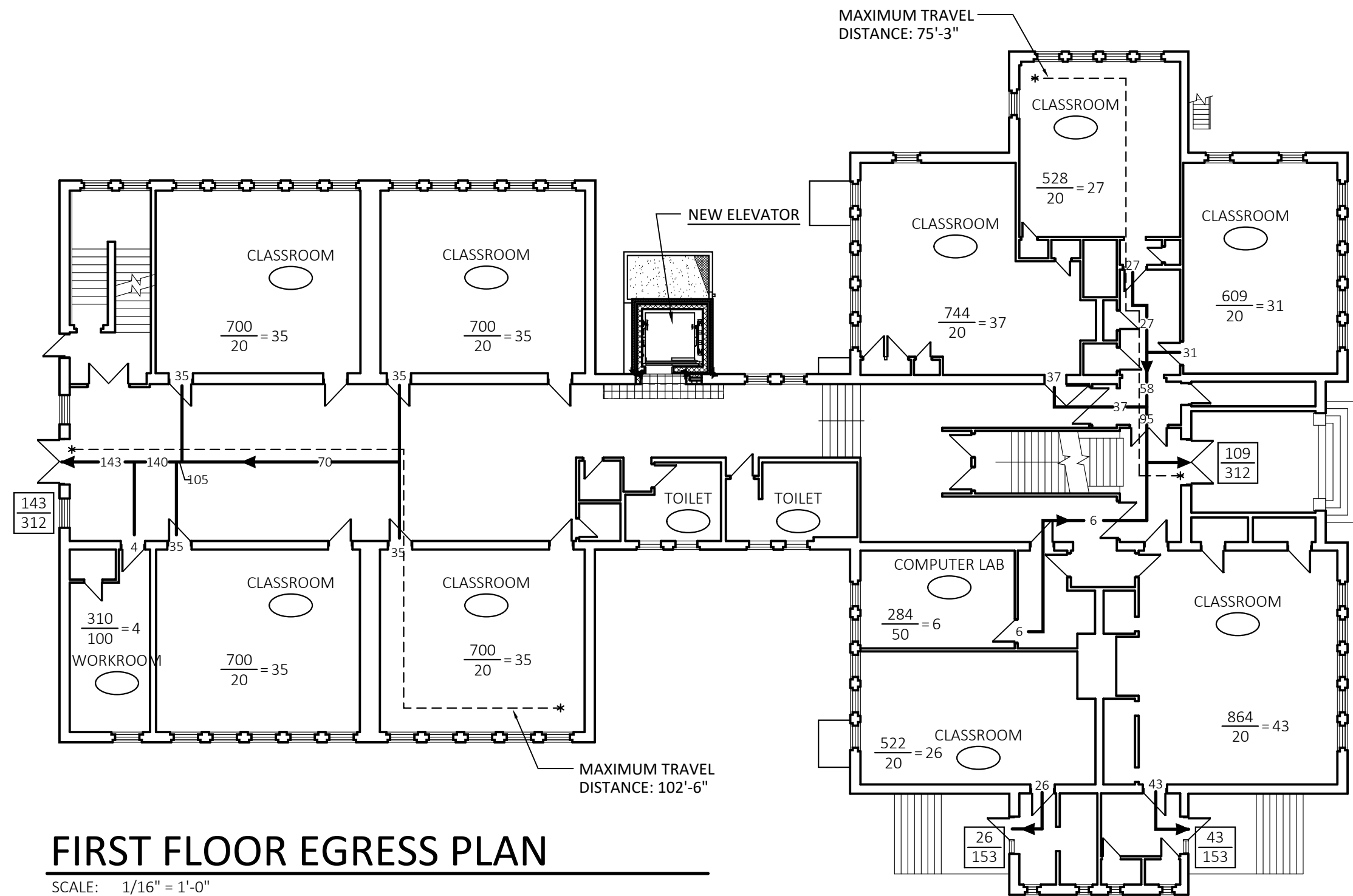


SHEET NO.
R1.2



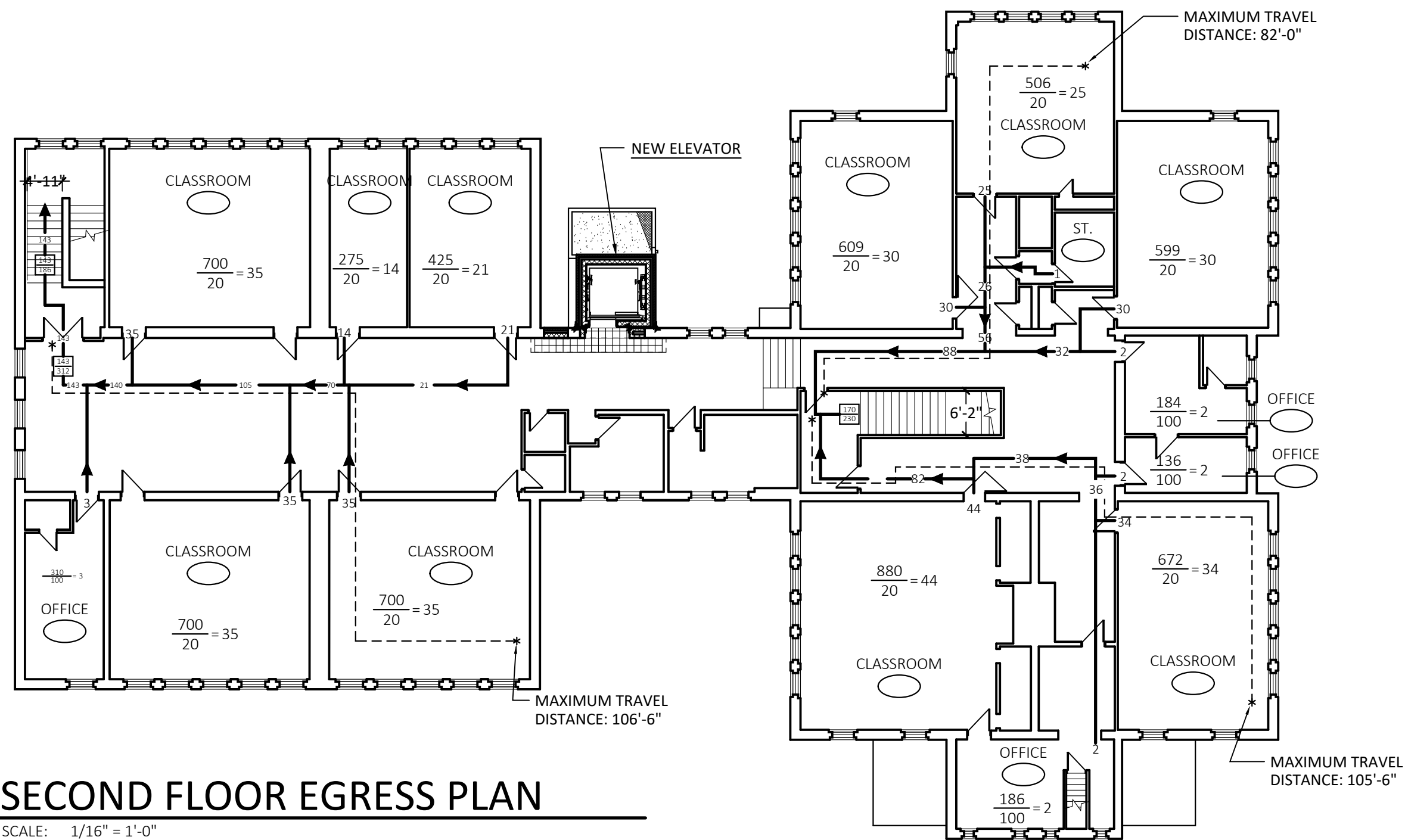
BASEMENT EGRESS PLAN

SCALE: 1/16" = 1'-0"



FIRST FLOOR EGRESS PLAN

SCALE: 1/16" = 1'-0"



SECOND FLOOR EGRESS PLAN

SCALE: 1/16" = 1'-0"

EGRESS PLAN LEGEND

- ROOM NUMBER
- ROOM OCCUPANCY LOAD
 - AREA IN SQUARE FEET
 - OCCUPANCY LOAD FACTOR
- EXIT CAPACITY
 - ACTUAL EGRESS OCCUPANCY OF DOOR OR STAIR
 - MAXIMUM ALLOWABLE EGRESS OCCUPANCY OF DOOR OR STAIR
- DIRECTION OF TRAVEL WITH ACCUMULATED OCCUPANCY LOAD
- MAXIMUM TRAVEL DISTANCE FROM FURTHEST POINT

NOTES:

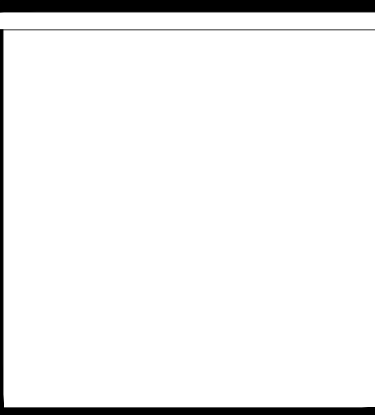
- A VALUE OF 0.2 INCHES OF WIDTH PER OCCUPANT HAS BEEN USED TO CALCULATE DOOR AND CORRIDOR EGRESS CAPACITY. IN ALL CASES, THE ACTUAL CLEAR OPENING OF THE DOOR AND ACTUAL CLEAR WIDTH OF CORRIDOR IS USED.
- A VALUE OF 0.3 INCHES OF WIDTH PER OCCUPANT HAS BEEN USED TO CALCULATE STAIRWAY EGRESS CAPACITY. IN ALL CASES, THE ACTUAL CLEAR WIDTH BETWEEN HAND-RAILS IS USED.

DATE:	9/1/2022
DRAWN BY:	JIM
SCALE:	NOTED
REVIEWED BY:	JMY
PROJECT NO.	2021-091A
	SELECT DEMO

REVISIONS	DESCRIPTION
NO.	DATE
1	11/28/22
	ISSUED FOR BID

EGRESS PLANS

STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
**WASHINGTON
ELEMENTARY SCHOOL**
685 BALDWIN STREET
WATERBURY, CT 06706

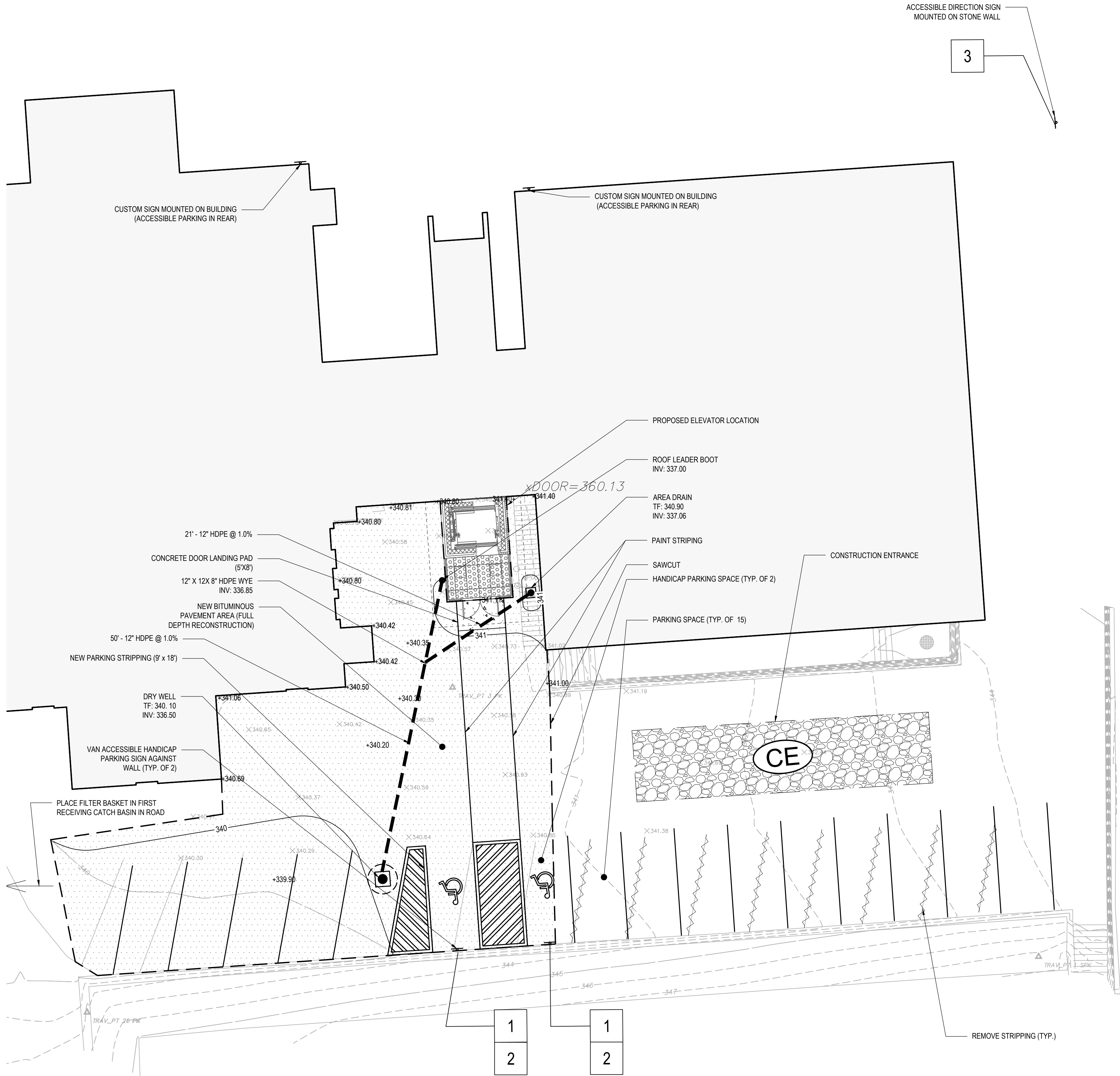


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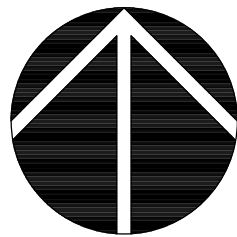
FRIAR
21 Talcott Notch Road
Farmington, CT 06032



**SHEET NO.
R1.3**



1 SITE PLAN
SCALE: 1"=10'






- LEGEND
- 340 5' CONTOUR
 - 341 1' CONTOUR
 - X341.69 EXIST. SPOT ELEVATION
 - +340.20 PROP. SPOT ELEVATION
 - PROP. BITUMINOUS PAVEMENT AREA
 - CONSTRUCTION ENTRANCE

SITE PREP/EROSION CONTROL NOTES:

1. PRIOR TO ANY DEMOLITION ACTIVITY THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES.
2. BEFORE BEGINNING ANY WORK, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT 1.800.922.4455. THE RESPECTIVE UTILITY COMPANIES AND LOCAL AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES. ANY COSTS INCURRED BY THE CONTRACTOR AS A RESULT OF FAILURE TO CONTACT PROPER AUTHORITIES SHALL BE BORN BY THE CONTRACTOR.
3. CARE SHOULD BE TAKEN IN ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES.
4. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DUE TO HIS CONTRACT OPERATIONS.
5. CONTRACTOR SHALL PROTECT AND SUSTAIN IN NORMAL SERVICE ALL EXISTING UTILITIES, STRUCTURES, EQUIPMENT, ROADWAYS AND DRIVEWAYS.
6. LIMITS OF EXISTING PAVEMENTS AND CURBS TO REMAIN SHALL BE NEATLY SAWCUT TO PROVIDE FOR A NEAT, CLEAN JOINT/OR FINISHED EDGE.
7. ANY STOCKPILED MATERIAL SHALL BE SUBJECT TO EROSION CONTROL MEASURES THAT INCLUDE A MINIMUM OF SILT FENCE OR HAY BALE BARRIER, COVER STOCKPILES IF SIGNIFICANT RAINFALL IS PREDICTED.
8. NO RUNOFF SHALL BE ALLOWED TO ENTER ANY STORMWATER SYSTEM OR EXIT THE SITE PRIOR TO TREATMENT FOR SEDIMENT REMOVAL.
9. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AND SHALL NOT ALLOW THE ACCUMULATION OF RUBBISH OR CONSTRUCTION DEBRIS. ALL TRASH SHALL BE CLEANED ON A DAILY BASIS AND THE SITE SHALL BE LEFT IN A NEAT CONDITION AT THE END OF EACH WORK DAY.
10. FOR DUST CONTROL, PERIODICALLY MOISTEN EXPOSED SOIL SURFACES WITH WATER AND MAINTAIN ADEQUATE MOISTURE LEVELS.
11. SWEEP ADJACENT ROADWAYS IF MUD OR SOIL IS TRACKED ON TO THEM, OR AS DIRECTED BY THE ENGINEER.

CONSTRUCTION NOTES:


1. MATERIALS AND CONSTRUCTION PROCEDURES SHALL COMPLY WITH CT DOT FORM 818 AND THE TOWN OF WATERBURY
2. NEW PAVEMENT TO MEET LINE & GRADE OF EXISTING PAVEMENTS.
3. ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED.
4. FIELD ADJUSTMENTS MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE AND APPROPRIATE MUNICIPAL OFFICIALS PRIOR TO CONSTRUCTION.
5. SLOPES ALONG THE ACCESSIBLE ROUTE SHALL BE LESS THAN 1:20 (5%) AND THE CROSS SLOPES SHALL NOT EXCEED 1:50 (2%). CHANGES IN LEVELS SHALL NOT BE GREATER THAN ¼ INCH.
6. SLOPES WITHIN THE HCP PARKING SPACE SHALL NOT EXCEED 1:50 (2%) IN ANY DIRECTION.
7. THE LOCATIONS OF EXISTING SITE FEATURES AS SHOWN HAVE BEEN OBTAINED FROM MAPS, SURVEYS, FIELD INSPECTIONS, AND OTHER AVAILABLE INFORMATION. THEY MUST BE CONSIDERED APPROXIMATE BOTH TO LOCATION, SIZE, AND AS-BUILT CONDITION AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL FIELD CONDITIONS.
8. COMPLY WITH CONNECTICUT BUILDING CODE FOR ALL SITE CONSTRUCTION, INCLUDING HANDICAPPED ACCESSIBILITY.
9. PROPOSED GRADES INDICATE DESIGN INTENT. VERIFY ELEVATIONS AND MAKE ADJUSTMENTS TO MEET FIELD CONDITIONS. DO NOT PROCEED WITH ANY ADJUSTMENT OR FIELD MODIFICATION UNTIL APPROVED BY THE ENGINEER.
10. THE CONTRACTOR SHALL COMPLY WITH ALL STATE, LOCAL, AND FEDERAL REGULATIONS.

SIGNAGE TABLE							
#	MUTCD NO.	CT CATALOG NO.	LEGEND	WIDTH	HEIGHT	SHEETING TYPE	SIGN DETAIL
1	N/A	PKE-35215-CT	ACCESSIBLE SIGN	18 IN.	12 IN.	XI	WHITE 
2	R7-8P	31-0648	VAN ACCESSIBLE (PLAQUE)	18 IN.	9 IN.	IX	WHITE 
3	N/A	N/A	ACCESSIBLE DIRECTION SIGN	18 IN.	12 IN.	XI	WHITE 


PARKING TABLE	
A. EXISTING PARKING =	15 SPACES
B. PROPOSED PARKING =	17 SPACES
C. REQUIRED HC PARKING =	1 SPACES
D. PROPOSED HC PARKING =	2 SPACES

DATE:	09/01/2022
DRAWN BY:	JJD
SCALE:	1" = 10'
REVIEWED BY:	JWG
PROJECT NO.	2021-091A

REVISIONS		
NO.	DATE	DESCRIPTION
	11/28/22	ISSUED FOR BID

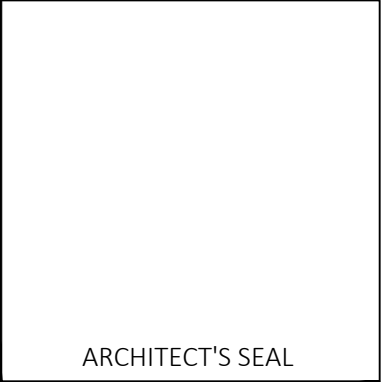
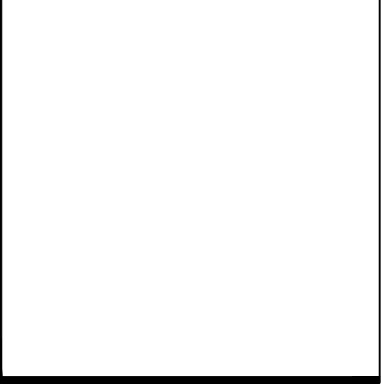


120 Hebron Avenue, 2nd Floor
Glastonbury, Connecticut 06033
P 860-633-8341
F 860-633-1068
www.Benesch.com



SITE PLAN

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

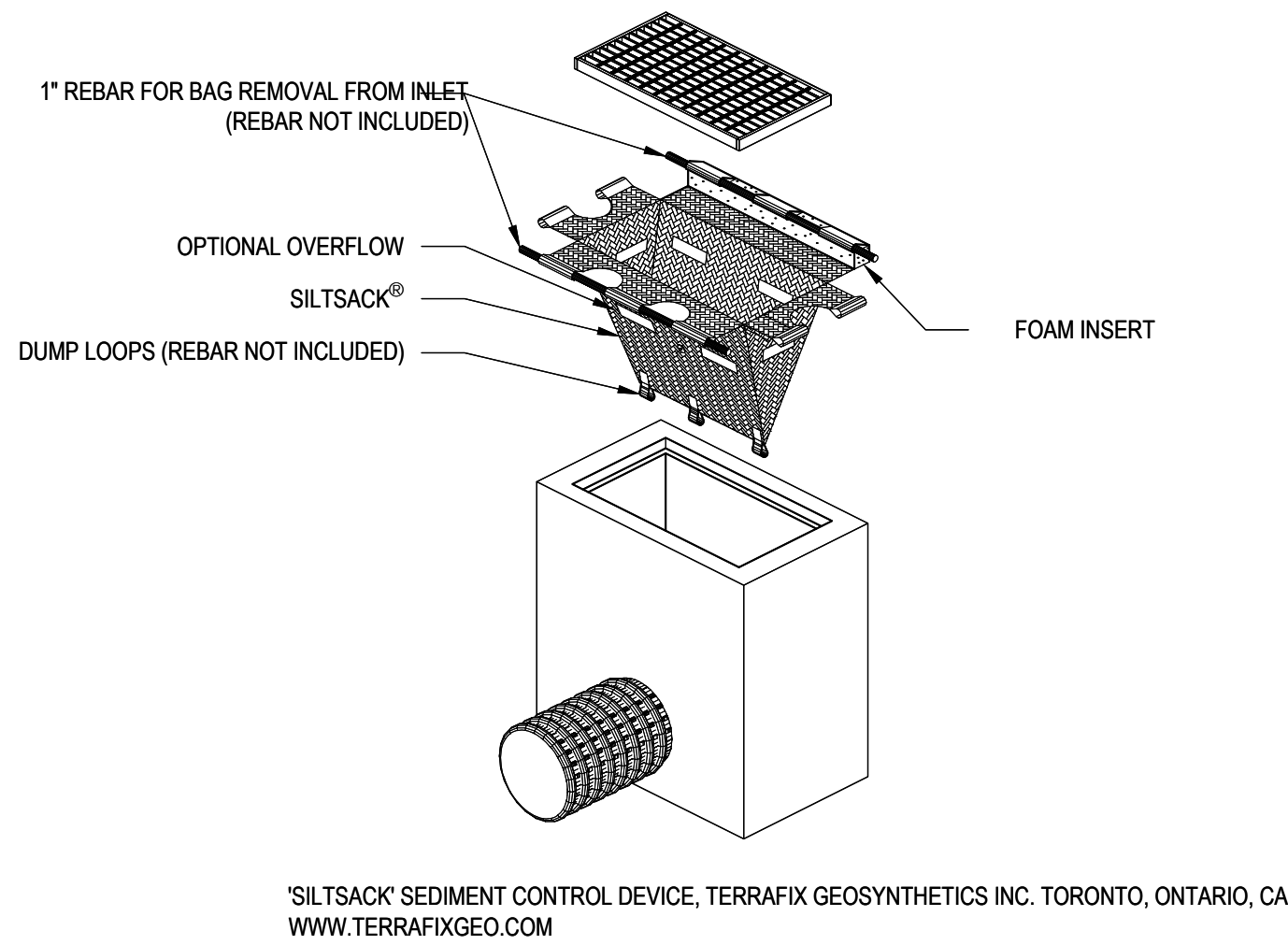




FRIAR

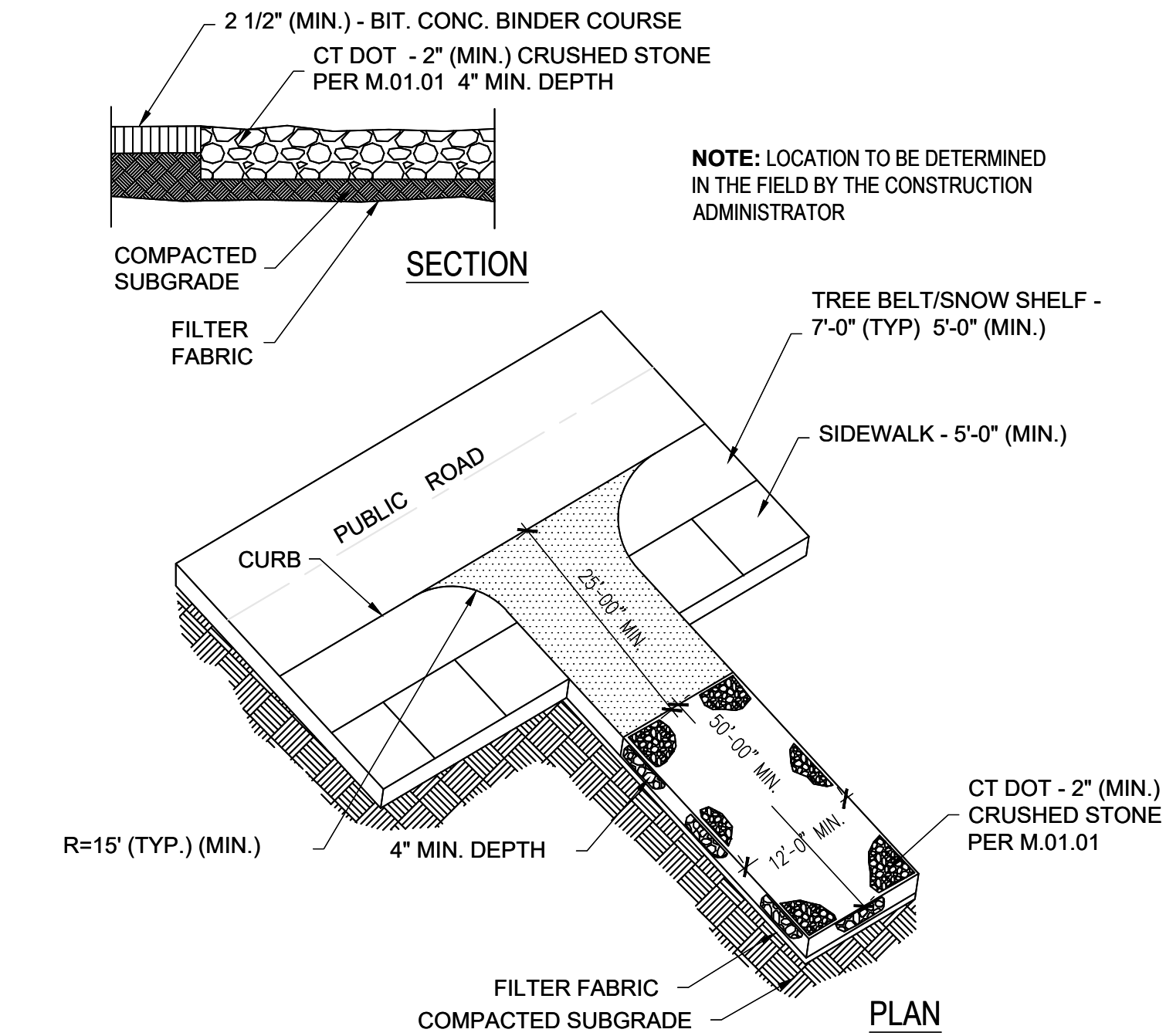
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
C1.0



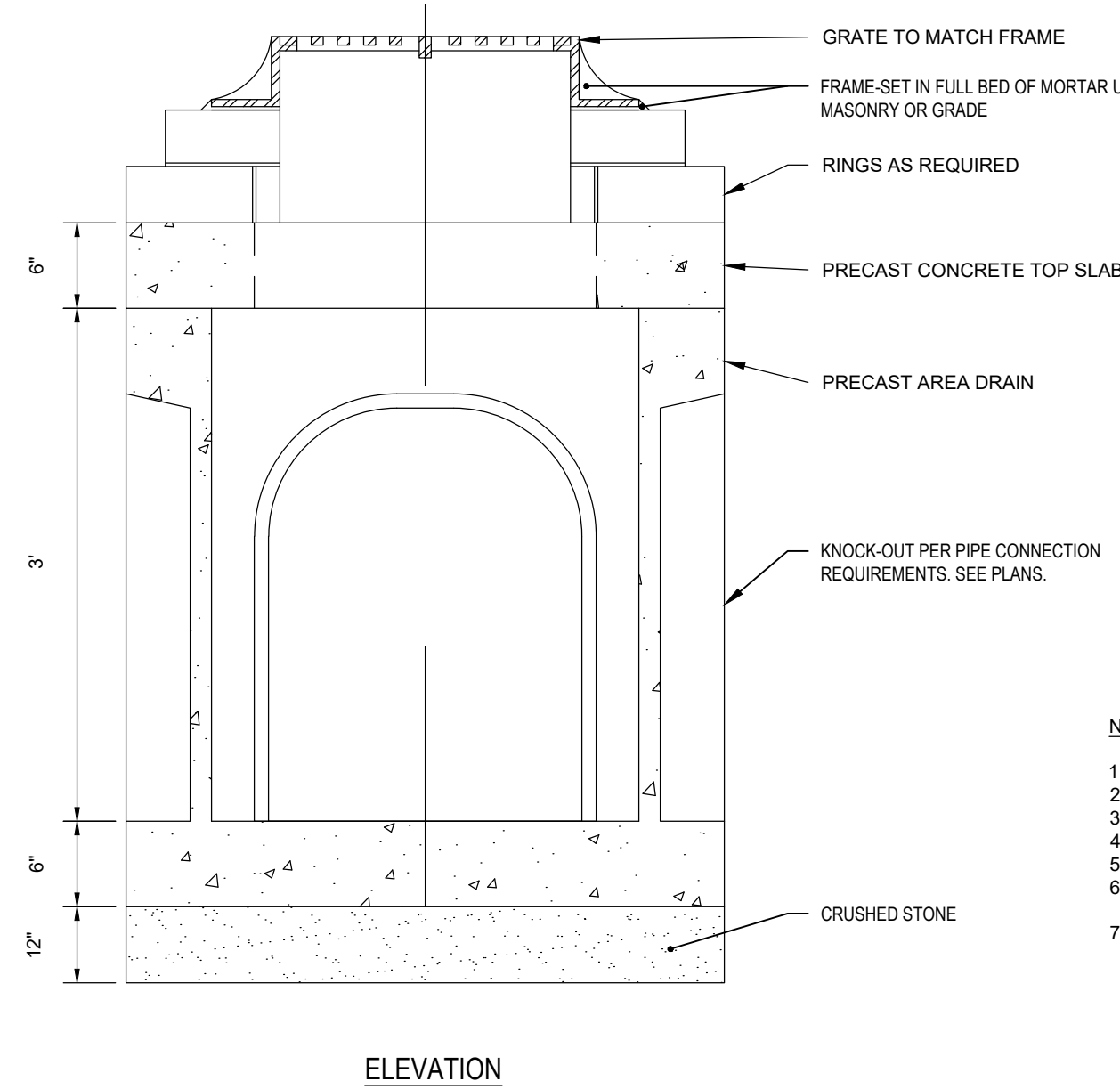
SILT SACK (SS)

SCALE: NONE



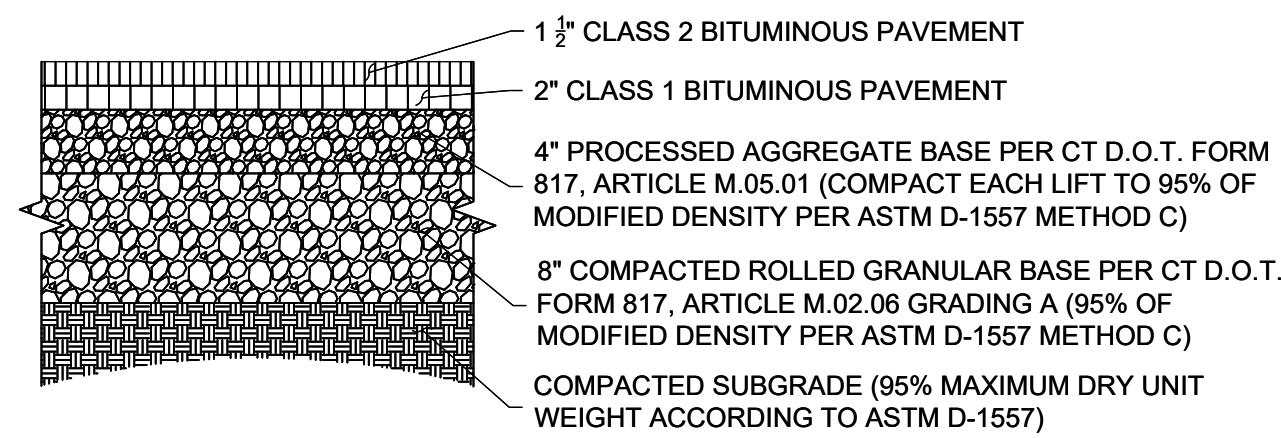
CONSTRUCTION ENTRANCE

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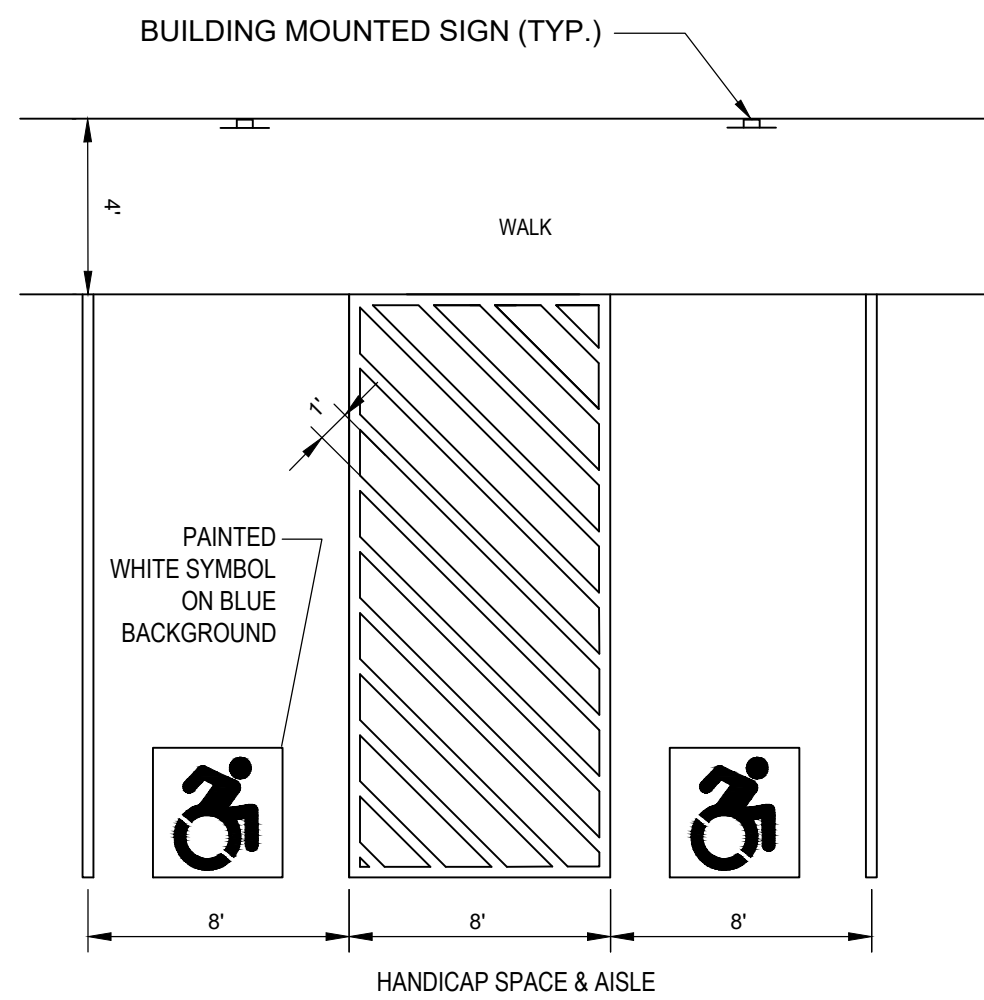
AREA DRAIN

SCALE: NONE



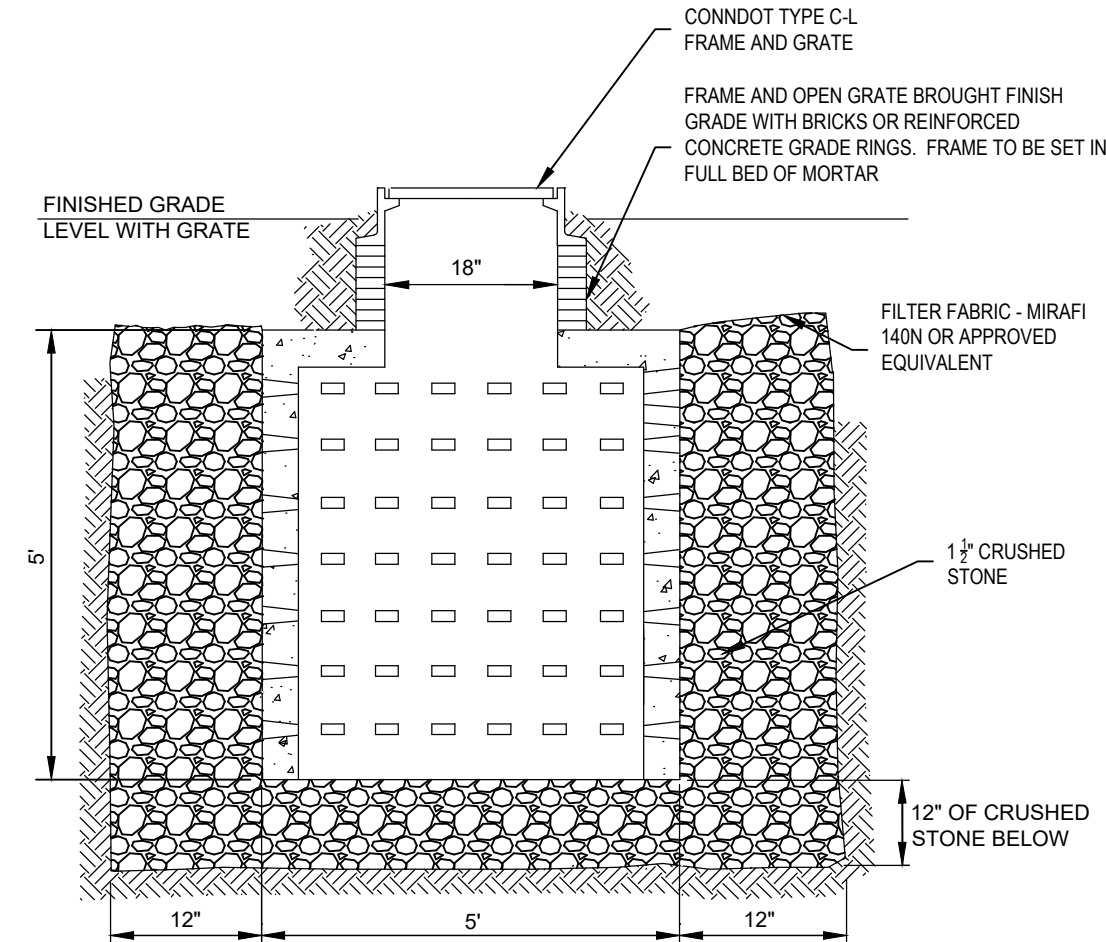
BITUMINOUS CONCRETE PAVEMENT

SCALE: NONE



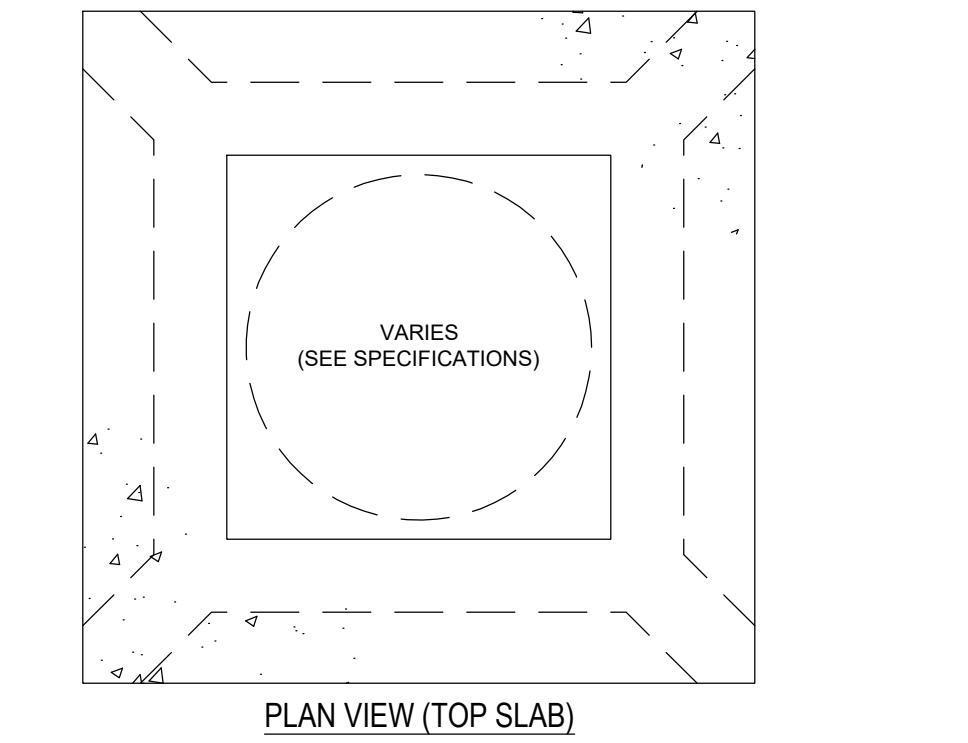
HANDICAP PARKING STALL LAYOUT

SCALE: NONE



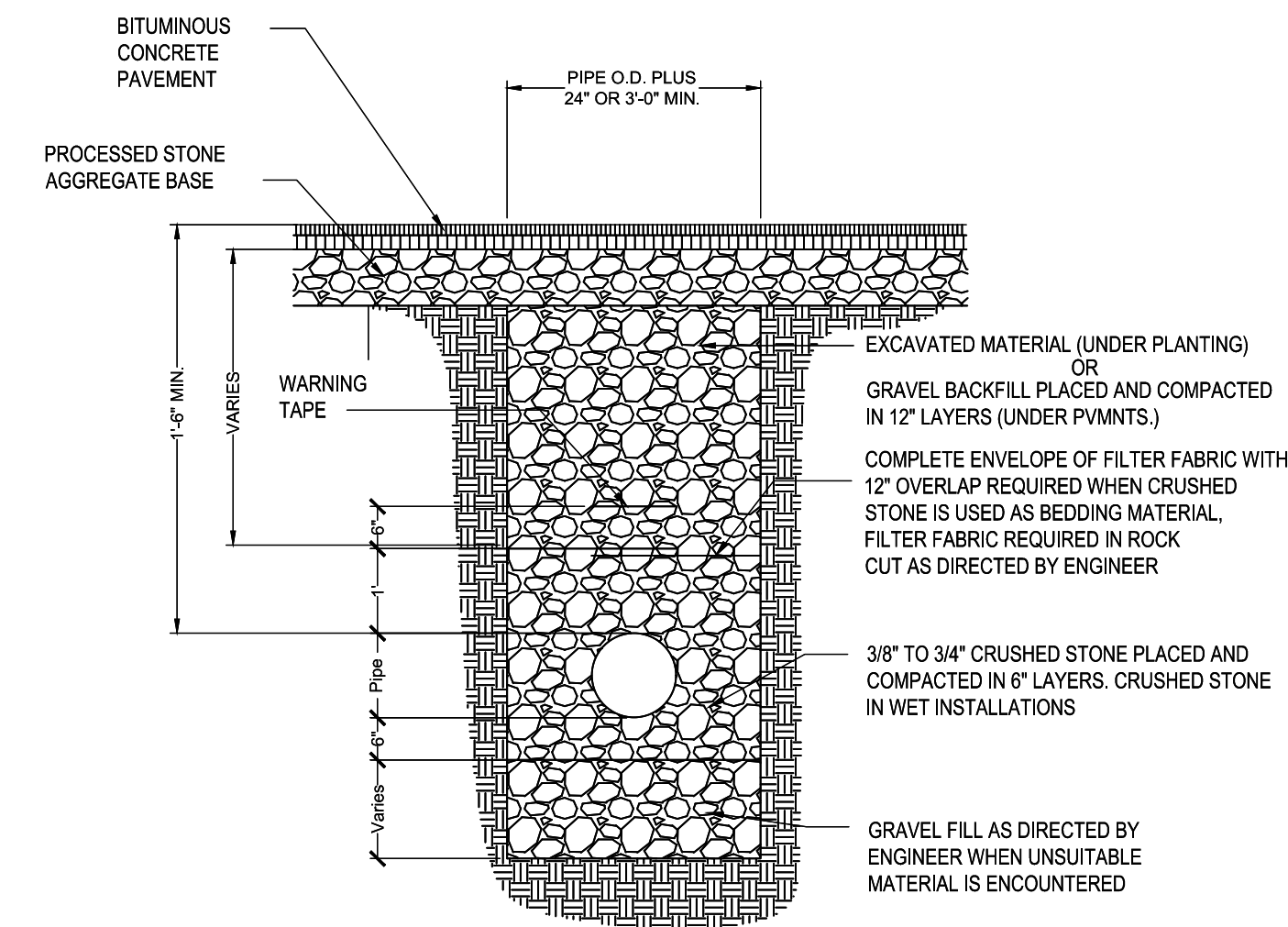
DRY WELL

SCALE: NONE



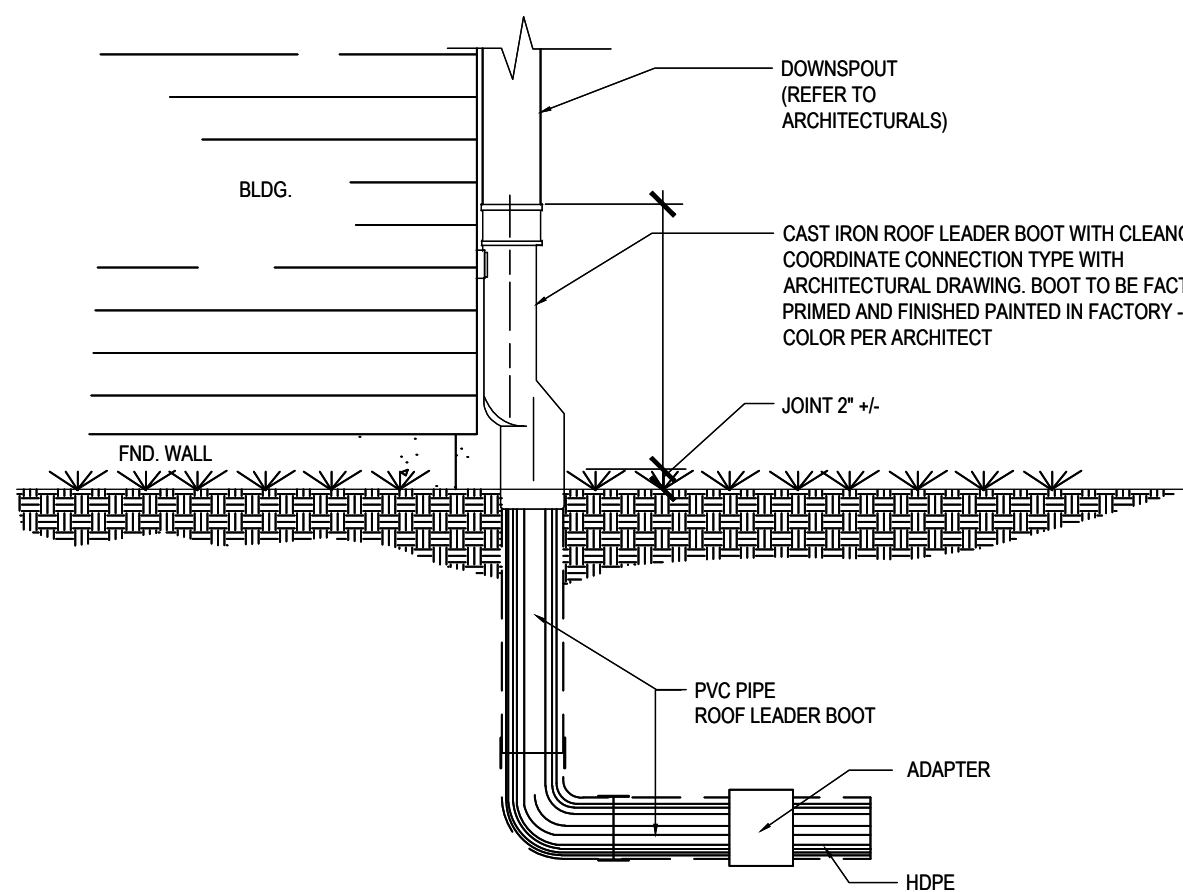
STANDARD PAINTED PARKING MARKINGS

SCALE: NONE



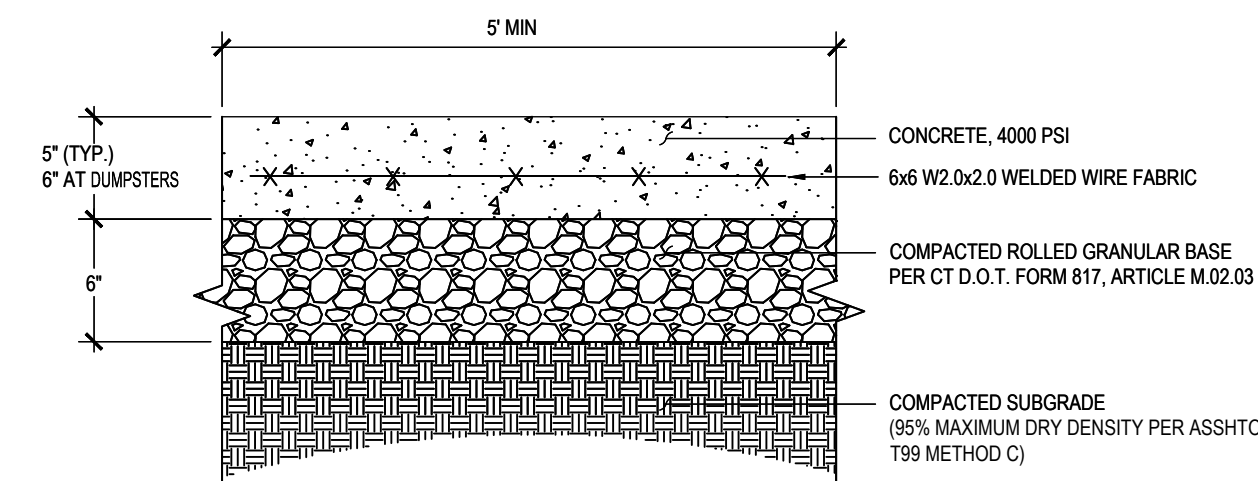
STORM TRENCH

SCALE: NONE



ROOF LEADER BOOT

SCALE: NONE



CONCRETE DOOR LANDING PAD

SCALE: NONE

DATE:	09/01/2022	JJD
DRAWN BY:	1\"/>	1\"/>
SCALE:	1\"/>	1\"/>
REVIEWED BY:	JGW	2021-091A
PROJECT NO.		

REVISIONS	DESCRIPTION	ISSUED FOR BID
NO.	DATE	11/29/22

benesch
120 Hebron Avenue, 2nd Floor
Glastonbury, Connecticut 06033
P 860-633-8341
F 860-633-1068
www.Benesch.com

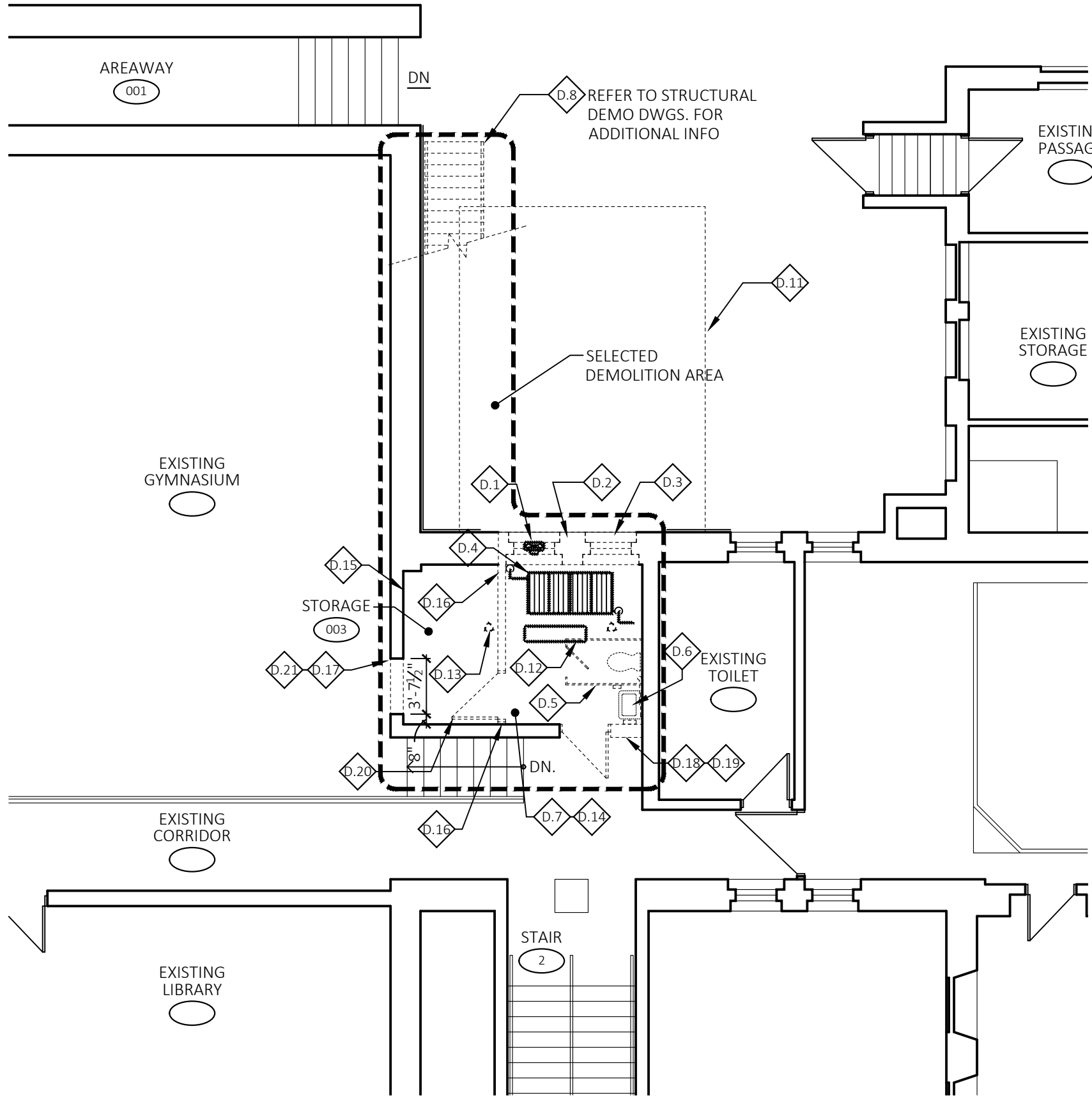
SITE DETAILS

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
**WASHINGTON
ELEMENTARY SCHOOL**
685 BALDWIN STREET
WATERBURY, CT 06706

ARCHITECT'S SEAL

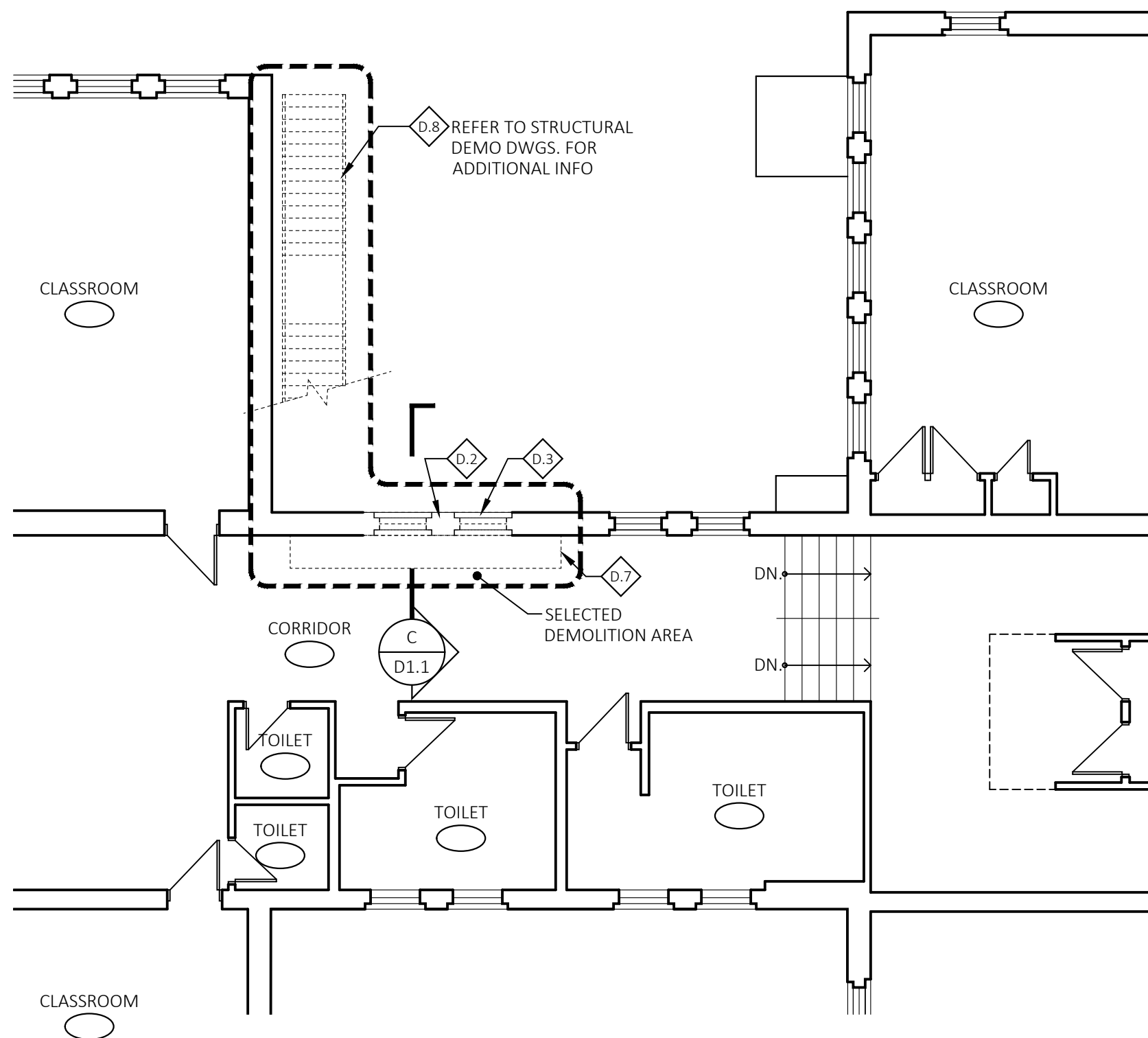
FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
C2.0



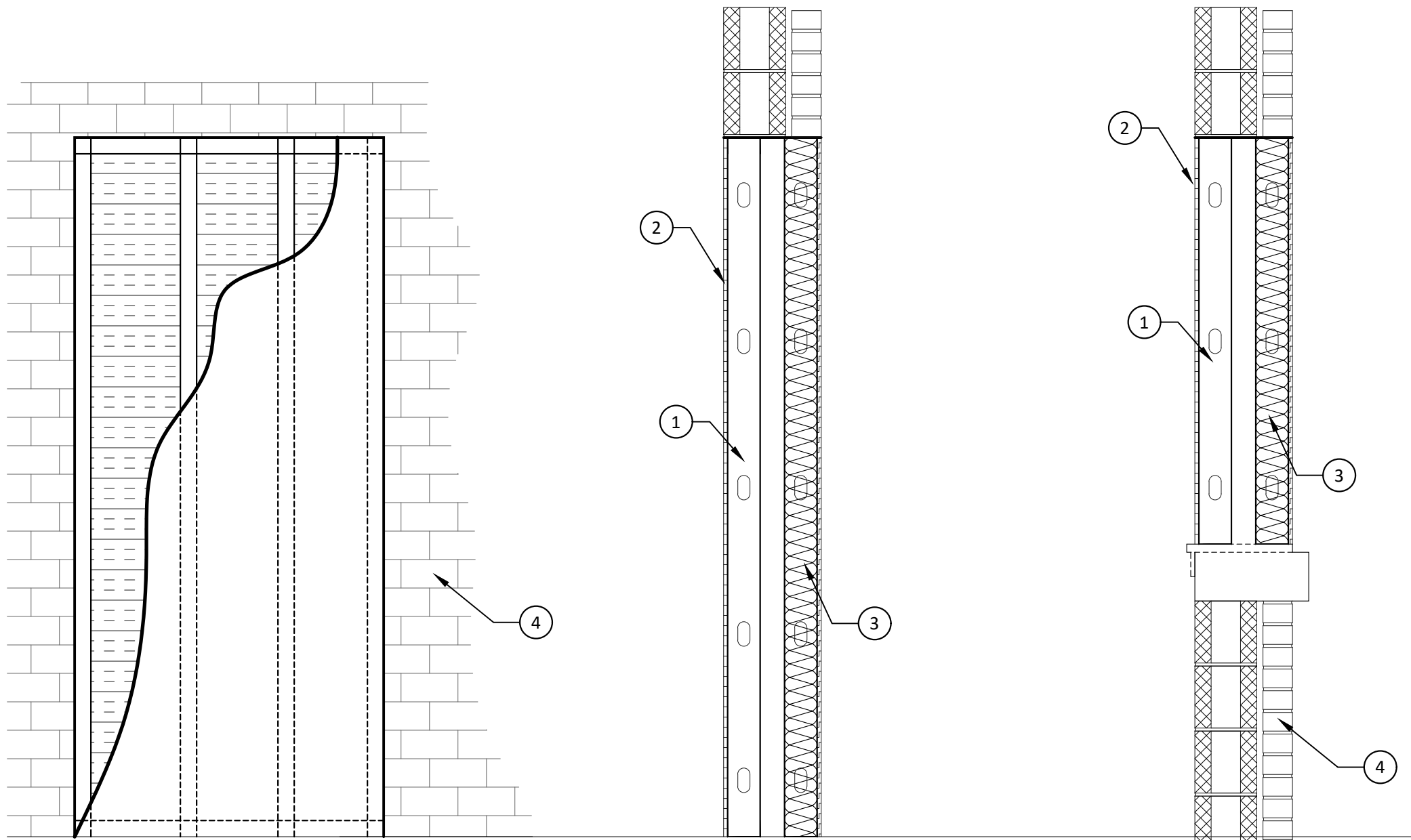
BASEMENT DEMO PLAN

SCALE: 1/8"=1'-0"



FIRST FLOOR DEMO PLAN

SCALE: 1/8"=1'-0"



A DOOR INFILL

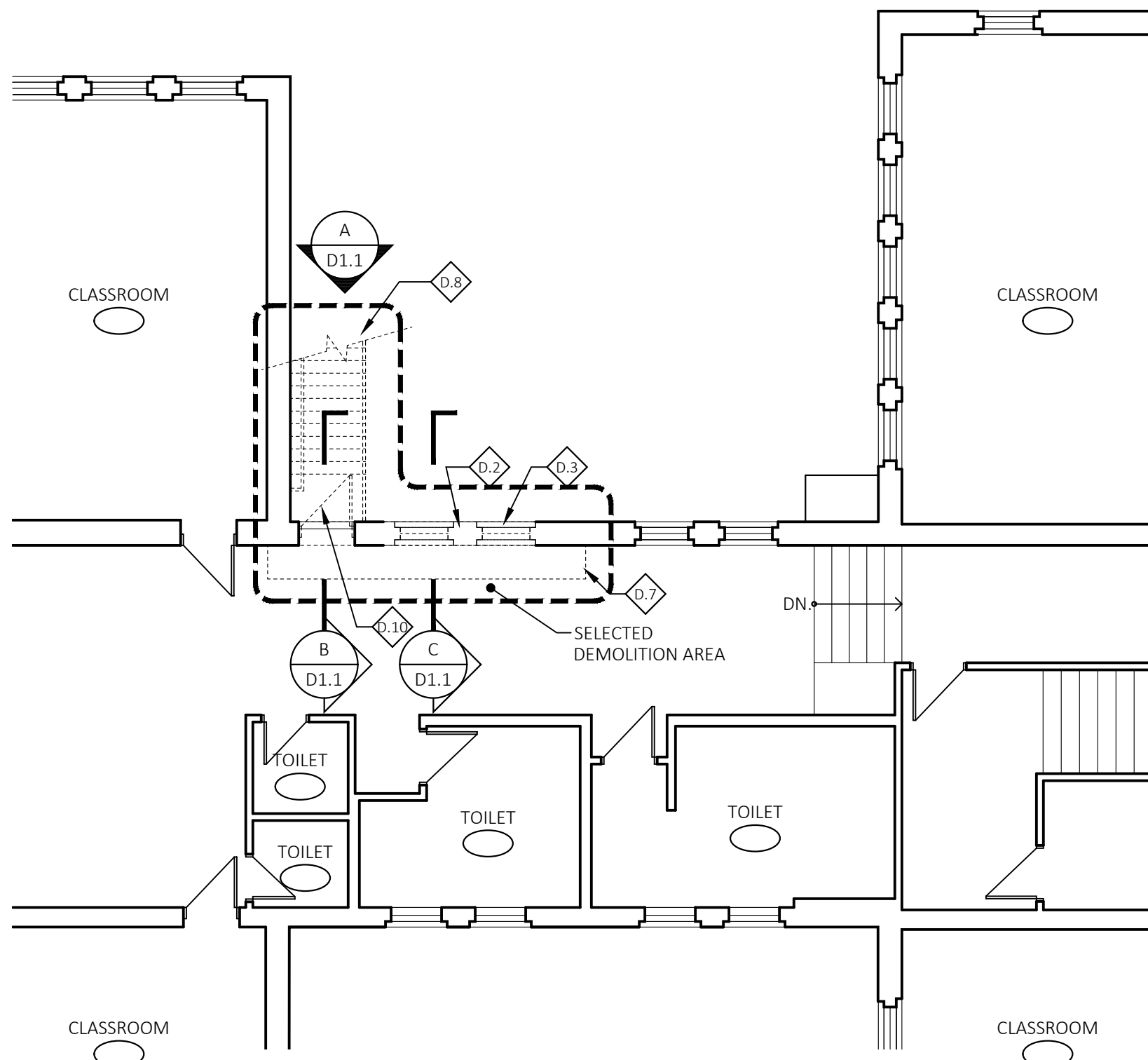
SCALE: NONE

B DOOR INFILL SECTION

SCALE: NONE

C WINDOW INFILL SECTION

SCALE: NONE



SECOND FLOOR DEMO PLAN

SCALE: 1/8"=1'-0"

DEMOLITION NOTES

- 0.1 DEMO AND REMOVE EXISTING EXHAUST FAN AND WIRING.
- 0.2 DEMO AND REMOVE EXISTING WALL ASSEMBLY. PREP FOR INFILL. (TYPICAL)
- 0.3 DEMO AND REMOVE EXISTING WINDOW ASSEMBLY INCLUDING GRANITE SILL, GRANITE HEADER, JAMB AND TRIM. PREP FOR INFILL. (TYPICAL)
- 0.4 DEMO AND REMOVE EXISTING CEILING MOUNTED CAST IRON RADIATOR. REMOVE EXISTING SUPPLY AND RETURN PIPING AND CAP OFF.
- 0.5 DEMO AND REMOVE EXISTING TOILET PARTITIONS.
- 0.6 DEMO AND REMOVE EXISTING LAVATORY, WATER CLOSET AND ASSOCIATED PIPING. CAP AS REQUIRED. INCLUDE REMOVAL OF EXISTING MIRROR AND TOILET ACCESSORIES.
- 0.7 DEMO AND REMOVE EXISTING FLOOR TILE TO EXTENT REQUIRED. PREP FOR NEW FLOOR.
- 0.8 DEMO AND REMOVE EXISTING EXTERIOR EMERGENCY STAIRCASE.
- 0.9 NOT USED
- 0.10 DEMO AND REMOVE EXISTING DOOR, HOLLOW METAL FRAME AND ALL ASSOCIATED TRIM AND HARDWARE. PREP FOR NEW INFILL.
- 0.11 DEMO AND REMOVE EXISTING BITUMINOUS. PREP AREA FOR NEW FOUNDATION. SEE CIVIL DRAWINGS FOR FURTHER INFORMATION.
- 0.12 DEMO AND REMOVE EXISTING LIGHT FIXTURE AND ALL ASSOCIATED WIRING. PREP FOR NEW LIGHTING.
- 0.13 DEMO AND REMOVE EXISTING SPRINKLER HEADS. PREP FOR INSTALLATION OF NEW SPRINKLER HEADS. (TYPICAL)
- 0.14 REMOVE EXISTING FINISHES AND PREP CEILING FOR NEW INSTALLATION.
- 0.15 REMOVE EXISTING FINISHES FROM WALLS AND PREP FOR NEW FINISHES. TYPICAL ALL WALLS.
- 0.16 DEMO AND REMOVE EXISTING GYPSUM WALL. PATCH, REPAIR AND PAINT ADJACENT WALL AND PROVIDE CLEAN, SMOOTH FINISH.
- 0.17 DEMO AND REMOVE EXISTING MASONRY WALL. PATCH AND REPAIR FOR NEW OPENING. PROVIDE CLEAN, SMOOTH FINISH.
- 0.18 DEMO AND REMOVE EXISTING MASONRY WALL. PATCH, REPAIR AND PAINT ADJACENT WALL AND PROVIDE CLEAN, SMOOTH FINISH.
- 0.19 DEMO AND REMOVE EXISTING HOLLOW METAL FRAME, WOOD DOOR AND ASSOCIATED HARDWARE. TURN OVER TO OWNER.
- 0.20 DEMO AND REMOVE EXISTING INTERIOR METAL DOOR, HOLLOW METAL FRAME AND ASSOCIATED HARDWARE. TURN OVER TO OWNER.
- 0.21 DEMO AND REMOVE ALL ITEMS ASSOCIATED WITH 0.17, INCLUDING, BUT NOT LIMITED TO WOOD FRAMEWORK, ELECTRICAL AND AUDIO.

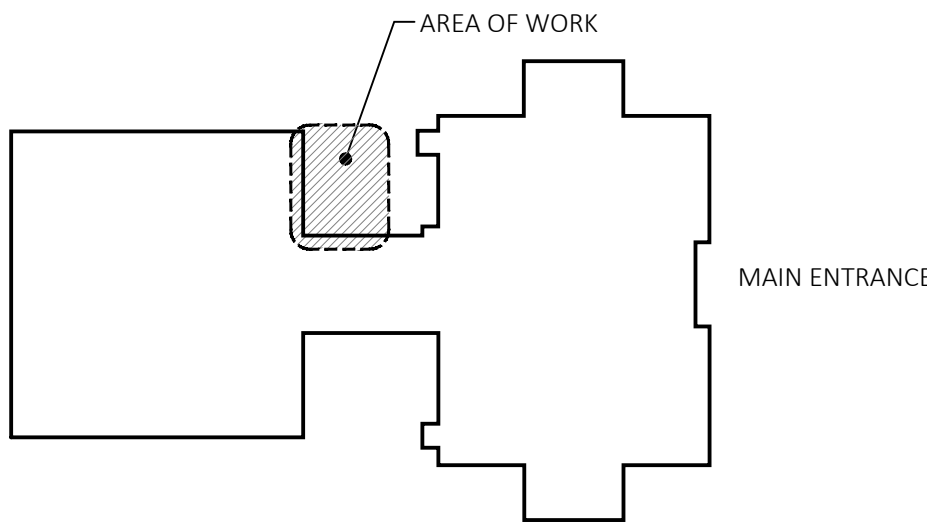
HAZARDOUS MATERIAL NOTES

HAZARDOUS MATERIAL WORK IS TO BE PERFORMED IN ACCORDANCE WITH AN APPROVED ASBESTOS WORK PLAN FROM THE STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH, UNDER CONTAINMENT WITH A PRESSURE DIFFERENTIAL AND CONTIGUOUS DECONTAMINATION UNITS. REFER TO HAZARDOUS MATERIAL TESTING, REPORTS & DOCUMENTATION IN REGARD TO THE EXISTING BUILDING.

GENERAL DEMOLITION SHALL NOT COMMENCE UNTIL ALL EXISTING SPACES & CONDITIONS HAVE BEEN CLEANED OF ALL HAZARDOUS MATERIAL.

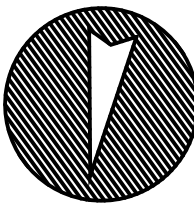
CONSTRUCTION NOTES:

- 1 INSTALL NEW 3 3/8" METAL STUDS 12" O. C.
- 2 INSTALL NEW 1/2" FIRE RETARDANT PLYWOOD, PRIMED AND PAINTED.
- 3 INSTALL MINIMUM R 12 FIBERGLASS INSULATION WITHIN EACH STUD BAY. (TYPICAL BOTH SIDES)
- 4 EXISTING BRICK WALL, VERIFY IN FIELD.



KEY PLAN

PROJECT NORTH



DATE:	9/1/2022
DRAWN BY:	JIM
SCALE:	1/8" = 1'-0"
REVIEWED BY:	JIM
PROJECT NO.	2021-091A
	DEMO

REVISONS	DESCRIPTION	ISSUED FOR BID
NO.	DATE	
1	11/28/22	

DEMOLITION PLANS

STATE PROJECT NO. 151-0304 CV

ELEVATOR ADDITION

WASHINGTON

ELEMENTARY SCHOOL

685 BALDWIN STREET

WATERBURY, CT 06706



ARCHITECT'S SEAL

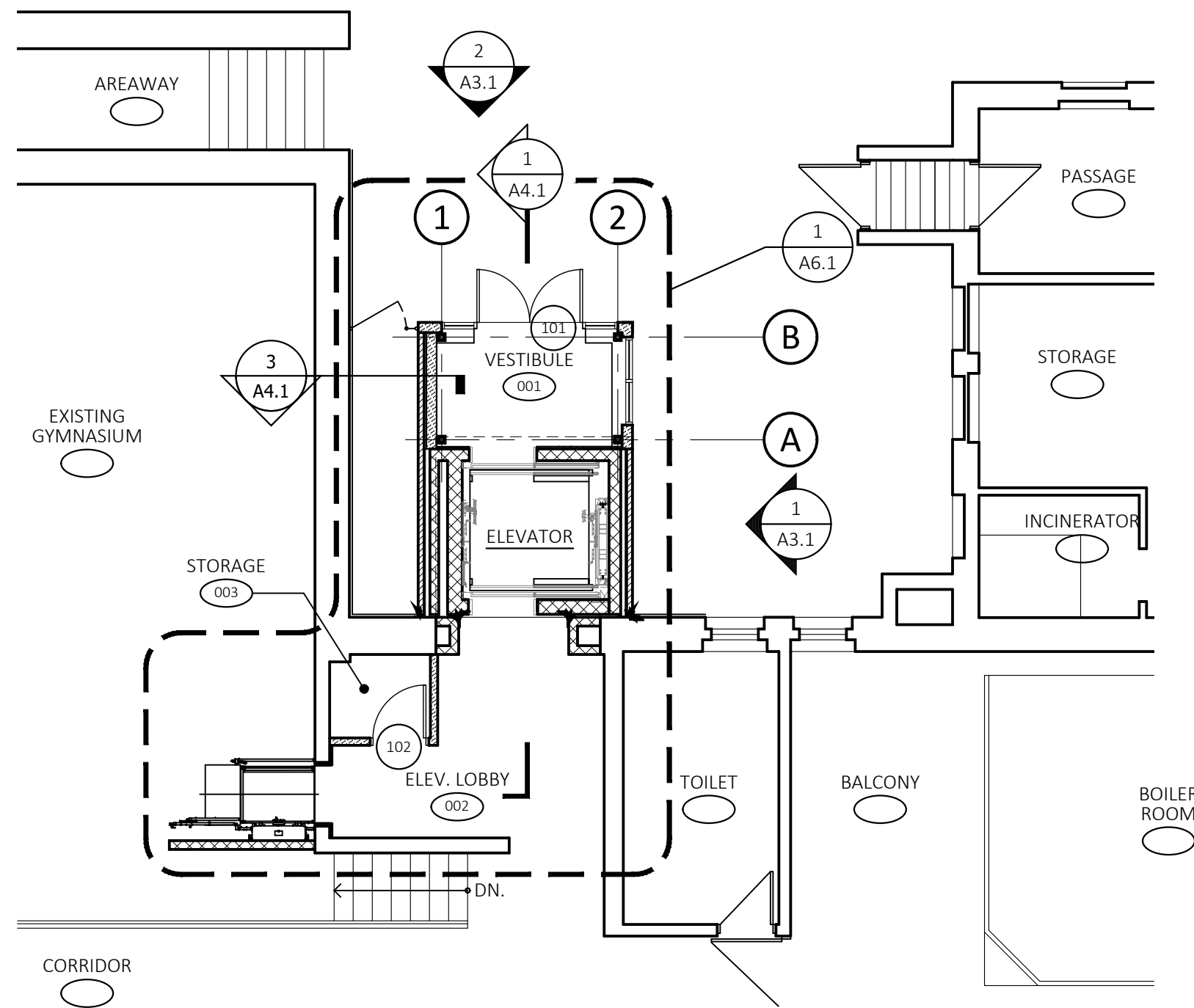
FRIAR

21 Talcott Notch Road

Farmington, CT 06032

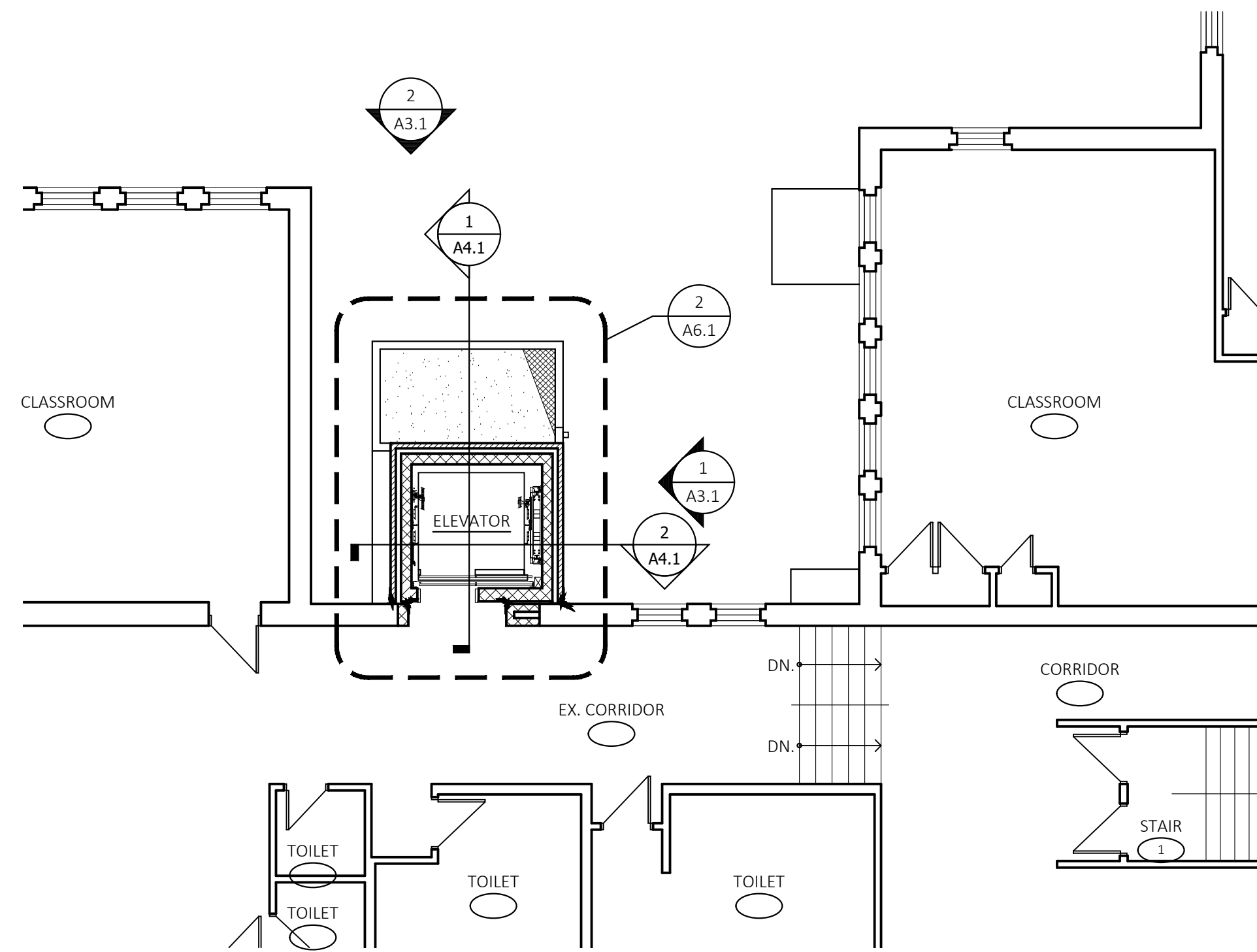
SHEET NO.

D1.1



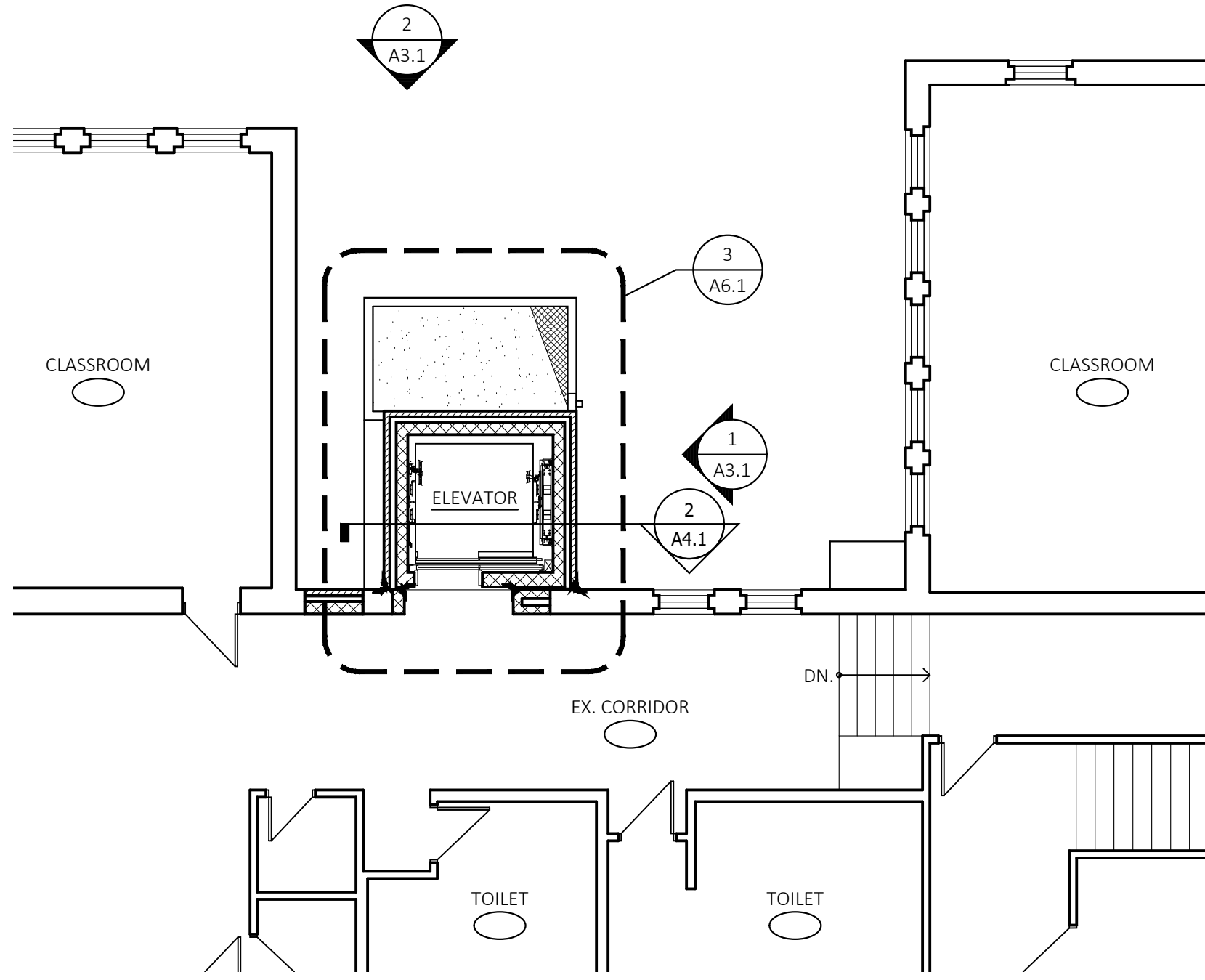
BASEMENT NEW CONSTRUCTION PLAN

SCALE: 1/8"=1'-0"



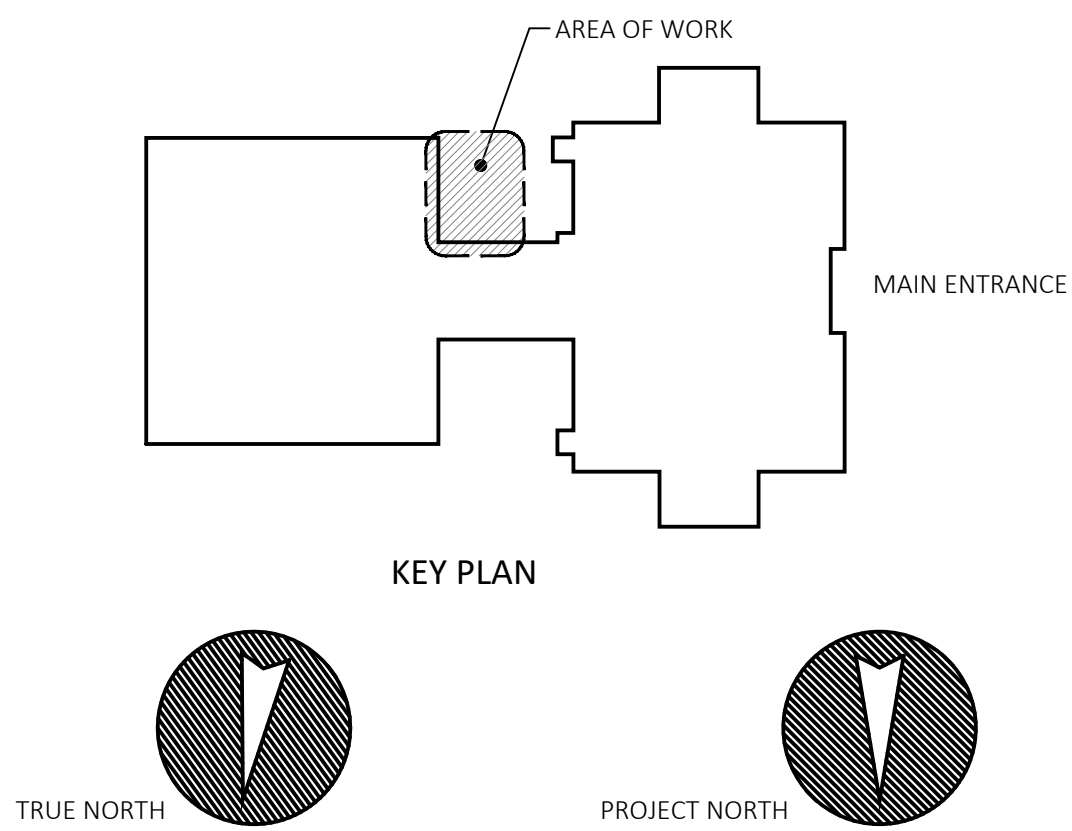
FIRST FLOOR NEW CONSTRUCTION PLAN

SCALE: 1/8"=1'-0"



SECOND FLOOR NEW CONSTRUCTION PLAN

SCALE: 1/8"=1'-0"



DATE:	9/1/2022
DRAWN BY:	AS
SCALE:	1/8" = 1'-0"
REVIEWED BY:	JMY
PROJECT NO.	2021-091A
	demo & new basement

NO.	DATE	DESCRIPTION	ISSUED FOR
1	11/28/22		BID

CONSTRUCTION FLOOR PLANS

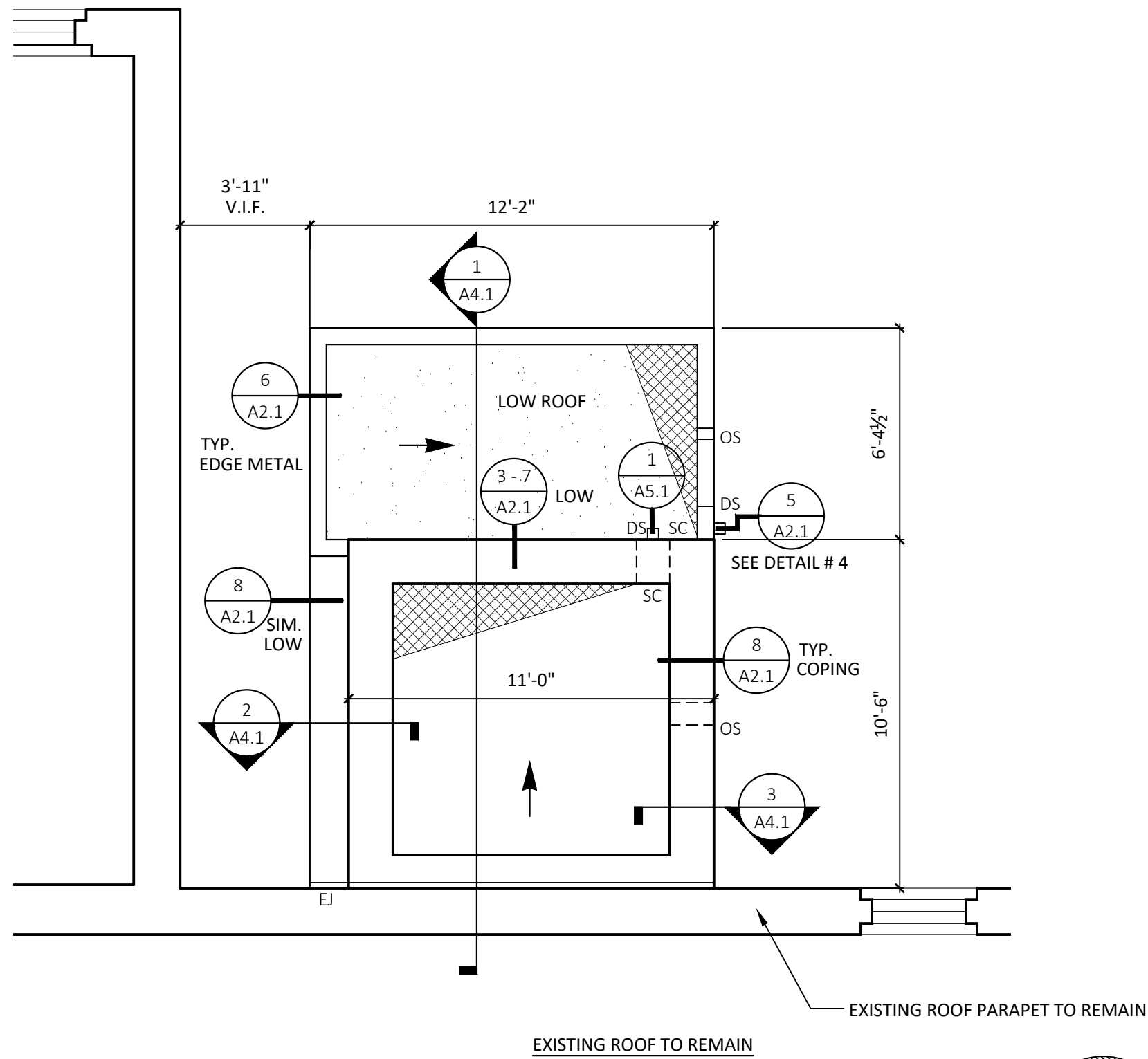
STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
**WASHINGTON
ELEMENTARY SCHOOL**
685 BALDWIN STREET
WATERBURY, CT 06706



ARCHITECT'S SEAL

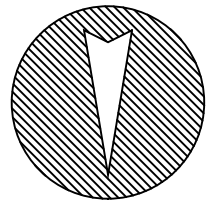
FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
A1.1



ENLARGED ROOF PLAN

SCALE: 1/4" = 1'-0"



PROJECT NORTH

ROOF GENERAL NOTES

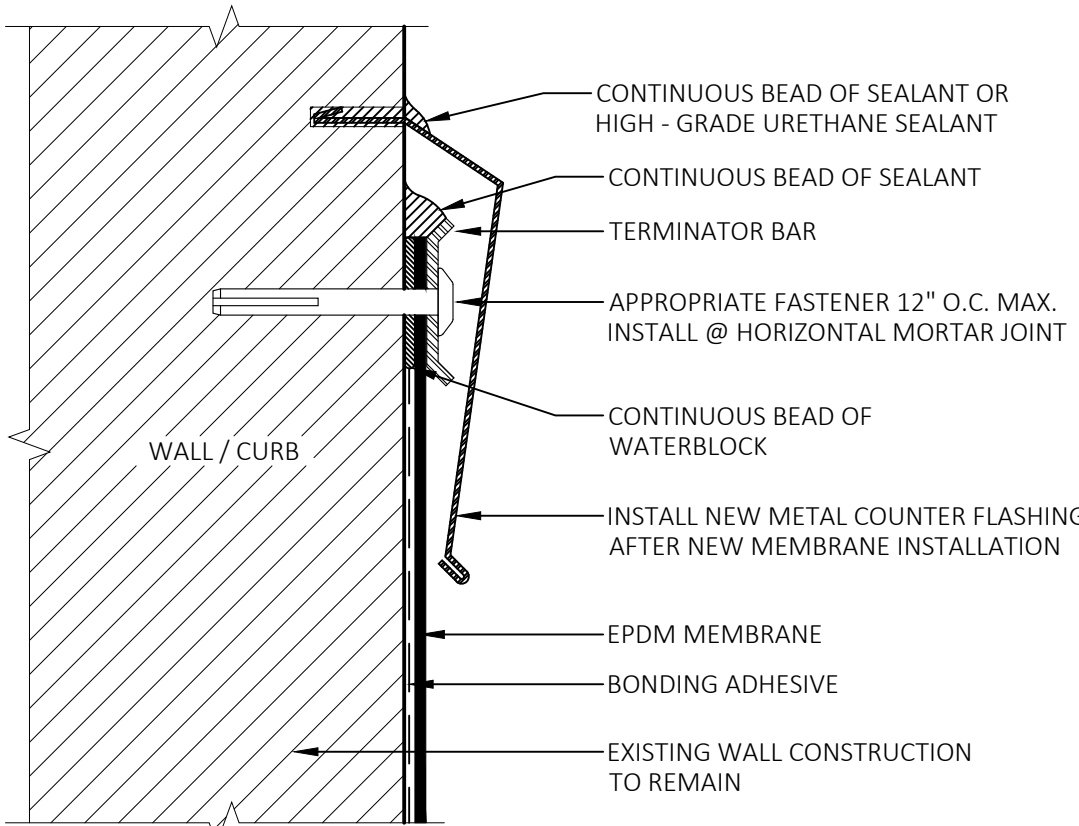
- ALL FLASHING AND ROOFING ACCESSORIES TO BE PER ROOFING MANUFACTURER'S REQUIREMENTS TO MEET SPECIFIED WARRANTY.
- CONTRACTOR IS RESPONSIBLE FOR CALCULATING ALL BUILT-UP BLOCKING NECESSARY TO INSTALL ROOFTOP EQUIPMENT, FASCIAS, ROOF EDGE CONDITIONS AND PARAPET WALL EXTENSIONS AS NECESSARY.
- CUTTING AND PATCHING SHALL BE THE RESPONSIBILITY OF THE TRADE WHOSE WORK RESULTS IN THE NEED FOR CUTTING AND PATCHING UNLESS A SPECIFIC CONTRACTOR IS CALLED OUT ON THE DRAWINGS. ALL HOLES LEFT BY REMOVING MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT, ETC. SHALL BE PATCHED WITH LIKE MATERIALS.
- PATCH TO MATCH ALL HOLES CRATED BY NEW WORK WITH LIKE MATERIALS AND SEAL TO PROVIDE WEATHERPROOF ENCLOSURE.
- THE EXISTING CONDITION OF THE BUILDING INTERIOR, EXTERIOR AND SITE SHALL NOT BE COMPROMISED DURING & AFTER THE PROJECT COMPLETION DUE TO THE CONSTRUCTION PROCESS AND/OR ANY ASSOCIATED ACTIVITY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO THE EXISTING MECHANICAL, ELECTRICAL & PLUMBING PIPING, CONDUIT, DUCTWORK ETC. DUE TO THE ROOF DEMOLITION AND CONSTRUCTION PROCESS.
- MAINTAIN ALL EXISTING WEEP HOLES, VERIFY EXISTING WEEP HOLES AT ALL EXISTING EXTERIOR WALL LOCATIONS.

ROOF PLAN LEGEND

- 20-YEAR EPDM ROOF SYSTEM, TAPERED ROOF INSULATION MIN. SLOPE 1/4" : 12" - REFER TO SPECIFICATION SECTION 075323 EPDM ROOFING, TYPICAL
- TAPERED RIGID INSULATION SLOPE = 1/4":12 TYPICAL
- CRICKET WITH PITCH TO DRAIN.
- EI INSTALL NEW EXPANSION JOINT & ASSOCIATED CURB, REFER TO ROOF DETAILS FOR INSTALLATION & FLASHING
- SC INSTALL NEW THRU THE WALL SCUPPER DRAIN @ PARAPET WALL. REFER TO ROOF DETAILS FOR INSTALLATION & FLASHING
- DS NEW METAL DOWNSPOUTS @ SCUPPER W/ SPLASH BLOCKS TYPICAL
- OS NEW OVERFLOW SCUPPER @ EACH NEW ROOF. 2" MAXIMUM ABOVE ROOF LOW POINT @ DRAIN, TYPICAL
- X A2.X ROOF DETAIL LOCATION, REFER TO SHEET NO.
- X A2.X ROOF SECTION DETAIL LOCATION, REFER TO SHEET NO.

8 PARAPET COPING FLASHING DETAIL

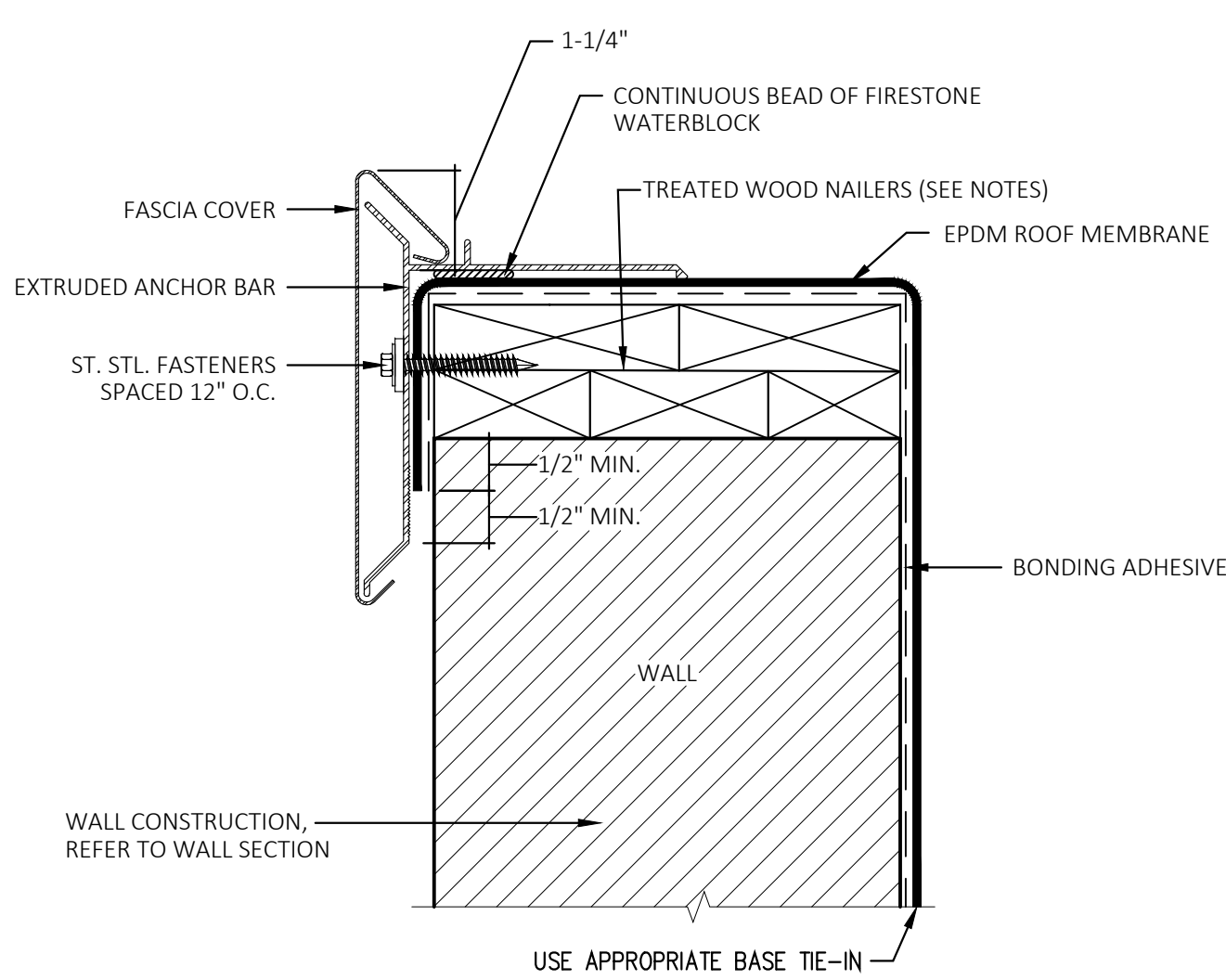
SCALE: NOT TO SCALE



- NOTES:
- WATER BLOCK APPLIED AT THE RATE OF 10 LINEAR FEET PER TUBE.
 - METAL COUNTER FLASHING SHALL BE .032" MIN. ALUMINUM FORMED WITH HEMMED LOWER EDGE.
 - INSTALL TERMINATION BAR WITH 1/4" (6.4 mm) GAP BETWEEN ADJOINING SECTIONS.
 - TERMINATION BAR MUST BE CUT AT INSIDE AND OUTSIDE CORNERS. TERMINATION BAR MUST BE FASTENED WITHIN 1" MAX. OF ALL SECTION ENDS.
 - MAINTAIN 8" MINIMUM FLASHING HEIGHT AT ALL LOCATIONS, TYPICAL.
 - MAINTAIN ALL EXISTING WEEP HOLES AT EXISTING MASONRY WALLS

7 TYPICAL TERMINATION AT MASONRY WALL

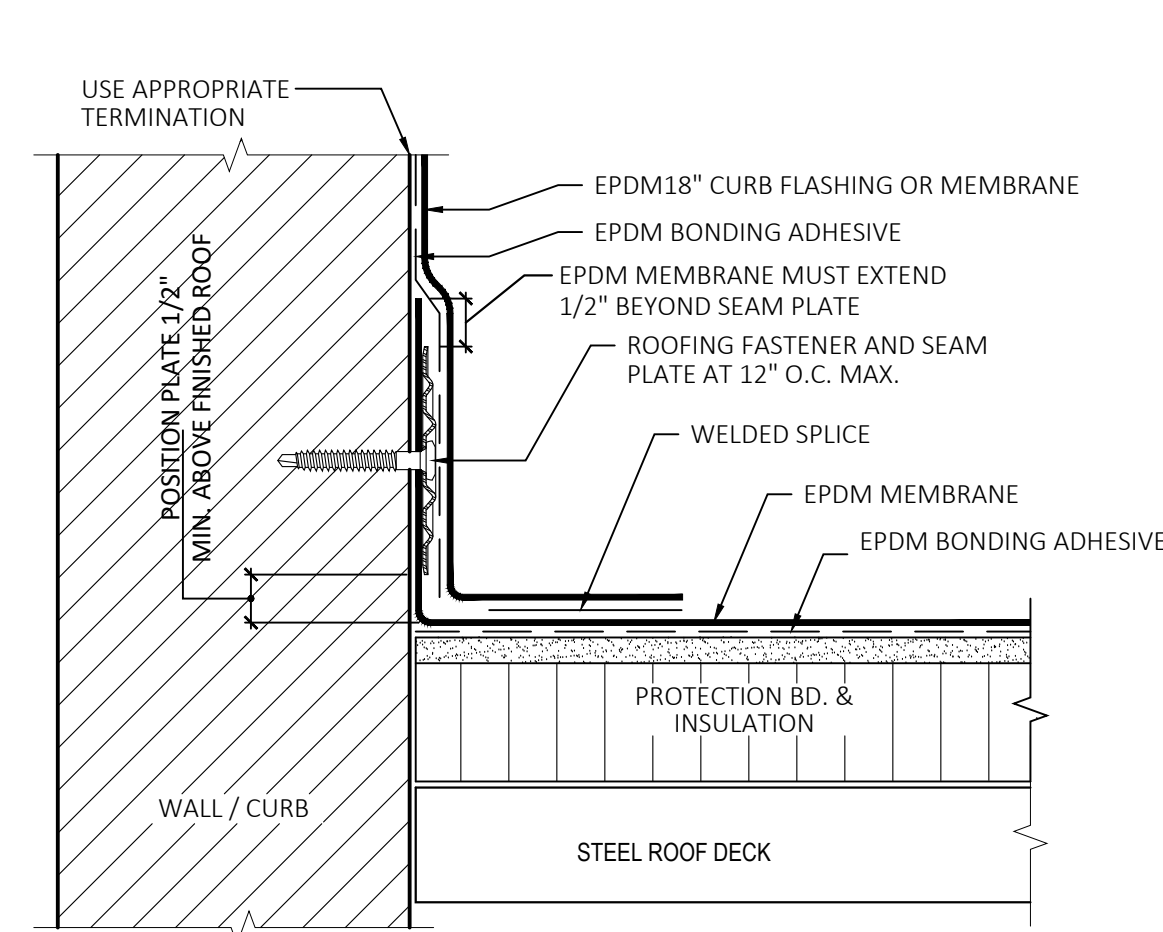
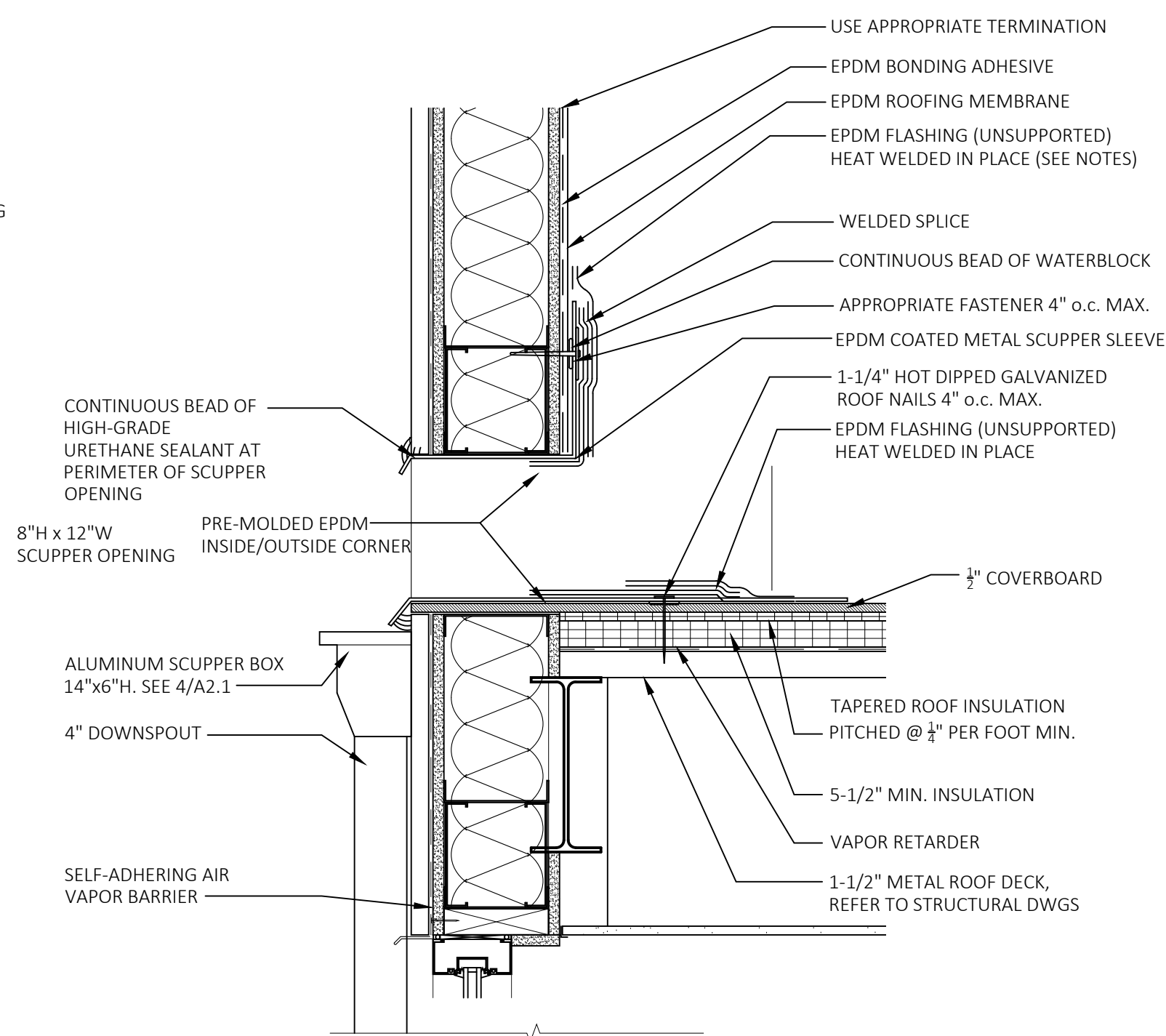
SCALE: NOT TO SCALE



WOOD NAILER MUST BE INSTALLED TO MEET APPLICABLE BUILDING CODES OR 200 LBS PER LINEAR FOOT MINIMUM IN ANY GIVEN DIRECTION.

6 TYPICAL PARAPET EDGE METAL FLASHING DETAIL

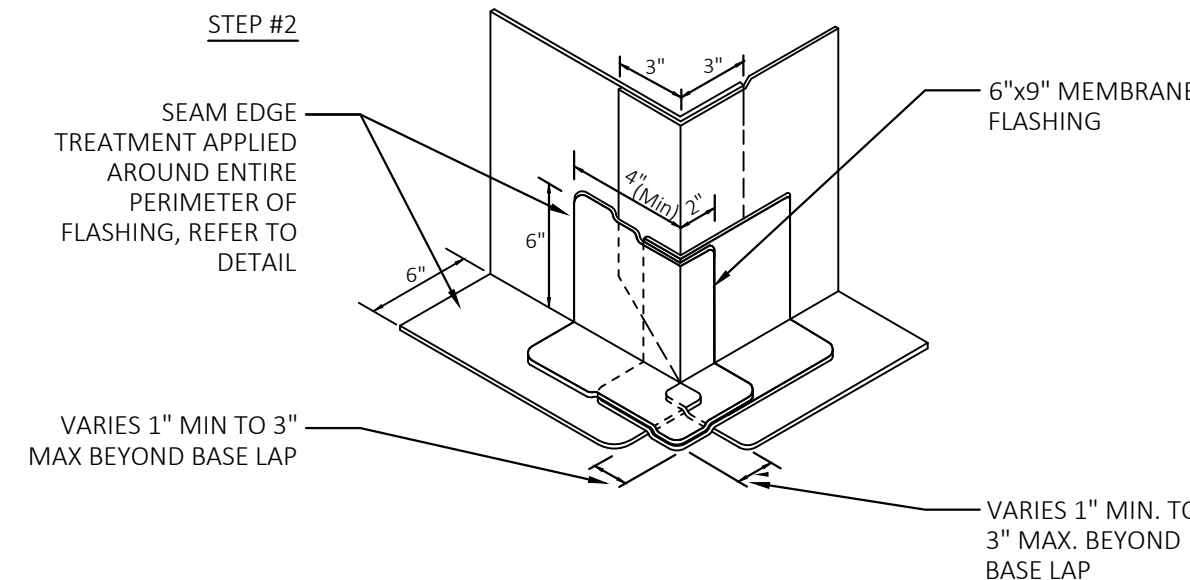
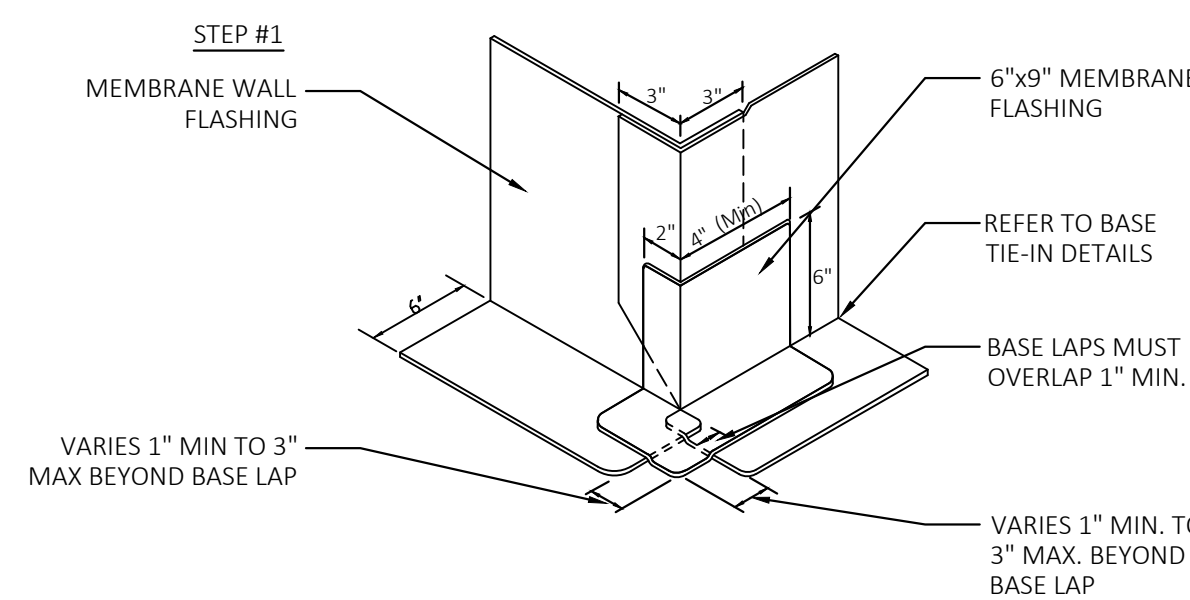
SCALE: NOT TO SCALE



NOTES:
BONDING ADHESIVE REQUIRED BETWEEN MEMBRANE AND INSULATION FOR FULLY ADHERED SYSTEMS.

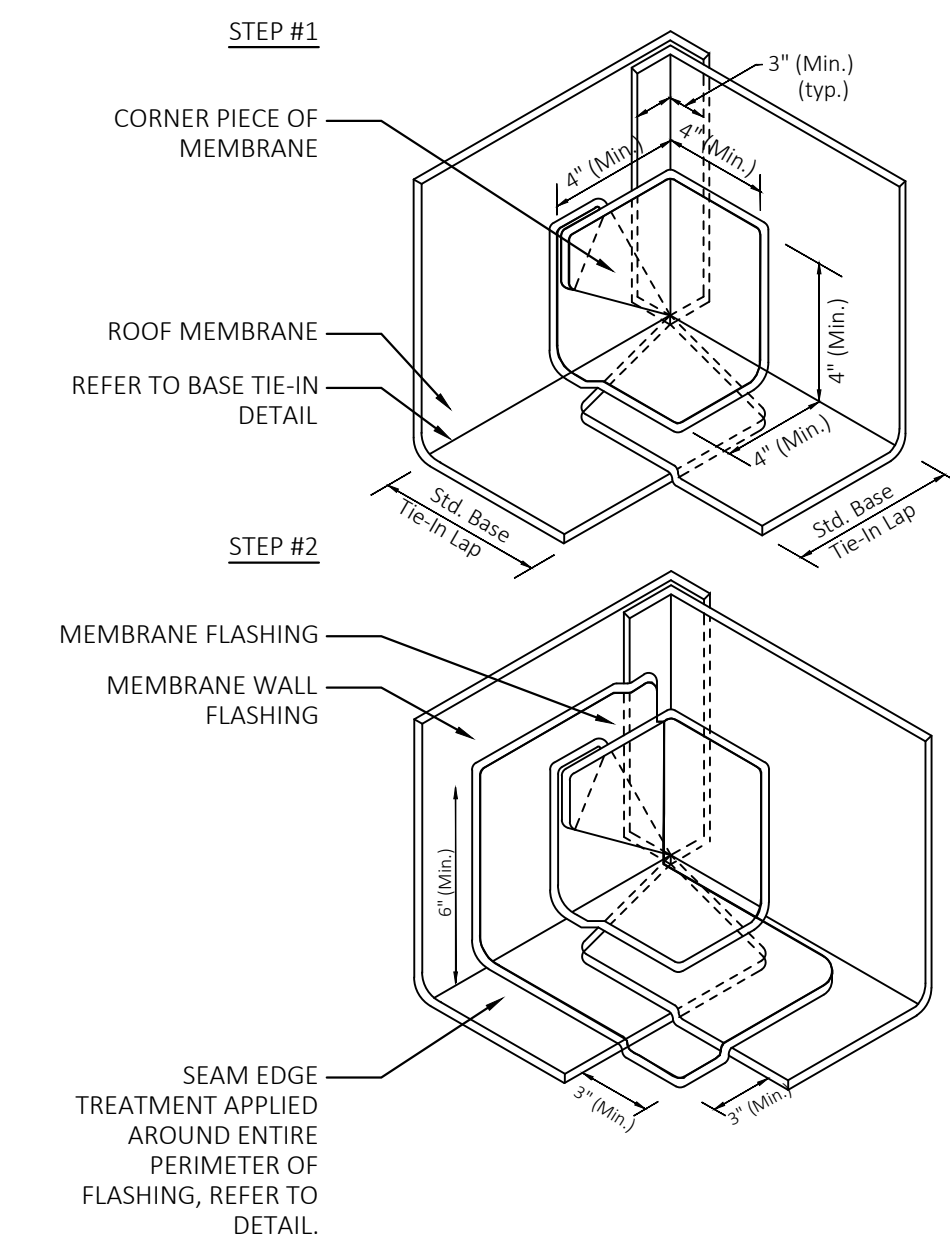
3 FLASHING DETAIL

SCALE: NOT TO SCALE



2 TYPICAL OUTSIDE CORNER DETAIL

SCALE: NOT TO SCALE

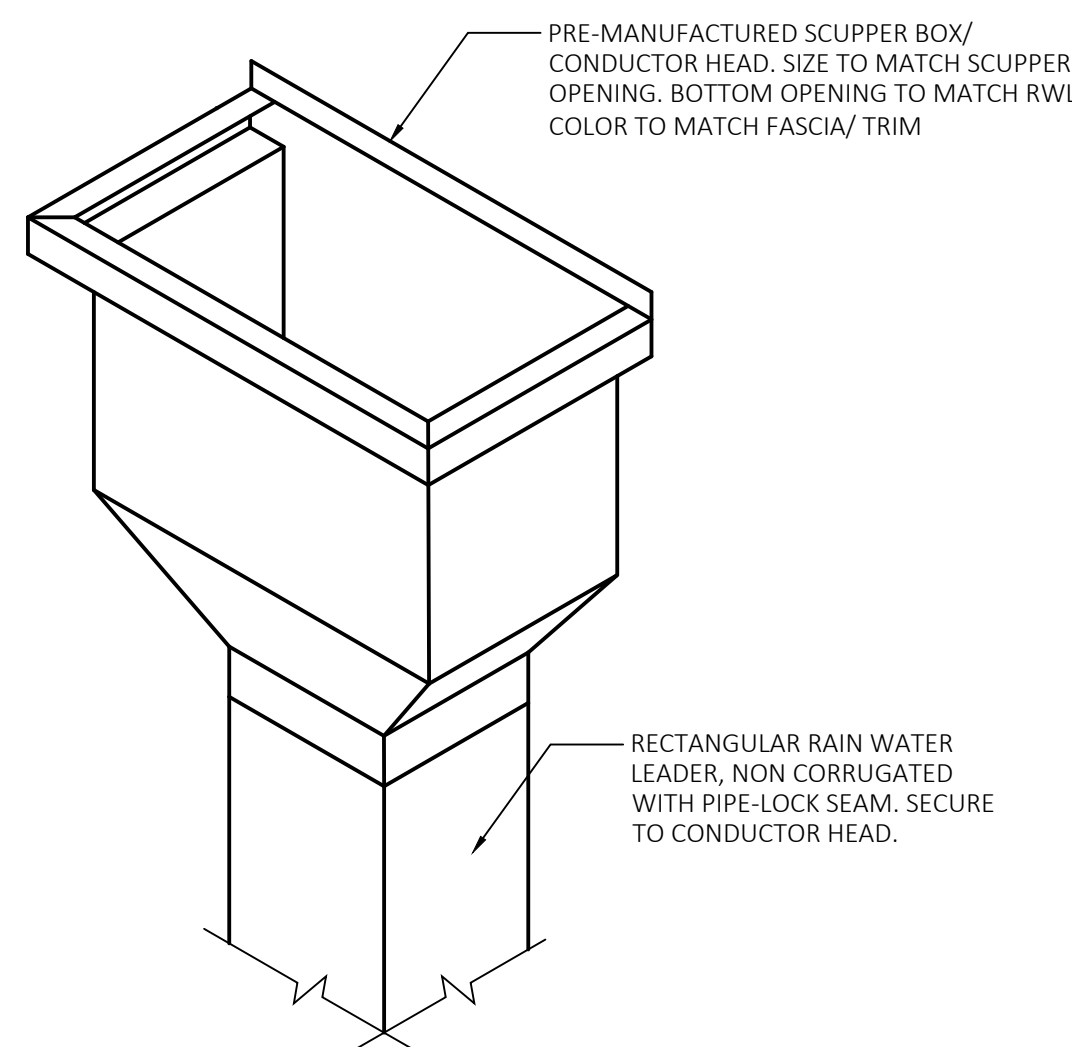


1 TYPICAL INSIDE CORNER DETAIL

SCALE: NOT TO SCALE

5 SCUPPER DETAIL @ LOW ROOF

SCALE: NOT TO SCALE



4 SCUPPER BOX / CONDUCTOR HEAD

SCALE: NOT TO SCALE

DATE:	9/1/2022
DRAWN BY:	JIM
NOTED	
REVIEWED BY:	JMY
PROJECT NO.	2021-091A
(A1.1) DEMO AND CONST	

REVISIONS	DESCRIPTION
NO.	DATE
1	11/29/22
ISSUED FOR BID	

ROOF PLAN & DETAILS

STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

ARCHITECT'S SEAL



SHEET NO.
A2.1

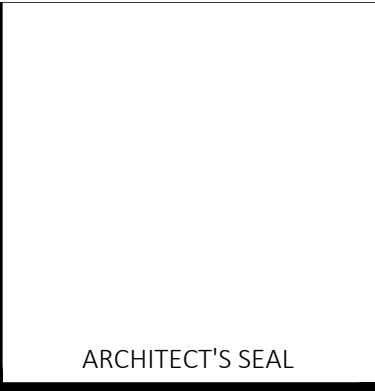
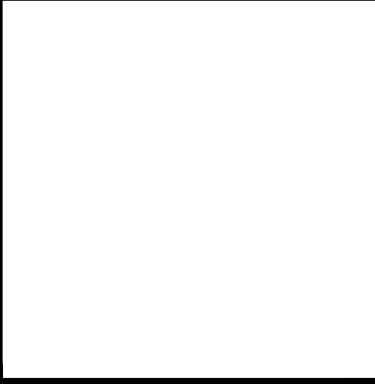
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DRAWN BY:	JIM
SCALE:	1/8" = 1'-0"
REVIEWED BY:	JMY
PROJECT NO.	2021-091A
(A1.1) DEMO AND CONST	

NO.	DATE	DESCRIPTION
	11/28/22	ISSUED FOR BID

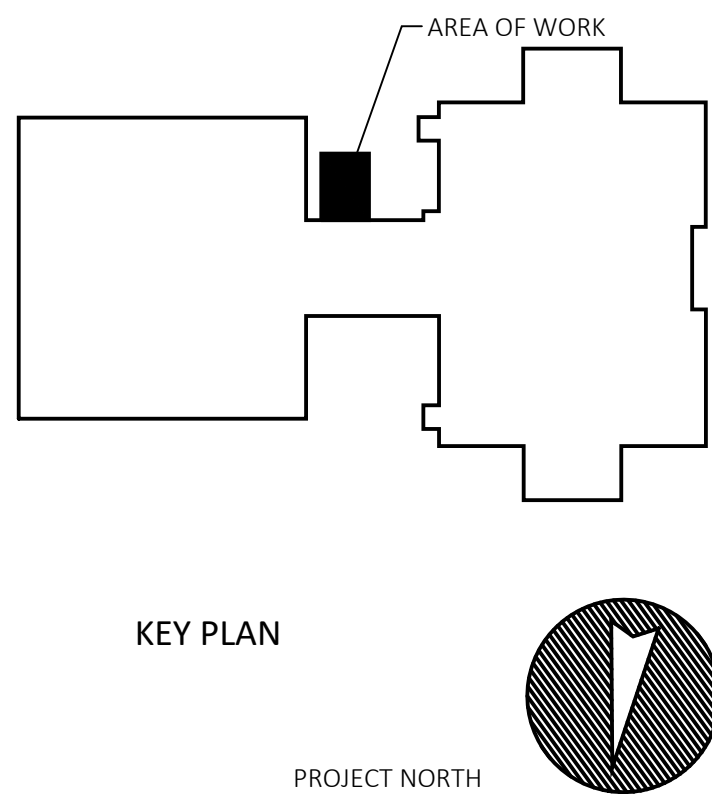
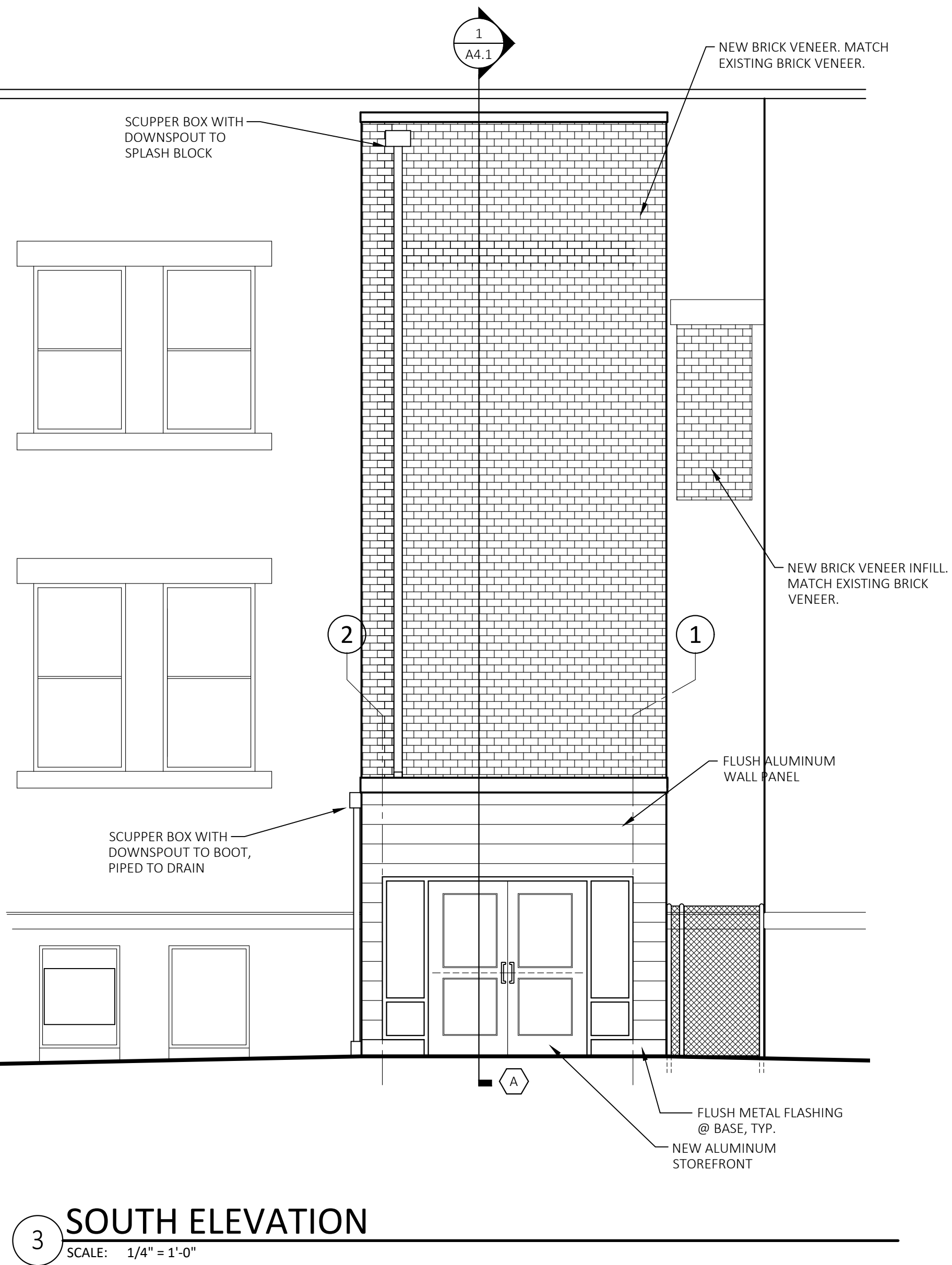
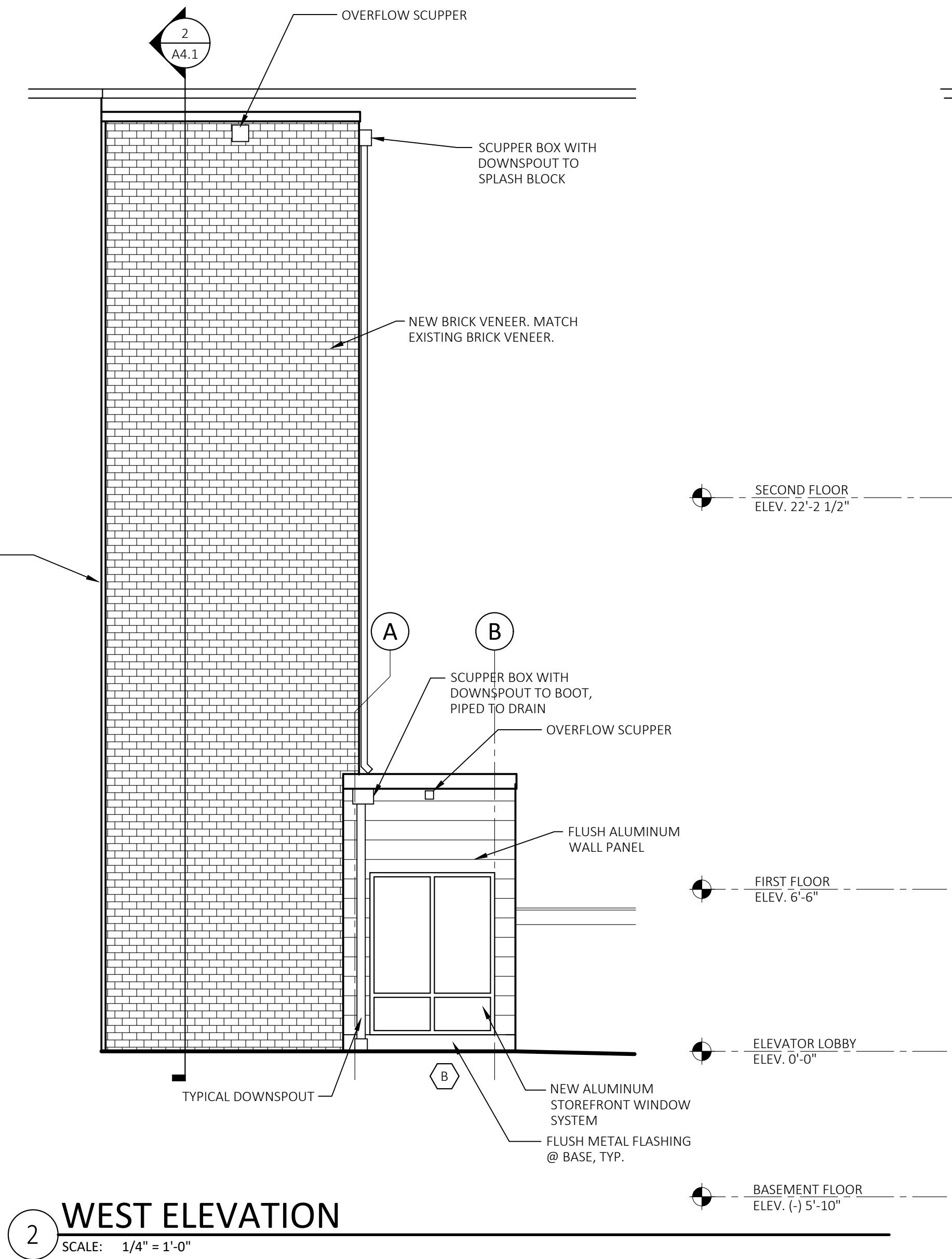
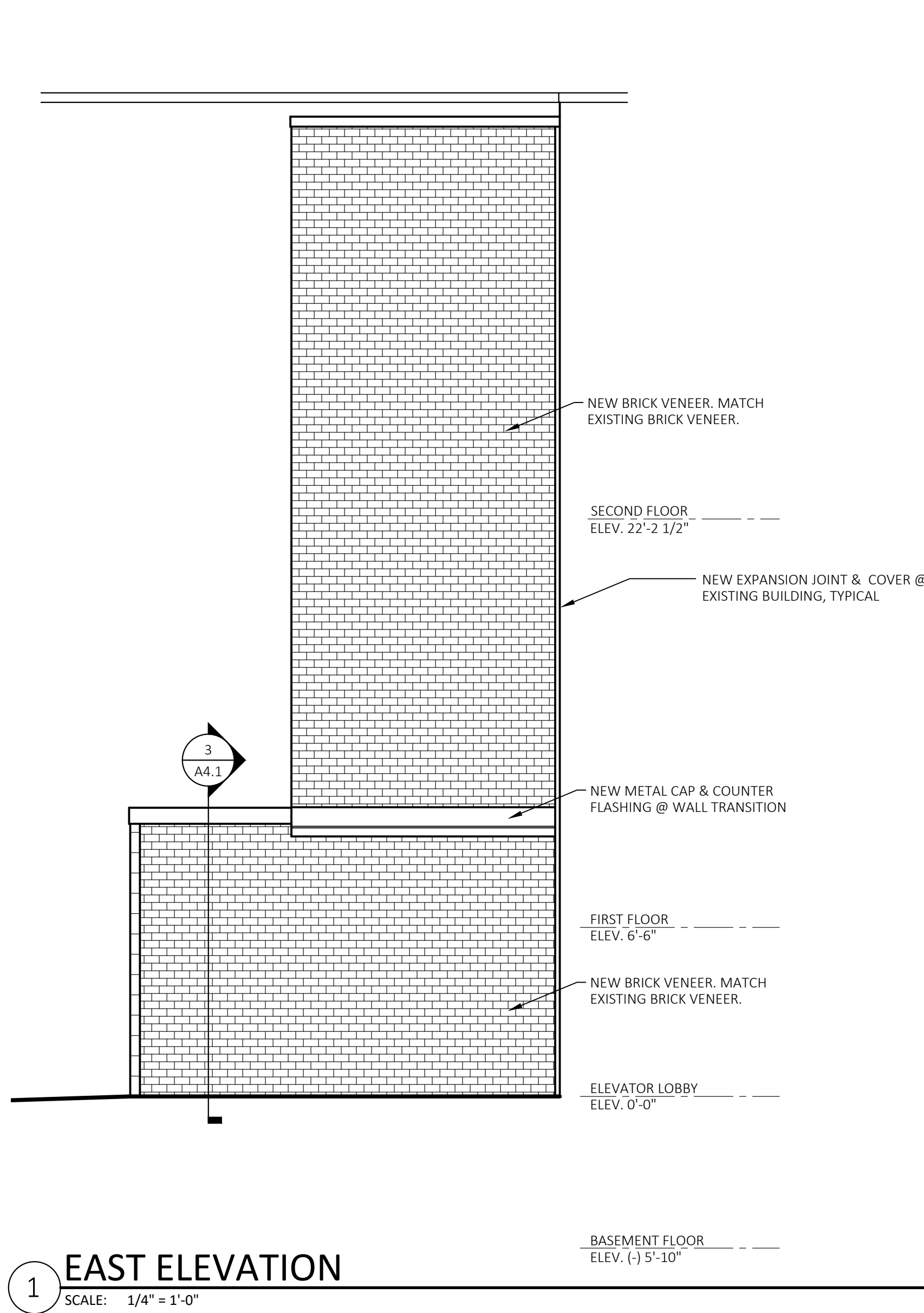
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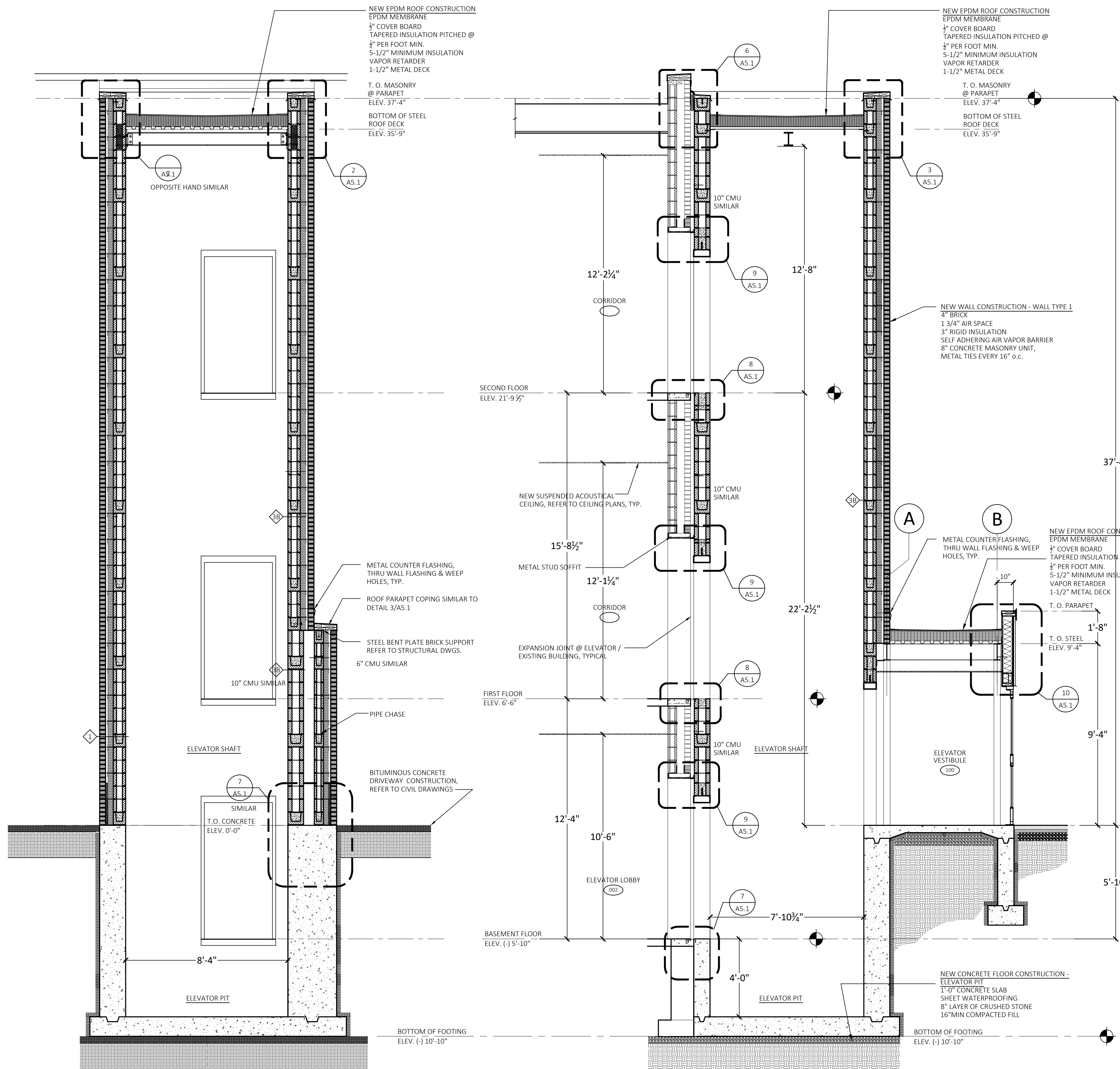
BUILDING ELEVATIONS

STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
**WASHINGTON
ELEMENTARY SCHOOL**
685 BALDWIN STREET
WATERBURY, CT 06706



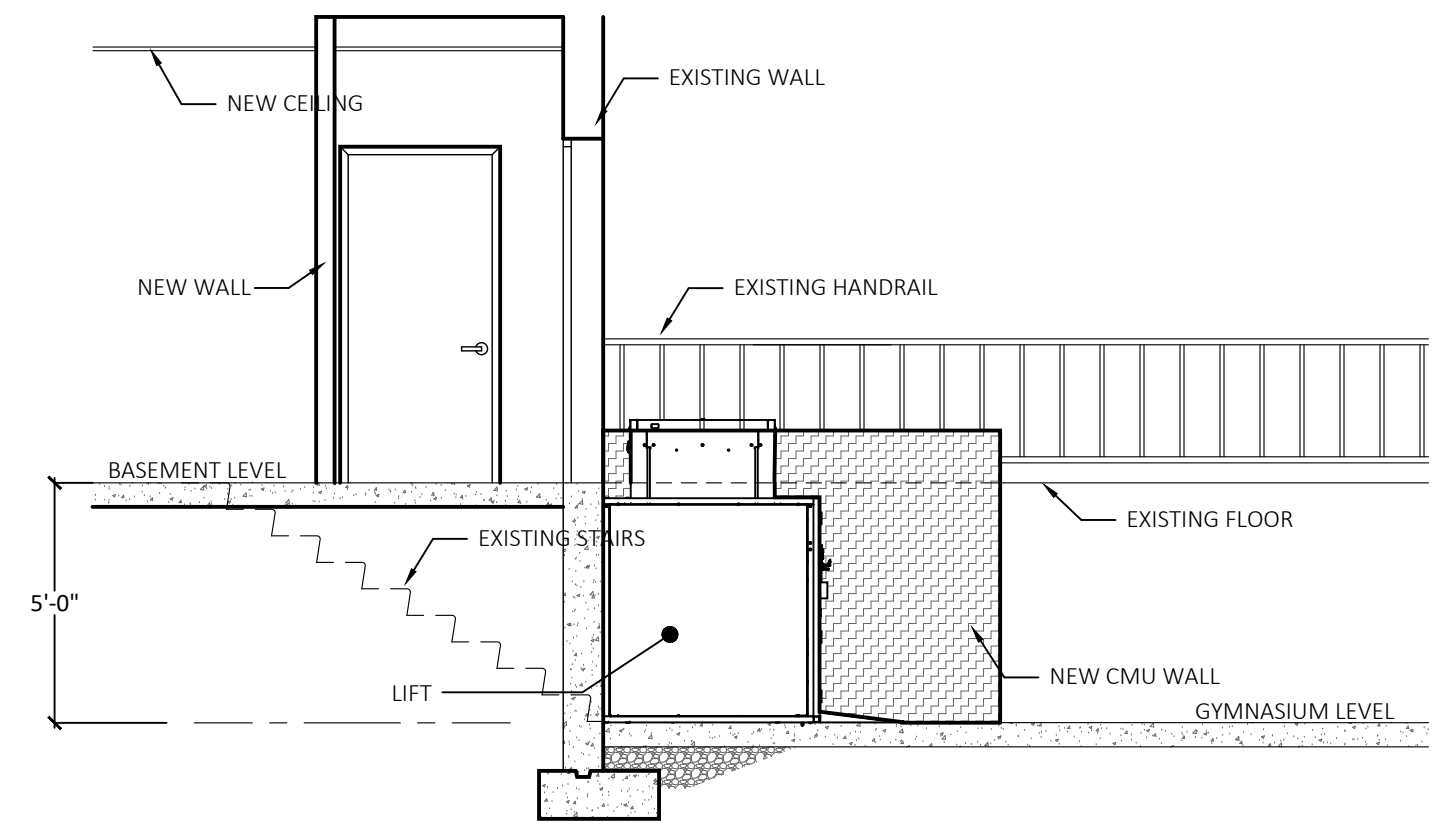
SHEET NO.
A3.1



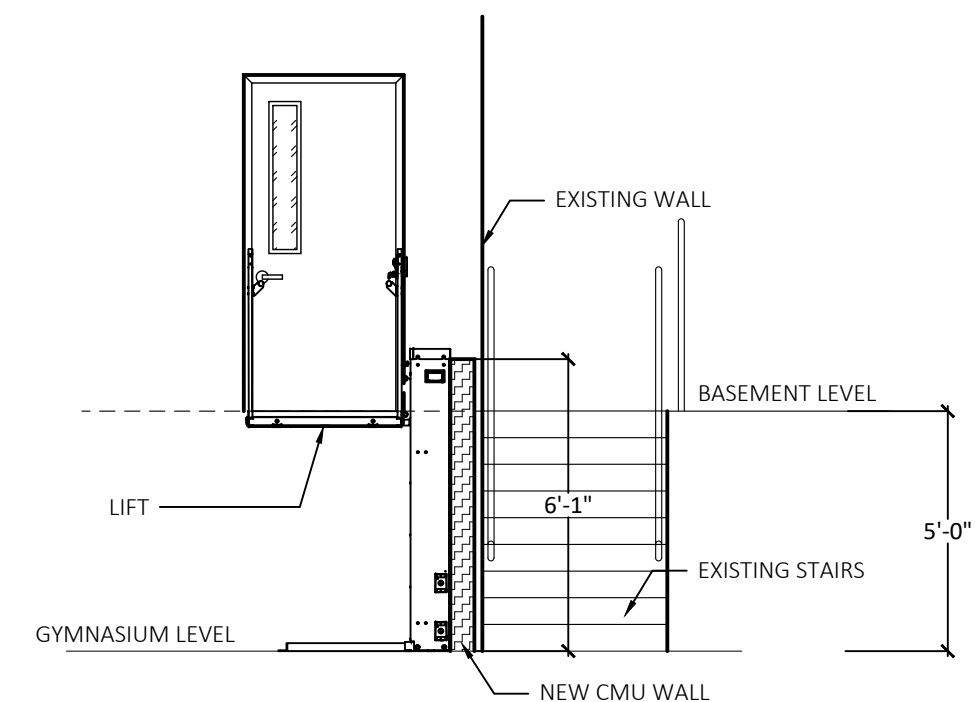


2 ELEVATOR SECTION
SCALE: 3/8"=1'-0"

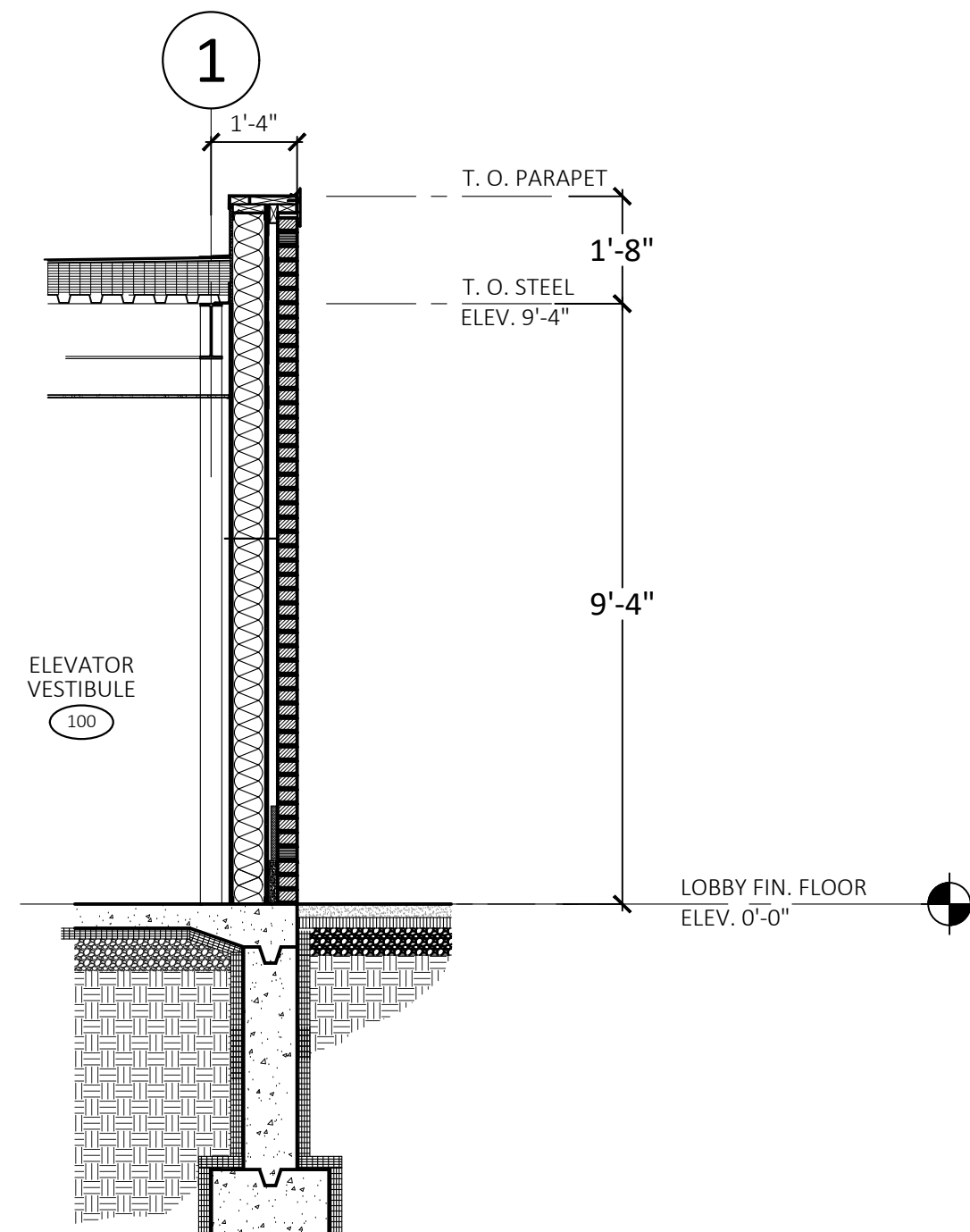
1 ELEVATOR SECTION
SCALE: 3/8"=1'-0"



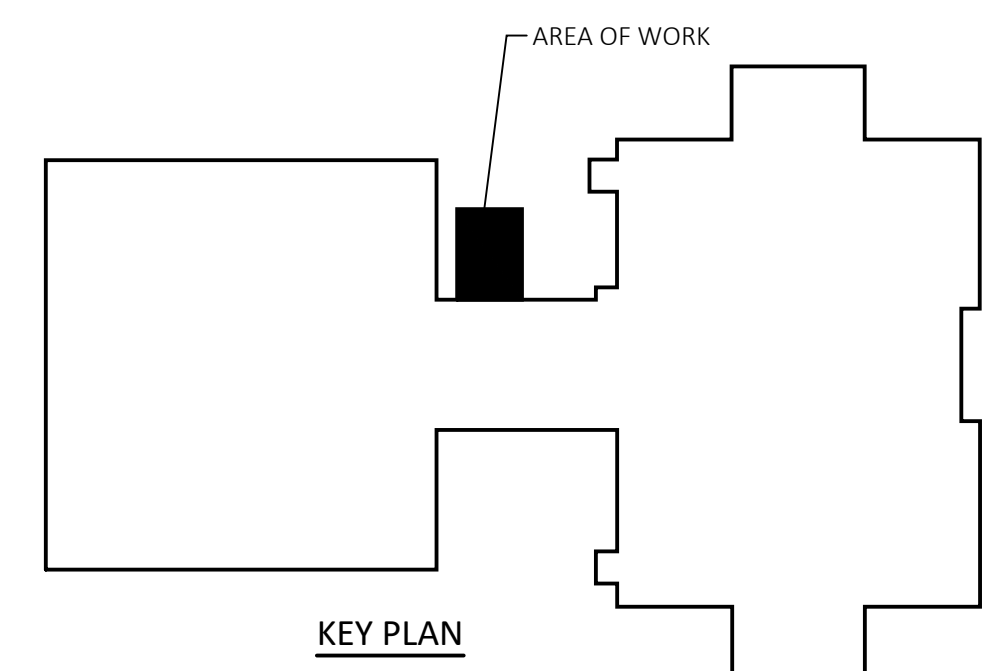
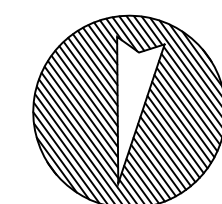
B LIFT SECTION LOOKING NORTH
SCALE: 1/4"=1'-0"



A LIFT SECTION LOOKING WEST
SCALE: 1/4"=1'-0"



3 WALL SECTION
SCALE: 3/8"=1'-0"



KEY PLAN

DATE:	9/1/2022
DRAWN BY:	JIM
SCALE:	1/8" = 1'-0"
REVIEWED BY:	JIM
PROJECT NO.	2021-091A
(A1.1) DEMO AND CONST	

REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR BID
2	11/28/22

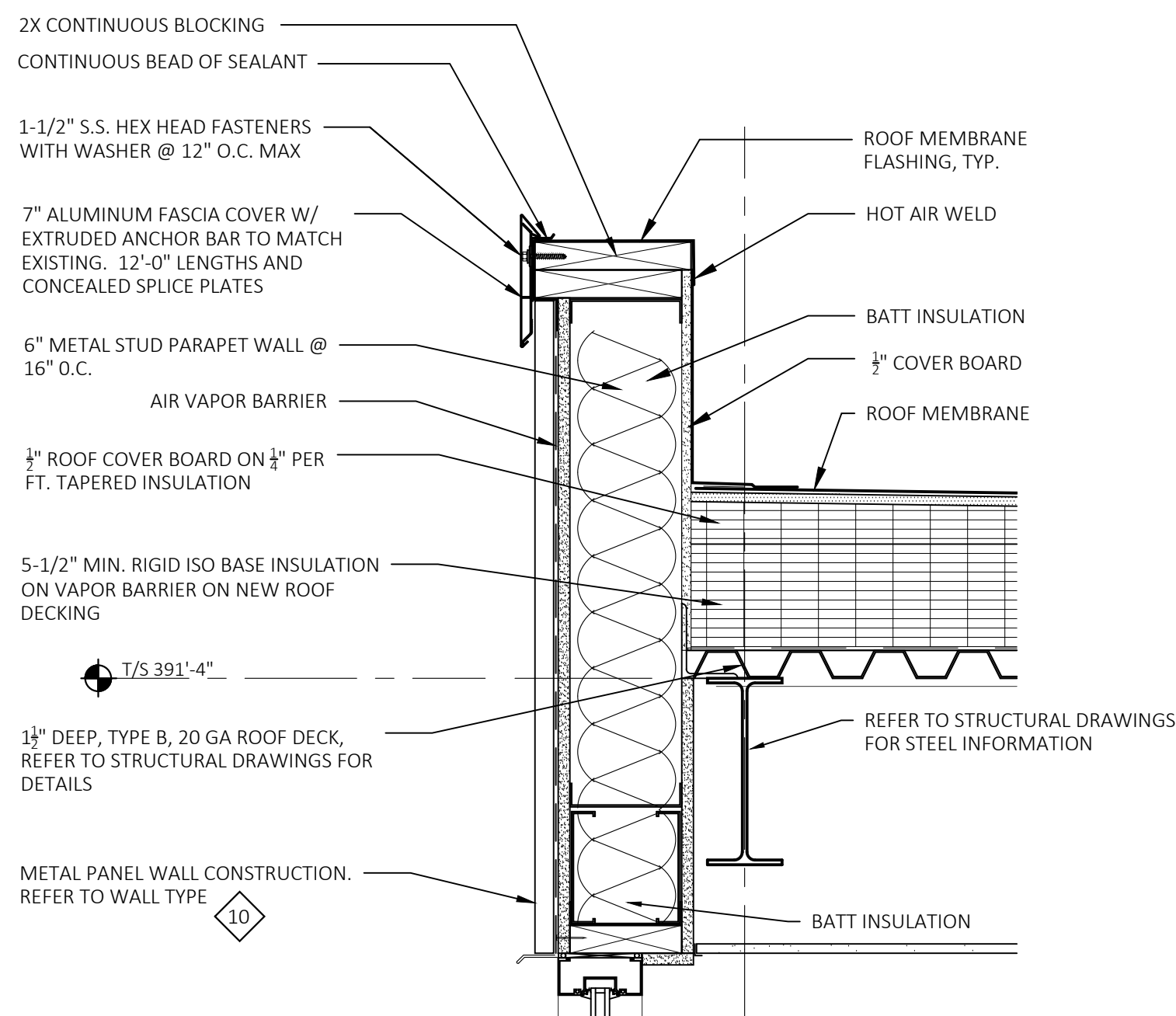
ELEVATOR SECTIONS

STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
**WASHINGTON
ELEMENTARY SCHOOL**
685 BALDWIN STREET
WATERBURY, CT 06706

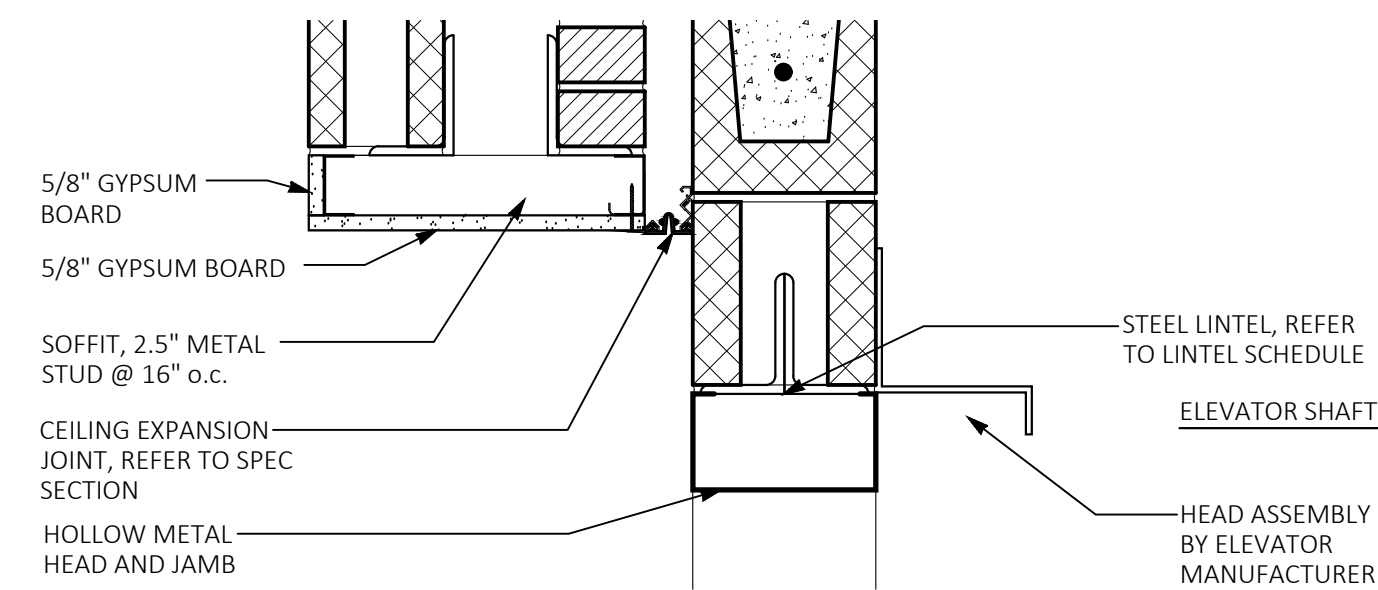
ARCHITECT'S SEAL



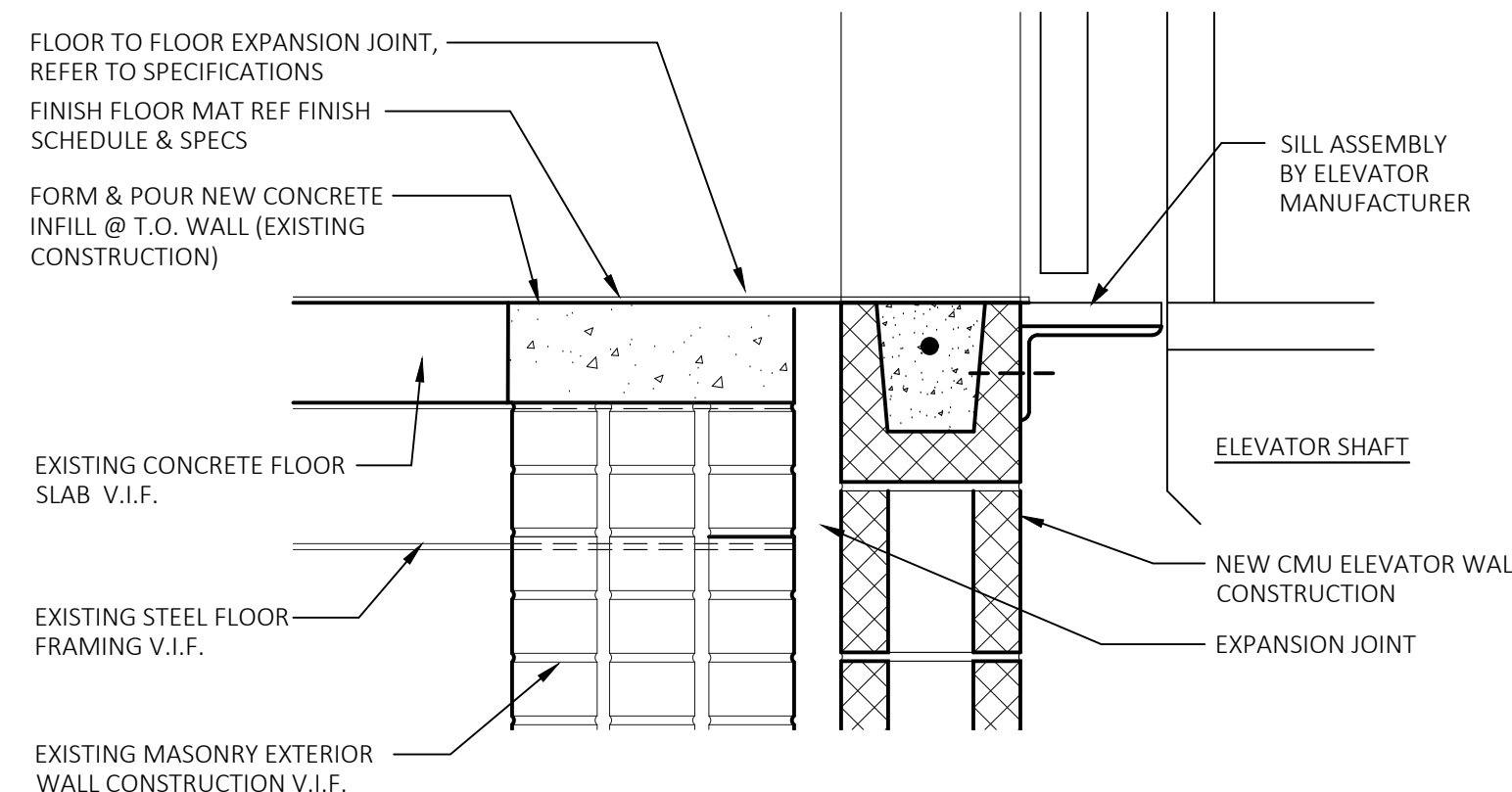
SHEET NO.
A4.1



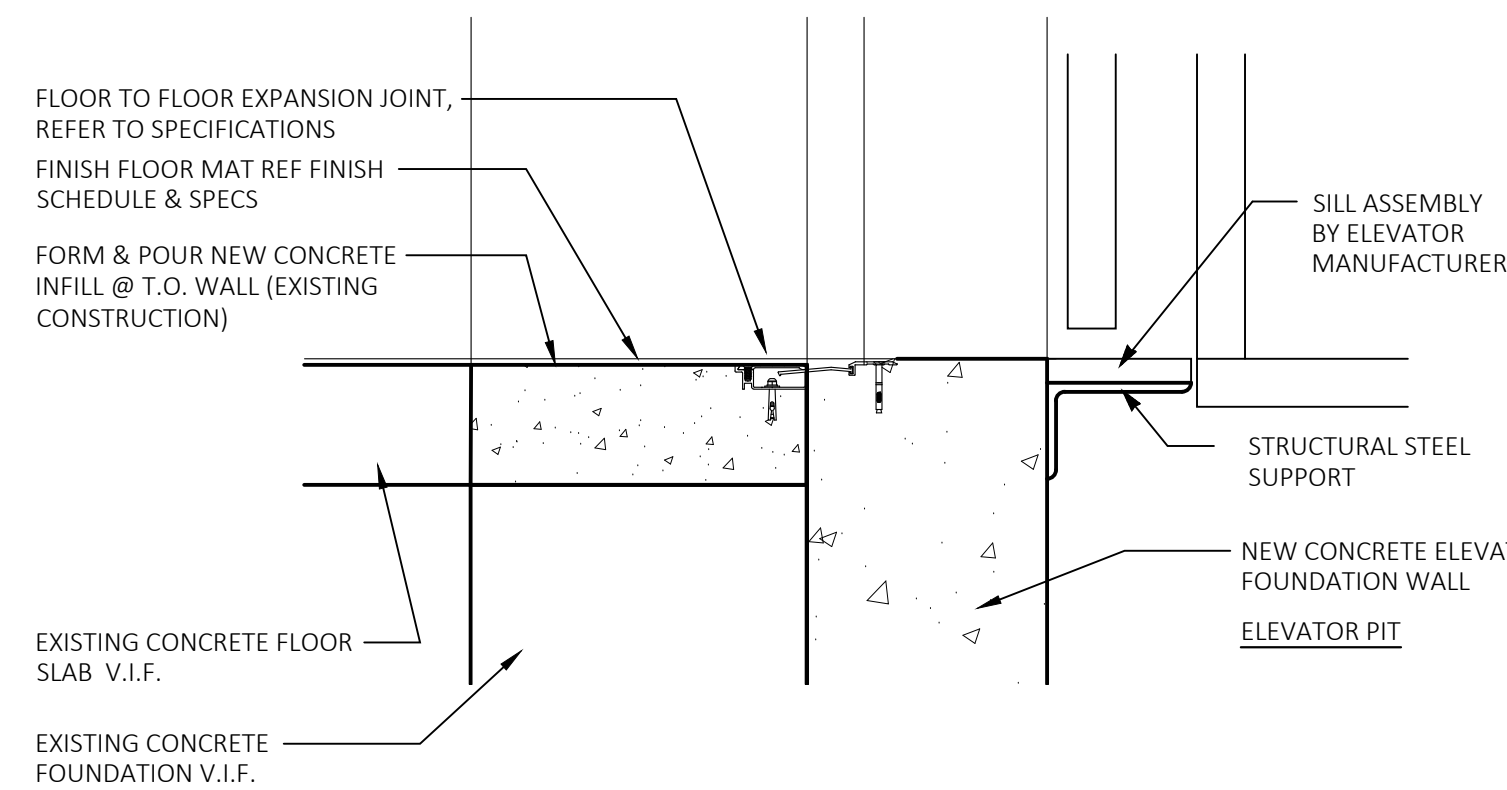
10 SECTION DETAIL @ LOW ROOF
SCALE: 1 1/2"=1'-0"



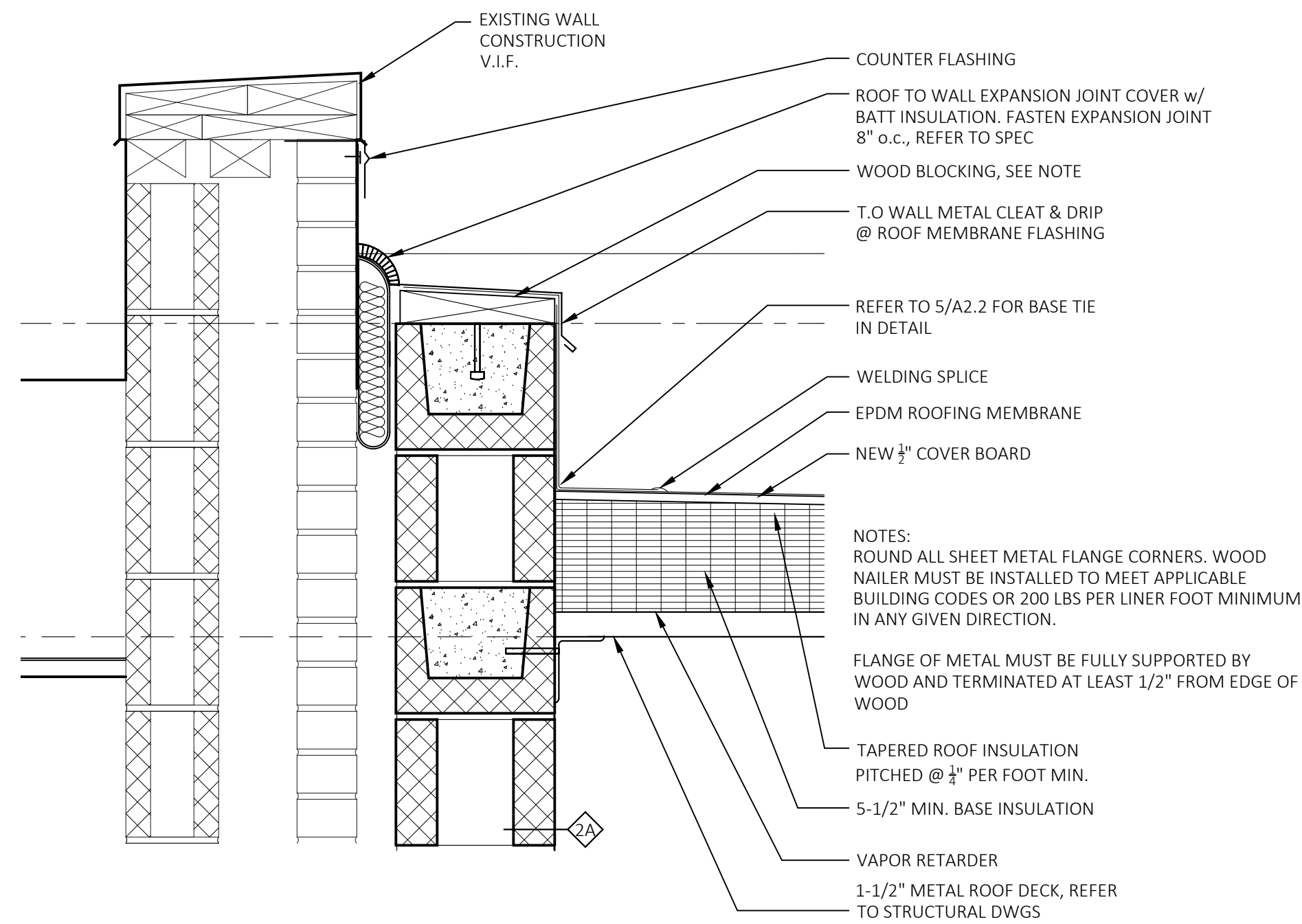
9 ELEVATOR HEAD DETAIL
SCALE: 1'-1/2"=1'-0"



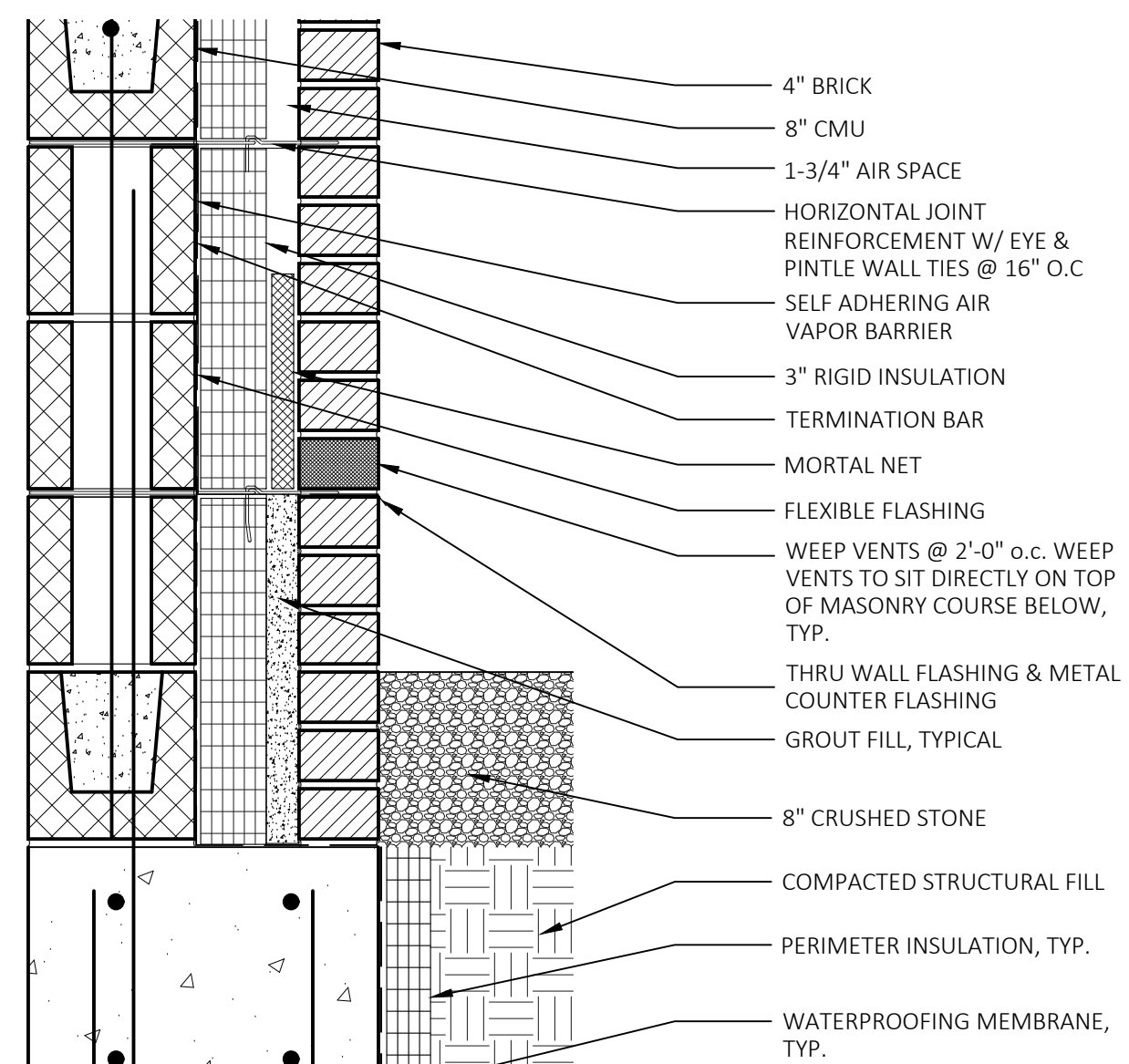
8 ELEVATOR SILL DETAIL
SCALE: 1'-1/2"=1'-0"



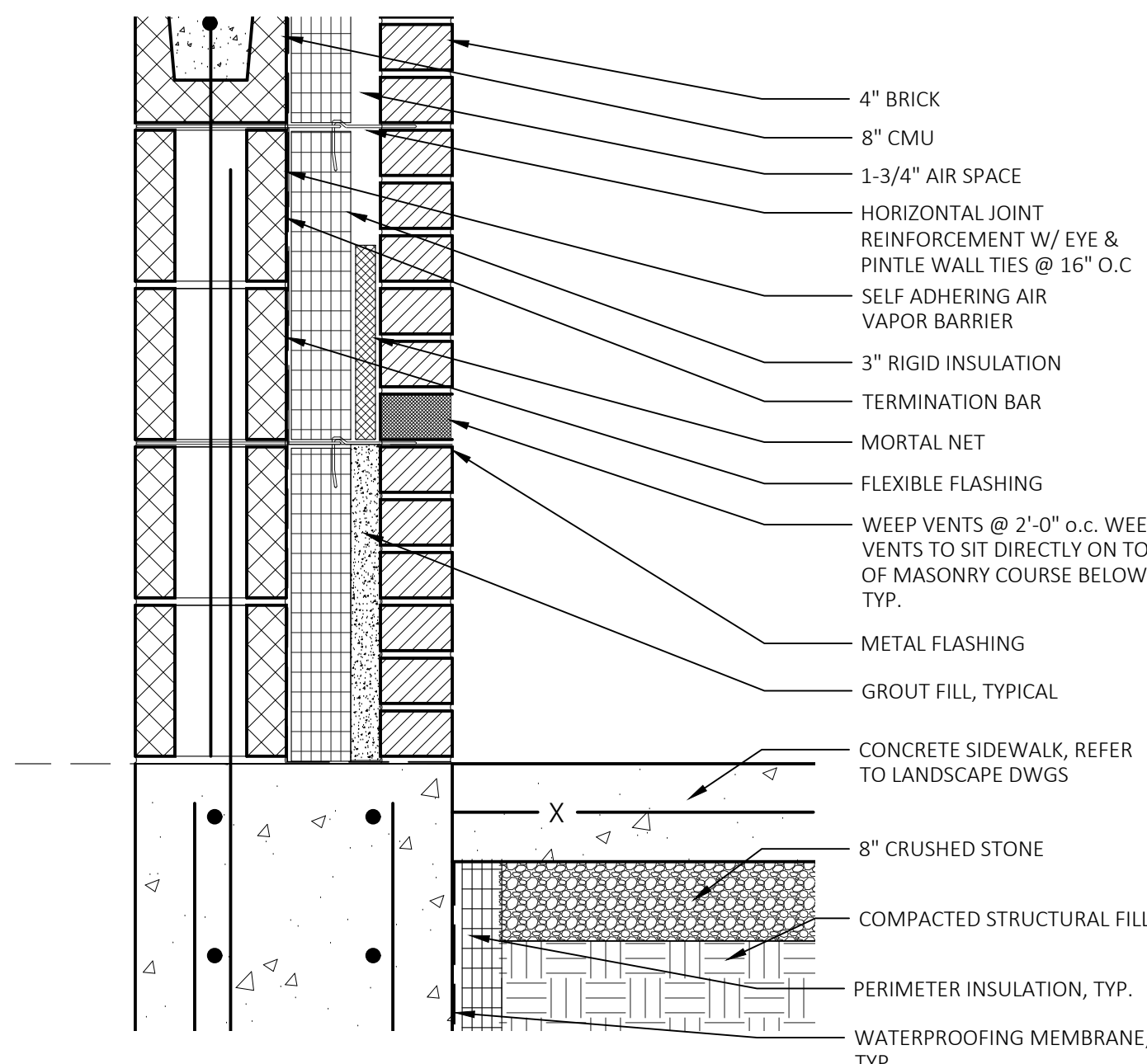
7 ELEVATOR SILL DETAIL
SCALE: 1'-1/2"=1'-0"



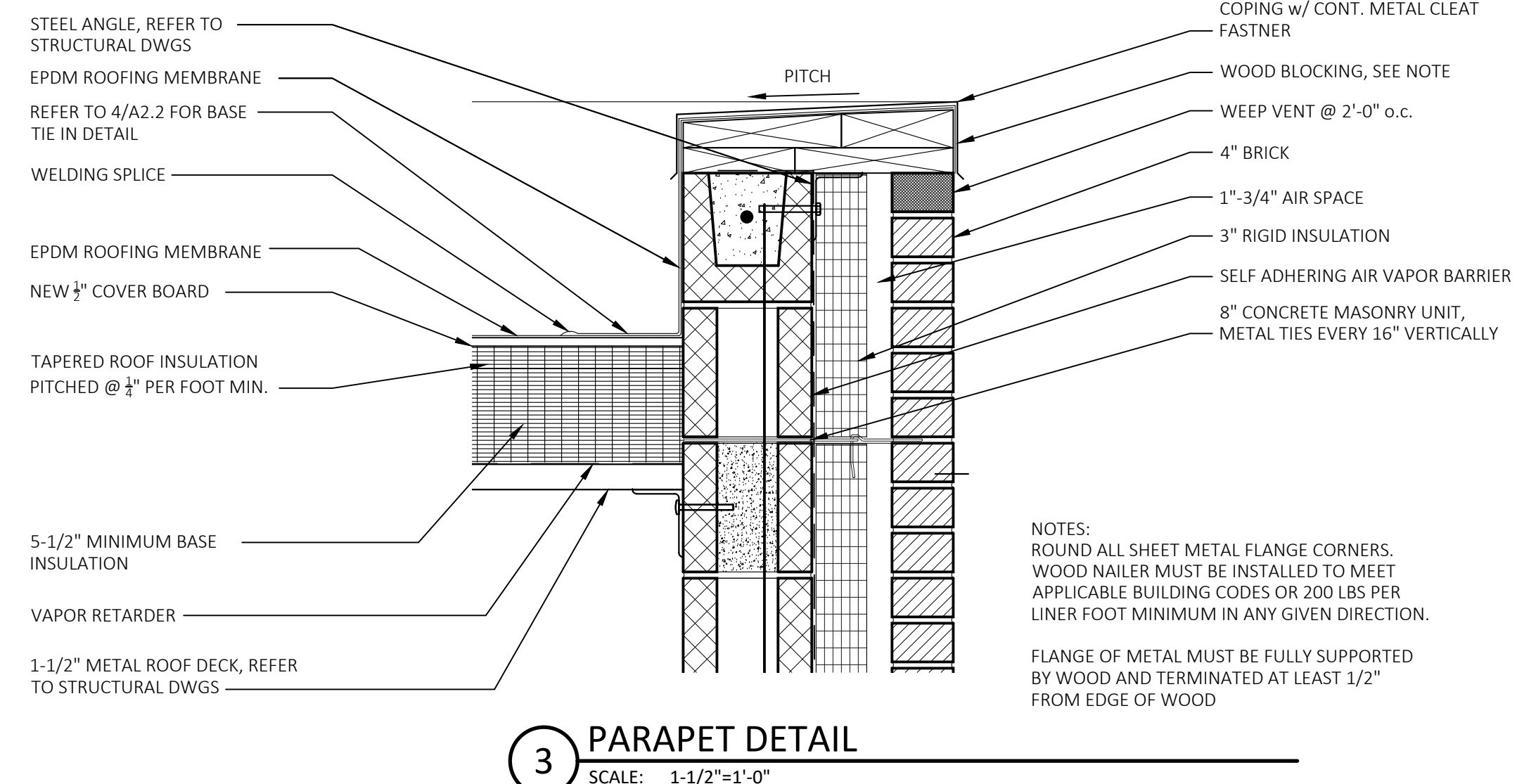
6 ROOF EXPANSION JOINT DETAIL
SCALE: 1-1/2"=1'-0"



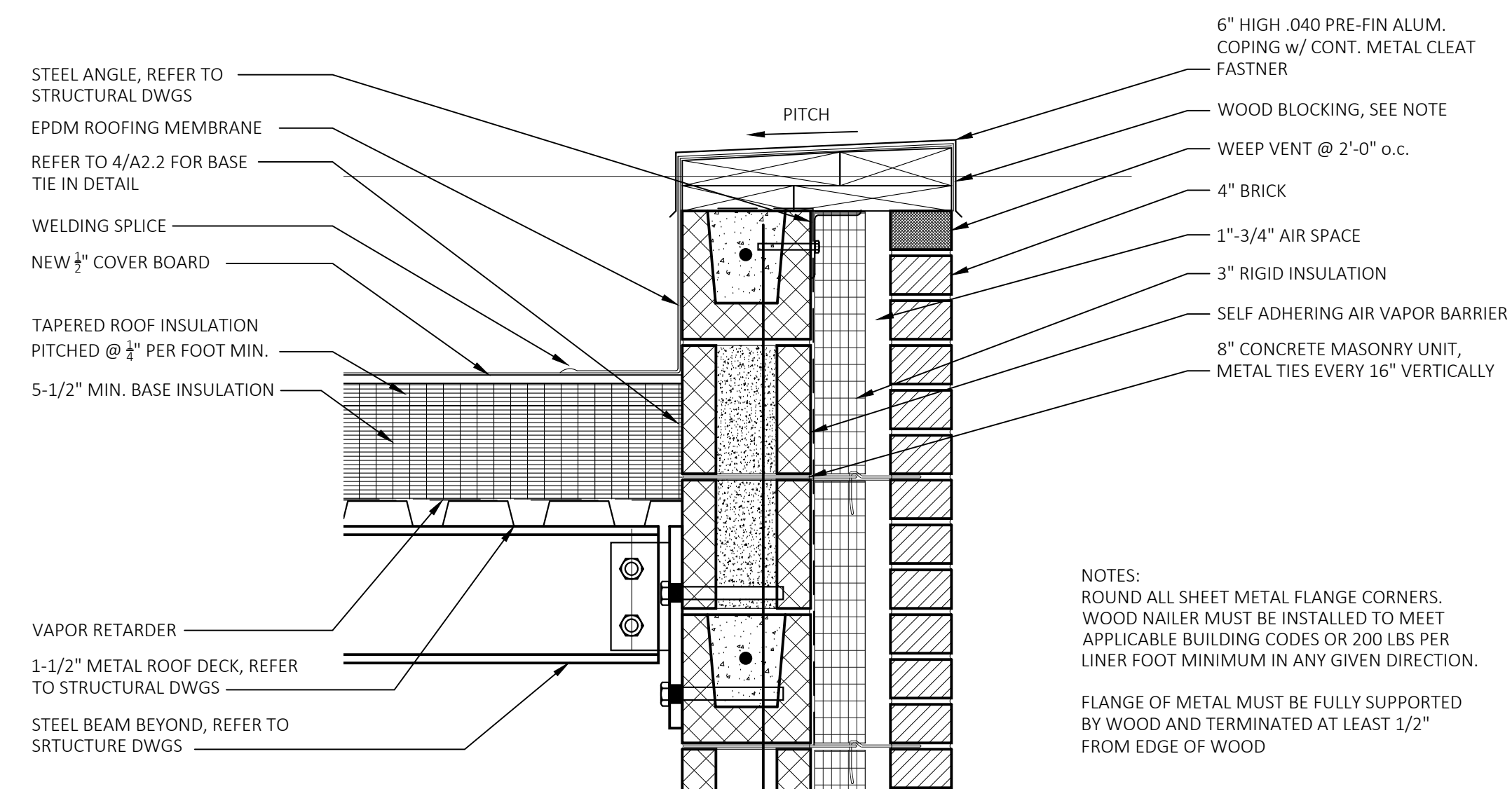
5 WALL BASE DETAIL
SCALE: 1-1/2"=1'-0"



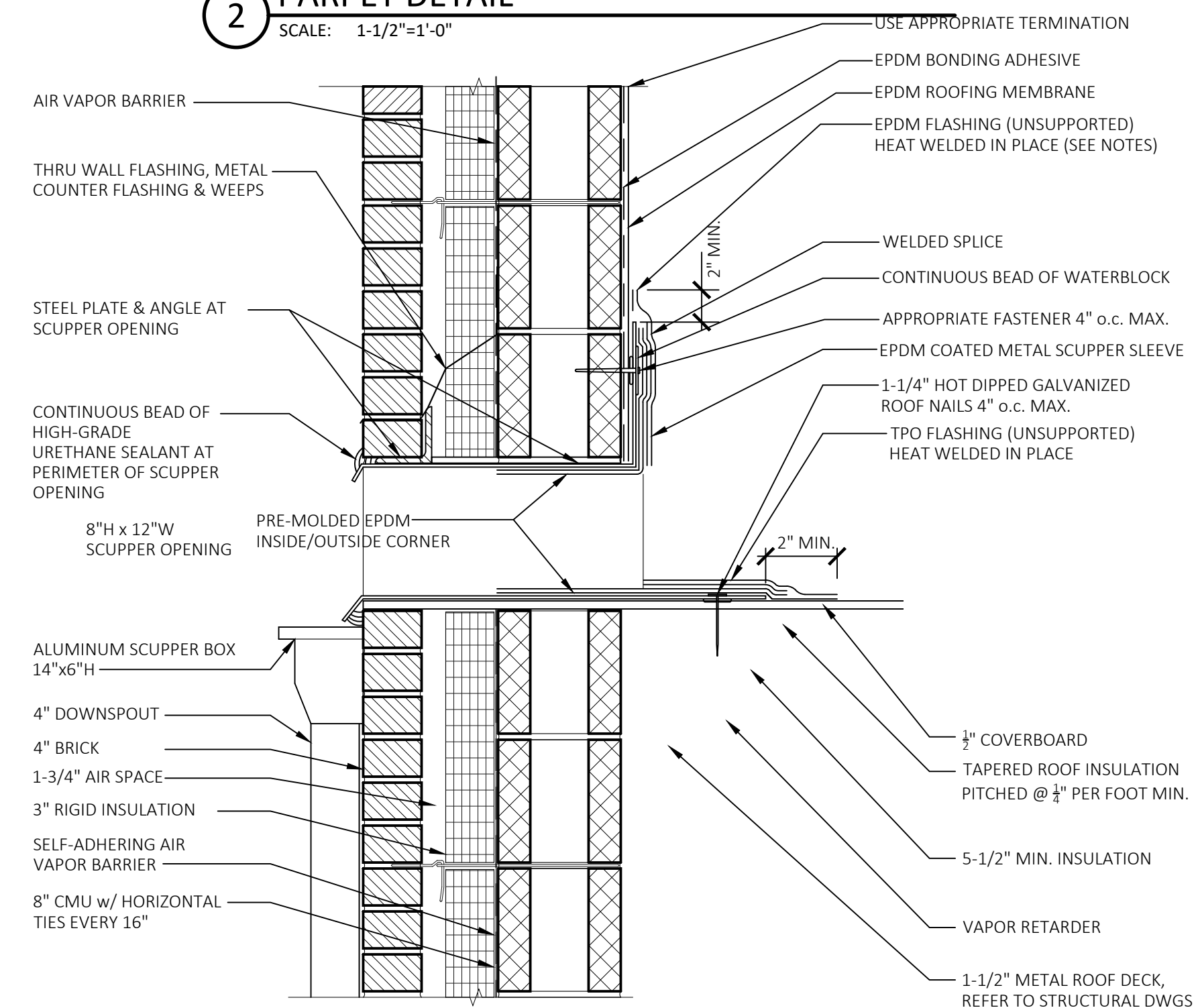
4 WALL BASE DETAIL
SCALE: 1-1/2"=1'-0"



3 PARAPET DETAIL
SCALE: 1-1/2"=1'-0"



2 PARPET DETAIL
SCALE: 1-1/2"=1'-0"



1 ROOF DETAIL - SCUPPER
SCALE: 1-1/2"=1'-0"

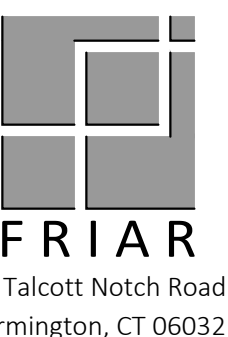
DATE:	9/1/2022
DRAWN BY:	PEH
SCALE:	1/2" = 1'-0"
REVIEWED BY:	BRS
PROJECT NO.	2021-091A
(A5.1) DETAILS	

REVISIONS		
NO.	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

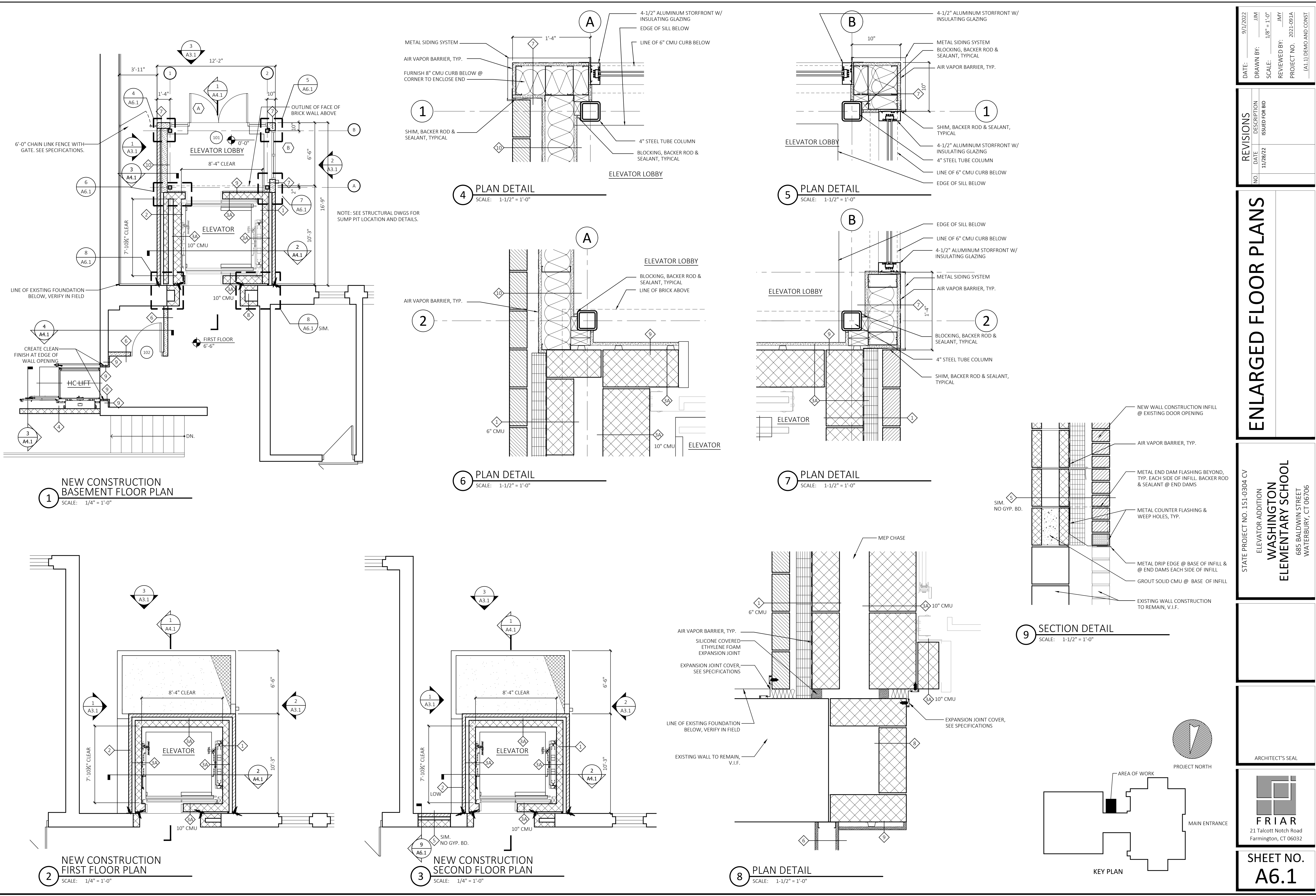
SECTION DETAILS

STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

ARCHITECT'S SEAL



SHEET NO.
A5.1



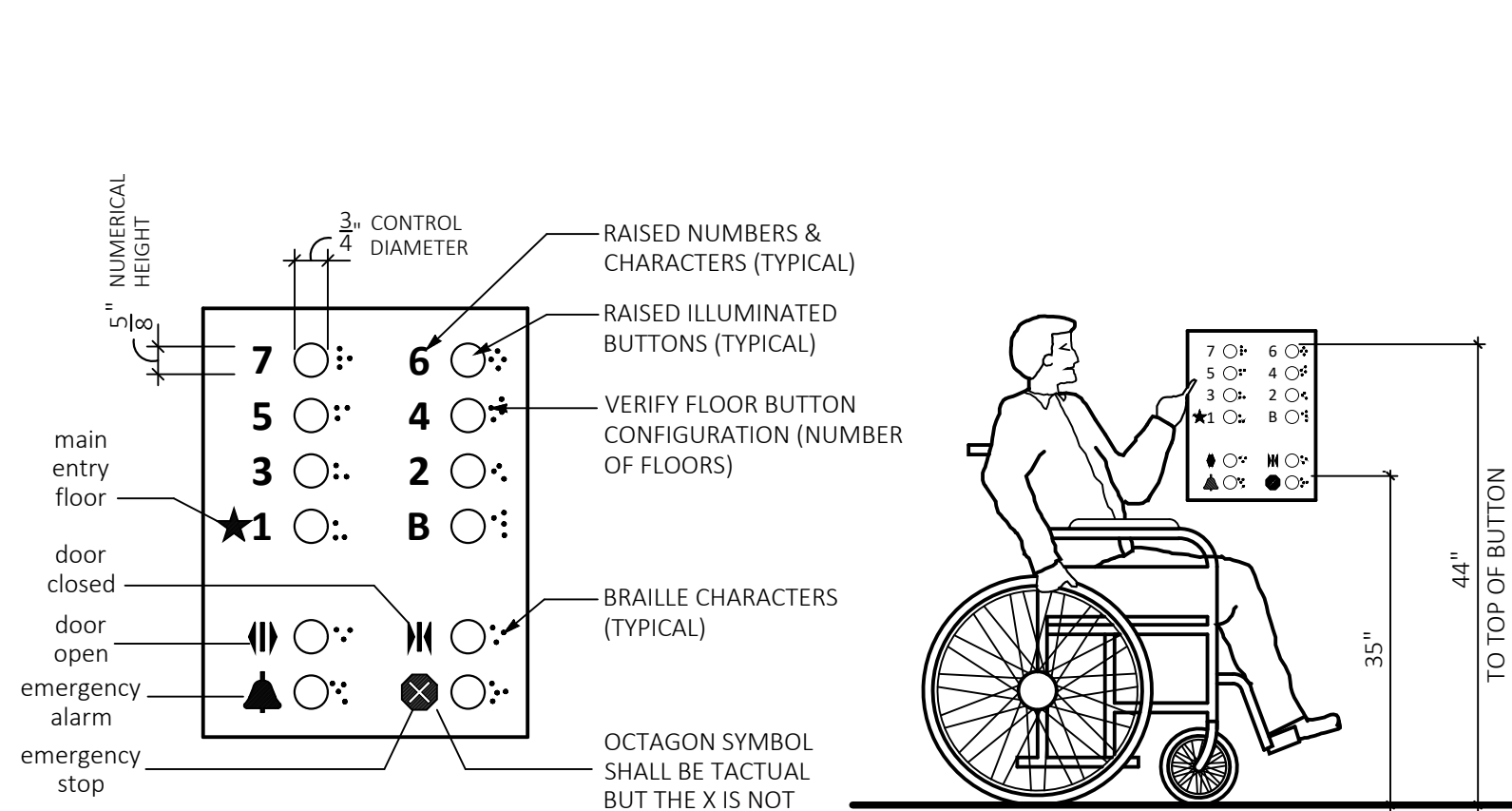
ENLARGED FLOOR PLANS

STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
**WASHINGTON
ELEMENTARY SCHOOL**
685 BALDWIN STREET
WATERBURY, CT 06706

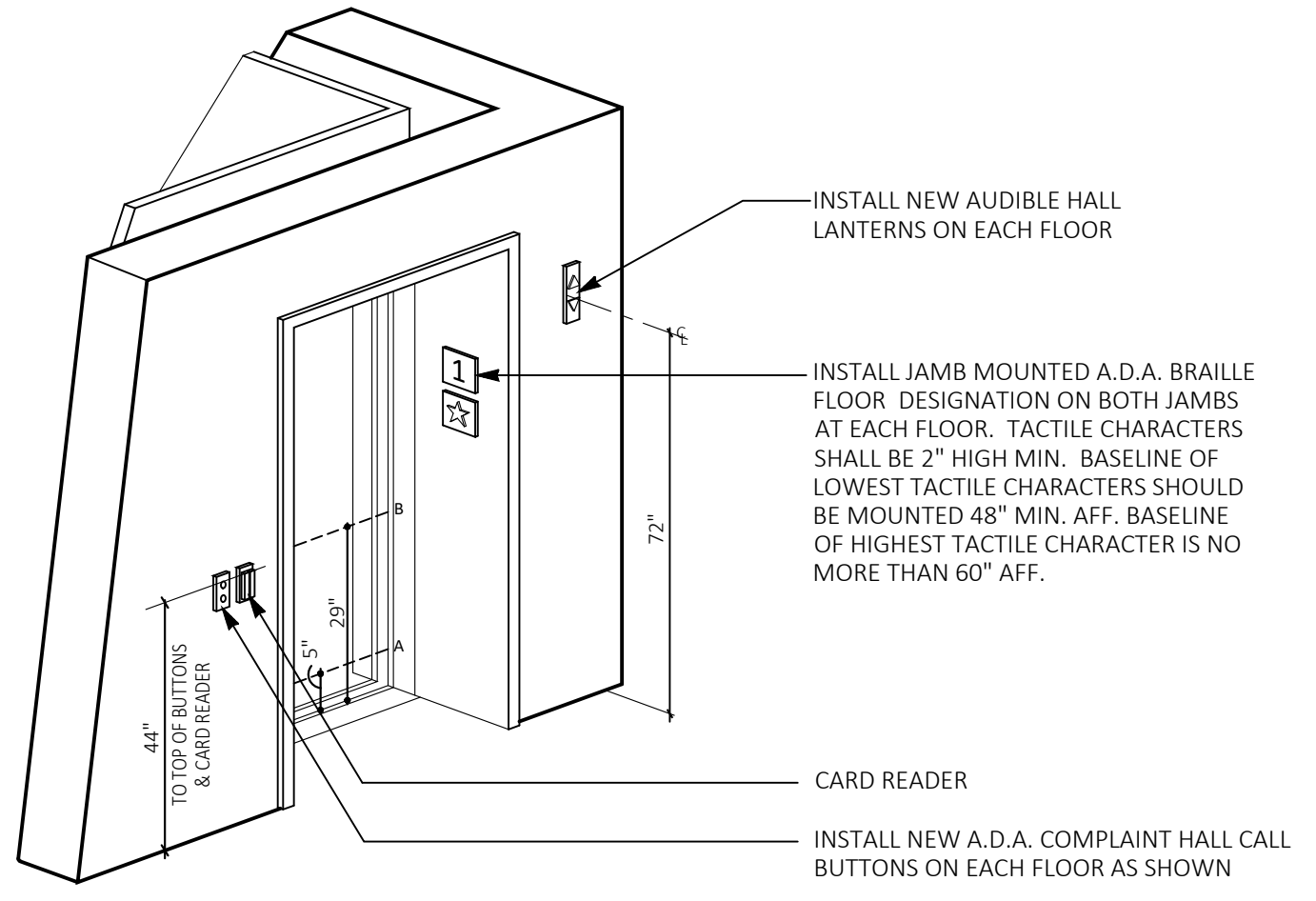
ARCHITECT'S SEAL

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

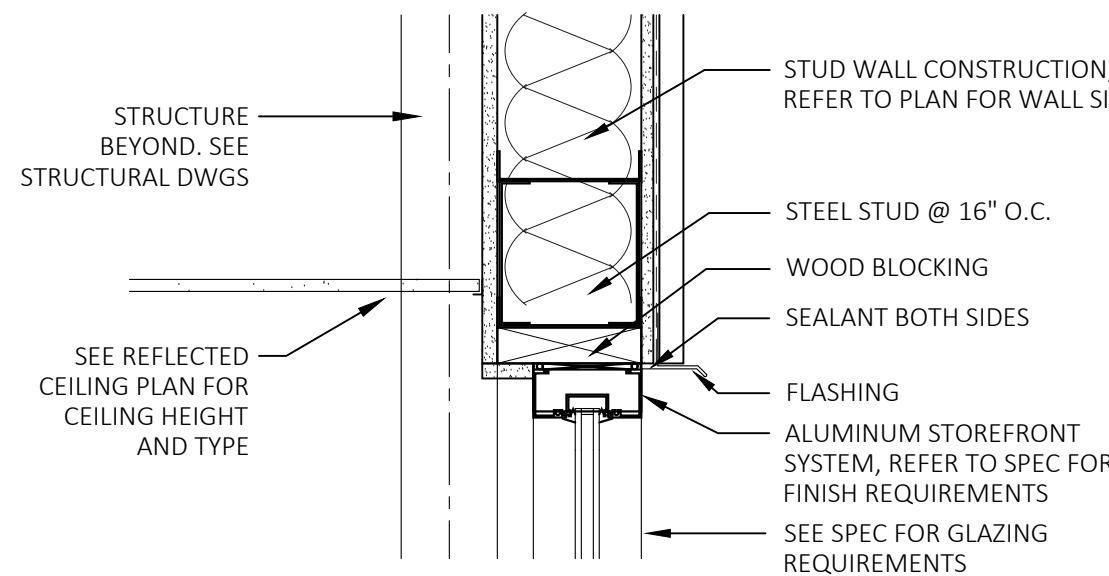
SHEET NO.
A6.1



9 ELEVATOR CAB CONTROL PANEL DIAGRAM
SCALE: N.T.S.

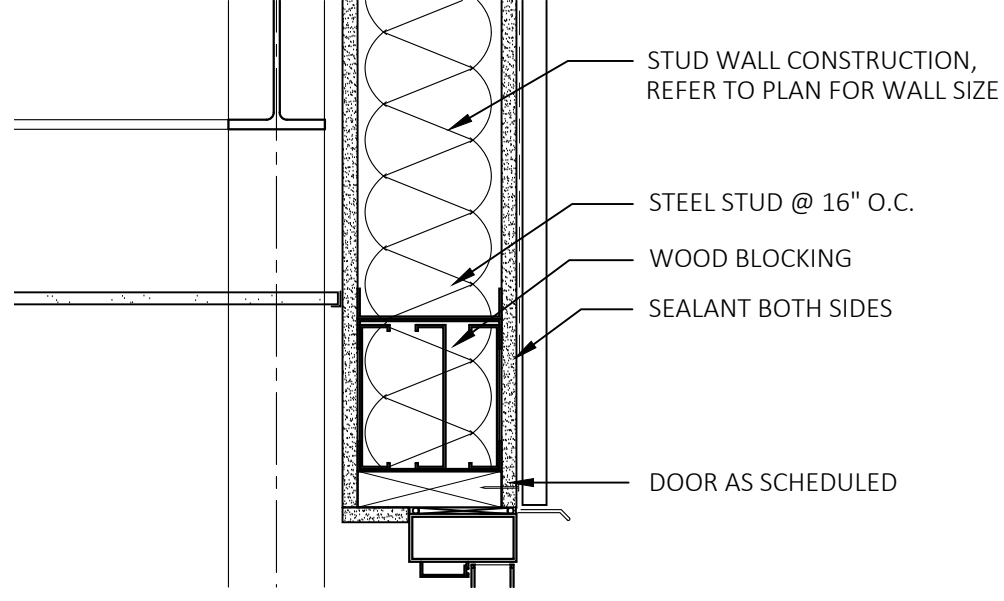


8 ELEVATOR EXTERIOR CONTROL PANEL
SCALE: N.T.S.

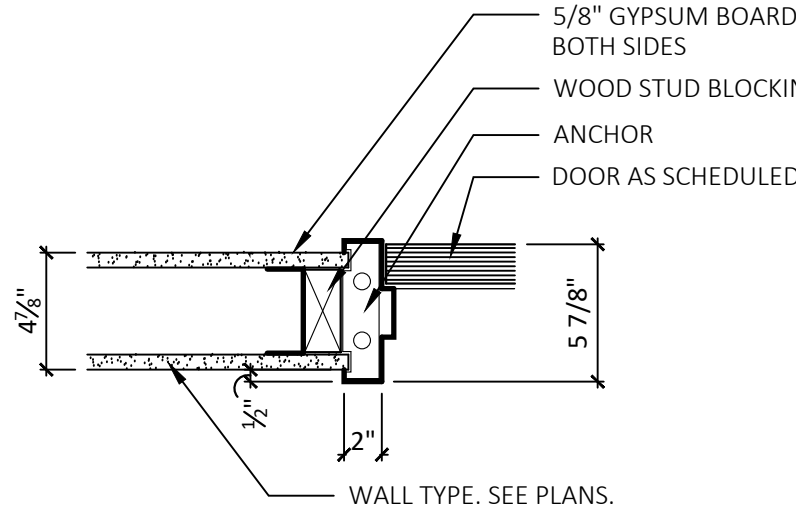


7 HEAD DETAIL
SCALE: 1 1/2" = 1'-0"

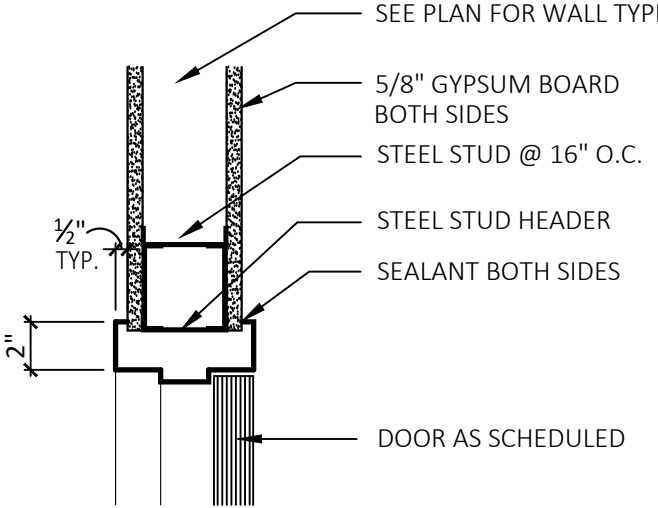
5 JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



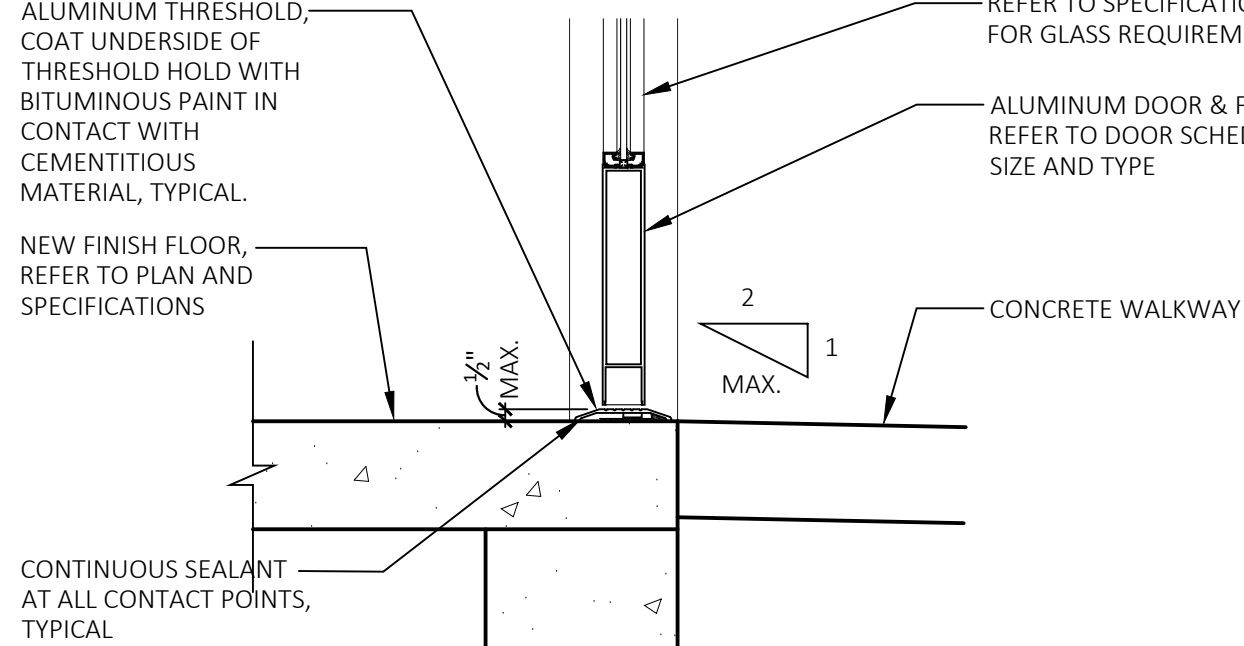
4 HEAD DETAIL
SCALE: 1 1/2" = 1'-0"



3 JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



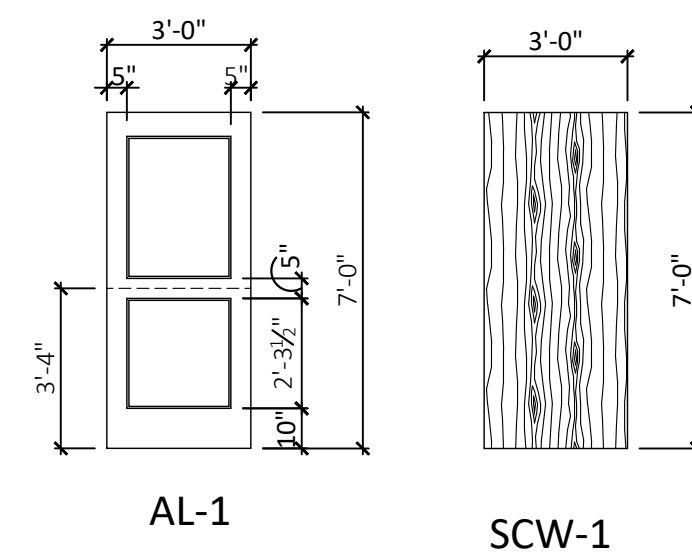
2 HEAD DETAIL
SCALE: 1 1/2" = 1'-0"



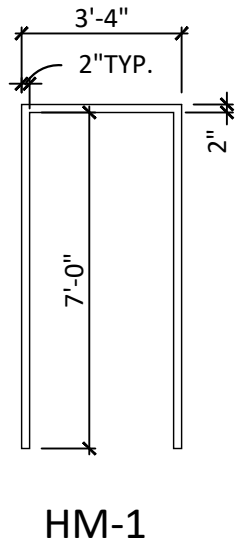
1 THRESHOLD DETAIL
SCALE: 1 1/2" = 1'-0"

DOOR SCHEDULE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
DOOR NUMBER	DESCRIPTION OF WORK	DOOR		FRAME		RATING (DOOR & FRAME)	THRESHOLD DETAIL	HARDWARE - SEE SPECIFICATIONS					<div><div><div>○ INDICATES EXISTING CONDITION</div><div>● INDICATES REQUIRED WORK</div><div>● REUSE EXISTING - REMOVE FROM EXISTING AND INSTALL ON NEW</div></div><div>REFER TO EXISTING SIGNAGE, NEW SIGNAGE TO MATCH EXISTING VERIFY W/ OWNER, ROOM NAME & NUMBER</div></div>	REMARKS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
		SIZE	MATERIAL/TYPE	TYPE	HEAD DETAIL			JAMB DETAIL	FIRE CODE		ACCESSIBILITY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
									PANIC RELEASE LATCH	AUTOMATIC HOLD/RELEASE	SPRING HINGE	AUTO CLOSER			POSITIVE LATCHING HARDWARE	DELATED ACTION CLOSER	LEVER HANDLES	TACTILE WARNING	16" HIGH KICK PLATES	H.C. ACCESSIBLE THRESHOLD																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
101	EXISTING DOOR, FRAME TO REMAIN	●	6'-0"	7'-0"	AL-1	AL-1	4/A&8.1	5/A&8.1	-	-	1/A&8.1	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

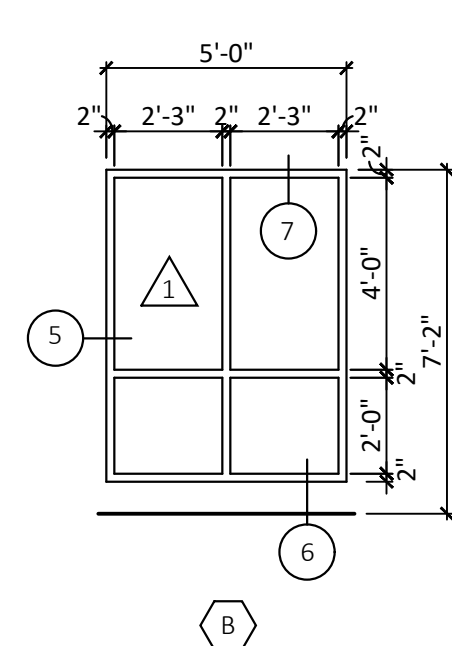
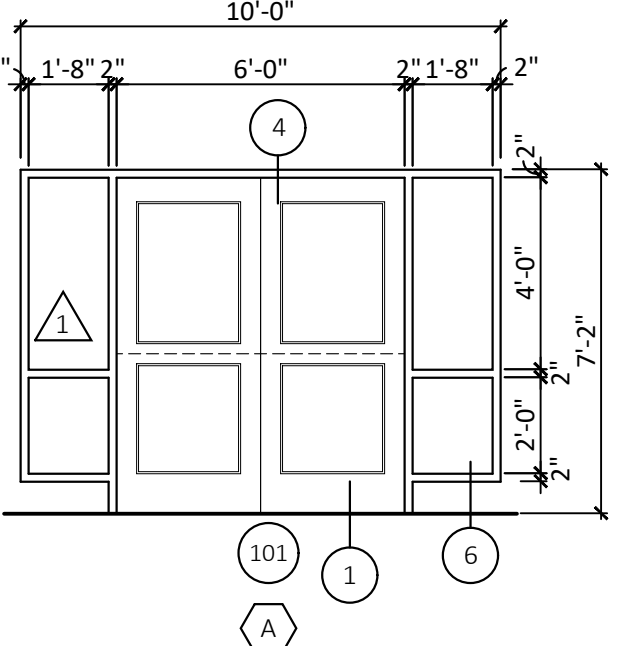
DOOR TYPES



HOLLOW METAL FRAMES



WINDOW ELEVATIONS

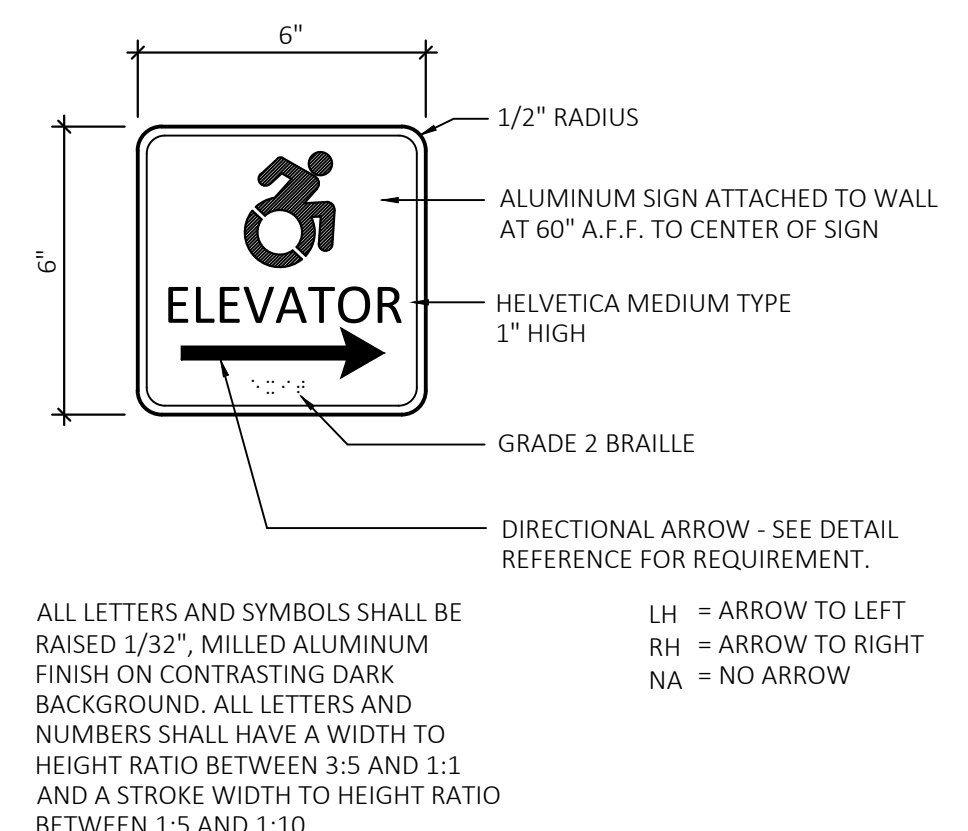


- GLAZING NOTES:
- SAFETY GLAZING SHALL BE PROVIDED IN HAZARDOUS LOCATIONS AND LABELED AS REQUIRED PER IBC SECTION 2406.
 - ALL EXTERIOR DOORS / FRAMES TO CONTAIN INSULATING TEMPERED GLAZING TYP.

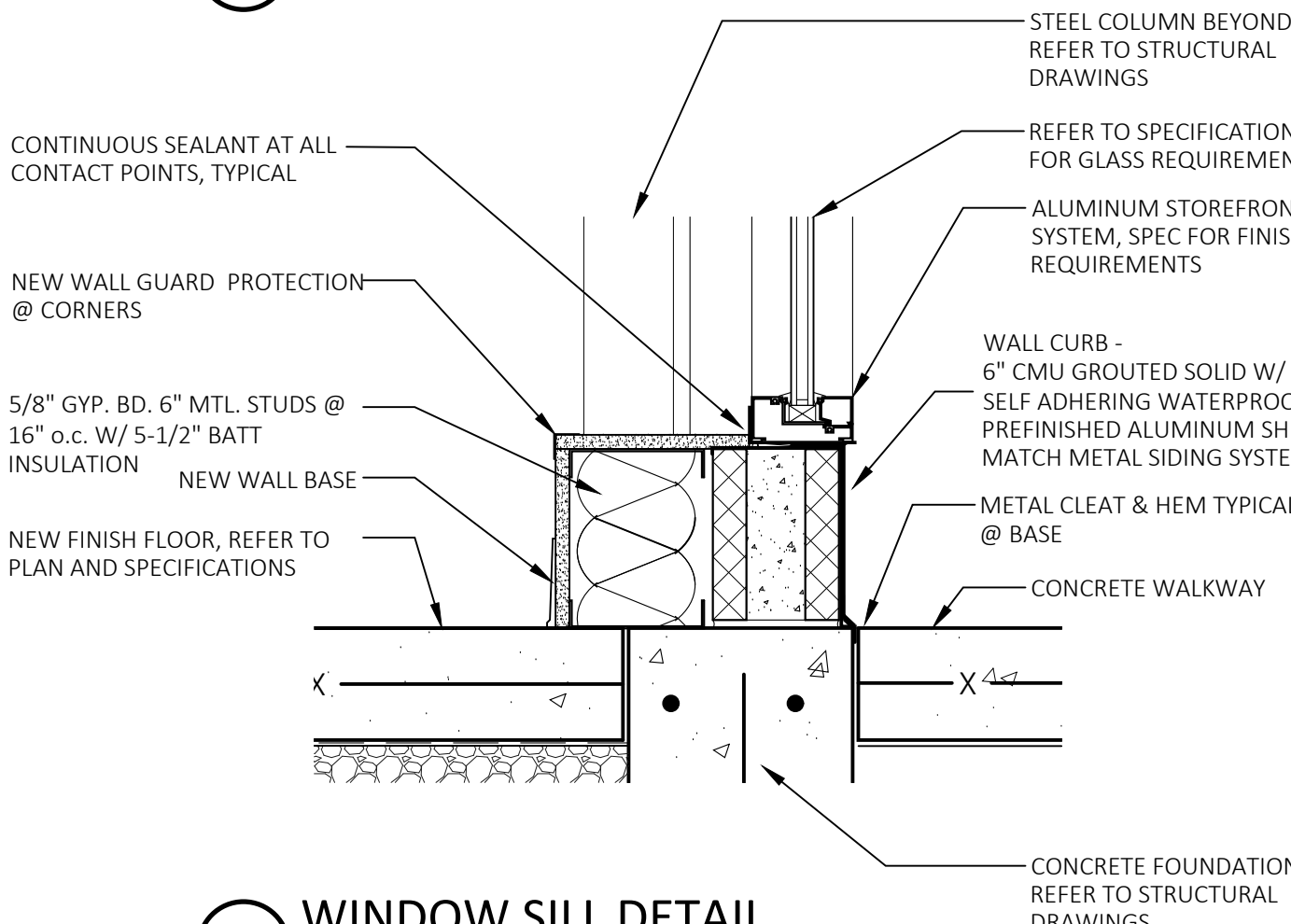
WINDOW TYPE SCHEDULE					
ELEV. TAG #	FRAME	HEAD	JAMB	SILL	GLASS TYPE
1	4 1/2" DEEP ALUM.	4/A8.1	5/A8.1	6/A8.1	1
2	4 1/2" DEEP ALUM.	4/A8.1	5/A8.1	6/A8.1	1

GLASS SCHEDULE	
TYPE 1	1" INSULATING GLASS UNIT; CLEAR
	INDICATES GLASS TYPE

10 ELEVATOR SIGNAGE
SCALE: 3"-1'-0"



6 WINDOW SILL DETAIL
SCALE: 1 1/2" = 1'-0"



DATE:	9/1/2022
DRAWN BY:	JIM
SCALE:	NOTED
REVIEWED BY:	JIM
PROJECT NO.	2021-091A
	(A1.1) DEMO AND CONST

REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR BID
2	11/28/22

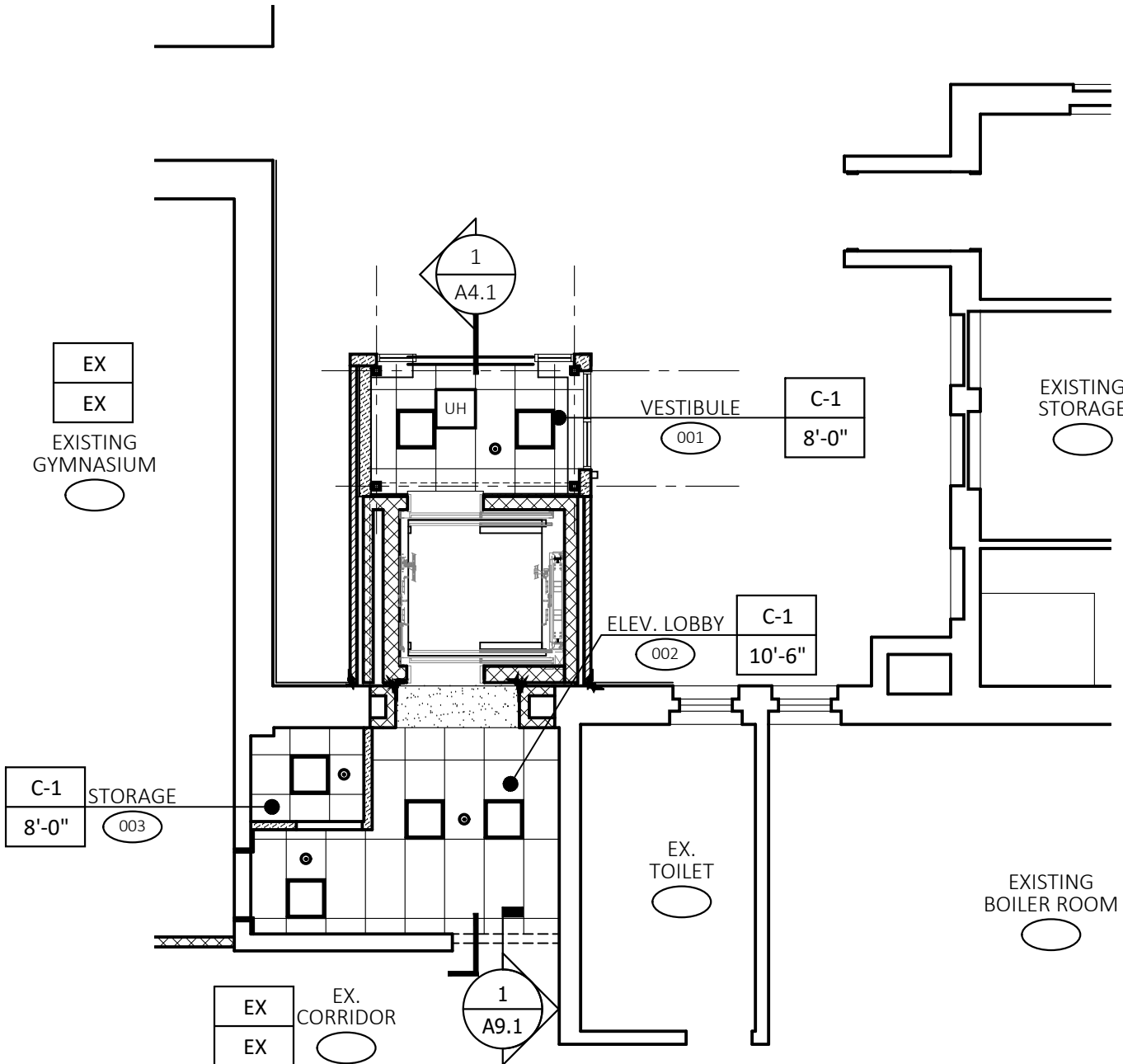
DOOR & WINDOW
ELEVATIONS & DETAILS

STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

ARCHITECT'S SEAL

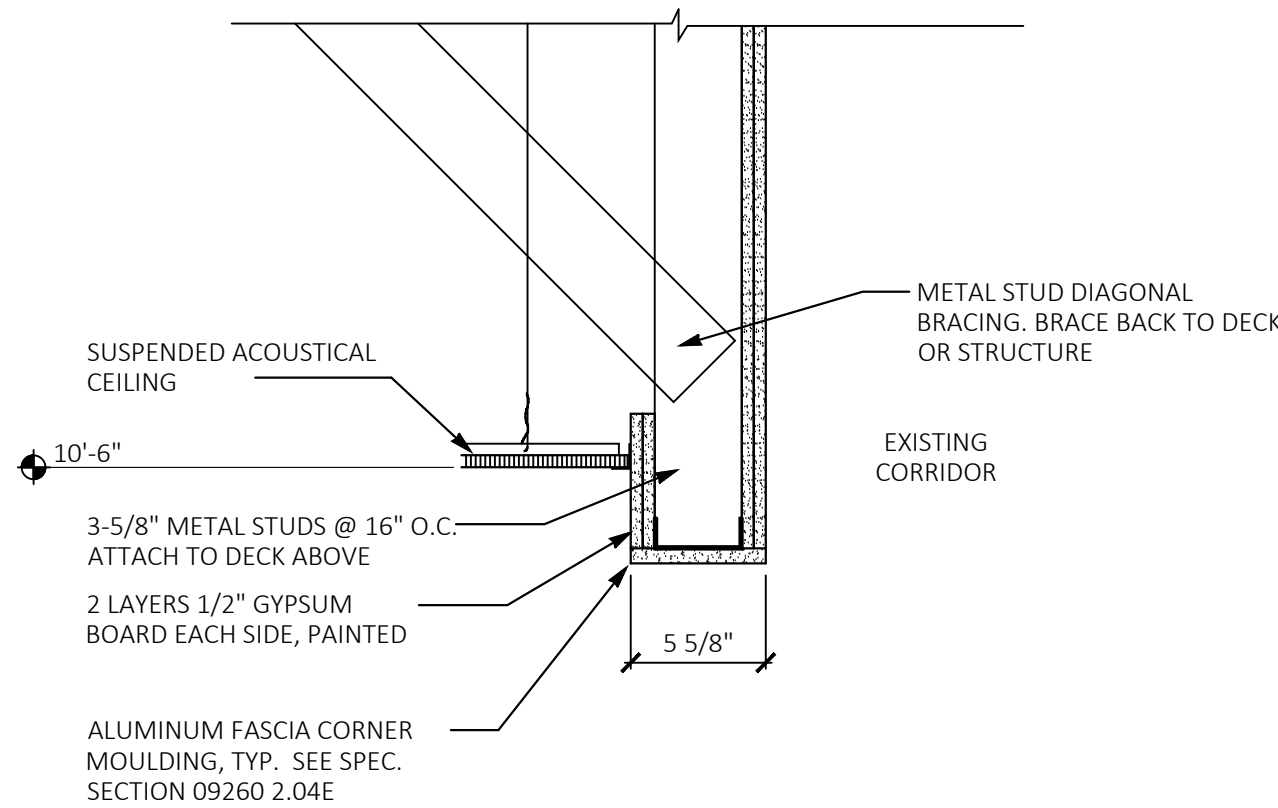


SHEET NO.
A8.1



BASEMENT REFLECTED CEILING PLAN

SCALE: 1/8"=1'-0"



1 SOFFIT DETAIL

SCALE: 1-1/2" = 1'-0"

REFLECTED CEILING LEGEND (NOT ALL ITEMS SHOWN ARE USED)

C-X	CEILING TYPE AND HEIGHT SYMBOL -
X'-X"	CEILING TYPE
	CEILING HEIGHT
	NEW, EXISTING OR RELOCATED RECESSED 2 X 4 LIGHT FIXTURE. REFER TO ELEC. DWGS.
	NEW, EXISTING OR RELOCATED RECESSED 2 X 2 LIGHT FIXTURE. REFER TO ELEC. DWGS.
	NEW, EXISTING OR RELOCATED LIGHT FIXTURE. REFER TO ELEC. DWGS.
	NEW, EXISTING OR RELOCATED TRACK OR LIGHT FIXTURE. REFER TO ELEC. DWGS.
	NEW, EXISTING OR RELOCATED PENDANT SPECIALTY LIGHT FIXTURE. REFER TO ELEC. DWGS.
	SUPPLY DIFFUSER. REFER TO MECHANICAL DRAWINGS FOR TYPES AND SIZES.
	RETURN DIFFUSER. REFER TO MECHANICAL DRAWINGS FOR TYPES AND SIZES.
	UNIT HEATER, REFER TO MECHANICAL DRAWINGS FOR TYPES AND SIZES
	SPRINKLER HEAD
	SPEAKER
	SMOKE DETECTOR
	HEAT DETECTOR
	EXIT SIGN WITH DIRECTIONAL CHEVRON, AS REQ'D. SEE ELEC. DWGS. FOR SPECIFIC TYPES.
	SECURITY CAMERA

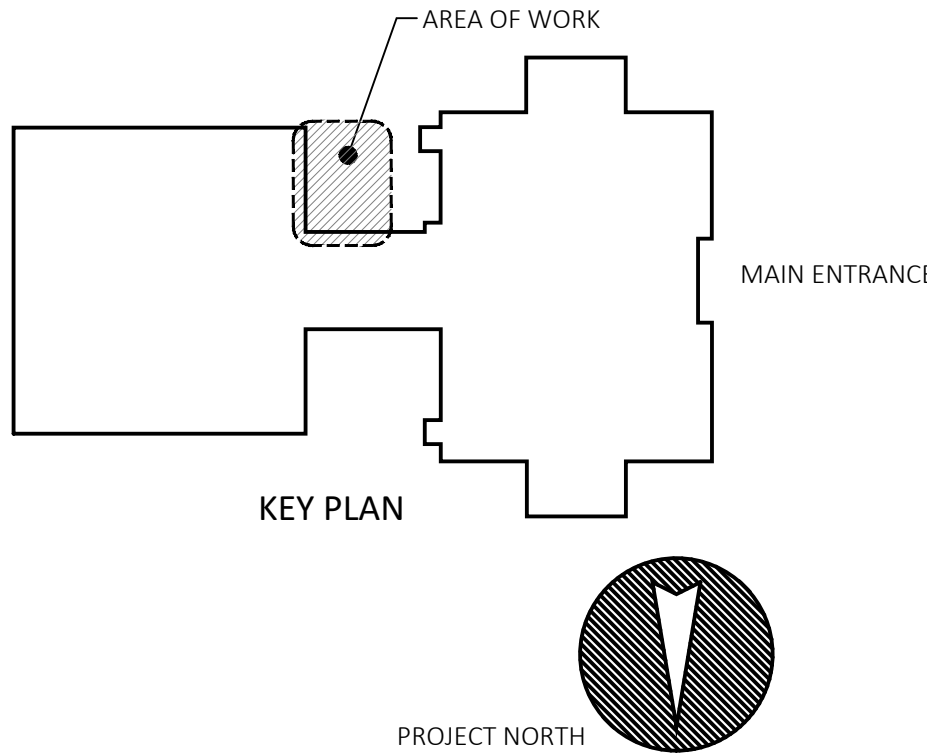
CEILING TYPE SCHEDULE (SEE PLANS & SPECIFICATIONS)

C-1	SUSPENDED ACOUSTICAL 2' X 4' CEILING SYSTEM AS SPECIFIED
EX	EXISTING CEILING TO REMAIN

GENERAL NOTES

- A THIS PLAN INDICATES DIRECTIONAL LAYOUT OF CEILING GRIDS. REFER TO CEILING TYPE SCHEDULE.
- B IN ALL AREAS OF NEW & EXISTING SUSPENDED ACOUSTICAL CEILINGS, THE SPRINKLER LINES SHALL BE INSTALLED CONCEALED. REFER TO FIRE PROTECTION DRAWINGS FOR SPRINKLER HEAD LOCATIONS AND RELATED INFORMATION.
- C REFER TO ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE TYPES, REQUIRED WORK AND FOR OTHER CEILING MOUNTED EQUIPMENT NOT INDICATED ON THESE DRAWINGS.
- D REFER TO MECHANICAL DRAWINGS FOR DIFFUSER TYPES, REQUIRED WORK AND FOR OTHER CEILING MOUNTED EQUIPMENT NOT INDICATED ON THESE DRAWINGS.
- E REFER TO DETAIL X/A9.1 FOR SEISMIC BRACING DETAILS FOR NEW SUSPENDED CEILINGS.
- F CUT NEW CEILING TILES AS REQUIRED FOR INSTALLATION AROUND NEW OR EXISTING VENT PIPING, EXHAUST DUCTS, SPRINKLER HEADS, CONDUIT, ETC.
- G DASHED LINE INDICATES LOCATION OF EXISTING SOFFIT TO REMAIN. ALTERNATE # 4, REMOVE SOFFIT AND PROVIDE CEILING GRID AND TILE EXTENDING TO WALL.
- H DEMO EXISTING CEILING SYSTEMS WHERE SHOWN AS NEW UNLESS OTHERWISE NOTED.

NOTE: FIELD VERIFY ALL CEILING HEIGHTS PRIOR TO INSTALLATION OF NEW GRIDS. COORDINATE WITH INSTALLATION OF NEW LIGHTING FIXTURES, SPRINKLER PIPING, DUCTWORK AND EXISTING STRUCTURE. NOTIFY ARCHITECT OF ANY CONFLICTS PRIOR TO INSTALLING NEW GRID.



DATE:	9/1/2022
DRAWN BY:	XX
SCALE:	XX
REVIEWED BY:	XX
PROJECT NO.	2021-091A

REVISIONS	DESCRIPTION
NO.	DATE
	11/28/22

REFLECTED CEILING PLANS

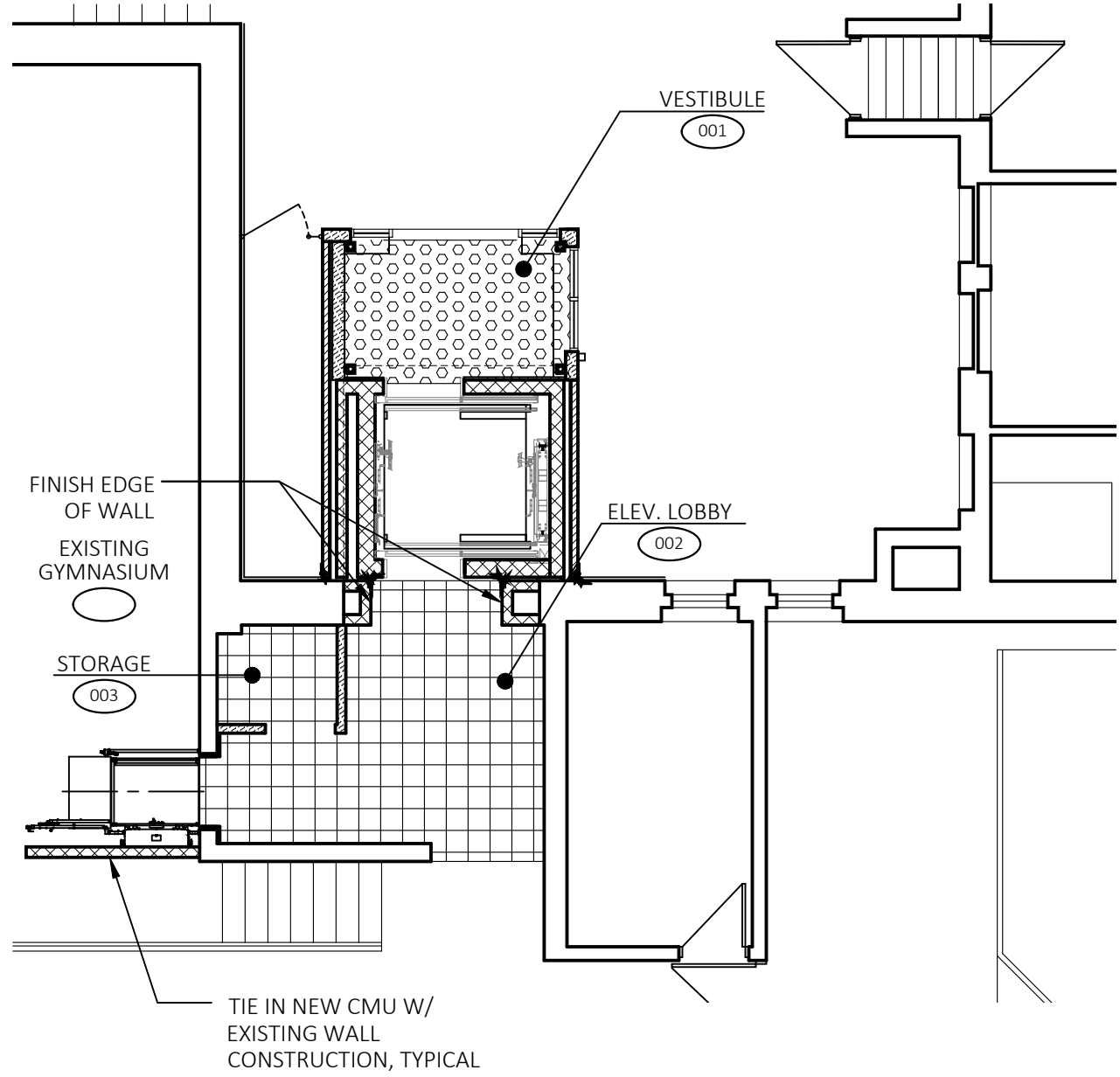
STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

ARCHITECT'S SEAL

ARCHITECT'S SEAL

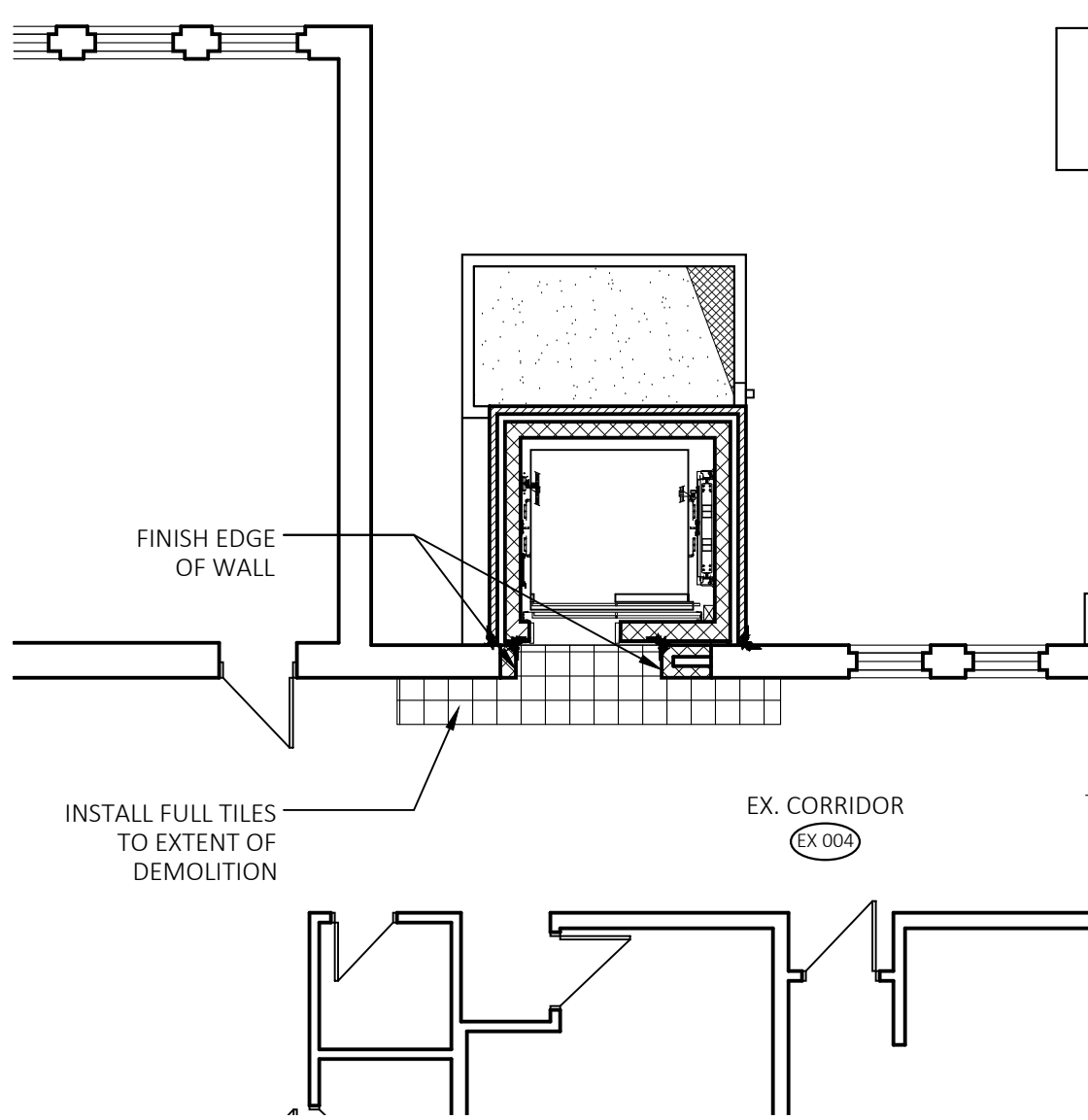
FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
A9.1



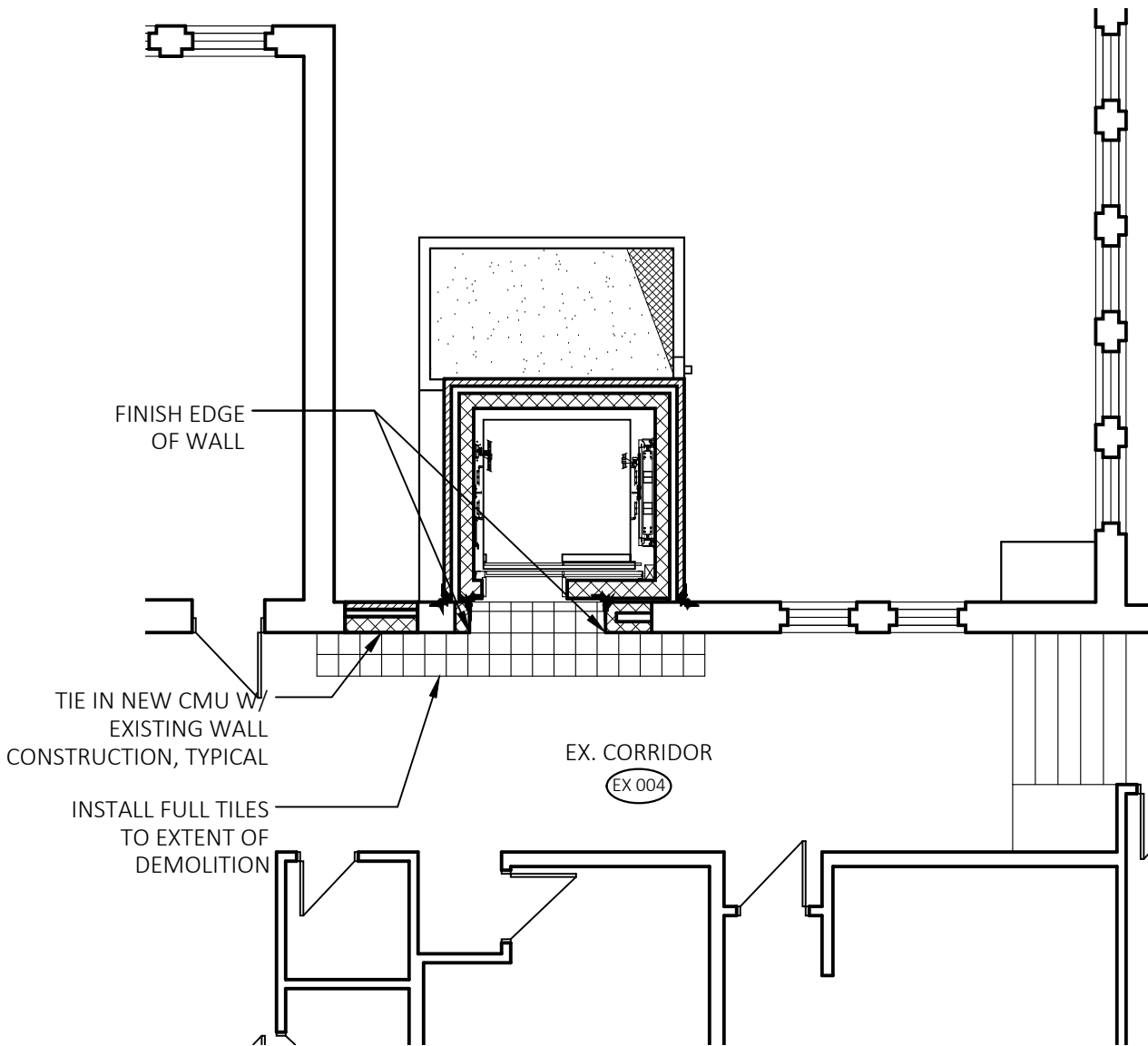
BASEMENT FINISH PLAN

SCALE: 1/8"=1'-0"



FIRST FLOOR FINISH PLAN

SCALE: 1/8"=1'-0"



SECOND FLOOR FINISH PLAN

SCALE: 1/8"=1'-0"

FINISH SCHEDULE																			
ROOM NUMBER AREA DESIGNATION	ROOM OR AREA NAME	FLOOR	BASE	WALL				MISCELLANEOUS											
								DOOR FRAMES											
				NORTH	SOUTH	EAST	WEST												
-	ELEVATOR	EM-1	-	-	-	-	-	-											
001	VESTIBULE	EM-1	RB-1	P-1	-	P-1	-	-											
002	ELEVATOR LOBBY	VCT-1	RB-1	P-1	P-1	P-1	P-1	P-2											
003	STORAGE	VCT-1	RB-1	P-1	P-1	P-1	P-1	P-2											
EX 004	EXISTING CORRIDOR	VCT-1	RB-1	-	P-1	-	-	-											
	NEW LIFT WALLS @ EXISTING GYM		RB-1			P-1	P-1												

ABBREVIATIONS

AWP	- ACOUSTICAL WALL PANEL	RF	- RESILIENT FLOORING
BB	- BULLETIN BOARD	RF	- RUBBER FLOORING
BC	- BASE CABINET	RT	- RESILIENT TILE
C	- CARPET (TILE AND/OR BROADLOOM)	RT	- RUBBER TILE
CBD	- CHAULK BOARD	SDT	- STATIC DISAPATIVE TILE
CT	- CERAMIC FLOOR TILE	SS	- SOLID SURFACE
CTB	- CERAMIC TILE BASE	SV	- SHEET VINYL FLOORING
CTR	- COUNTER	TB	- TACK BOARD
CWT	- CERAMIC WALL TILE	TBD	- TACK BOARD
DC	- DISPLAY CASE	TF	- TERRAZZO FLOORING
EM	- ENTRY MAT	TS	- TACK STRIP
EP	- EPOXY PAINT	UC	- UPPER (WALL) CABINET
ER	- EPOXY RESIN FLOORING	VB	- VERTICAL BLINDS
ET	- EPOXY TERRAZZO	VB	- VINYL BASE
GT	- GROUT	VCT	- VINYL COMPOSITION TILE
HB	- HORIZONTAL BLINDS	VF	- VINYL FLOORING
L	- LINOLEUM	VT	- VINYL TILE
LS	- LINOLEUM SHEET FLOORING	VWC	- VINYL WALL COVERING
LT	- LINOLEUM TILE	WB	- WALL BASE
MBD	- MARKER BOARD	WC	- WALK-OFF CARPET
MCIC	- MULTI-COLORED INTERIOR COATING	WC	- WALL COVERING
MP	- METAL PANEL	WD	- WOOD
MS	- MOTORISED SHADE	WM	- WALK-OFF MAT
P	- PAINT	WO	- WALK-OFF CARPET/MAT
PJS	- PROJECTION SCREEN	WP	- WALL PADDING/PROTECTION
PL	- PLASTIC LAMINATE	WS	- WINDOW SHADE
RB	- RESILIENT BASE		

LEGEND

FLOORING

ENTRANCE MAT
EM-1 MANUFACTURER: TANDUS CENTIVE
STYLE: ASSERTIVE ACTION
COLOR: STEELWORK 26202
SIZE: 24"x24" CARPET TILE

VINYL COMPOSITE TILE
VCT-1 MATCH EXISTING
ARCHITECT TO APPROVE

BASE

RUBBER BASE
RB-1 MANUFACTURER: JOHNSONITE
COLOR: T44 GATEWAY WG
SIZE: 4" WALL BASE

PAINT

P-1 MANUFACTURER: SHERWIN WILLIAMS
COLOR: RESERVED WHITE SW7056
FINISH: EGG SHELL

P-2 MANUFACTURER: SHERWIN WILLIAMS
COLOR: RESERVED WHITE SW7056
FINISH: SEMI-GLOSS

FLOOR FINISH LEGEND

	ENTRANCE MAT
	NEW VINYL COMPOSITION TILE TO MATCH EXISTING

FLOOR FINISH NOTES:

- REFER TO FINISH SCHEDULE SHEETS FOR COLOR DESIGNATIONS.
- ALL FLOOR FINISHES TO EXTEND TO MEET WALL AND/OR BASE OF CASEWORK
- FINISH PLAN SHOULD BE USED IN CONJUNCTION WITH FINISH SCHEDULE. SHOULD THERE BE ANY DISCREPANCY BETWEEN INFORMATION GIVEN ON THE FINISH/COLOR SCHEDULE AND ANY OTHER DRAWINGS IN THE SET, THE HIGHER QUALITY FINISH SHALL BE PROVIDED.

VIEW FROM TABLE 803.9/ 2012 IBC
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY

GROUP	SPRINKLERED			NONSPRINKLERED		
	VERTICAL EXITS & EXIT PASSAGEWAYS	EXIT ACCESS CORRIDORS & OTHER EXITWAYS	ROOMS AND ENCLOSED SPACES	VERTICAL EXITS & EXIT PASSAGEWAYS	EXIT ACCESS CORRIDORS & OTHER EXITWAYS	ROOMS AND ENCLOSED SPACES
A-1 & A-2	B	B	C	A	A	B
A-3, A-4, A-5	B	B	C	A	A	C
B, E, M	B	C	C	A	B	C

INTERIOR WALLS AND CEILING FINISHES SHALL BE CLASSIFIED IN ACCORDANCE WITH ASTM E 84.

DATE:	9/1/2022
DRAWN BY:	XX
SCALE:	XX
REVIEWED BY:	XX
PROJECT NO.	2021-091A
	XX

REVISES	DESCRIPTION
NO.	ISSUED FOR BID
DATE	
11/28/22	

FINISH PLANS
& SCHEDULE

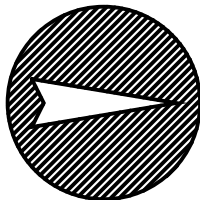
STATE PROJECT NO. 151-0304 CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706



ARCHITECT'S SEAL

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
A12.1



"STRUCTURAL GENERAL NOTES AND SPECIFICATIONS"

CODES AND STANDARDS:

1. THE FOLLOWING CODES AND STANDARDS, INCLUDING ALL SPECIFICATIONS WITHIN, SHALL APPLY TO THE DESIGN, CONSTRUCTION, QUALITY CONTROL AND SAFETY OF ALL WORK PERFORMED ON THE PROJECT. USE THE LATEST EDITIONS UNLESS NOTED OTHERWISE.
- a. 2022 STATE OF CONNECTICUT BUILDING CODE
(1) "2021 INTERNATIONAL BUILDING CODE"
(2) 2022 CONNECTICUT AMENDMENTS
- b. "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318", (LATEST EDITION) AMERICAN CONCRETE INSTITUTE.
- c. HOT WEATHER CONCRETING, ACI 305R AND COLD WEATHER CONCRETING ACI 306R (LATEST EDITION).

DESIGN DATA:

1. GRAVITY - FLOOR LIVE LOADS
- | | |
|--------------|---------|
| a. LOBBY | 100 PSF |
| b. VESTIBULE | 100 PSF |
2. GRAVITY - SNOW LOADS
- | | |
|---|--------|
| a. GROUND SNOW LOAD (Pg) | 35 PSF |
| b. SNOW EXPOSURE FACTOR (Ce) | 1.0 |
| c. THERMAL FACTOR (Ct) | 1.0 |
| d. SNOW LOAD IMPORTANCE FACTOR (I) | 1.0 |
| e. FLAT-ROOF SNOW LOAD (Pf) | 30 PSF |
| f. NEW ROOF FRAMING HAS BEEN DESIGNED FOR UNBALANCED ROOF SNOW LOAD PER SECT. 7.6, ASCE 7-10 AND FOR SNOW DRIFT PER SECT. 7.7, ASCE 7-10. | |
3. LATERAL LOADS - WIND
- a. MAIN WIND-FORCE RESISTING SYSTEM:
- (1) NOMINAL DESIGN WIND SPEEDS (Vasd) = 101 MPH
(2) ULTIMATE DESIGN WIND SPEEDS (Vult.) = 130 MPH
(3) RISK CATEGORY OF BUILDING: III
(4) WIND EXPOSURE: C
(5) INTERNAL PRESSURE COEFFICIENT (GC pi)= ±0.18
- b. COMPONENTS & CLADDING - TO BE DESIGNED IN ACCORDANCE WITH IBC 2015, SECTION 1609, "BUILDING COMPONENTS AND CLADDING".
4. LATERAL LOADS - SEISMIC
- a. SITE CLASSIFICATION: C
b. BUILDING CATEGORY: III
c. SEISMIC IMPORTANCE FACTOR (Ib): 1.25
d. SEISMIC USE GROUP: I
e. SEISMIC DESIGN CATEGORY: B
f. MAPPED SPECTRAL ACCELERATION FOR SHORT PERIODS (Ss): 0.193
g. MAPPED SPECTRAL RESPONSE ACCELERATION AT 1 SECOND PERIOD (S1): 0.054
h. BASIC SEISMIC-RESISTING SYSTEM: BEARING WALL SYSTEM - ORDINARY REINFORCED MASONRY SHEAR WALLS
- (1) RESPONSE MODIFICATION FACTOR (R): 2.0
(2) SYSTEM OVERSTRENGTH FACTOR: 2.5
(3) DEFLECTION AMPLIFICATION FACTOR (Cd): 1.75
- ORDINARY STEEL MOMENT FRAME
- (1) RESPONSE MODIFICATION FACTOR (R): 2.5
(2) SYSTEM OVERSTRENGTH FACTOR: 3.0
(3) DEFLECTION AMPLIFICATION FACTOR (Cd): 3.0

FOUNDATIONS/GEOTECHNICAL REPORT:

1. ALLOWABLE SOIL BEARING PRESSURE = 4,000 PSF
2. FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE 08-22-2022 WELTI GEOTECHNICAL, P.C. GEOTECHNICAL STUDY, SEE THAT REPORT FOR ADDITIONAL REQUIREMENTS.

MATERIALS:

1. THE FOLLOWING ASTM STANDARDS AND DESIGN STRESSES SHALL BE USED FOR THE APPROPRIATE MATERIALS USED IN CONSTRUCTION OF THIS PROJECT.
2. CEMENT: ASTM C150; TYPE I OR III [FOOTING & FOUNDATION WALLS]
CEMENT: ASTM C150; TYPE II [SLAB-ON-GRADE]
3. AGGREGATES: ASTM C33 (3/8" - 3/4" BLEND) (NORMAL WEIGHT)
AGGREGATES: ASTM C331 (LIGHT WEIGHT)
4. CONCRETE: ALL CONCRETE SUBJECT TO EXPOSURE SHALL BE AIR-ENTRAINED. AIR-ENTRAINING ADMIXTURE TO COMPLY WITH ASTM C-260

APPLICATION	F'c @ 28 DAYS	WT (PCF)
a. UNDERPINNING	3000	115
b. FOUNDATION WALLS/FOOTINGS	3000	145
c. CONCRETE SLAB-ON-GRADE	3500	145
d. EXTERIOR CONCRETE SLABS AND CURBS	4000	145

5. REINFORCEMENT:

- a. DEFORMED REINFORCING BARS ASTM A615, GRADE 60
b. WELDED WIRE FABRIC (WWF) ASTM A185

6. STEEL:

- a. WIDE FLANGE STRUCTURAL STEEL ASTM A992, Fy=50 KSI
b. STRUCTURAL TUBING ASTM A1085, GRADE 50 KSI
c. STRUCTURAL SHAPES & PLATES ASTM A36
d. HIGH STRENGTH BOLTS ASTM A325-N
e. ANCHOR RODS ASTM F1554, GRADE 36
f. WELDING ELECTRODES AWS A5.1 OR A5.5, E70XX

DIMENSIONS:

1. THE CONTRACTOR SHALL COORDINATE THE DIMENSIONS AND LOCATIONS OF THE ROOF AND WALL OPENINGS SO THE FRAMING PROPERLY FITS THE REQUIREMENTS OF ALL TRADES.
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS AND CONDITIONS SHOWN ON THE DRAWINGS PRIOR TO ANY FABRICATION AND INSTALLATION OF ANY NEW MATERIALS. IF AN DISCREPANCIES ARE FOUND BETWEEN ACTUAL CONDITIONS AND THESE DRAWINGS NOTIFY ARCHITECT AND/OR ENGINEER FOR FURTHER INSTRUCTIONS.

CONSTRUCTION:

1. GENERAL:

- a. REPRODUCTION OF ANY PORTION OF THE STRUCTURAL CONTRACT DRAWINGS FOR RESUBMITTAL AS SHOP DRAWINGS IS PROHIBITED. SHOP DRAWINGS PRODUCED IN SUCH A MANNER WILL BE REJECTED AND RETURNED.
- b. SUBMIT SHOP DRAWINGS AT LEAST 15 DAYS BEFORE DATE REVIEWED SUBMITTALS WILL BE NEEDED. SHOP DRAWINGS SHALL BEAR THE CONTRACTOR'S STAMP OF APPROVAL WHICH SHALL CONSTITUTE CERTIFICATION THAT THE CONTRACTOR HAS VERIFIED ALL FIELD MEASUREMENTS, CONSTRUCTION CRITERIA, MATERIALS AND SIMILAR DATA AND HAS CHECKED EACH DRAWING FOR COMPLETENESS, COORDINATION AND COMPLIANCE WITH THE CONTRACT
- c. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPERLY DESIGNED FORMWORK, STAGINGS, BRACING, SHEETING, SHORING, ETC.
- d. IMPLEMENTING JOB SAFETY, CONSTRUCTION PROCEDURES AND TEMPORARY SHORING ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- e. CONTRACTOR SHALL REFER TO ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR SIZE AND LOCATIONS OF OPENINGS, SLEEVES, CONCRETE HOUSEKEEPING PADS, INSERTS, AND DEPRESSIONS.
- f. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR DETAILED INFORMATION REGARDING FINISHES, FIREPROOFING, ETC.
- g. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF MASONRY AND DRYWALL NON-LOAD BEARING PARTITIONS. PROVIDE SLIP CONNECTIONS THAT ALLOW VERTICAL MOVEMENT AT THE HEADS OF ALL SUCH PARTITIONS. CONNECTIONS ARE DESIGNED TO SUPPORT THE TOP OF THE WALLS Laterally FOR THE CODE-REQUIRED LATERAL LOAD. PROVIDE COMPRESSIBLE FIRESAFING AT TOP OF WALL AS REQUIRED BY ARCHITECTURAL DRAWINGS.
- h. IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES, DETAILS AND SPECIFICATIONS, THE MOST RIGID REQUIREMENTS SHALL GOVERN.
- i. CONTRACTOR SHALL FURNISH DIMENSIONED SHOP DRAWINGS AT ALL LEVELS LOCATING FLOOR AND ROOF EDGES FOR REVIEW BY THE ARCHITECT AND STRUCTURAL ENGINEER.
- j. CONTRACTOR SHALL FURNISH DIMENSIONED COORDINATED SHOP DRAWINGS AT ALL LEVELS SHOWING THE LOCATIONS OF ALL SLEEVES AND OPENINGS REQUIRED BY ALL TRADES.
2. INSPECTION AND TESTING:
- a. THE OWNER WILL ENGAGE A TESTING AGENCY AND A SPECIAL INSPECTOR TO PROVIDE SERVICES AS INDICATED ON STATEMENT OF SPECIAL INSPECTIONS.

FOUNDATIONS & STRUCTURAL EARTHWORK:

1. GENERAL:
- a. SEE THE GEOTECHNICAL STUDY BY WELTI GEOTECHNICAL, P.C. DATED 08-22-2022 FOR REQUIREMENTS FOR EXCAVATION PREPARATION OF THE FOUNDATION INCLUDING COMPACTION PROCEDURES. REQUIREMENTS CONTAINED IN THE GEOTECHNICAL REPORT ARE PART OF THIS WORK.
- b. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FOUNDATION SYSTEM AS SHOWN PRIOR TO STARTING WORK.
- c. EXISTING UTILITIES KNOWN TO BE IN THE CONSTRUCTION AREA HAVE BEEN INDICATED. THE SIZE, LOCATION AND DEPTH OF THE UTILITIES ARE NOT KNOWN EXACTLY AND MAY VARY SIGNIFICANTLY FROM THAT INDICATED. OTHER UNKNOWN UTILITIES NOT INDICATED MAY ALSO BE PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES, WHETHER INDICATED OR NOT, WHICH MAY BE AFFECTED BY THE CONSTRUCTION PROCESS.
- d. ALL FOUNDATIONS SHALL BE PLACED ON UNDISTURBED SOIL, ON BEDROCK OR COMPACTED STRUCTURAL FILL. BEARING ELEVATIONS ARE ESTIMATED FROM SOIL BORING DATA INDICATED IN THE GEOTECHNICAL REPORT. DETERMINATION OF FINAL BEARING ELEVATIONS AND FIELD VERIFICATION OF ALLOWABLE BEARING PRESSURE SHALL BE MADE BY AN EXPERIENCED QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO PLACING FOUNDATIONS.
- e. CONCRETE FOR FOUNDATIONS SHALL BE PLACED ON THE SAME DAY SUBGRADE APPROVAL IS GIVEN BY THE GEOTECHNICAL ENGINEER.
- f. ALL SHORING, SHEETING, AND DEWATERING SHALL BE THE TOTAL RESPONSIBILITY OF THE CONTRACTOR. SHEETING AND SHORING SHALL BE DESIGNED BY THE CONTRACTOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION. ALL SUBMITTALS SHALL BEAR CONTRACTOR'S ENGINEERING SEAL AND SIGNATURE.
- g. IF BEDROCK IS ENCOUNTERED, COORDINATE EXCAVATION DEPTH AND BOTTOM OF FOOTING REQUIREMENTS WITH GEOTECHNICAL ENGINEER AND STRUCTURAL ENGINEER.

2. BACKFILL

- a. ALL BACKFILL SHALL BE PER THE GEOTECHNICAL STUDY BY WELTI GEOTECHNICAL, P.C. DATED 08-22-2022 REPORT, WITH OPTIMUM MOISTURE CONTENT FOR COMPACTING.
- b. NO BACKFILL MATERIAL SHALL BE PLACED AGAINST FOUNDATION WALLS UNTIL THE CONCRETE HAS REACHED DESIGN STRENGTH OR ADEQUATE BRACING IS INSTALLED.
- c. WHERE THE FINAL GRADE ELEVATIONS ARE APPROXIMATELY EQUAL ON BOTH SIDES OF A WALL, BACKFILL IN LIFTS TO MAINTAIN LEVEL ELEVATIONS WITHIN 12" ON BOTH SIDES AT ANY TIME.

3. STRUCTURAL FILL

- REFER TO THE GEOTECHNICAL STUDY BY WELTI GEOTECHNICAL, P.C. DATED 08-22-2022. GEOTECHNICAL REPORT REQUIREMENTS FOR COMPACTED STRUCTURAL FILL. REQUIREMENTS CONTAINED IN THE GEOTECHNICAL REPORT ARE PART OF THIS WORK. INSPECTION OF THE PLACEMENT OF COMPACTED STRUCTURAL FILL SHALL BE BY AN EXPERIENCED, QUALIFIED GEOTECHNICAL ENGINEER.

CONCRETE:

1. CAST-IN-PLACE
- a. REINFORCING STEEL CLEAR COVER SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
- | | |
|--|-----------------------|
| NON-POST-TENSIONED CONCRETE: | |
| CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH | 3" |
| CONCRETE EXPOSED TO EARTH OR WEATHER | #6 BARS AND LARGER 2" |
| | #5 AND SMALLER 1-1/2" |
- CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND
- | | |
|----------------------|------|
| SLABS, WALL, JOISTS: | |
| #11 BARS OR SMALLER | 3/4" |
- b. CONSTRUCTION JOINTS AND CONTROL JOINTS IN SLABS ON GRADE SHALL BE ARRANGED TO LIMIT MAXIMUM AREA BETWEEN JOINTS TO 900 S.F. APPROXIMATELY SQUARE ALLOW A MINIMUM OF 48 HOURS TIME BETWEEN PLACEMENT OF ADJACENT SECTIONS.

- c. ALL FORMWORK, SHORING AND RESHORING SHALL BE DESIGNED BY THE CONTRACTOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISITCTION. ALL SUBMISSIONS SHALL BEAR THE ENGINEER'S SEAL AND SIGNATURE.
- d. NO SLEEVE SHALL BE PLACED THROUGH ANY CONCRETE ELEMENT UNLESS SHOWN ON THE STRUCTURAL DRAWINGS, APPROVED SLEEVING SHOP DRAWINGS OR SPECIFICALLY AUTHORIZED IN WRITING BY THE STRUCTURAL ENGINEER.
- e. CORE DRILLING OF FOUNDATIONS, SLABS, SHALL NOT BE PERMITTED, UNLESS AUTHORIZED IN WRITING BY THE STRUCTURAL ENGINEER.
- f. NO SPLICES OF REINFORCEMENT SHALL BE PERMITTED EXCEPT AS DETAILED OR AUTHORIZED BY THE STRUCTURAL ENGINEER. MAKE BARS CONTINUOUS AROUND CORNERS.
- g. WHEN INSTALLING EXPANSION BOLTS OR ADHESIVE ANCHORS, THE CONTRACTOR SHALL TAKE MEASURES TO AVOID DRILLING OR CUTTING OF ANY EXISTING REINFORCING AND DESTRUCTION OF CONCRETE. HOLES SHALL BE BLOWN CLEAN PRIOR TO PLACING BOLTS OR ADHESIVE ANCHORS.
- h. CHAMFER ALL EXPOSED CONCRETE CORNERS, 3/4" x 3/4" MINIMUM, UNLESS NOTED OTHERWISE ON ARCHITECTURAL DRAWINGS.
- i. THE CONCRETE SLABS SHALL BE FINISHED FLAT AND LEVEL WITHIN TOLERANCE, TO THE ELEVATION INDICATED ON THE DRAWINGS.
- j. ANY STOP IN CONCRETE MUST BE MADE WITH VERTICAL BULKHEADS AND HORIZONTAL KEYS, UNLESS OTHERWISE SHOWN. ALL REINFORCING IS TO BE CONTINUOUS THROUGH JOINTS.
- k. SLAB SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE UNLESS SHOWN OTHERWISE.
- l. PROVIDE THICKENED SLAB ON GRADE WITH FLUSH TOP SURFACES WHERE REQUIRED TO ACCOMODATE CONDUIT. MAINTAIN MINIMUM 1 1/2" THICKNESS OF CONCRETE BELOW CONDUIT AND FULL SLAB ON GRADE THICKNESS ABOVE CONDUIT.
- m. WELDED WIRE FABRIC REINFORCEMENT SHALL BE SUPPLIED IN SHEETS. LAP TWO FULL MESH LENGTHS AT SPLICES AND WIRE TOGETHER.
- n. CONCRETE SHALL BE PROPORTIONED AND PRODUCED TO HAVE A SLUMP NOT TO EXCEED 4-INCH IF CONSOLIDATION IS BY VIBRATION, OR 5-INCH IF CONSOLIDATION IS BY OTHER MEANS. SLUMP FOR CONCRETE FLATWORK SHALL BE 1-INCH LESS.
- o. MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED AS WORK PROGRESSES. FAILURE TO DETECT DEFECTIVE WORK SHALL NOT PREVENT REJECTION WHEN DEFECT IS DISCOVERED.
- p. PRODUCTS: 1) WATER SHALL BE FRESH, DRINKABLE
2) AIR-ENTTRAINING AGENT: CONFORMING TO ASTM C260
3) WATER-REDUCING, SET-CONTROLLING ADMIXTURE CONFORMING TO ASTM C494 MANUFACTURED BY MASTER BUILDERS, SONNEBORN, EUCLID, OR W.R. GRACE COMPANIES
4) GROUT: NON-SHRINK "SETGROUT" AS MANUFACTURED BY MASTER BUILDERS.
- r. VAPOR RETARDER: SHALL BE INSTALLED UNDER CONCRETE SLABS ON GRADE WHERE INDICATED AND SHALL BE 15 MIL POLYETHYLENE. IT SHALL BE INSTALLED IN WIDEST PRACTICAL WIDTH. ALL JOINTS SHALL BE LAPPED A MINIMUM OF SIX (6) INCHES, AND ALL BREAKS OR HOLES SHALL BE PATCHED PRIOR TO POURING THE CONCRETE. WATER VAPOR RETARDER: ASTM E-1745 THAT MEETS OR EXCEEDS CLASS C.
- s. EXPANSION JOINT: CONFORMING TO ASTM D 1751 OR ASTM D 1752.

- t. MAXIMUM SIZE OF COARSE AGGREGATE SHALL NOT EXCEED ONE-THIRD THE THICKNESS OS SLABS, AND ONE-FIFTH THE NARROWER DIMENSION BETWEEN FORMS.
- u. CONCRETE SHALL BE ADJUSTED TO PRODUCE THE REQUIRED RATE OF HARDENING FOR VARIED CLIMATIC AND JOB-SITE CONDITIONS.
- v. CONCRETE SHALL BE HANDLED FROM MIXER TO FINAL PLACEMENT RAPIDLY BY METHODS WHICH WILL PREVENT SEGREGATION OR LOSS OF INGREDIENTS TO MAINTAIN REQUIRED QUALITY OF CONCRETE.
- x. USE OF VIBRATORS TO TRANSPORT CONCRETE SHALL NOT BE ALLOWED.
- y. IMMEDIATELY FOLLOWING PLACEMENT, CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING , HOT AND COLD TEMPERATURES, RAIN, FLOWING WATER AND MECHANICAL INJURY.
- z. FORMS FOR WALLS SHALL BE LEFT IN PLACE FOR A MINIMUM OF 3 DAYS. FINAL CURING SHALL CONTINUE FOR NOT LESS THAN 7 DAYS.
21. ALL INTERIOR CONCRETE FLOOR SLABS SHALL BE STEEL TROWELED TO A SMOOTH UNIFORM FINISH. FREE FROM DEFECTS AND BLEMISHES, NOTHING TO BE ADDED TO EITHER WET OR DRY FINISH. STEEL TOWELING SHALL NOT BE DONE UNTIL CONCRETE HAS HARDENED SUFFICIENTLY TO PREVENT FINE MATERIAL FROM WORKING TO THE SURFACE. ALL EXTERIOR CONCRETE FLOOR SLABS SHALL HAVE A BROOM FINISH.
22. IF A SUMP PIT IS REQUIRED IN THE ELEVATOR PIT, COORDINATE SIZE AND LOCATION WITH MECHANICAL ENGINEER. HAUNCH ELEVATOR PIT SLAB AND BEND/ADD ADDITIONAL REBAR AS REQUIRED.
23. CONCRETE SHALL BE PROTECTED FROM DAMAGE. DAMAGED CONCRETE SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF CONCRETE SLABS ON GRADE THROUGH WINTER WEATHER. IF THEY SHOULD HEAVE DUE TO COLD WEATHER, THEY SHALL BE REMOVED AND REPLACED. ALL FILL BELOW THE SLABS SHALL BE REMOVED AND REPLACED.
24. INTEGRALLY WATERPROOFED CONCRETE SHALL CONSIST OF TYPE I PORTLAND CEMENT, CLEAN, WELL GRADED, FINE AND COARSE AGGREGATES DESIGNED FOR MAXIMUM STRENGTH AND DENSENESS WITH A MINIMUM OF 3,000 psi COMPRESSIVE STRENGTH. EACH CUBIC YARD SHALL CONTAIN AT LEAST 5.6 BAGS OF TYPE I PORTLAND CEMENT, COMBINED WITH NOT MORE THAN 1 1/2 GALLONS OF "ANTI-HYDRO NCR" (FLEMINGTON, NJ) AND NOT MORE THAN 35 GALLONS OF TOTAL LIQUID. MAXIMUM SLUMP SHALL BE 4". THE "ANTI-HYDRO NCR" SHALL BE ADDED WITH THE MIXING WATER OR TO BE CONCRETE WHILE PARTIALLY MIXED AND MIXED FOR A MINIMUM 1 MINUTE PER CUBIC YARD. ADDITION OF "ANTI-HYDRO NCR" SHALL BE DONE AT THE PROJECT SITE PER THE MANUFACTURER RECOMMENDATIONS.

STRUCTURAL STEEL:

1. GENERAL:

- a. ALL SHOP AND FIELD CONNECTIONS SHALL BE MADE WITH HIGH STRENGTH BOLTS OR WELDS. ALL HIGH STRENGTH BOLTS AND NUTS SHALL BE CLEARLY MARKED AS REQUIRED BY AISC SPECIFICATIONS. CONNECTIONS MADE WITH UNMARKED BOLTS AND NUTS WILL BE REJECTED.
- b. PROVIDE ACCESS FOR INSPECTIONS OF ALL SHOP AND FIELD CONNECTIONS FOR PROPER MATERIALS AND WORKMANSHIP.
- c. ALL CONNECTIONS, SPLICES AND ERECTION PIECES SHALL BE DESIGNED BY THE FABRICATOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION.
- d. ALL STRUCTURAL STEEL THAT IS LOCATED IN EXTERIOR UNHEATED SPACES, INCLUDING STEEL DIRECTLY EXPOSED TO WEATHER, SHALL BE HOT DIPPED GALVANIZED, OR COATED WITH AN PIN APPROVED HIGH PERFORMANCE COATING SYSTEM (COORDINATE WITH ARCHITECT).
- e. CERTIFIED COPIES OF MILL TEST REPORTS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER.
- f. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY FABRICATION OR ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE ANY FIELD CORRECTIONS ARE MADE.
- g. SIMPLE SHEAR CONNECTIONS SHALL BE SELECTED AND DETAILED BY THE FABRICATOR IN ACCORDANCE WITH AISC. IF NO REACTION IS INDICATED, THEN CONNECTION IS TO BE DESIGNED USING A REACTION OF 10 KIPS. MINIMUM WELD 3/16" FILLET. MINIMUM NUMBER OF BOLTS PER CLIP ANGLE OR SINGLE PLATE CONNECTION:

- | BEAM SIZE | MIN. NO. OF BOLTS |
|-----------|-------------------|
| W8, W10 | 2 |
| W12, W14 | 4 |
| W16, W18 | 6 |
- h. UNLESS OTHERWISE NOTED, ALL A325 BOLTS SHALL BE TIGHTENED TO THE "SNUG TIGHT" CONDITION DEFINED AS THE TIGHTNESS ATTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A PERSON USING AN ORDINARY SPUD WRENCH. THE SNUG TIGHT CONDITION MUST ENSURE THAT THE PLIES OF THE CONNECTED MATERIAL HAVE BEEN BROUGHT INTO SNUG CONTACT.
- i. THE FABRICATOR AND ERECTOR ARE RESPONSIBLE FOR THE DESIGN OF TEMPORARY BRACING AND RECOMMENDED ERECTION PROCEDURES.
- j. WHEN INSTALLING EXPANSION BOLTS OR ADHESIVE ANCHORS, THE CONTRACTOR SHALL TAKE MEASURES TO AVOID DRILLING OR CUTTING OF ANY EXISTING REINFORCING AND DESTRUCTION OF CONCRETE. HOLES SHALL BE BLOWN CLEAN PRIOR TO PLACING BOLTS OR ADHESIVE ANCHORS.
- k. WELDING ELECTRODES, WELDING PROCESS, MINIMUM PREHEAT AND INTERPASS TEMPERATURES SHALL BE IN ACCORDANCE WITH THE AISC AND AWS SPECIFICATIONS. ANY STRUCTURAL STEEL DAMAGED IN WELDING IS TO BE REPLACED OR REINFORCED AS ACCEPTABLE TO THE STRUCTURAL ENGINEER.
- l. WELDERS SHALL HAVE CURRENT EVIDENCE OF PASSING THE APPROPRIATE AWS QUALIFICATION TESTS.
- m. GAS CUTTING TORCHES SHALL NOT BE USED TO CORRECT FABRICATION ERRORS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
- n. STEEL FABRICATOR SHALL BE QUALIFIED FABRICATOR CERTIFIED IN THE AISC QUALITY CERTIFICATION PROGRAM AND IS A DESIGNATED AISC PLANT.
- o. STEEL FABRICATOR SHALL BE RESPONSIBLE FOR PROVIDING BRACING MEMBER END CONNECTIONS WITH A MINIMUM CAPACITY FOR FORCES. PER ALLOWABLE STRESS DESIGN, GIVEN ON BRACED FRAME ELEVATIONS OR ON PLANS. WHEN PROVIDING CONNECTIONS, ALL AISC CODE REQUIREMENTS SHALL BE MET, AS APPLICABLE (I.E., NET SECTION, BLOCK SHEAR, ETC.) FOR THE MEMBERS AND GUSSET PLATES. CALCULATIONS AND SHOP DRAWINGS FOR BRACED FRAMES SHALL BE SUBMITTED BEARING THE ENGINEER'S SEAL AND SIGNATURE.

STEEL DECK:

1. DECK PROPERTIES ARE BASED ON PRODUCTS MANUFACTURED BY VULCRAFT. DECKS BY OTHER MANUFACTURERS MAY BE SUPPLIED PROVIDED SECTION PROPERTIES ARE WITHIN 5% OF THOSE SPECIFIED AND IF APPROVED BY THE ARCH. AND STRUCTURAL ENGINEER.
2. PROVIDE STEEL DECK WITH THE FOLLOWING MINIMUM SECTION PROPERTIES:
- | | |
|---|---|
| a. 1-1/2" DEEP, 20 GAGE, TYPE 'B' ROOF DECK | I = 0.201 in ⁴
Sp = 0.234 in ³
Sn = 0.247 in ³ |
|---|---|
3. INSTALL IN ACCORDANCE WITH SDI SUGGESTED SPECIFICATIONS UNLESS NOTED OTHERWISE ON THE DRAWINGS. INDIVIDUAL SHEETS SHALL EXTEND OVER AT LEAST THREE SPANS, WITH LAPS TO BE PLACED OVER SUPPORTS.
4. DECK SUPPLIER SHALL PROVIDE ALL ADDITIONAL FRAMING TO SUPPORT DECK AT OPENINGS THRU DECK AND ALL CLOSURE ANGLES AND PLATES WHERE REQUIRED TO RESULT IN A COMPLETE INSTALLATION.
5. ROOF DECKS TO BE ATTACHED TO STEEL SUPPORTS WITH 3/4" DIA. PUDDLE WELDS AT EVERY FLUTE (FOR 36" WIDE PANEL, 4 FASTENERS AT A 36/4 PATTERN) AND A MINIMUM OF (2) - #10 TEK SCREW AT ALL SIDE LAPS.

CONCRETE MASONRY:

1. ALL MASONRY SHALL CONFORM TO AND BE ERECTED IN ACCORDANCE WITH THE AMERICAN STANDARD BUILDING CODE REQUIREMENTS FOR MASONRY AND THE NATIONAL CONCRETE MASONRY ASSOCIATION FOR THE DESIGN AND CONSTRUCTION OF LOAD BEARING MASONRY.
2. ALL MASONRY SHALL BE CONSTRUCTED OF CONCRETE MASONRY WITH MINIMUM COMPRESSIVE STRENGTH fm = 1900 PSI. THE GENERAL CONTRACTOR IS RESPONSIBLE TO ASSURE MASONRY STRENGTH AS SPECIFIED.
3. TYPE "S" MORTAR SHALL BE USED IN ALL CMU MASONRY, TYPE 'N' MORTAR FOR BRICK VENEER.
4. DUR-O-WALL TYPE JOINT REINFORCING SHALL BE INSTALLED IN ALTERNATE COURSES OF MASONRY.
5. PROVIDE REINFORCED BOND BEAMS AND VERTICAL REINFORCING AS CALLED FOR ON THE DRAWINGS.
6. GROUT FOR BOND BEAMS AND CORE FILL AT VERTICAL REINFORCING BARS SHALL DEVELOP A MIN. COMPRESSIVE STRENGTH OF 3000 psi AT 28 DAYS. CONDUCT FIELD TESTS IN ACCORDANCE WITH THE SCHEDULE OF INSPECTION.
7. ALL REINFORCING BARS USED IN MASONRY SHALL BE GRADE 60 CONFORMING TO ASTM A-615. ALL LAP SPLICES MUST BE A MIN. 48 BAR DIAMETERS. LOW LIFT GROUT CONSTRUCTION (5'-0" MAX. HEIGHT PER LIFT).
8. MASONRY CONSTRUCTION AND MATERIALS SHALL CONFORM TO ALL REQUIREMENTS OF "SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530.1/ASCE 6-95)" PUBLISHED BY THE AMERICAN CONCRETE INSTITUTE, EXCEPT AS MODIFIED BY THE REQUIREMENTS OF THE CONTRACT DRAWINGS.
9. ALL REINFORCEMENT SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED. PROVIDE LONGEST PRACTICAL LENGTHS TO MINIMIZE SPLICES.
10. ALL BLOCK CORES CONTAINING REINFORCEMENT SHALL BE GROUTED SOLID. ALL REINFORCEMENT, INCLUDING DOWELS SHALL BE ACCURATELY PLACED, SUPPORTED AND TIED. PLACE VERTICAL REINFORCEMENT IN MIDDLE OF CORES AND OFFSET TO CLEAR STRUCTURAL STEEL WHERE REQUIRED. MASONRY INSERTS, INSULATION INSERTS, IF USED, SHALL BE REMOVED FROM MASONRY CORES WHERE VERTICAL REINFORCING OCCURS.
11. AT CONTROL JOINTS, HORIZONTAL REINFORCING SHALL BE DISCONTINUOUS ACROSS JOINTS AT ALTERNATE REINFORCING COURSES. (HORIZONTAL REINFORCING SHALL BE CONTINUOUS ACROSS JOINTS AT 32" o/c VERTICAL).
12. WHERE VERTICAL REINFORCING IS TO PASS THROUGH MASONRY BOND BEAMS, PROVIDE MASONRY UNITS PREFABRICATED WITH SLOTTED BOTTOM SHELLS OR PRE-DRILL BOTTOM SHELL AS REQUIRED.
13. STEEL TRUSS-TYPE REINFORCEMENT FOR USE IN HORIZONTAL BED JOINTS OF ALL WALL UNITS SHALL BE PREFABRICATED FROM COLD DRAWN STEEL WIRE CONFORMING TO ASTM SPECIFICATION A-82 AND SHALL CONSIST OF TWO 3/16" DIAMETER DEFORMED LONGITUDINAL SIDE RODS WELDED AT 18" INTERVALS TO A CONTINUOUS DIAGONAL CROSS ROD FORMING A TRUSS DESIGN.
14. OUT TO OUT SPACING OF SIDE RODS SHALL BE APPROXIMATELY 2" LESS THAN THE NOMINAL THICKNESS OF THE WALL OR WYTHE.
15. CROSS RODS SHALL NOT BE LESS THAN No. 9 GAUGE.
16. PREFABRICATED OR JOB FABRICATED CORNER AND TEE SECTIONS SHALL BE USED TO FORM CONTINUOUS REINFORCEMENT AROUND CORNERS.
17. HORIZONTAL TRUSS-TYPE WALL REINFORCEMENT SHALL BE USED IN BED JOINTS 16" o/c VERT. IN ALL MASONRY WALLS STARTING AT TOP BASE COURSE AND IN AT OF FIRST AND SECOND BED JOINTS ABOVE LEVELS AND BELOW SILLS IN WALL OPENINGS EXTENDING 2 FEET BEYOND JAMBS.
18. PROVIDE GALVANIZED WIRE POSITIONERS SPACED AT NOT MORE THAN 10 FEET. LOCATE THE FIRST POSITIONER WITHIN 40 INCHES OF THE TOP OF THE FOUNDATION.
19. GENERAL CONTRACTOR SHALL COORDINATE THE LOCATIONS OF VERTICAL REINFORCING FROM FOUNDATION WITH VERTICAL REINFORCING OF MASONRY WALL.
20. AT EXPANSION JOINTS, HORIZONTAL REINFORCING SHALL BE DISCONTINUOUS ACROSS JOINTS AT EVERY REINFORCING COURSE.

TEMPORARILY SHORING:

- a. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A SHORING ENGINEER REGISTERED IN THE STATE WHERE PROJECT IS CONSTRUCTED TO PREPARE ALL SUBMITTALS REQUIRED AND TO BE FULLY RESPONSIBLE FOR DETAILED DESIGN AND CONSTRUCTION SPECIFICATIONS AND PROVIDE SUPERVISION DURING CONSTRUCTION OF THE TEMPORARY SHORING WORK REQUIRED.
- b. THE CONTRACTOR'S SHORING ENGINEER SHALL DESIGN, FURNISH, INSTALL AND PERFORM THE NECESSARY WORK REQUIRED TO SAFELY SUPPORT, PROTECT AND MAINTAIN EXISTING STRUCTURE, ANY MOVEMENT OR DAMAGE OF EXISTING BUILDING OR STRUCTURE SHALL BE CORRECTED TO THE SATISFACTION OF THE OWNER AND ENGINEER AT THE SOLE EXPENSE OF THE CONTRACTOR.
- c. THE CONTRACTOR'S SHORING ENGINEER SHALL PREPARE A REPORT OF THE STRUCTURAL PRECONDITION SURVEY OF THE EXISTING BUILDING. THIS ON-SITE SURVEY SHALL BE DONE IN THE PRESENCE OF A REPRESENTATIVE FOR THE OWNER OF THE EXISTING BUILDING. THIS PRECONDITION SURVEY REPORT SHALL INCLUDE A DETAILED ON-SITE INSPECTION OF THE INTERIOR AND THE EXTERIOR OF THE BUILDING WITH PHOTOGRAPHS DOCUMENTING THE EXISTING CONDITIONS OF THE BUILDING.
- d. THE CONTRACTOR'S ENGINEER SHALL SUBMIT A COMPLETE SEALED, DETAILED DESIGN SHOP DRAWINGS FOR REVIEW AND COMMENTS BY STRUCTURAL ENGINEER. THE SUBMITTAL SHALL INCLUDE ALL CONSTRUCTION SEQUENCES, METHODS, DETAILS, SPECIFICATIONS, DESIGN LOADS AND OPERATIONS NECESSARY FOR PROPER EXECUTION OF THE TEMPORARY SHORING WORK

DATE: 9/01/2022	M.B.
DRAWN BY: _____	AS NOTED
SCALE: _____	C.Z.
REVIEWED BY: _____	PROJECT NO. 151-0304CV
GENERAL NOTES	

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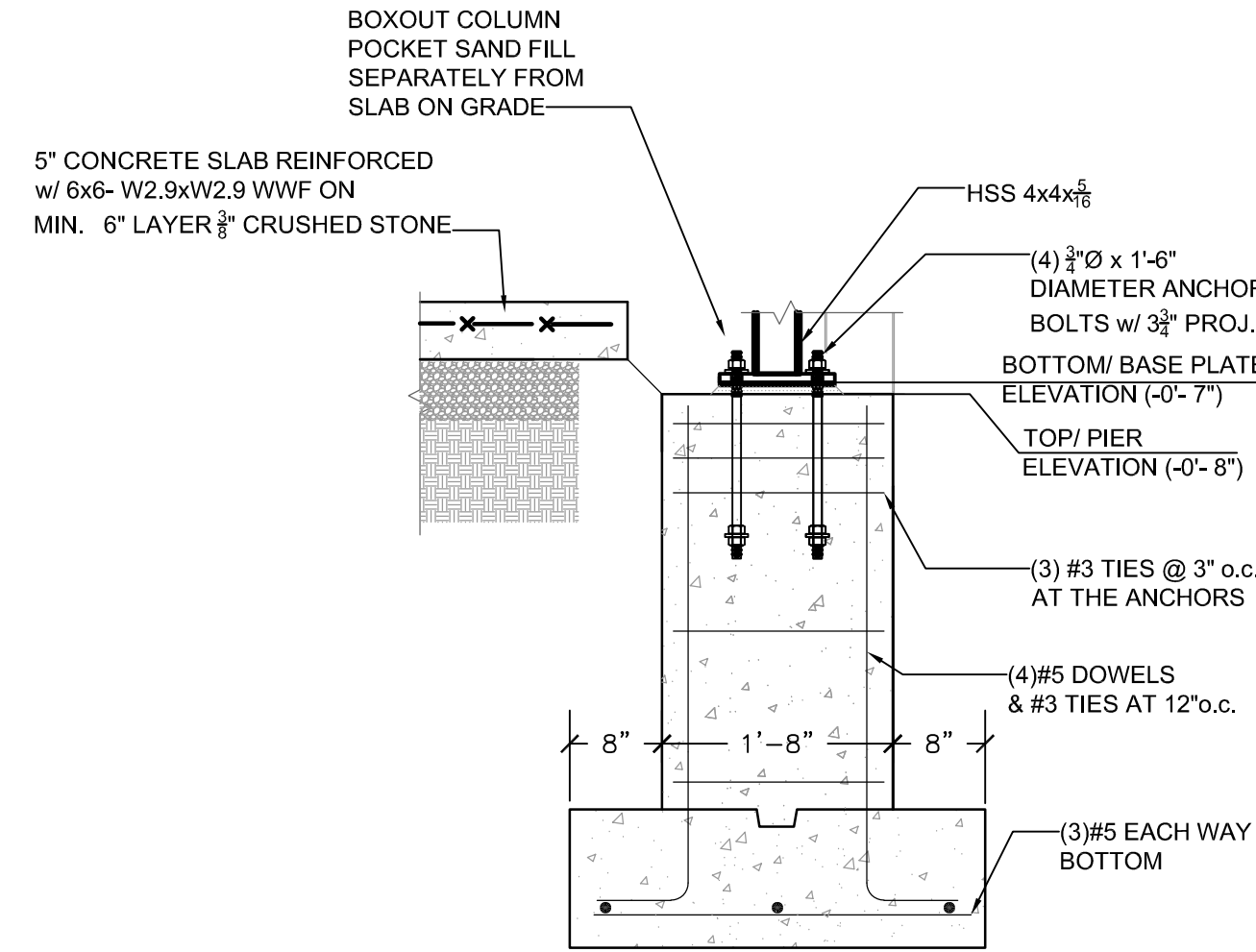
STRUCTURAL NOTES & SPECIFICATIONS

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

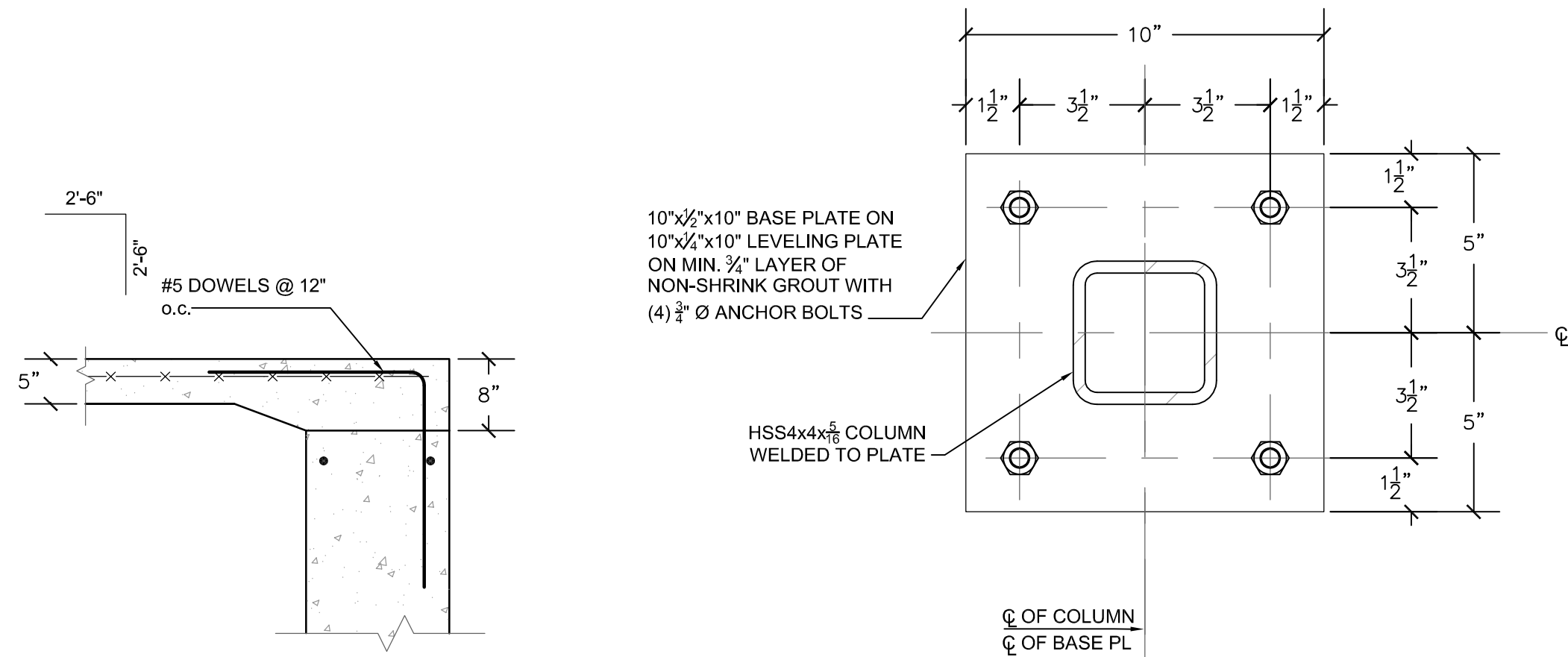
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MECHANICAL, ELECTRICAL, AND STRUCTURAL ENGINEERING
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SUITE 202
ROCKY HILL, CT 06067
P: (860) 438-4331
F: (860) 438-4450
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S0.1

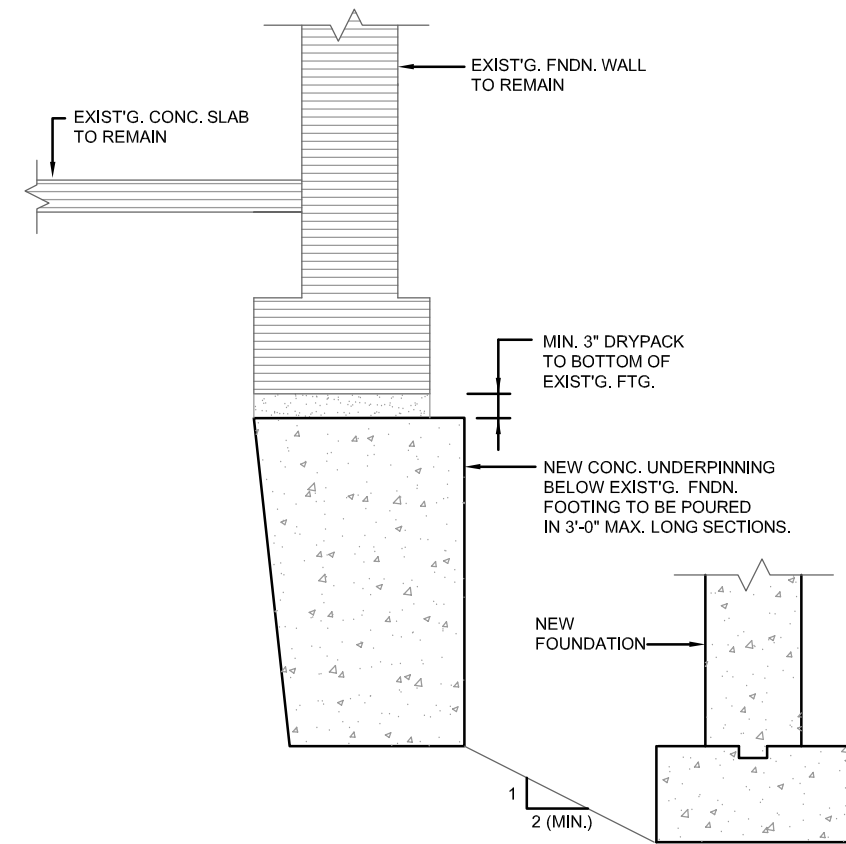


D
S1.0 **TYPICAL PIER REINFORCING**
SCALE: 3/4" = 1'-0"

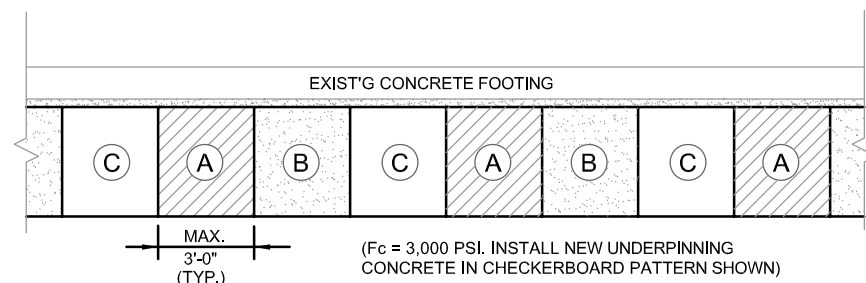


B
S1.0 **TYPICAL BASE PLATE DETAIL**
SCALE: 3" = 1'-0"

C
S1.0 **TYPICAL FOUNDATION WALL @ DOOR**
SCALE: 3/4" = 1'-0"

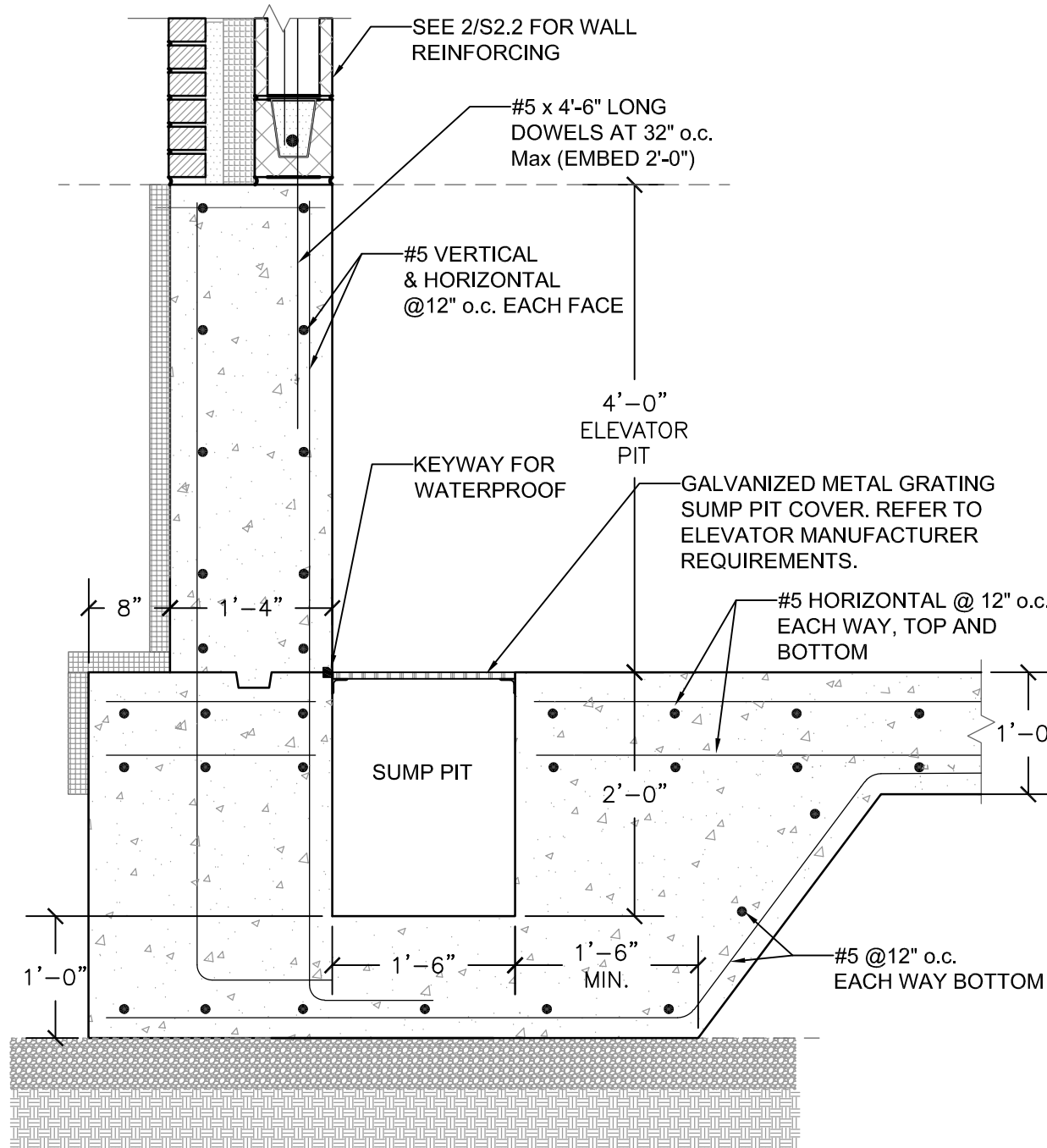


TYPICAL UNDERPINNING SECTION
SCALE: NONE

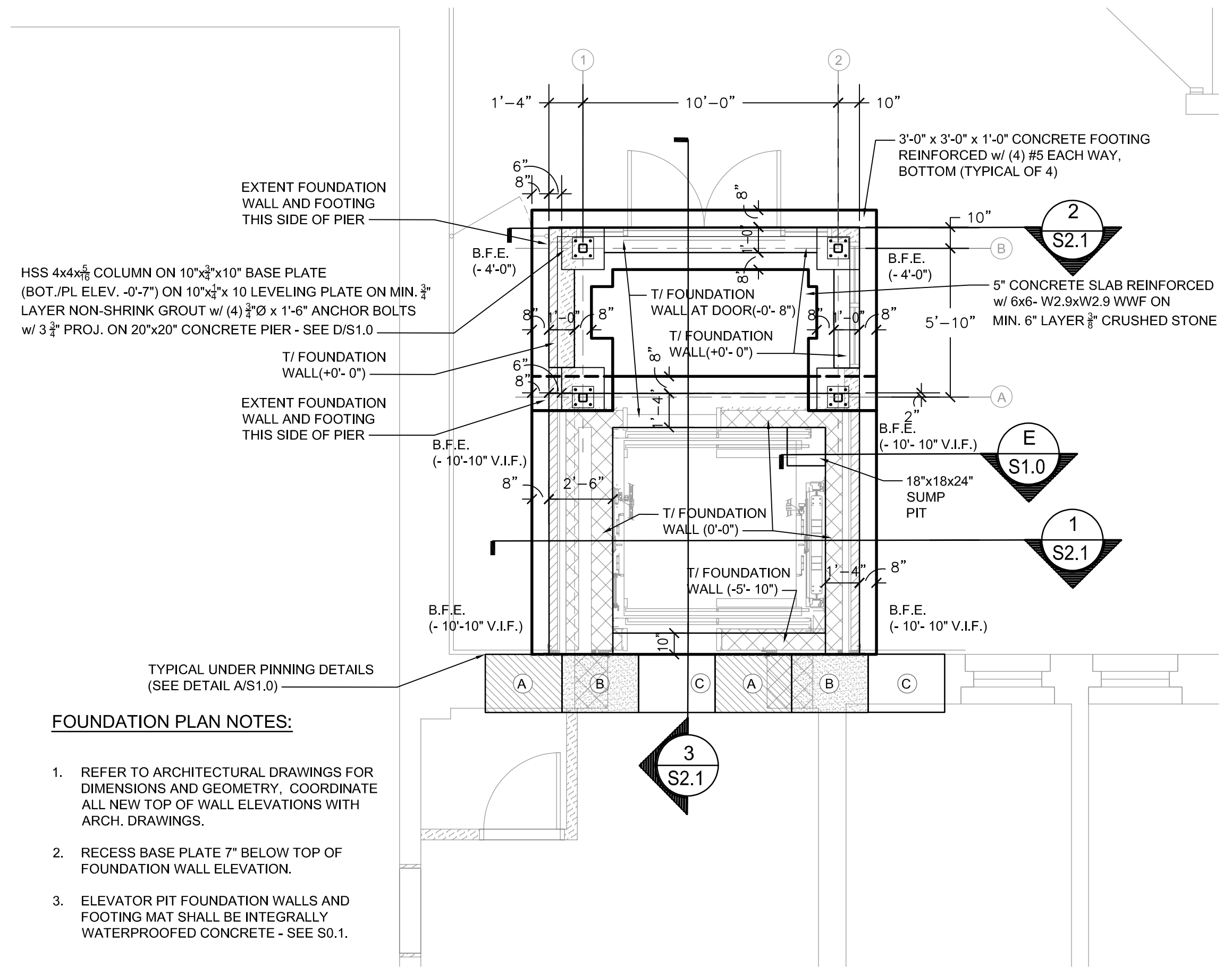


TYPICAL UNDERPINNING ELEVATION
SCALE: NONE

A
S1.0 **UNDERPINNING TYPICAL DETAIL AND PROCEDURE**
SCALE: 1/2" = 1'-0"



E
S1.0 **SUMP PIT DETAIL**
SCALE: 3/4" = 1'-0"



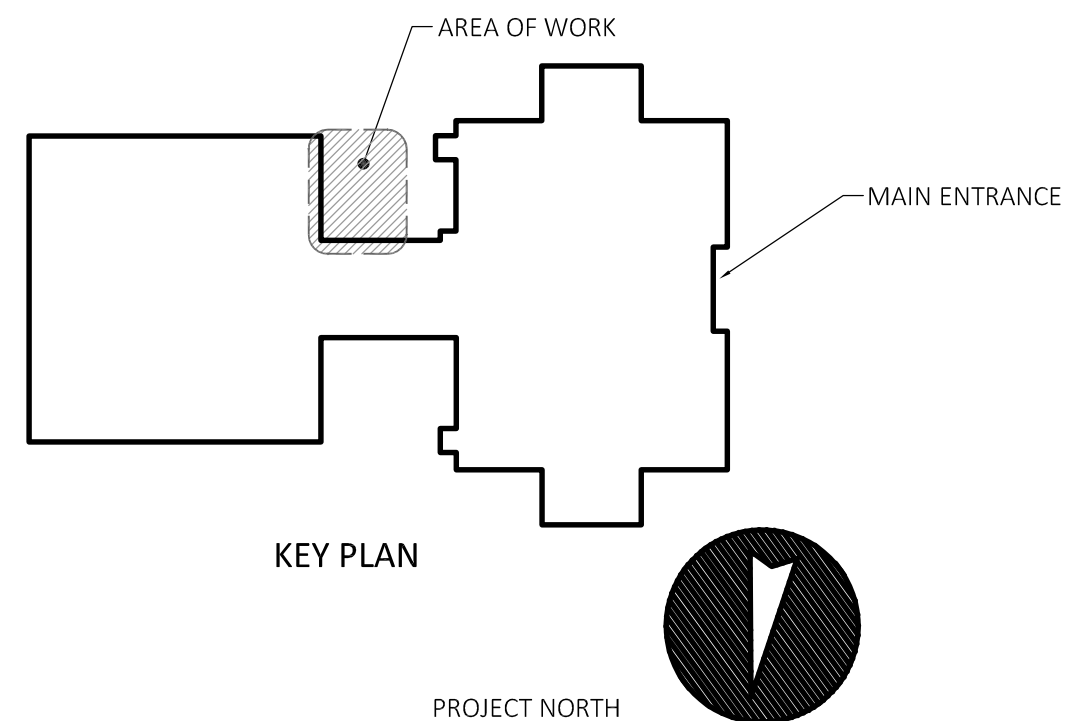
FOUNDATION PLAN NOTES:

- REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS AND GEOMETRY. COORDINATE ALL NEW TOP OF WALL ELEVATIONS WITH ARCH. DRAWINGS.
- RECESS BASE PLATE 7" BELOW TOP OF FOUNDATION WALL ELEVATION.
- ELEVATOR PIT FOUNDATION WALLS AND FOOTING MAT SHALL BE INTEGRALLY WATERPROOFED CONCRETE - SEE S0.1.

1
S1.0 **FOUNDATION PLAN**
SCALE: 1/4" = 1'-0"

UNDERPINNING NOTES:

- THE CONTRACTOR SHALL PREPARE A REPORT OF THE STRUCTURAL PRECONDITION SURVEY OF THE EXISTING BUILDING. THIS ON-SITE SURVEY SHALL BE DONE IN THE PRESENCE OF THE ARCHITECT AND A REPRESENTATIVE OF THE OWNER FOR THE EXISTING BUILDING. THE PRECONSTRUCTION SURVEY REPORT SHALL INCLUDE A DETAILED ON-SITE INSPECTION OF THE INTERIOR AND EXTERIOR OF THE BUILDING IN THE AREA OF THE NEW WORK, WITH PHOTOGRAPHS DOCUMENTING THE EXISTING CONDITIONS OF THE BUILDING.
- A TESTING LAB SHALL ESTABLISH MEASUREMENT STATIONS TO MONITOR VERTICAL AND HORIZONTAL WALL MOVEMENT BEFORE, DURING AND AFTER UNDERPINNING IS COMPLETE. MEASUREMENTS SHALL BE RECORDED IN A LOG BOOK AND SUBMITTED FOR REVIEW.
- THE CONTRACTOR IF FULLY RESPONSIBLE TO DESIGN, FURNISH, INSTALL AND PERFORM THE NECESSARY APPROACH EXCAVATION, PIT EXCAVATIONS, TIMBER LAGGING, JACKS, CONCRETING, WEDGING, SHIMMING DRY PACKING AND ALL OTHER WORK REQUIRED TO SAFELY SUPPORT, PROTECT AND MAINTAIN THE INTERIOR AND EXTERIOR OF THE BUILDING IN THEIR EXISTING CONDITION. ANY MOVEMENT OR DAMAGE TO THE BUILDING SHALL BE CORRECTED TO THE SATISFACTION OF THE OWNER, ARCHITECT AND STRUCTURAL ENGINEER AT THE SOLE EXPENSE OF THE CONTRACTOR.
- THE UNDERPINNING DETAIL IS INTENDED TO BE USED WHEN SOIL CONDITIONS ARE CONDUCIVE TO UNDERPINNING, I.E. DENSE GRANULAR OR GRAVELLY SOILS OR STIFF COHESIVE SOILS. IF SOILS OTHER THAN THESE, SUCH AS LOOSE SANDS, SOFT CLAYS, OR FILL ARE ENCOUNTERED, CONTACT THE GEOTECHNICAL ENGINEER AND STRUCTURAL ENGINEER FOR ALTERNATE INSTRUCTIONS TO BE TAILORED TO THE SPECIFIC CONDITIONS ENCOUNTERED.
- THE TECHNIQUE CONSISTS OF DIGGING SOIL FROM BENEATH THE EXISTING WALL/FOOTING AND REPLACING IT WITH CONCRETE IN SECTIONS OR COLUMNS, ONE AT A TIME, IN SEQUENCE "A", THEN "B" AND THEN "C" DOWN TO THE PROPOSED BOTTOM OF FOOTING ELEVATION.
- INITIAL EXCAVATION IS DOWN TO BOTTOM OF EXISTING FOUNDATION. EXCAVATION FOR UNDERPINNING COLUMN "A" MAY THEN BEGIN. ONCE THE UNDERPINNING CONCRETE IS CAST, GROUT SOLID TO BOTTOM OF EXISTING FOOTING, AND CURED 48 HOURS, THEN EXCAVATION FOR COLUMN "B" MAY COMMENCE, ETC.
- GROUT FOR SPACE BETWEEN EXISTING FOUNDATIONS AND NEW CONCRETE: APPLY SIKKA "SIKADUR 32 HI-MOD LPL" EPOXY BONDING AGENT TO BOTH THE BOTTOM OF THE EXISTING FOUNDATION AND THE TOP OF THE NEW UNDERPINNING CONCRETE. PACK SIKKA "SIKAGROUT 212" WHILE BONDING AGENT IS STILL TACKY.



KEY PLAN

PROJECT NORTH

DATE:	9/01/2022
DRAWN BY:	M.B.
SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0304CV
FOUNDATION PLAN	

REVISIONS	DESCRIPTION	ISSUED FOR BID
NO.	DATE	11/28/22

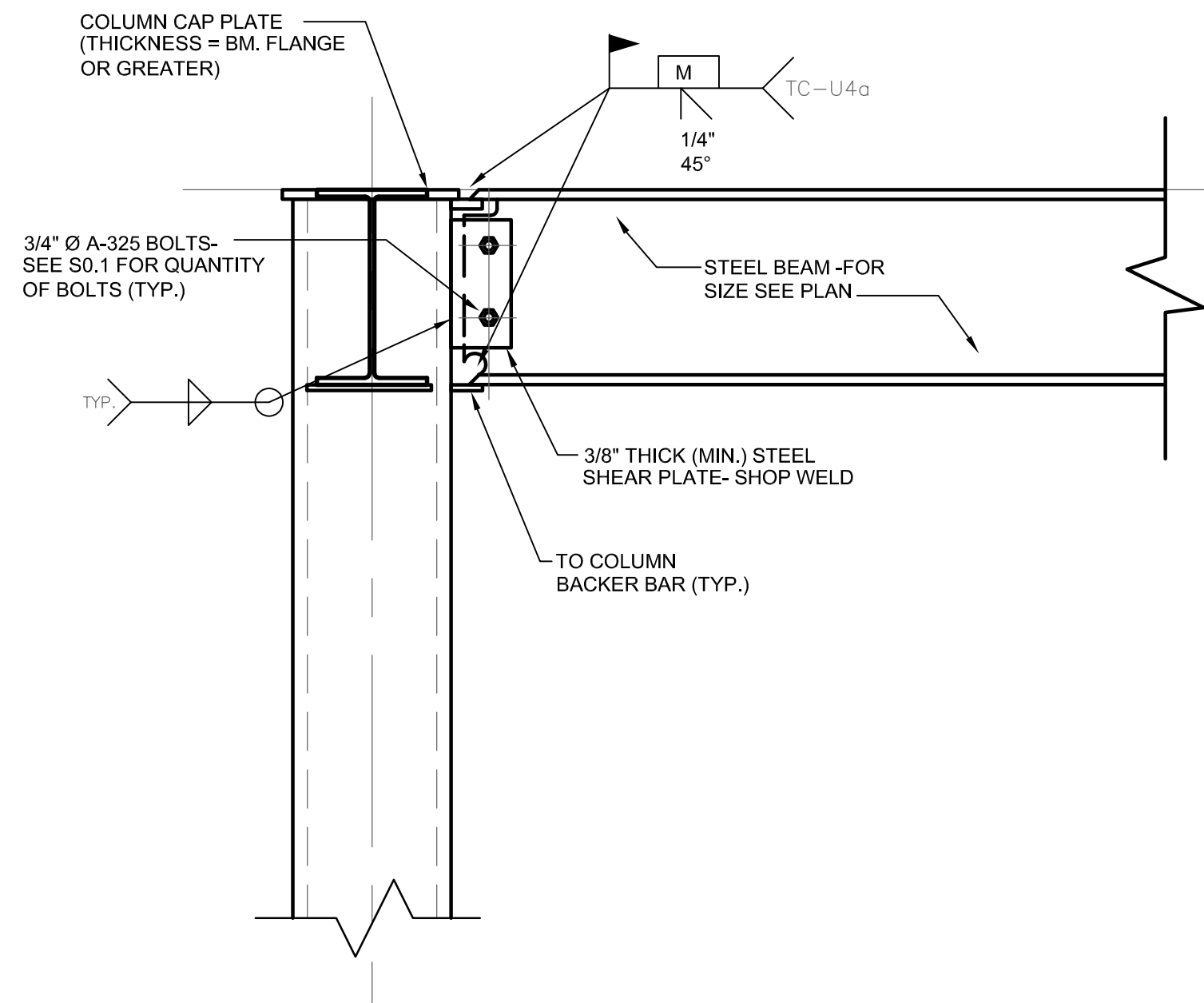
STRUCTURAL
FOUNDATION PLAN

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

RZ Design Associates, Inc.
MECHANICAL, ELECTRICAL,
AND STRUCTURAL ENGINEERING
780 OLD MAIN STREET
SUITE 202
ROCKY HILL, CT 06067
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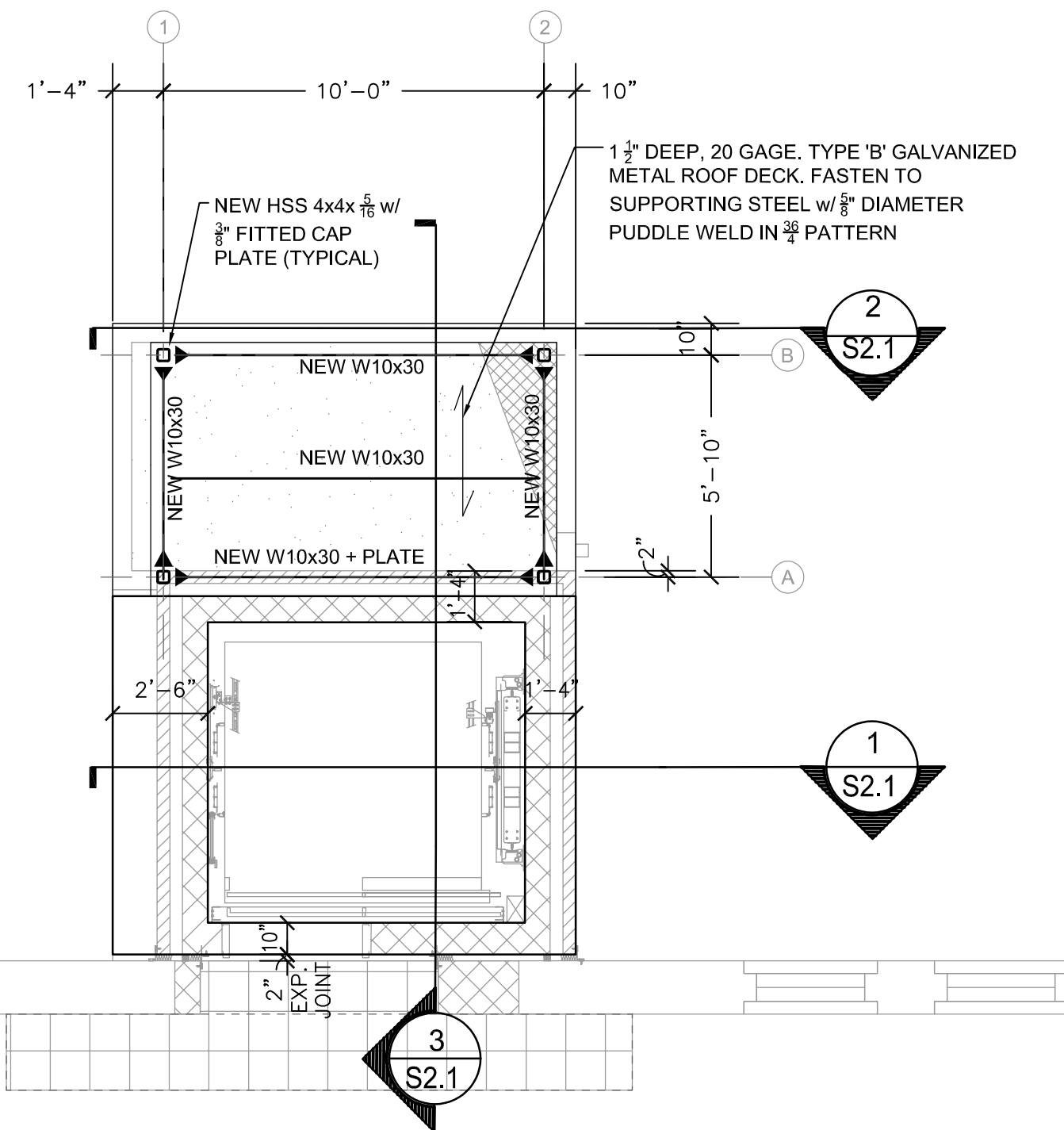
SHEET NO.
S1.0



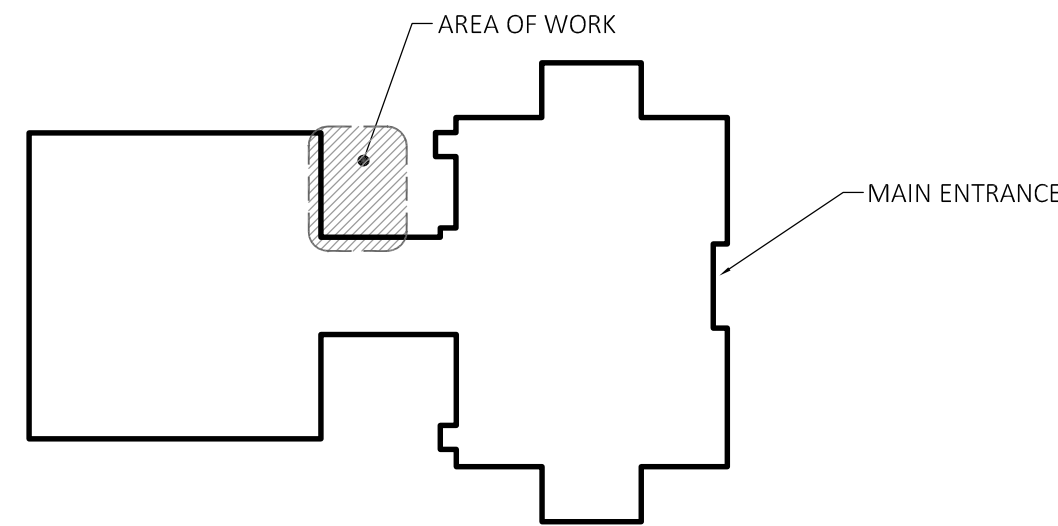
A
S1.1
TYPICAL MOMENT FRAME DETAIL
SCALE: 1 1/2" = 1'-0"

LOW ROOF FRAMING PLAN NOTES:

1. ROOF DECK TO BE 1 1/2" DEEP, 20 GAGE, GALVANIZED, TYPE 'B', STEEL ROOF DECK. ROOF DECK TO BE ATTACHED TO STRUCTURAL STEEL SUPPORTS AT EVERY FLUTE (FOR 36" WIDE PANEL, 4 FASTENERS AT 36/4 PATTERN) AND MINIMUM OF (2)- #10 TEK SCREWS AT ALL SIDE LAPS.
2. TOP OF STEEL ELEVATION (LOW) TO BE AT ELEVATION (+ 9'- 4"), REFERENCED FROM GRADE ELEVATION (0'-0"), UNLESS NOTED THUS (+....) OR (-....) INDICATING DISTANCE ABOVE OR BELOW ELEVATION (+0'-0").
3. COORDINATE SIZE AND LOCATION OF ALL ROOF OPENINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
4. SOLID TRIANGLE SYMBOL AT ENDS OF BEAMS TO COLUMNS INDICATES BEAM TO COLUMN MOMENT CONNECTION. SEE TYPICAL DETAILS OF MOMENT CONNECTION ON DRAWING A/S1.1.
5. NO PERMANENT HANGING LOADS SHALL BE SUPPORTED BY ROOF DECK. THE CONTRACTOR SHALL PROVIDE A SECONDARY FRAMING SYSTEM CONSISTING OF UNISTRUT OR OTHER MEMBERS ATTACHED TO THE MAIN STRUCTURAL FRAMING MEMBERS TO SUPPORT ALL PERMANENT HANGING LOADS OCCURRING BELOW METAL ROOF DECK.

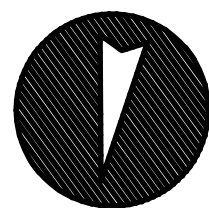


1
S2.1
LOW ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"



KEY PLAN

PROJECT NORTH



DATE:	9/01/2022
DRAWN BY:	M.B.
SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0304CV
LOW ROOF FRAMING PLAN	

NO.	DATE	DESCRIPTION
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STRUCTURAL

LOW ROOF FRAMING

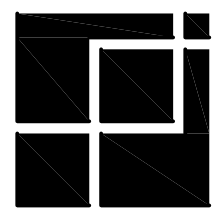
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ELEVATOR ADDITION

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ELEMENTARY SCHOOL**

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WATERBURY, CT 06706

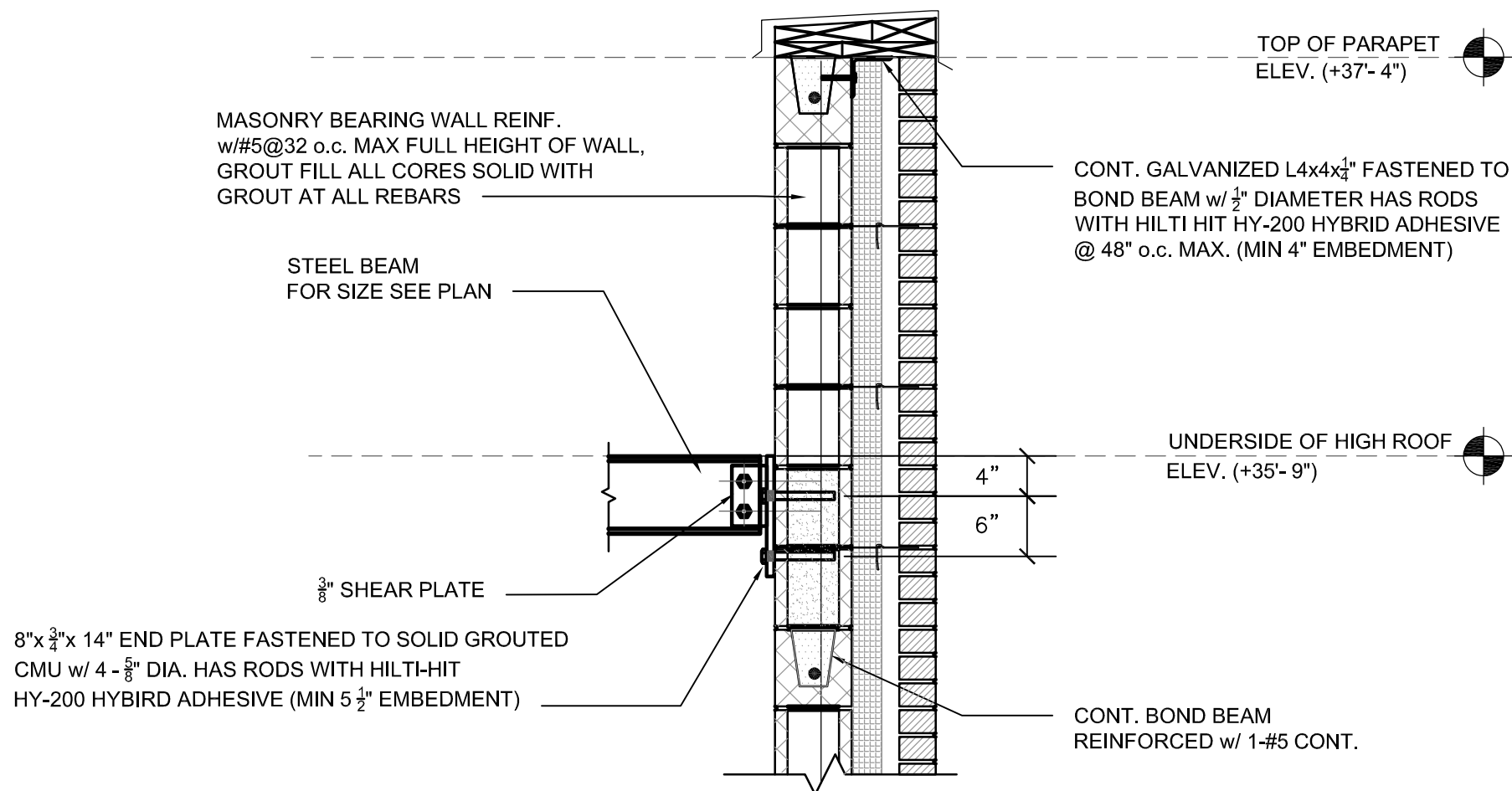
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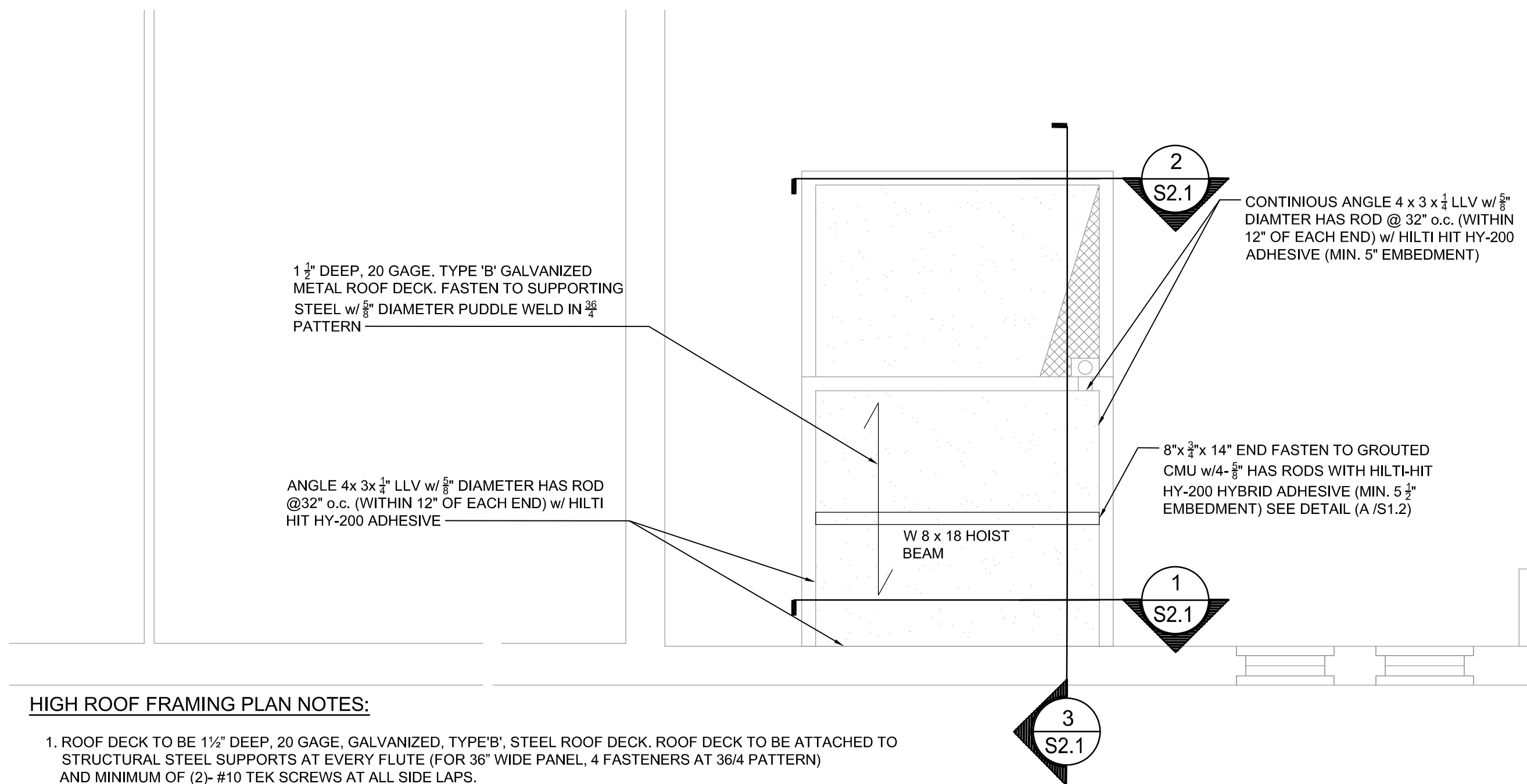
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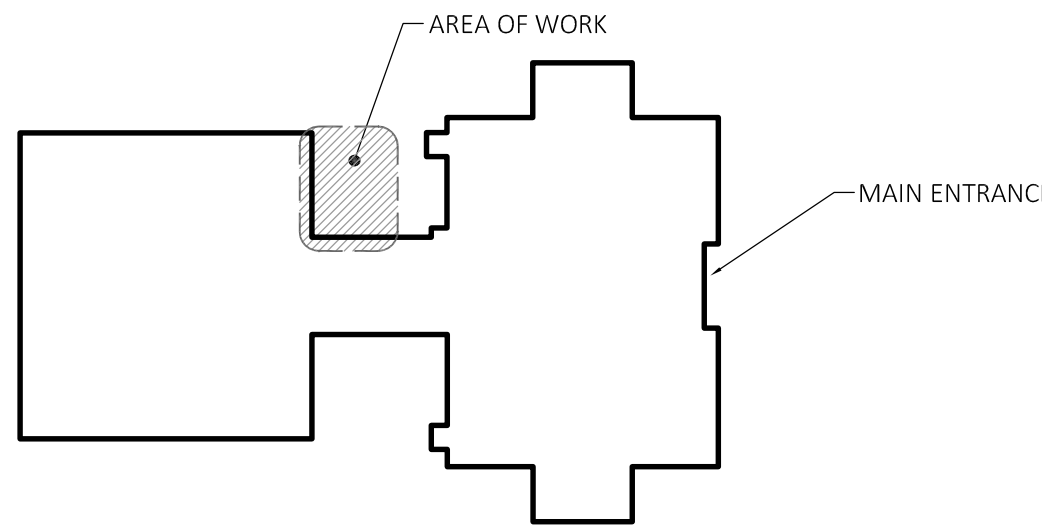
A
SECTION
SCALE: 3/4" = 1'-0"



HIGH ROOF FRAMING PLAN NOTES:

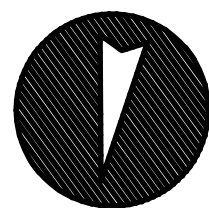
1. ROOF DECK TO BE 1 $\frac{1}{2}$ " DEEP, 20 GAGE, GALVANIZED, TYPE'B', STEEL ROOF DECK. ROOF DECK TO BE ATTACHED TO STRUCTURAL STEEL SUPPORTS AT EVERY FLUTE (FOR 36" WIDE PANEL, 4 FASTENERS AT 36/4 PATTERN) AND MINIMUM OF (2)- #10 TEK SCREWS AT ALL SIDE LAPS.
2. TOP OF STEEL ELEVATION (HIGH) TO BE AT ELEVATION (+35'- 9"), REFERENCED FROM TOP OF GRADE ELEVATION 0'-0", UNLESS NOTED THUS (+,....) OR (-,...) INDICATING DISTANCE ABOVE OR BELOW ELEVATION (+0'-0").
3. COORDINATE SIZE AND LOCATION OF ALL ROOF OPENINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
4. NO PERMANENT HANGING LOADS SHALL BE SUPPORTED BY ROOF DECK. THE CONTRACTOR SHALL PROVIDE A SECONDARY FRAMING SYSTEM CONSISTING OF UNISTRUT OR OTHER MEMBERS ATTACHED TO THE MAIN STRUCTURAL FRAMING MEMBERS TO SUPPORT ALL PERMANENT HANGING LOADS OCCURRING BELOW METAL ROOF DECK.

1
HIGH ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"



KEY PLAN

PROJECT NORTH



DATE:	9/01/2022
DRAWN BY:	M.B.
SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0304CV
HIGH ROOF FRAMING PLAN	

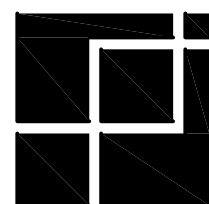
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NO.	DATE	DESCRIPTION
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STRUCTURAL

HIGH ROOF FRAMING

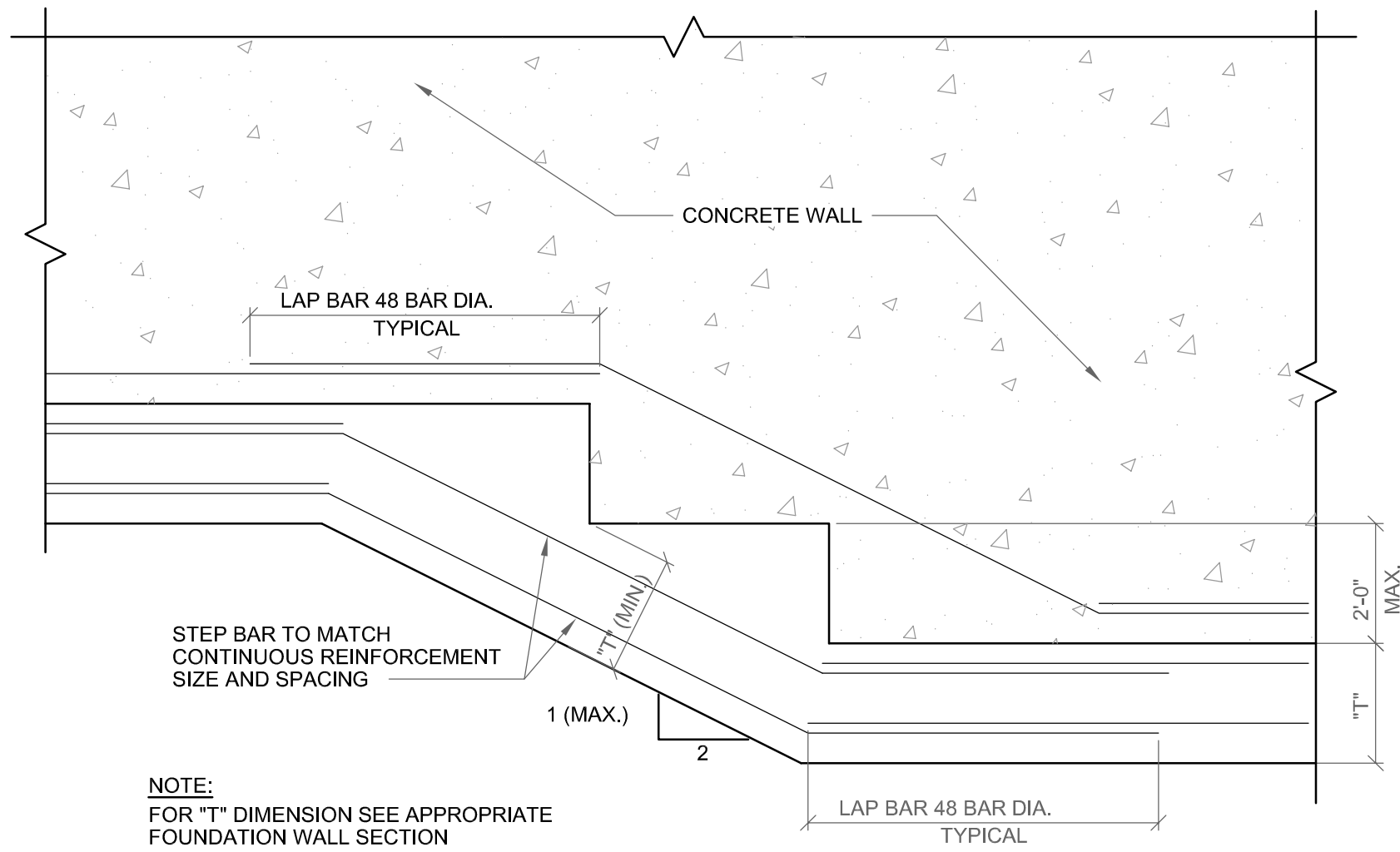
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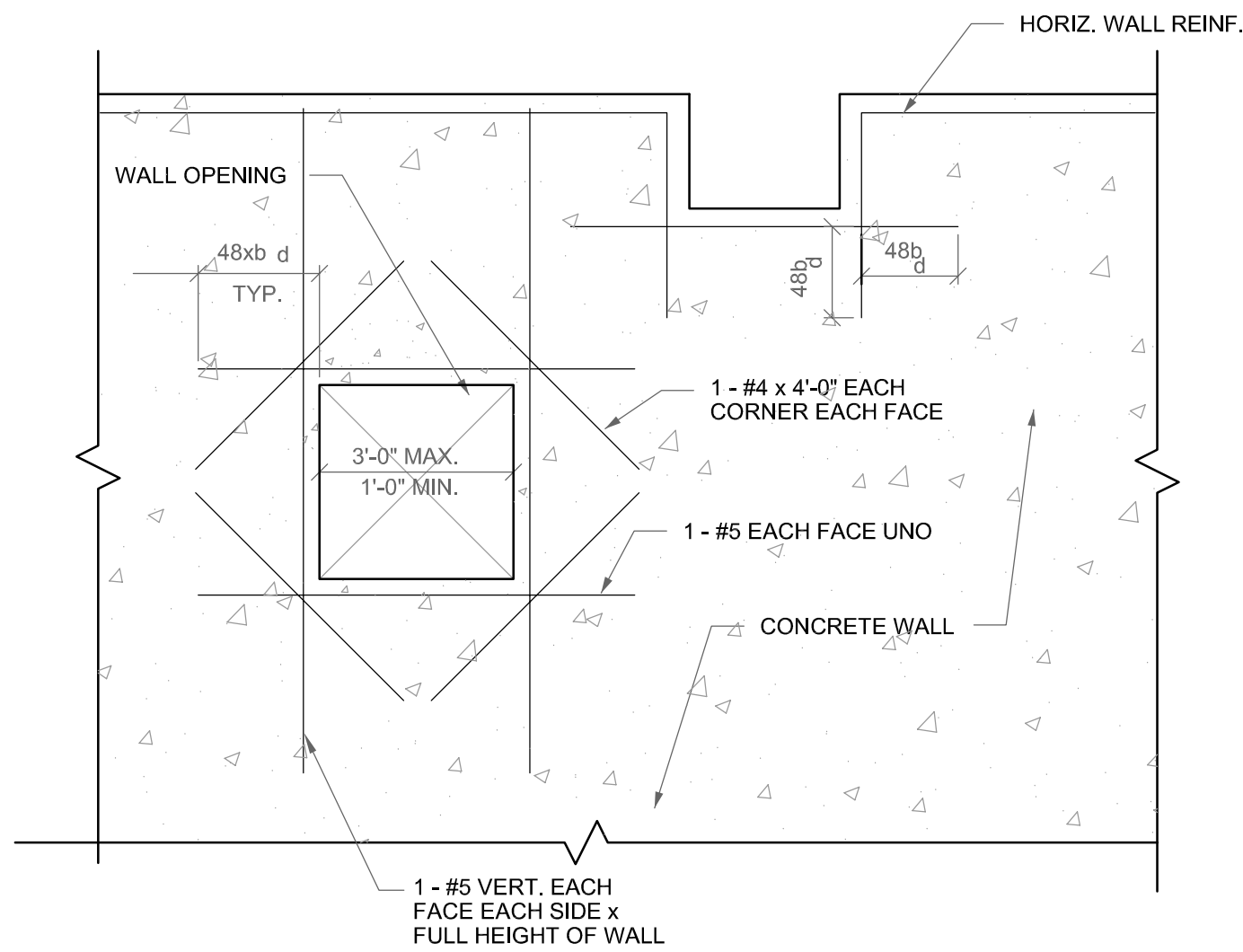


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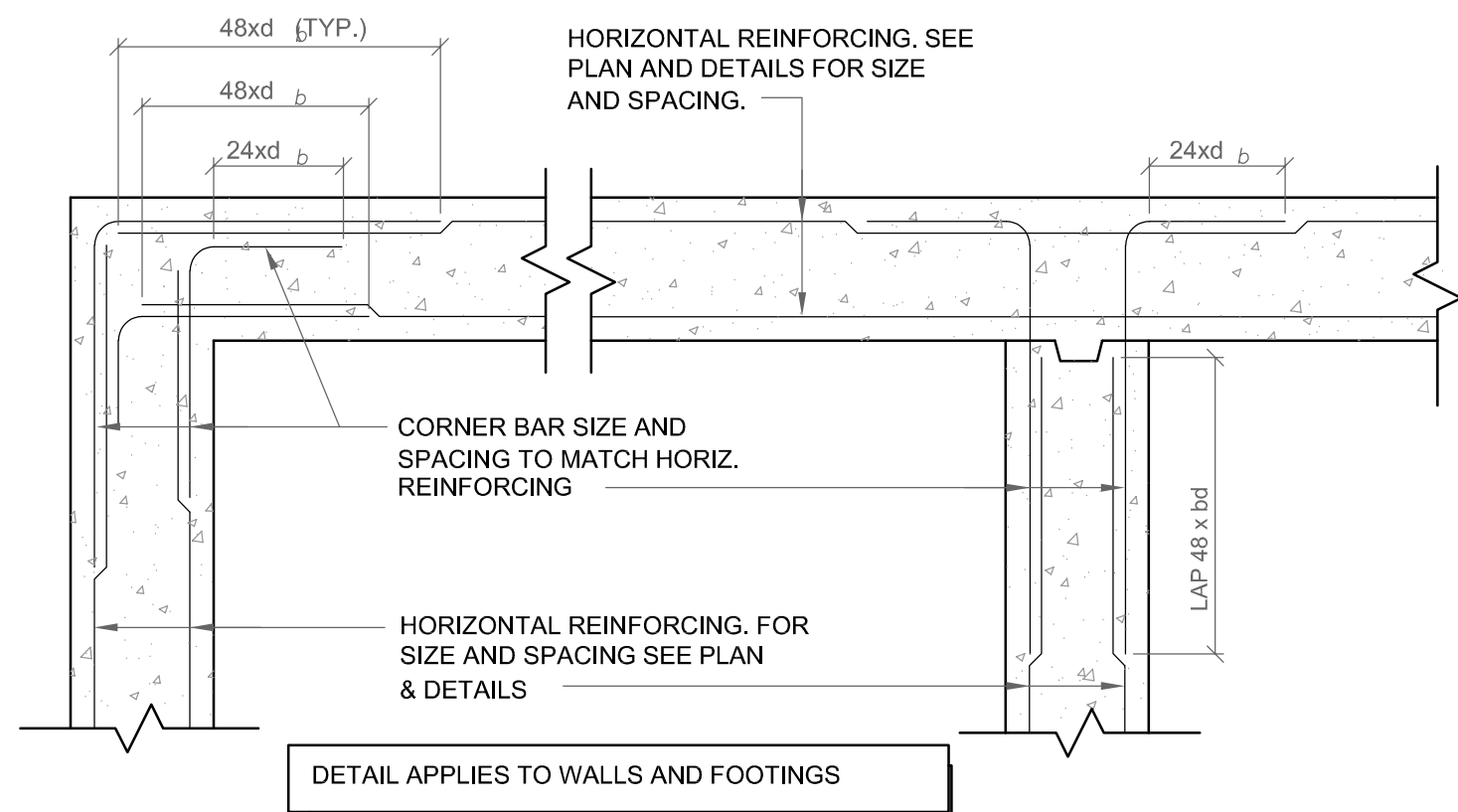
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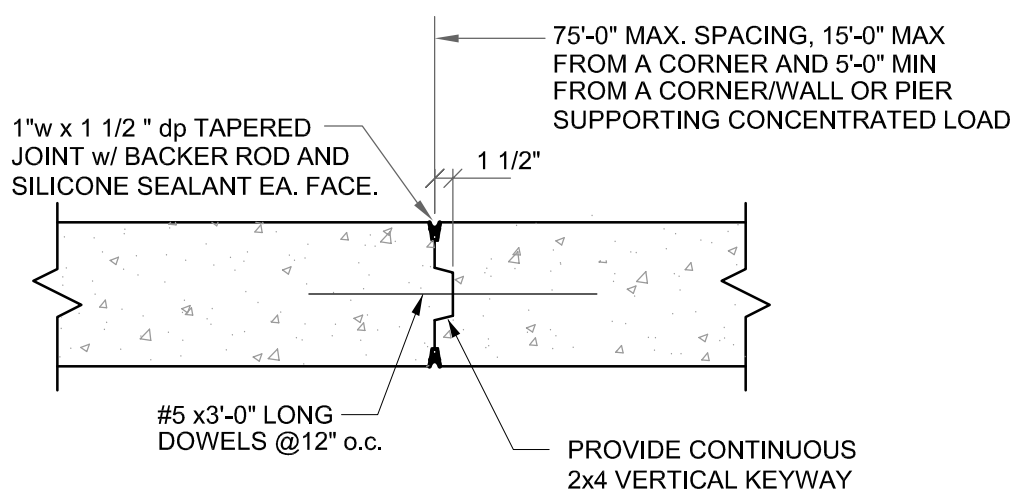
TYPICAL ELEVATION OF STEPPED FOOTING DETAIL
NOT TO SCALE



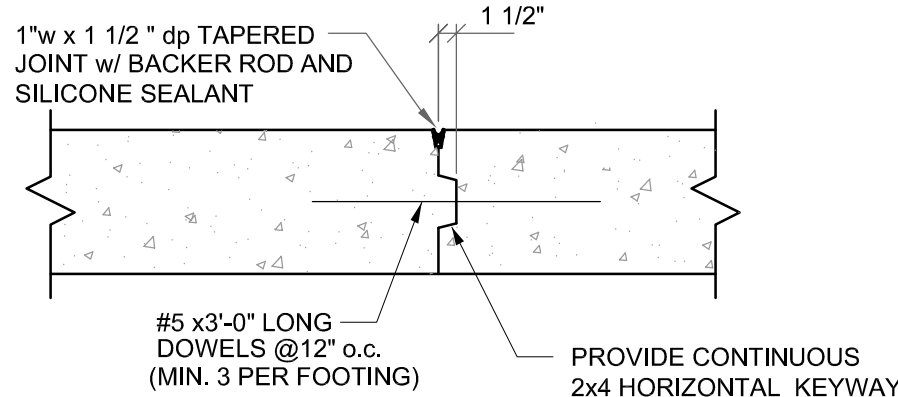
TYPICAL WALL ELEVATION REINFORCING DETAIL AT WALL OPENINGS AND POCKETS
NOT TO SCALE



TYPICAL CONCRETE WALL CORNER BARS DETAIL
NOT TO SCALE

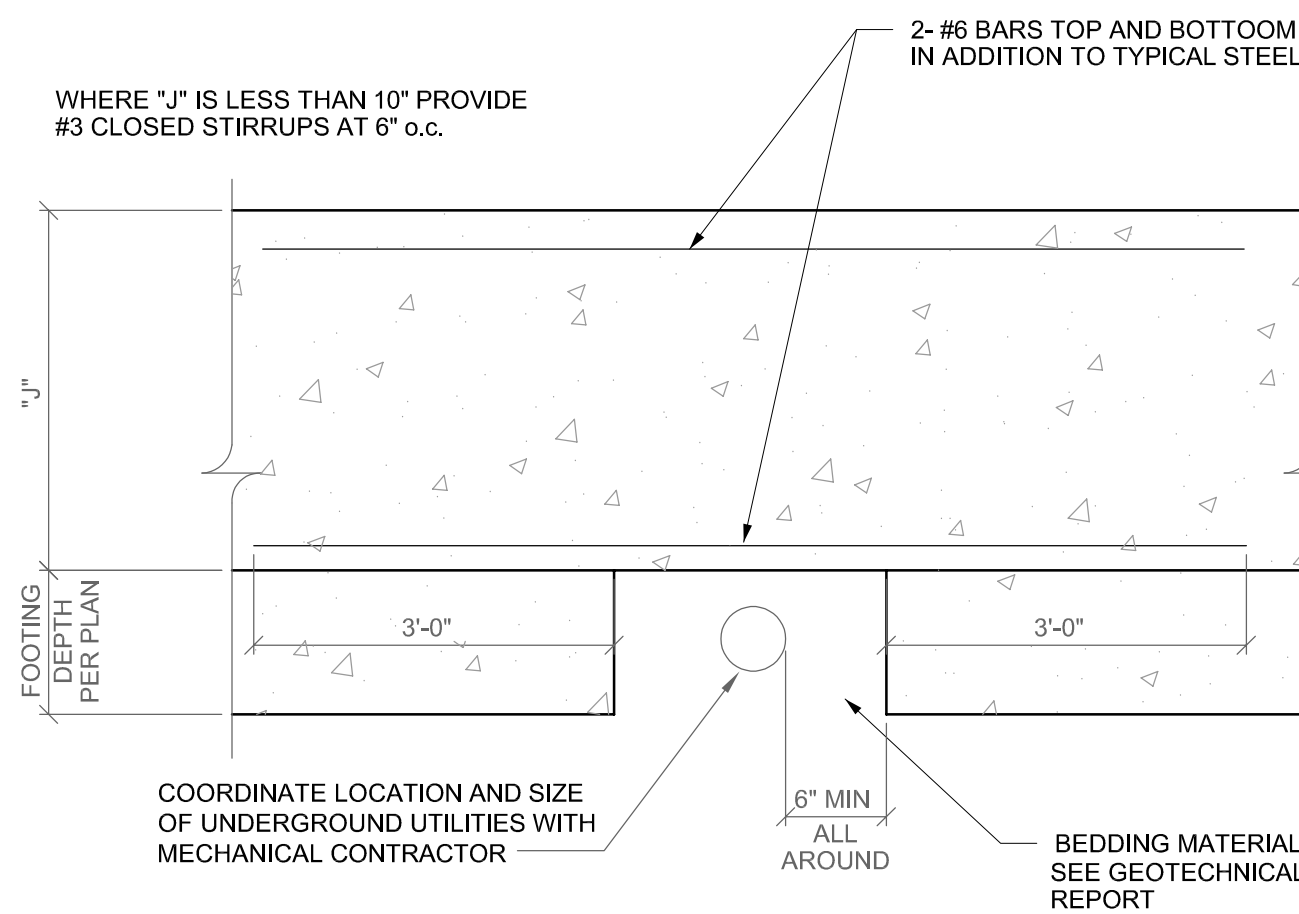


CONTINUOUS FOUNDATION WALL

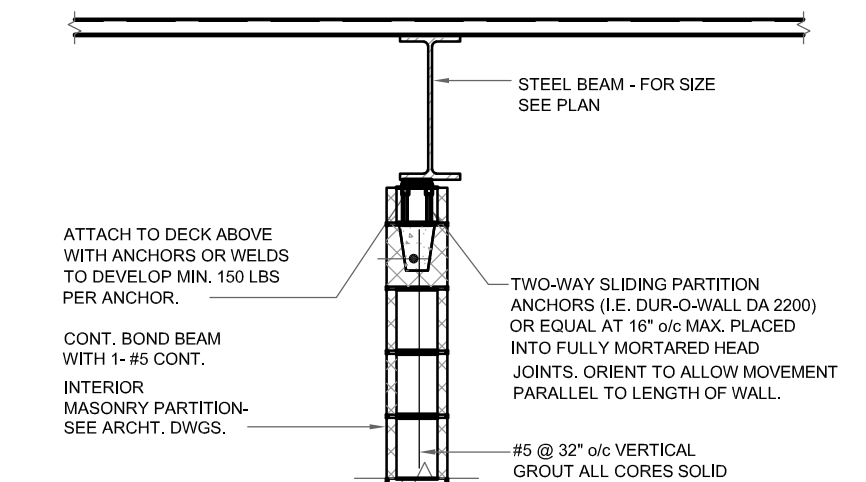


CONTINUOUS FOOTING

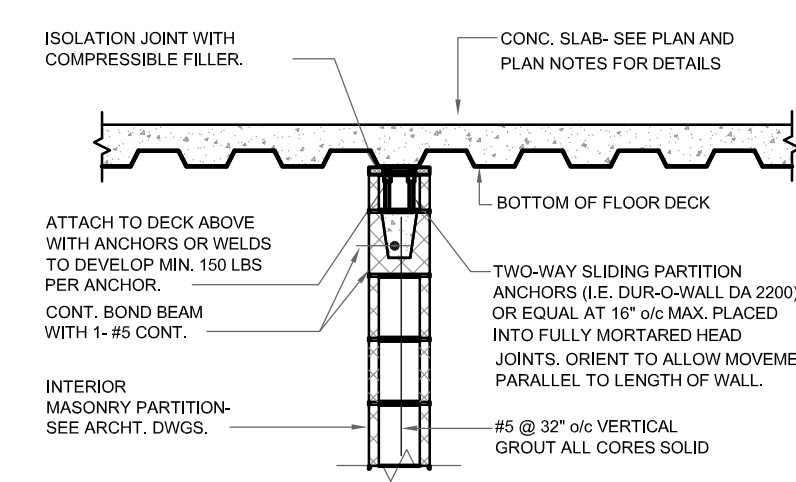
TYPICAL CONSTRUCTION JOINT DETAIL
NOT TO SCALE



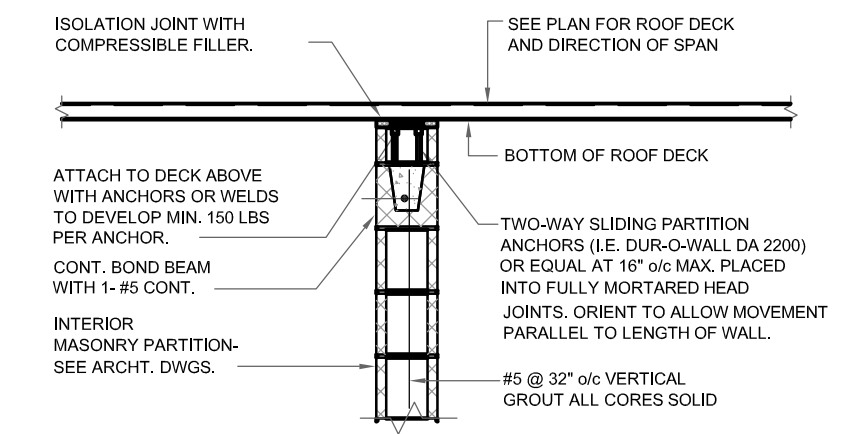
TYPICAL ELEVATION FOOTING BREAK DETAIL
NOT TO SCALE



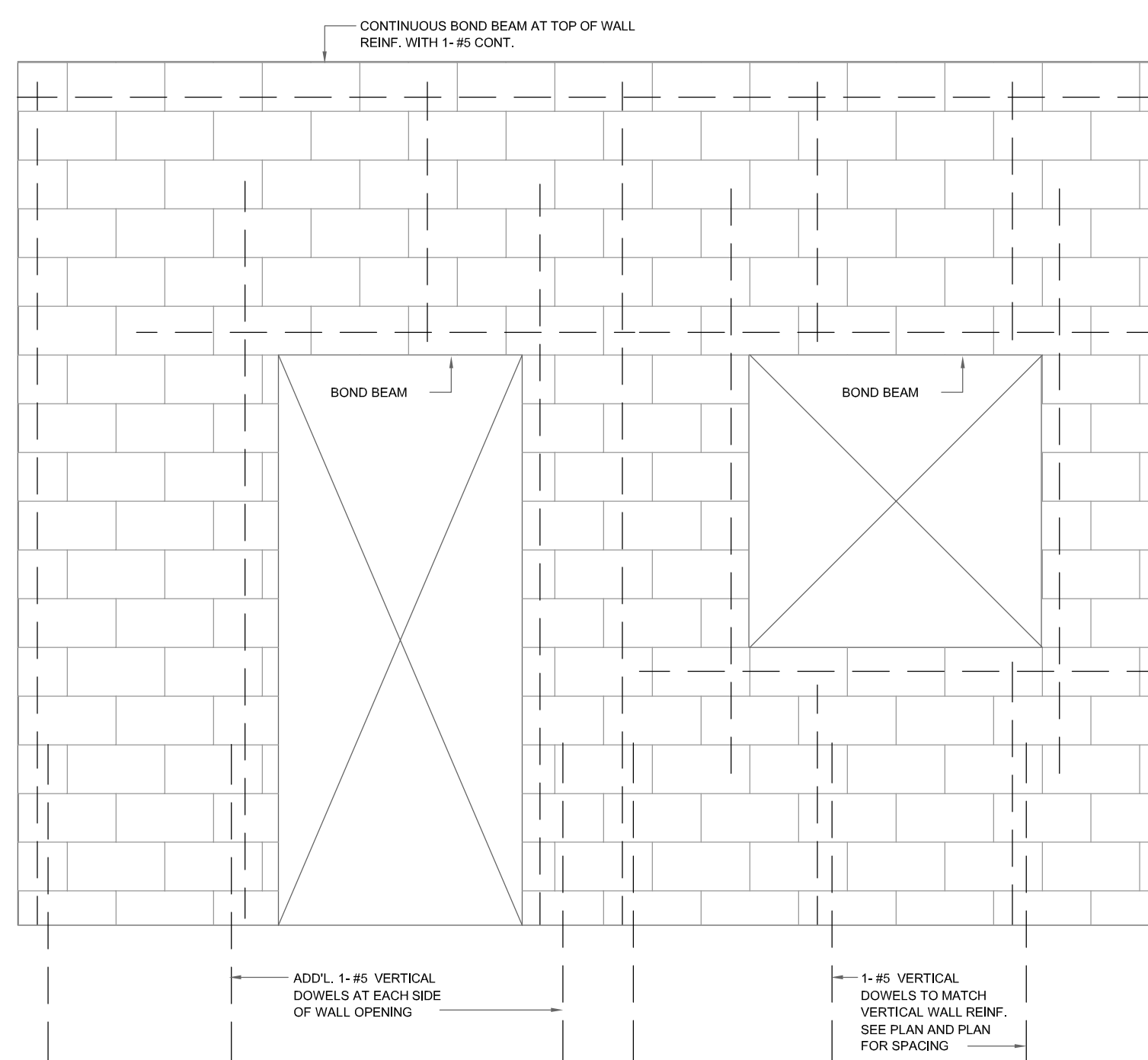
TYPICAL INTERIOR MASONRY PARTITION ANCHORAGE DETAIL AT STEEL BEAM
NOT TO SCALE



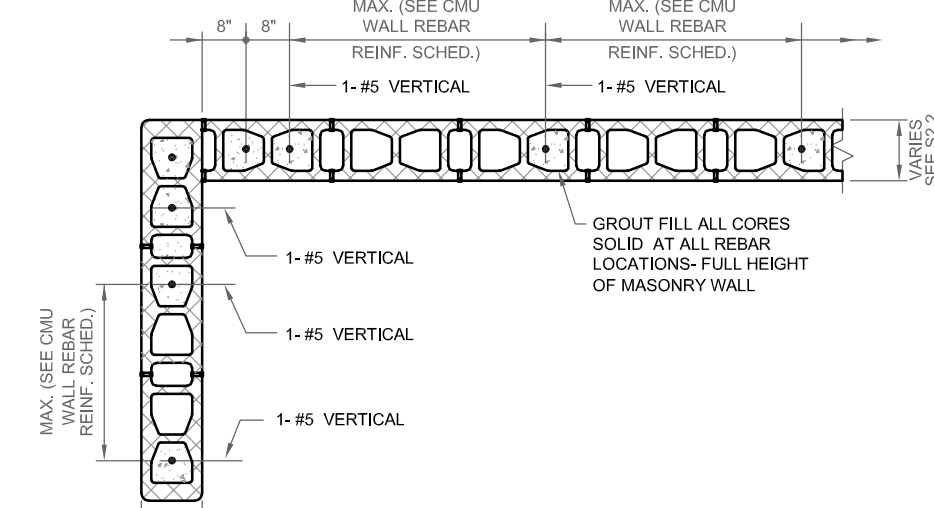
TYPICAL INTERIOR MASONRY PARTITION ANCHORAGE DETAIL AT FLOOR SLAB
NOT TO SCALE



TYPICAL INTERIOR MASONRY PARTITION ANCHORAGE DETAIL AT METAL DECK
NOT TO SCALE



TYPICAL MASONRY WALL REINFORCING ELEVATION AT WALL OPENINGS
SCALE: NOT TO SCALE



PLAN DETAIL OF MASONRY WALL VERTICAL REINFORCING
SCALE: 3/4" = 1'-0"

SEE NOTES AND SECTIONS FOR ADDITIONAL HORIZONTAL WALL REINFORCEMENT REQUIREMENTS.

CMU WALL REBAR REINFORCEMENT

1. PROVIDE #5@32" o/c CONTINUOUS VERTICAL REINFORCEMENT IN ALL CMU UNITS. PROVIDE ADDITIONAL CONTINUOUS 1- #5 VERTICAL IN FIRST 3 CORNER CORES AND IN EACH JAMB OF EACH OPENING AND AT EACH END OF WALL EXTENDING MINIMUM 24" BEYOND OPENINGS. DOWEL ALL VERTICAL REINFORCEMENT TO FOUNDATION WALL WITH 1-1/2" MINIMUM EMBEDMENT INTO FOUNDATION WALL. LAP BARS 48 BAR DIAMETERS MINIMUM. FULLY GROUT ALL REINFORCED MASONRY CELLS.
2. PROVIDE CONTINUOUS BOND BEAM REINFORCED WITH CONTINUOUS 1- #5 AT TOP OF WALLS ABOVE EACH OPENING AND AT EACH STRUCTURALLY CONNECTED FLOOR AND ROOF LEVEL (UNLESS NOTED OTHERWISE). EXTEND BARS MINIMUM 24" BEYOND OPENINGS. FOR ELEVATOR WALLS UNBRACED VERTICALLY 16'-0" OR MORE, PROVIDE A CONTINUOUS BOND BEAM SPACED AT 4'-0" o/c MAXIMUM FOR EXTERIOR WALLS (SPACED AT 10'-0" o/c MAXIMUM FOR INTERIOR WALLS).

LINTEL SCHEDULE FOR MASONRY WALLS									
PROVIDE LINTELS WHETHER SHOWN OR NOT SHOWN ON STRUCTURAL DRAWINGS OVER ALL OPENINGS IN MASONRY WALLS AS REQUIRED BY ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS. ALL LINTELS TO HAVE 8" MINIMUM BEARING EACH END. COMBINE VARIOUS WYTHES OF MASONRY AS REQUIRED TO SUIT PROJECT. ALL CONDITIONS MAY NOT OCCUR.									
MASONRY OPENING	4"	6"	8"	8"	10"	10"	12"	12"	
UP TO 4'-8"	1 L - 3 1/2" x 3 1/2" x 5/16"	WT 4 x 9	2 L/S - 3 1/2" x 3 1/2" x 5/16"		2 L/S - 3 1/2" x 3 1/2" x 5/16" + 9 1/2" x 5/16" PLATE		3 L/S - 3 1/2" x 3 1/2" x 5/16" + 11 1/2" x 5/16" PLATE		
4'-8" TO 5'-8"	1 L - 4" x 3 1/2" x 5/16" (LLV)	WT 7 x 11	2 L/S - 4" x 3 1/2" x 5/16" (LLV)		2 L/S - 4" x 3 1/2" x 5/16" (LLV) + 9 1/2" x 5/16" PLATE		3 L/S - 4" x 3 1/2" x 5/16" (LLV) + 11 1/2" x 5/16" PLATE		
5'-8" TO 6'-8"	1 L - 5" x 3 1/2" x 5/16" (LLV)	WT 7 x 11	2 L/S - 5" x 3 1/2" x 5/16" (LLV)		2 L/S - 5" x 3 1/2" x 5/16" (LLV) + 9 1/2" x 5/16" PLATE		3 L/S - 5" x 3 1/2" x 5/16" (LLV) + 11 1/2" x 5/16" PLATE		
6'-8" TO 7'-8"	1 L - 6" x 3 1/2" x 5/16" (LLV)	WT 7 x 13	2 L/S - 6" x 3 1/2" x 5/16" (LLV)		2 L/S - 6" x 3 1/2" x 5/16" (LLV) + 9 1/2" x 5/16" PLATE		3 L/S - 6" x 3 1/2" x 5/16" (LLV) + 11 1/2" x 5/16" PLATE		
7'-8" TO 10'-4"		WT 8 x 13.5	2 L/S - 6" x 3 1/2" x 5/16" (LLV)		W 8 x 10 CONT. + 7 1/2" x 5/16" PLATE		W 8 x 10 CONT. + 11 1/2" x 5/16" PLATE		
10'-4" TO 14'-4"			W 8 x 15 CONT. + 7 1/2" x 5/16" PLATE		W 8 x 15 CONT. + 9 1/2" x 5/16" PLATE		W 8 x 15 CONT. + 11 1/2" x 5/16" PLATE		

DATE: 9/01/2022
DRAWN BY: M.B.
SCALE: AS NOTED
REVIEWED BY: C.Z.
PROJECT NO. 151-0304CV
STRUCTURAL DETAILS

REVISIONS		
NO.	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

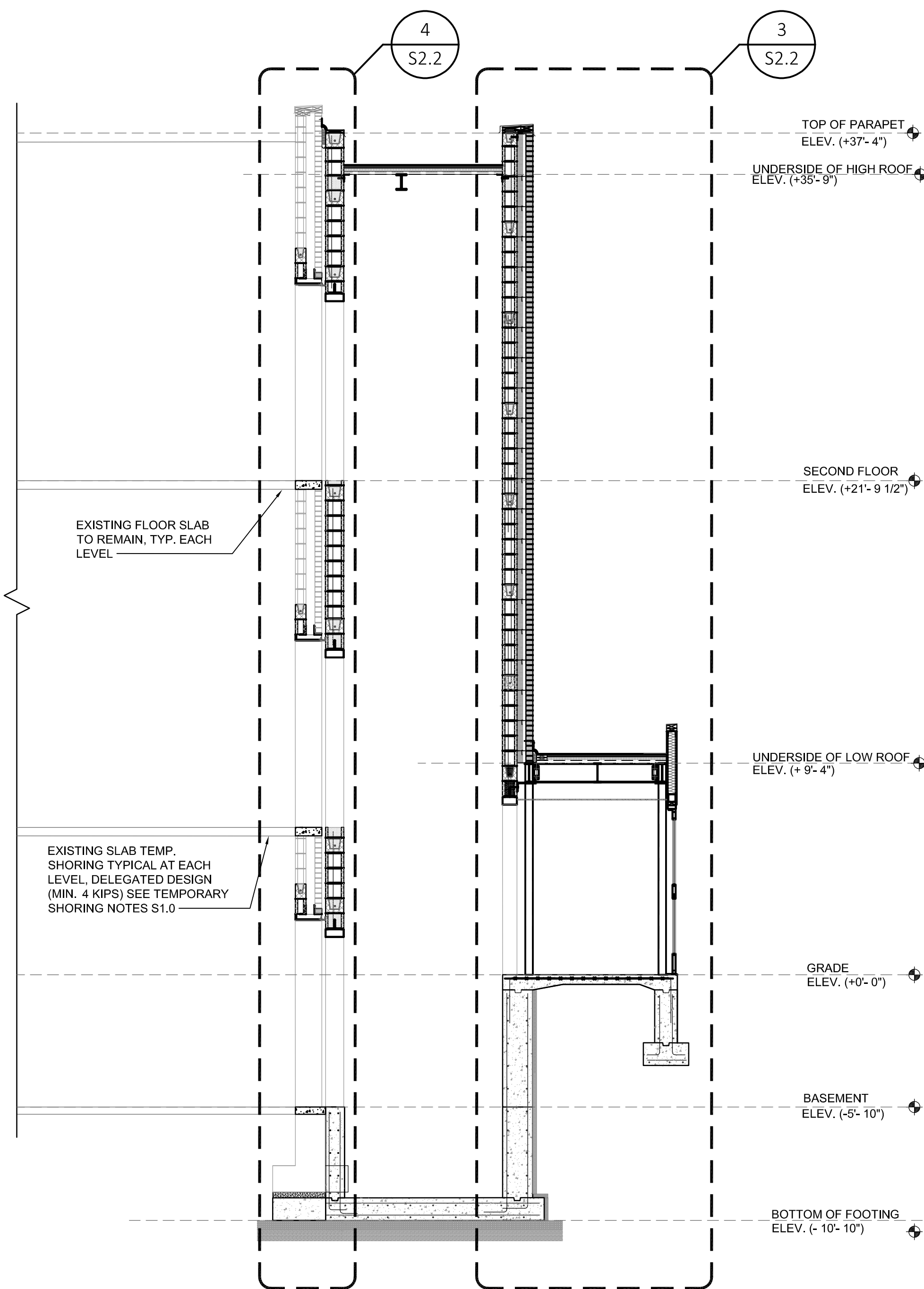
STRUCTURAL DETAILS

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
WASHINGTON ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

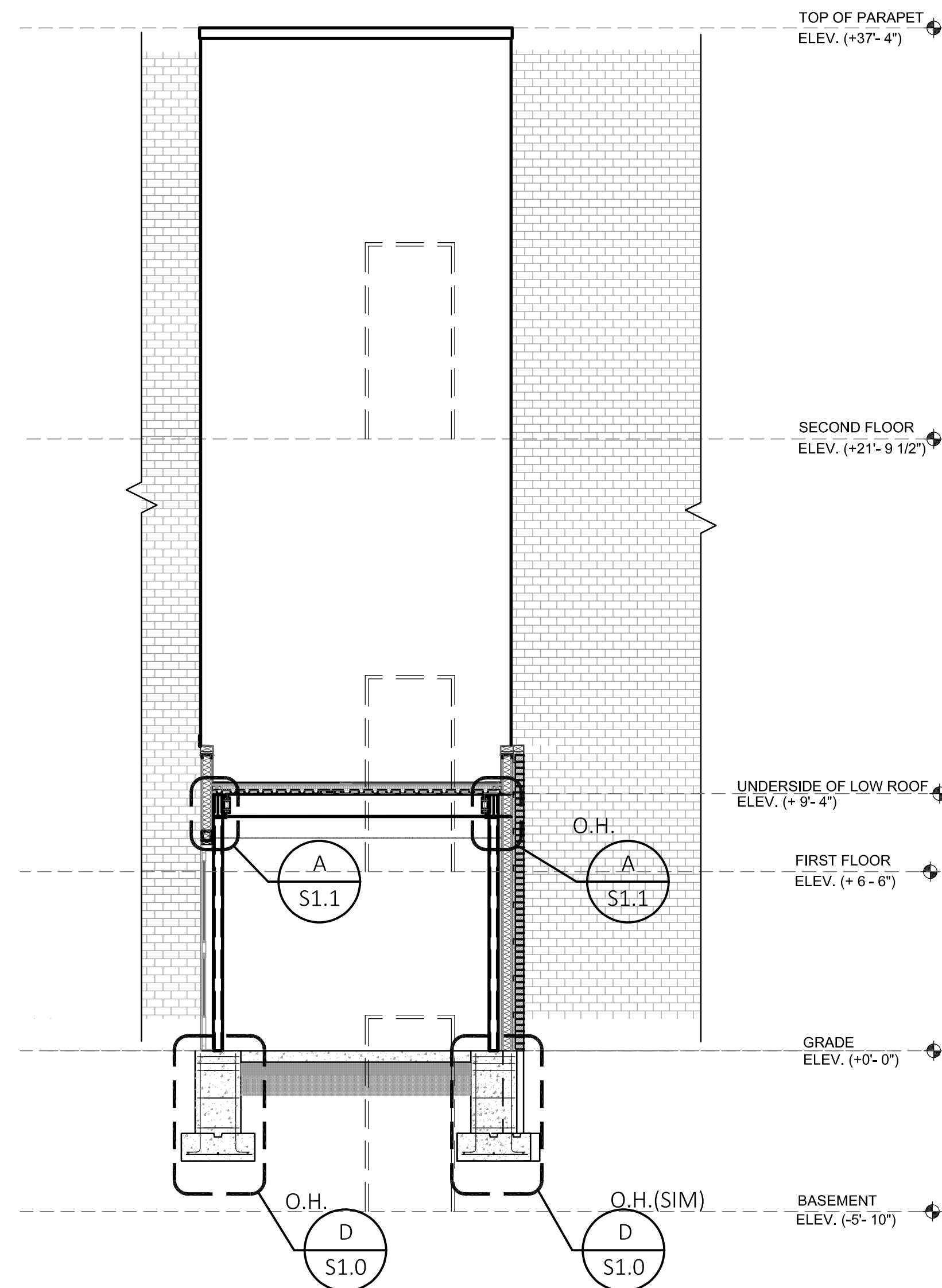
RZ Design Associates, Inc.
MECHANICAL, ELECTRICAL, AND STRUCTURAL ENGINEERING
760 OLD BRIDGE STREET
SUITE 202
ROCKY HILL, CT 06067
P: (860) 430-4336
F: (860) 430-6450
www.rzdesignassociates.com

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

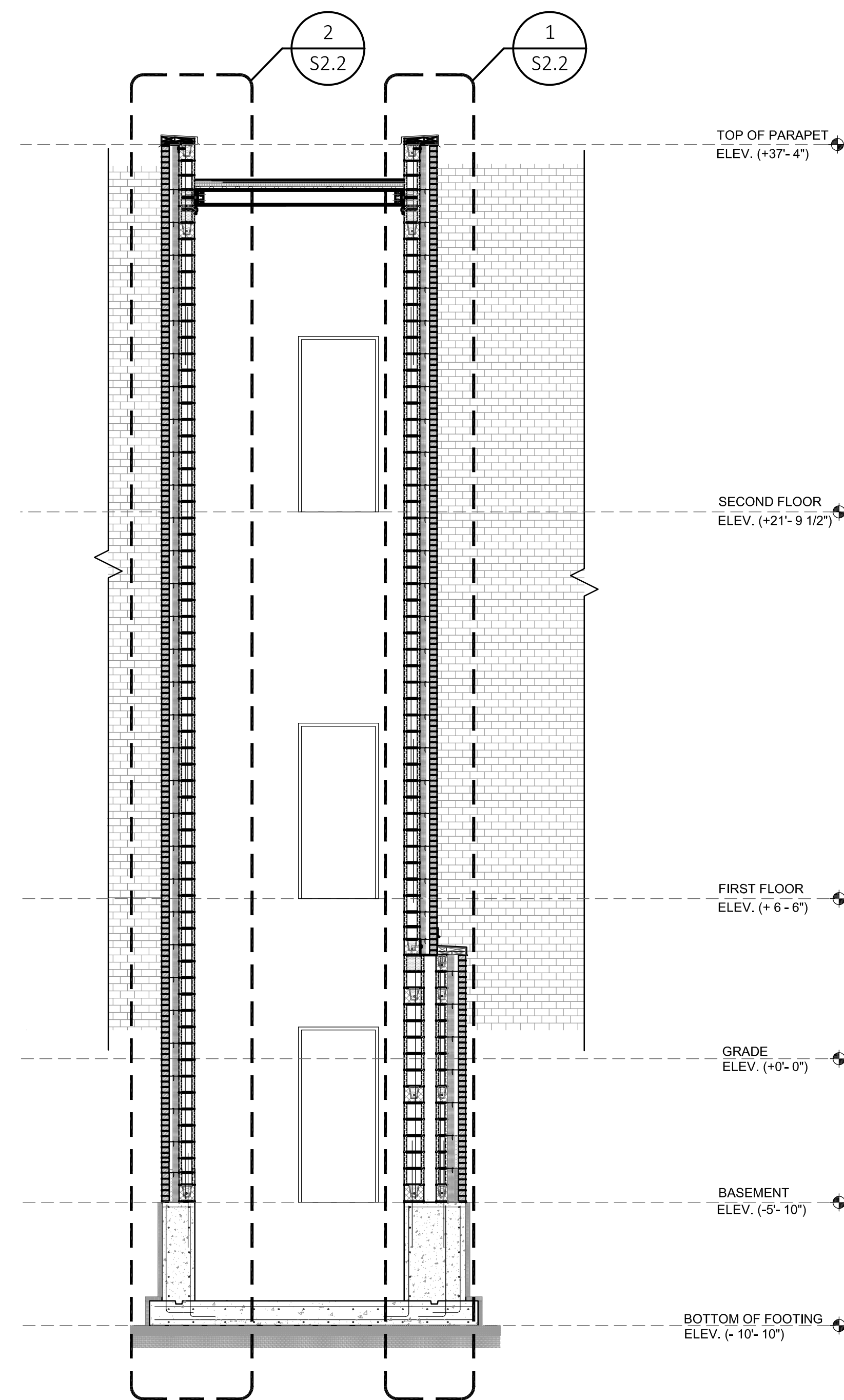
SHEET NO.
S2.0



3
S2.1 BUILDING SECTION- EAST
SCALE: 1/4" = 1'-0"



2
S2.1 BUILDING SECTION- NORTH
SCALE: 1/4" = 1'-0"



1
S2.1 BUILDING SECTION- NORTH
SCALE: 1/4" = 1'-0"

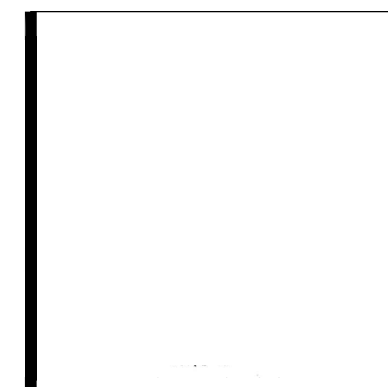
DATE:	9/01/2022
DRAWN BY:	M.B.
SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0304CV
BUILDING SECTIONS	

NO.	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

STRUCTURAL BUILDING SECTIONS

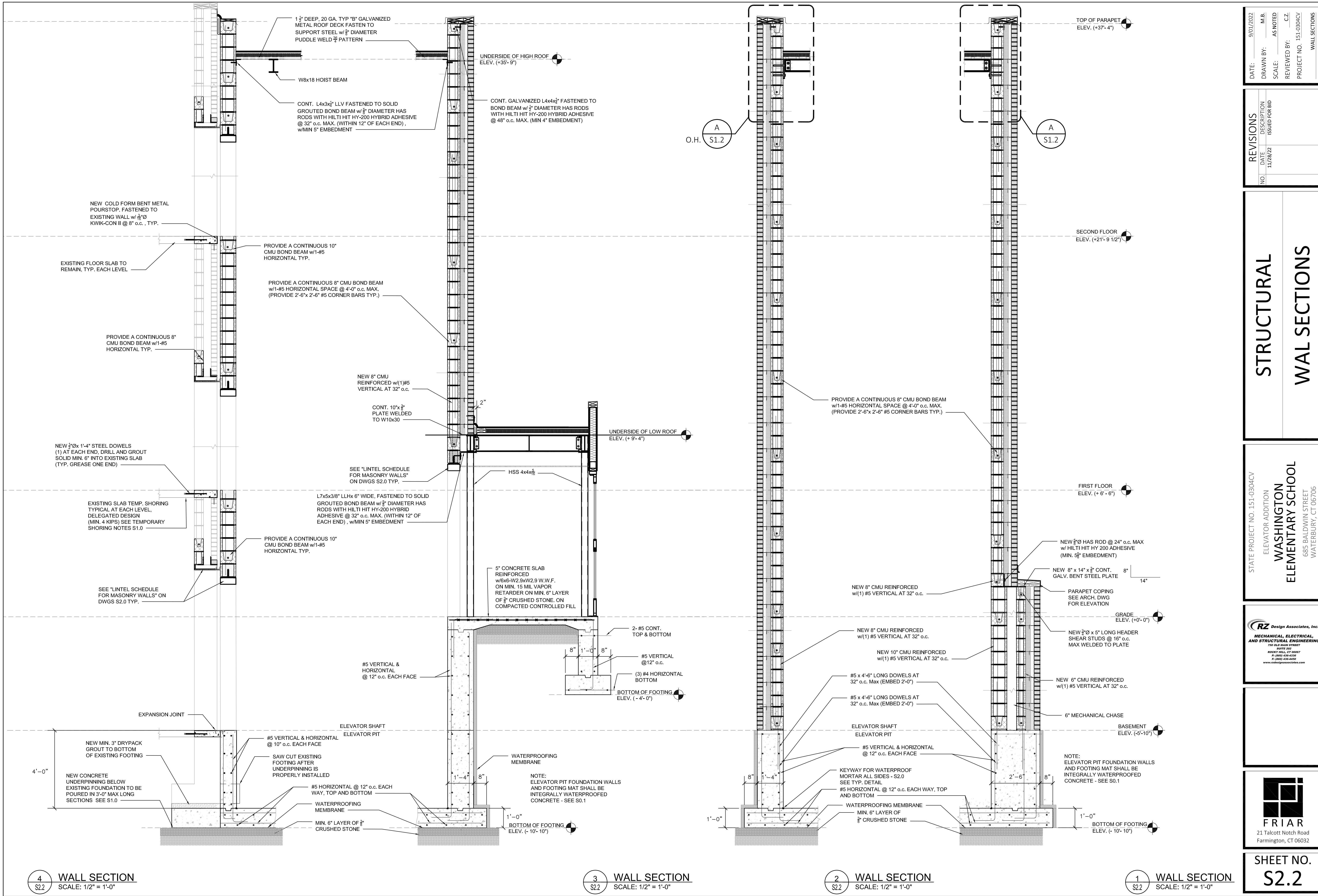
STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
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685 BALDWIN STREET
WATERBURY, CT 06706

RZ Design Associates, Inc.
MECHANICAL, ELECTRICAL,
AND STRUCTURAL ENGINEERING
710 OLD MAIN STREET
SUITE 202
ROCKY HILL, CT 06067
P: (860) 430-4336
F: (860) 430-4650
www.rzdesignassociates.com



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21 Talcott Notch Road
Farmington, CT 06032

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S2.1



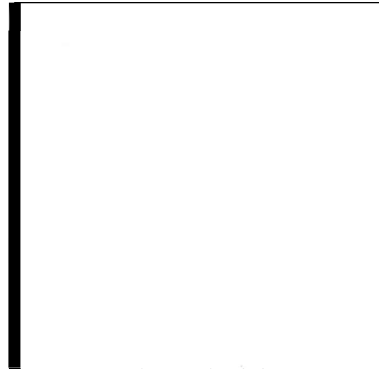
DATE:	9/01/2022
DRAWN BY:	M.B.
SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0304CV
WALL SECTIONS	

NO.	REVISIONS	
	DATE	DESCRIPTION
1	11/29/22	ISSUED FOR BID

STRUCTURAL WAL SECTIONS

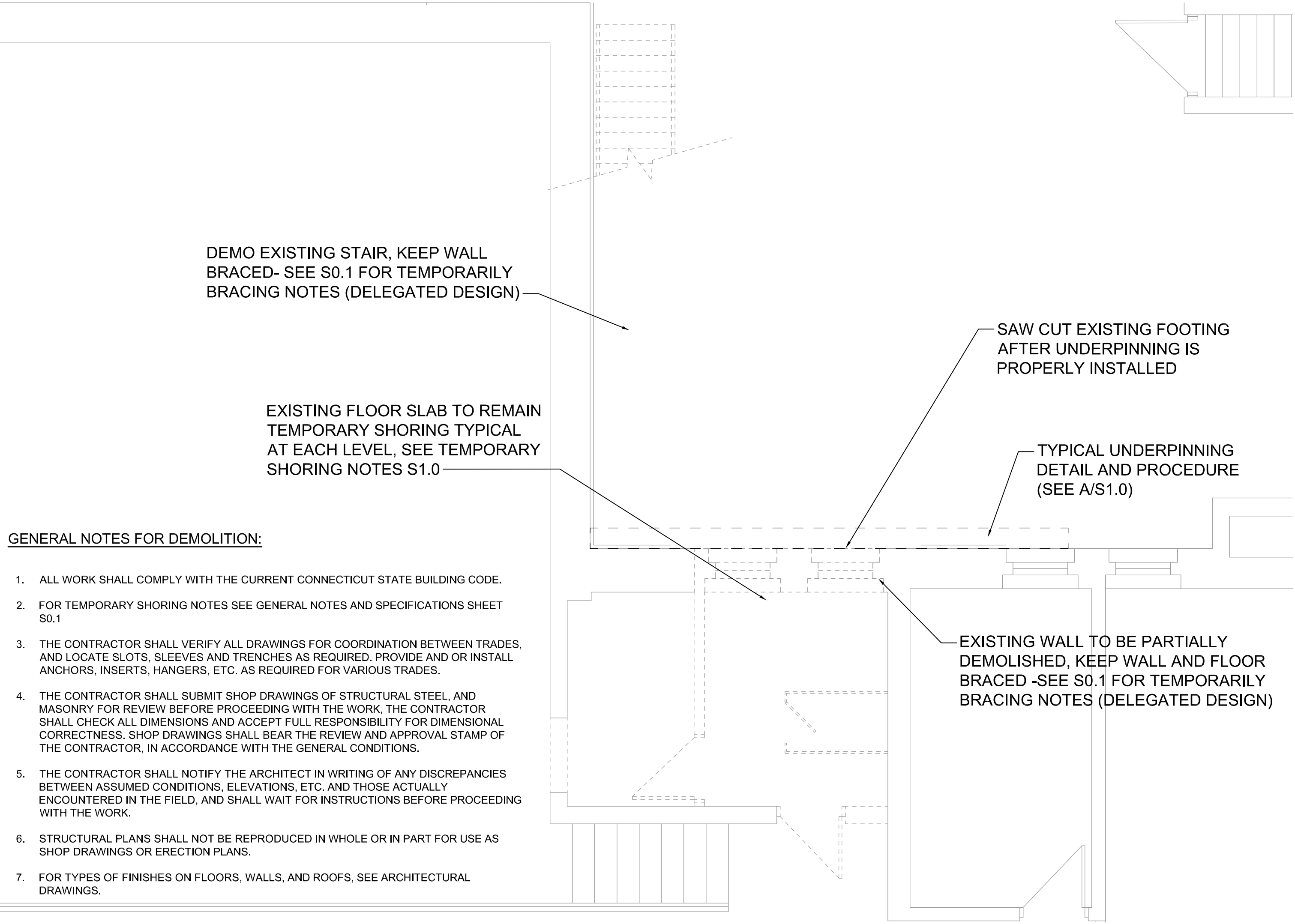
STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
**WASHINGTON
ELEMENTARY SCHOOL**
685 BALDWIN STREET
WATERBURY, CT 06706

RZ Design Associates, Inc.
MECHANICAL, ELECTRICAL,
AND STRUCTURAL ENGINEERING
SUITE 202
100 OLD BRIDGE STREET
ROCKY HILL, CT 06067
P: (860) 430-4330
F: (860) 430-4400
www.rzdesignassociates.com



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21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
S2.2



GENERAL NOTES FOR DEMOLITION:

1. ALL WORK SHALL COMPLY WITH THE CURRENT CONNECTICUT STATE BUILDING CODE.
2. FOR TEMPORARY SHORING NOTES SEE GENERAL NOTES AND SPECIFICATIONS SHEET S0.1
3. THE CONTRACTOR SHALL VERIFY ALL DRAWINGS FOR COORDINATION BETWEEN TRADES, AND LOCATE SLOTS, SLEEVES AND TRENCHES AS REQUIRED. PROVIDE AND OR INSTALL ANCHORS, INSERTS, HANGERS, ETC. AS REQUIRED FOR VARIOUS TRADES.
4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF STRUCTURAL STEEL, AND MASONRY FOR REVIEW BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL CHECK ALL DIMENSIONS AND ACCEPT FULL RESPONSIBILITY FOR DIMENSIONAL CORRECTNESS. SHOP DRAWINGS SHALL BEAR THE REVIEW AND APPROVAL STAMP OF THE CONTRACTOR, IN ACCORDANCE WITH THE GENERAL CONDITIONS.
5. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BETWEEN ASSUMED CONDITIONS, ELEVATIONS, ETC. AND THOSE ACTUALLY ENCOUNTERED IN THE FIELD, AND SHALL WAIT FOR INSTRUCTIONS BEFORE PROCEEDING WITH THE WORK.
6. STRUCTURAL PLANS SHALL NOT BE REPRODUCED IN WHOLE OR IN PART FOR USE AS SHOP DRAWINGS OR ERECTION PLANS.
7. FOR TYPES OF FINISHES ON FLOORS, WALLS, AND ROOFS, SEE ARCHITECTURAL DRAWINGS.

1
SD1.0

STRUCTURAL DEMOLITION PLAN
SCALE: 1/4" = 1'-0"

DATE:	9/01/2022
DRAWN BY:	M.B.
SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0304CV
DEMOLITION PLAN	

REVISIONS		
NO.	DATE	DESCRIPTION ISSUED FOR BID
	11/28/22	

STRUCTURAL

DEMOLITION PLAN

STATE PROJECT NO. 151-0304CV
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RZ Design Associates, Inc.
MECHANICAL, ELECTRICAL,
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ROCKY HILL, CT 06067
P: (860) 430-4336
F: (860) 430-6450
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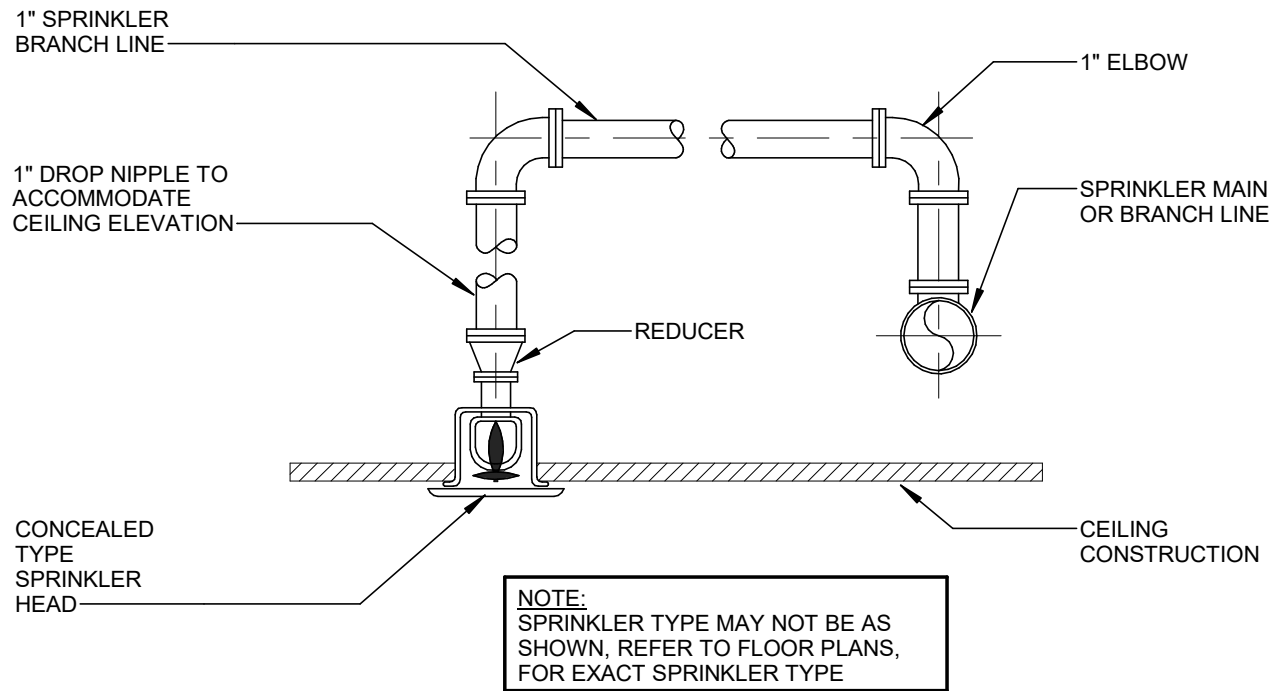


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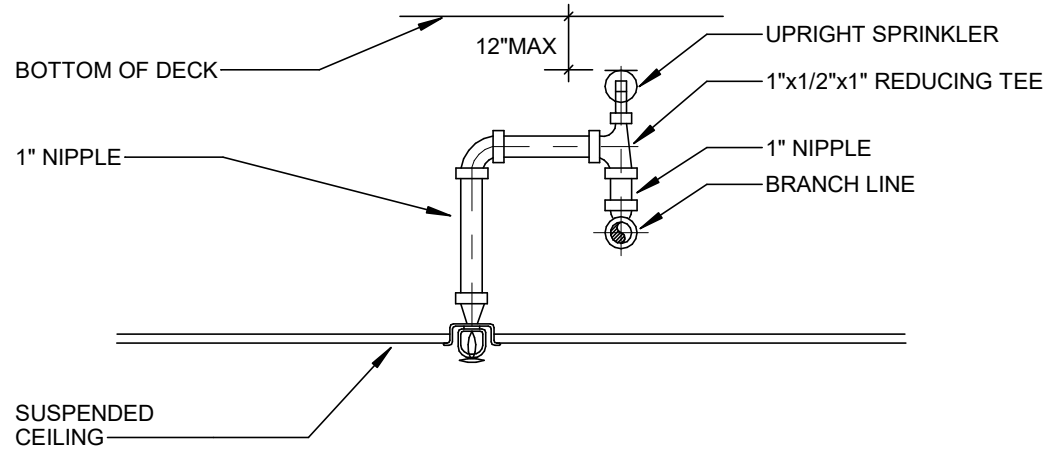
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COMMERCIAL SPRINKLER HEAD SCHEDULE																				
SYMBOL	K-FACTOR	STANDARD (SR) OR QUICK RESPONSE (QR)	UPRIGHT	PENDENT	RECESSED	CONCEALED PENDENT	HORIZONTAL SIDEWALL	WITH GUARD	ABOVE CEILING	DRY	INSTITUTIONAL	EXTENDED COVERAGE	UL-LISTED	FM-APPROVED	MANUFACTURER & MODEL	MAXIMUM LISTED COVERAGE AREA L x W (FT)	MINIMUM REQUIRED PRESSURE (PSI)	GENERAL LOCATION OF SPRINKLER HEADS (REFER TO DRAWINGS FOR ACTUAL LOCATIONS)	NOTE: *ALL FINISHES ARE SUBJECT TO APPROVAL BY ARCHITECT.	CLASSIFICATION
⊙	5.6	QR				◦							◦	◦	VIKING MODEL# VK462	15 x 15	7 PSI	SPACES & CORRIDORS WITH HUNG CEILINGS	FINISH*	LIGHT & ORDINARY HAZARD
▽	5.6	QR					◦						◦	◦	VIKING MODEL# VK305	15 x 15	7 PSI	ELEVATOR PIT	BRASS	LIGHT & ORDINARY HAZARD
<p>NOTES:</p> <p>1. ALL TYPES OF SPRINKLER HEADS SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.</p> <p>2. PROVIDED SPRINKLER GUARDS IN MECHANICAL ROOMS, ELECTRICAL & TELECOM (I.T.) CLOSETS, UPS ROOMS AND ALL ROOMS WHERE SPRINKLERS MAY BE SUBJECT TO ACCIDENTAL DAMAGE.</p> <p>3. ALL SPRINKLER HEADS THROUGHOUT SHALL BE OF ORDINARY TEMPERATURE RATING (135 - 170 DEG. F.), WITH THE FOLLOWING EXCEPTIONS:</p> <p>A. SPECIFIED IN TABLE BELOW AS INTERMEDIATE OR HIGH TEMPERATURE RATING.</p> <p>B. SPRINKLER HEADS LOCATED CLOSE TO KITCHEN EQUIPMENT, HEATERS, STEAM PIPE OR LOW-PRESSURE BLOW-OFF VALVE SHALL BE OF THE TEMPERATURE RATING AS REQUIRED BY APPLICABLE EDITION OF NFPA - 13. DRAWINGS, PREPARED BY THE FIRE PROTECTION CONTRACTOR SHALL BE COORDINATED WITH THE HVAC CONTRACTOR AND ALL HVAC EQUIPMENT WHICH CAN AFFECT THE RATING OF THE SPRINKLER HEADS. SPRINKLER HEADS SHALL BE CLEARLY IDENTIFIED ON THE SHOP DRAWINGS PRIOR TO SUBMISSION FOR APPROVAL.</p> <p>4. ALL SPRINKLER HEAD SYMBOLS NOT SHOWN ON PLANS, REFER TO "GENERAL LOCATION" COLUMN FOR ESTIMATING.</p> <p>5. SPRINKLER SELECTIONS ARE BASED ON PRODUCTS MANUFACTURED BY VIKING, RELIABLE AND/OR TYCO PRODUCTS SHALL BE CONSIDERED APPROVED EQUAL PRODUCTS AND ARE SUBJECT TO THE APPROVAL OF THE ENGINEER AND ARCHITECT.</p> <p>6. SPRINKLER CONTRACTOR SHALL COORDINATE THE LOCATIONS OF SPRINKLER HEADS WITH STRUCTURAL ELEMENTS AND HVAC DUCTWORK.</p>																				

SPRINKLER PIPE SIZE SCHEDULE	
NO. OF SPRINKLER HEADS	PIPE SIZE
1 - 2	1"
3	1 1/4"
4 - 5	1 1/2"
6 - 10	2"
SPRINKLER LOOP	REFER TO NOTE BELOW
NOTE: PIPES SIZES SHOWN ARE BASED ON DESIGN PIPING LAYOUTS ONLY. ACTUAL PIPE SIZES SHALL BE DETERMINED BY CONTRACTORS HYDRAULIC CALCULATIONS BASED ON THE CONTRACTORS INSTALLATION DRAWINGS. CONTRACTOR SHALL ALLOW FOR THIS AND INCLUDE THIS IN THE CONTRACT PRICE.	



1 ARMOVER DETAIL NTS



2 SPRINKLER ABOVE AND BELOW SUSPENDED CEILING NTS

- GENERAL NOTES
1. THESE GENERAL NOTES ARE APPLICABLE TO ALL FIRE PROTECTION DRAWINGS.

2. DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL INTENT OF WORK, SEE DETAILS, RISERS, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

3. THE DRAWINGS INDICATE A SUGGESTED SPRINKLER HEAD LAYOUT AND THAT EACH AREA IS COVERED BY SPRINKLER PROTECTION AS REQUIRED BY ALL APPLICABLE (STATE) BUILDING AND FIRE CODES. THE SPRINKLER QUANTITIES SHALL NOT BE COUNTED AS A TAKE OFF OR AS EXACT LOCATIONS. EXACT SPACING, DENSITY, AND LOCATION REQUIREMENTS SHALL BE AS DICTATED BY NFPA 13. FINAL LOCATIONS OF SPRINKLER HEADS SHALL BE COORDINATED WITH THE ARCHITECT.

4. FIRE PROTECTION CONTRACTOR SHALL PROVIDE HYDRAULIC CALCULATIONS. HYDRAULIC CALCULATIONS SHALL INCLUDE A SAFETY FACTOR OF (10 %). COMBINED INSIDE AND OUTSIDE HOSE STREAM ALLOWANCE FOR HYDRAULIC CALCULATIONS SHALL BE [100] [250] GPM.

5. THE CONTENT OF THESE DRAWINGS IS INTENDED TO SATISFY THE BUILDING CODE REQUIREMENTS FOR CONSTRUCTION DOCUMENTS. WHEN STAMPED AND SEALED BY THE ENGINEER OF RECORD, THEY ARE INTENDED TO BE USED AS PART OF THE BUILDING PERMIT APPLICATION ONLY.

6. FIRE SUPPRESSION SYSTEM SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW AND APPROVED PRIOR TO CONSTRUCTION. PROVIDE A COMPLETE SHOP DRAWING SUBMITTAL INCLUSIVE OF ALL INFORMATION REQUIRED BY STATE BUILDING CODE, NFPA 13 AND THE CONSTRUCTION DOCUMENTS.

7. PREPARE A COMPLETE RECORD SUBMITTAL INCLUSIVE OF ALL FIELD CHANGES AND ALL INFORMATION REQUIRED BY THE STATE BUILDING CODE AND CONSTRUCTION DOCUMENTS.

8. SHOP DRAWINGS AND RECORD DRAWING SUBMITTALS SHALL BE PREPARED BY THE CONTRACTORS QUALIFIED DESIGNER AND SHALL INDICATE THE DESIGNER'S NICET CERTIFICATION NUMBER OR PROFESSIONAL ENGINEERING SEAL AND SIGNATURE.

9. THE ENGINEER OF RECORD WILL NOT SIGN AND SEAL SHOP DRAWINGS OR RECORD DRAWINGS PREPARED BY THE CONTRACTOR. WHERE THE AUTHORITY HAVING JURISDICTION REQUIRES SHOP DRAWING OR RECORD DRAWING SUBMITTALS TO BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, THE SUBMITTALS SHALL BE PREPARED BY A QUALIFIED PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR.

10. THE SHOP DRAWINGS, SUPPLEMENTAL CALCULATIONS AND MATERIAL SUBMITTALS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO SUBMITTAL TO THE STATE DIVISION OF ENGINEERING AND BUILDINGS.

11. INSTALLATION OF SPRINKLERS SHALL BE BASED ON THE DESIGN CRITERIA BELOW

SPRINKLER SYSTEM DESIGN CRITERIA - NFPA 13				
AREA	OCCUPANCY CLASSIFICATION	DENSITY (GPM/SF)	AREA OF APPLICATION (SF)	MAX. AREA PER SPRINKLER (SF)
LOBBY	LIGHT HAZARD	0.10	1500	225
MECH/ELEC ROOM	ORDINARY HAZARD I	0.15	1500	130

- FIRE PROTECTION DEMOLITION NOTES
1. THE FIRE PROTECTION CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING SYSTEM AND CONDITIONS IN AREAS OF RENOVATION.

2. ALL EXISTING PIPING AND EQUIPMENT SHOWN HAS BEEN TAKEN FROM THE BEST AVAILABLE EXISTING INFORMATION. THE DRAWINGS ARE DIAGRAMMATIC AND ALL PIPING AND DEVICES MAY NOT BE SHOWN.

3. ALL PIPING TO BE REMOVED SHALL BE REMOVED COMPLETELY OR CAPPED AS SHOWN WITHOUT LEAVING ANY DEAD ENDED PIPING OR ABANDONED PIPING.

4. NO FIRE PROTECTION EQUIPMENT OR DEVICES THAT HAVE BEEN DISCONNECTED OR ABANDONED SHALL REMAIN.

5. ANY SYSTEM OR EQUIPMENT TO REMAIN ACTIVE DURING RENOVATION SHALL BE KEPT IN OPERATION BY PROVIDING TEMPORARY CONNECTIONS AS REQUIRED UNTIL NEW SYSTEMS ARE INSTALLED AND OPERATIONAL.

6. ALL SERVICE INTERRUPTIONS SHALL BE COORDINATED WITH THE BUILDING MANAGEMENT IN ADVANCE. THE FIRE MARSHALL MUST BE CONTACTED IN ADVANCE PRIOR TO COMMENCEMENT OF ANY WORK.

7. THE FIRE MARSHALL AND OR THE INSURANCE UNDERWRITER SHALL BE CONTACTED TO REVIEW AND APPROVE THE EXTENT OR PHASING OF THE FIRE PROTECTION DEMOLITION IN ORDER TO PROTECT THE OCCUPANTS AND PROPERTY. THESE DOCUMENTS DO NOT ADDRESS THE PHASING OF THE SYSTEM REMOVAL. ONLY THE EXTENT.

8. THE FIRE PROTECTION CONTRACTOR SHALL ALSO REVIEW THE ARCHITECTURAL DEMOLITION DRAWINGS AS PART OF THIS CONTRACT FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

9. CONTRACTOR TO VERIFY IN FIELD THE SIZE AND LOCATION OF FIRE PROTECTION PIPING AND TO REPORT ANY VARIANCES TO THE ARCH/ENGINEER FOR INCLUSION IN THE DRAWINGS.

PIPING LEGEND	
SYMBOL	DESCRIPTION
	SPRINKLER MAIN (DRY)
	SPRINKLER MAIN (WET)
	PIPE RISE
	PIPE DROP
	PIPE TEE TOWARDS (UP IN PLAN)
	PIPE TEE AWAY (DOWN IN PLAN)
	PIPE DROP AND RUN
	DIRECTION OF FLOW
	BLIND FLANGE
	END CAP
	REDUCER (ECCENTRIC)
	REDUCER (CONCENTRIC)
	FLEXIBLE CONNECTION

DATE:	09/01/2022
DRAWN BY:	CLB
SCALE:	As indicated
REVIEWED BY:	DSL
PROJECT NO.	2021-091A

REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR BID
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FIRE PROTECTION ABBREVIATIONS, NOTES AND SYMBOLS

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
WASHINGTON ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706



21.00.00 - GENERAL

- A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
- B. THESE SPECIFICATIONS ARE APPLICABLE TO ALL PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS UNLESS NOTED OTHERWISE. REVIEW THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING DRAWINGS FOR NOTES, DIMENSIONS, ETC., AND COORDINATE WITH OTHER TRADES INVOLVED.
- C. DESCRIPTION
- THIS PROJECT COMPRISES ALTERATIONS AND RENOVATIONS TO THE EXISTING BUILDING. THE EXISTING BUILDING IS CURRENTLY OCCUPIED AND THE PROJECT SHALL PROCEED IN A MANNER THAT MINIMIZES ANY INCONVENIENCE TO THE BUILDING OCCUPANTS.
 - SCOPE OF WORK CONSISTS OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS AND WITHOUT LIMITING GENERALITY THEREOF CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTS, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL WORK AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN.
- D. DEFINITIONS: THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT
- FURNISH: THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS"
 - INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING "UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, RIGGING, STAGING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."
 - PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."
 - REMOVE: THE TERM "REMOVE" MEANS TO DISCONNECT FROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."
 - SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND/OR METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT."
- E. DRAWINGS
- DRAWINGS ARE DIAGRAMMATIC. THE FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. THOUGH SOME OFFSETS & TRANSITIONS MAY BE SHOWN IN PIPING & SHEET METAL TO HELP INDICATE THE PHYSICAL RELATIONSHIP BETWEEN THEM, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL PIPING & SHEET METAL OFFSETS & TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE WORK AND PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.
- F. CODES AND STANDARDS: WORK SHALL CONFORM TO THE CURRENT EDITIONS OF THE FOLLOWING:
- NFPA 13 - INSTALLATION OF SPRINKLER SYSTEMS.
 - NFPA 13R - STANDARD FOR INSTALLATION OF SPRINKLER SYSTEMS IN RESIDENTIAL OCCUPANCIES UP TO AND INCLUDING FOUR STORIES IN HEIGHT.
 - NFPA STANDARD 14 - STANDARD FOR THE INSTALLATION OF STANDPIPE AND HOSE SYSTEMS.
 - NFPA 24 - INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES.
 - STATE BUILDING AND FIRE CODES.
 - LOCAL AUTHORITIES HAVING JURISDICTION.
- G. PERMITS AND FEES:
- THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL GOVERNMENT AND STATE SALES TAXES AND FEES WHERE APPLICABLE, AND OTHER COSTS, INCLUDING UTILITY CONNECTIONS OR EXTENSIONS IN CONNECTION WITH THE WORK. FILE ALL NECESSARY DRAWINGS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AND STATE DEPARTMENTS HAVING JURISDICTION. OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER A COPY TO THE OWNER AND ENGINEER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.
- H. EXISTING SYSTEMS AND EQUIPMENT
- EXISTING TO BE REUSED/RELOCATED EQUIPMENT: REPORT ANY EXISTING EQUIPMENT DEFICIENCIES TO THE OWNER AND THE ARCHITECT AND/OR ENGINEER.
 - CONNECT WORK TO VARIOUS EXISTING SYSTEMS AS INDICATED ON THE DRAWINGS. WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM CONDITIONS. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED AS WELL AS WITH EXISTING SYSTEMS, THE STRUCTURE, AND OTHER OBSTRUCTIONS.
- I. SURVEY AND MEASUREMENTS
- THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, SHALL BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITION OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS.
 - DO NOT SCALE DRAWINGS. SCALE INDICATED ON DRAWINGS IS FOR ESTABLISHING REFERENCE POINTS ONLY. ACTUAL FIELD CONDITIONS SHALL GOVERN ALL DIMENSIONS.
 - PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCES AND ACCESS IS ALLOWED TO INSTALL THE COMPONENTS. ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER RIGGING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE.
 - CONTRACTORS SHALL VERIFY, LAYOUT AND BE RESPONSIBLE FOR ALL MEASUREMENTS OF ALL EXISTING CONDITIONS BEFORE COMMENCING WORK AND SHALL NOTIFY ARCHITECT AND/OR ENGINEER IF A CONDITION EXISTS THAT PREVENTS THE CONTRACTOR FROM ACCOMPLISHING THE INTENT OF THE DRAWINGS.
- J. SUBMITTALS AND SHOP DRAWINGS
- SUBMIT FOR REVIEW, ELECTRONIC SHOP DRAWINGS IN SEARCHABLE PDF FORMAT FOR THE FOLLOWING.
 - SUBMITTAL DATA FOR ALL MATERIAL AND EQUIPMENT. CLEARLY IDENTIFY DEVIATIONS OF THE SUBMITTED PRODUCTS FROM THE DESIGN.
 - SHOP DRAWINGS: DRAWN TO ACCURATE SCALE OF 1/4"=1'-0". HIGHLIGHT, ENCIRCLE, OR OTHERWISE INDICATE DEVIATIONS FROM THE CONTRACT DOCUMENTS. DO NOT REPRODUCE CONTRACT DOCUMENTS OR COPY STANDARD INFORMATION AS THE BASIS OF SHOP DRAWINGS. STANDARD INFORMATION PREPARED WITHOUT SPECIFIC REFERENCE TO THE PROJECT IS NOT CONSIDERED SHOP DRAWINGS.
 - HYDRAULIC CALCULATIONS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13.
 - DO NOT USE SHOP DRAWINGS WITHOUT AN APPROPRIATE FINAL STAMP INDICATING ACTION TAKEN IN CONNECTION WITH CONSTRUCTION.
 - DO NOT ORDER ANY MATERIALS OR EQUIPMENT PRIOR TO RECEIVING FINAL APPROVED SUBMITTALS.
 - SCHEDULE AT LEAST TEN WORKING DAYS EXCLUSIVE OF TRANSMITTAL TIME, FOR SUBMITTAL REVIEW.
- K. AS-BUILT DRAWINGS
- A. MAINTAIN ONE SET OF PRINTS ON THE SITE AND NOTE ALL CHANGES OR DEVIATIONS FROM THE ORIGINAL DESIGN THEREON. AT THE COMPLETION OF THE PROJECT, INCORPORATE ALL CHANGES INTO RECORD AS-BUILT DRAWINGS IN ELECTRONIC FORMAT AND SUBMIT FOR APPROVAL.
- L. OPERATION AND MAINTENANCE
- UPON COMPLETION OF ALL WORK AND TESTS, THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNERS REPRESENTATIVE IN THE OPERATION, ADJUSTMENT AND MAINTENANCE OF ALL EQUIPMENT FURNISHED. THE CONTRACTOR SHALL GIVE AT LEAST SEVEN (7) DAYS NOTICE TO THE OWNER AND THE ENGINEER IN ADVANCE OF THIS PERIOD.
 - THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A COMPLETE OPERATION AND MAINTENANCE MANUAL, BOUND IN BOOKLET FORM. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL HEAVY-DUTY 3-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION AND DESIGNATION PARTITIONS WITH IDENTIFICATION TABS. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER.
 - MAINTENANCE AND INSTRUCTION MANUALS SHALL BE SUBMITTED TO THE OWNER AT THE SAME TIME AS THE SEVEN (7) DAY NOTICE IS GIVEN PRIOR TO THE INSTRUCTION PERIOD.

M. CLEANING

- EQUIPMENT: AFTER COMPLETION OF PROJECT, CLEAN THE EXTERIOR SURFACE OF EQUIPMENT INCLUDED IN THIS SECTION, INCLUDING REMOVAL OF CONCRETE RESIDUE.
 - WORK AREA: AFTER COMPLETION OF PROJECT, REMOVE ALL CONSTRUCTION DEBRIS, TEMPORARY FACILITIES AND EQUIPMENT FROM WORK AREA. CLEAN WORK AREA TO PERMIT OCCUPATION.
- N. GUARANTEE
- GUARANTEE WORK OF THESE CONTRACT DOCUMENTS IN WRITING FOR NOT LESS THAN ONE (1) YEAR FROM DATE OF FINAL NOTICE OF ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPT AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.
- O. MEANS AND METHODS ALL TRADES
- INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SKIDS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.
 - MATERIALS AND EQUIPMENT SHALL BE UL LISTED WHERE STANDARD HAS BEEN ESTABLISHED.
 - CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILINGS. PATCH AND PAINT SURFACES DISTURBED BY WORK UNDER THIS CONTRACT AS REQUIRED TO RESTORE THEM TO THEIR ORIGINAL CONDITION.
 - SCAFFOLDING, RIGGING, HOISTING: THE CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES ANY EQUIPMENT AND APPARATUS FURNISHED UNDER THIS DIVISION. REMOVE SAME FROM PROJECT WHEN NO LONGER REQUIRED.
 - EXCAVATION AND BACKFILLING: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE PROPNATE SIZES, DEPTHS, FILL AND BEDDING REQUIREMENTS AND ANY OTHER EXCAVATION WORK REQUIRED UNDER THESE SPECIFICATIONS
 - WATERPROOFING: WHERE ANY WORK PIERCES WATERPROOFING, INCLUDING WATERPROOF CONCRETE, ROOFS, EXTERIOR WALL AND FLOORS IN WET AREAS, THE METHOD OF INSTALLATION SHALL BE REVIEWED BY THE ENGINEER BEFORE WORK IS DONE. THE CONTRACTOR SHALL FURNISH ALL NECESSARY SLEEVES, CAULKING AND FLASHING REQUIRED TO MAKE OPENINGS ABSOLUTELY WATERTIGHT.
 - PROVIDE FIRESTOPPING AROUND ALL FIRE PROTECTION, PLUMBING, MECHANICAL AND ELECTRICAL PENETRATIONS THROUGH FIRE RATED PARTITIONS. PROVIDE ASBESTOS FREE FIRESTOPPING SYSTEM CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME AND GASES. SYSTEM SHALL BE UL LISTED AND COMPLY WITH ASTM E 814.
 - PROVIDE ACCESS PANELS IN WALLS, FLOORS AND GYPSUM WALL BOARD CEILINGS TO ALLOW ACCESS TO: VALVES AND OTHER APPARATUS AND EQUIPMENT REQUIRING PERIODIC SERVICE AND INSPECTION; NOT ALL ACCESS PANELS ARE INDICATED ON THE PLANS. REVIEW ARCHITECTURAL AND MECHANICAL PLANS TO DETERMINE THE LOCATION AND QUANTITY OF ACCESS PANELS REQUIRED. COORDINATE TYPE AND LOCATION WITH ARCHITECTURAL PLANS.
- 21.05.00 - COMMON WORK RESULTS FOR FIRE SUPPRESSION SYSTEMS
- A. WORKMANSHIP AND QUALIFICATIONS: MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH NFPA AND APPLICABLE LOCAL CODES AND ORDINANCES. THE SPRINKLER CONTRACTOR SHALL BE STATE LICENSED TO INSTALL SPRINKLER SYSTEMS. FIRE PROTECTION DEVICES USED SHALL BE LISTED AND APPROVED BY UNDERWRITERS LABORATORIES (UL) AND/OR FACTORY MUTUAL (FM).
- B. GROOVED JOINT COUPLINGS, FITTINGS, VALVES, AND SPECIALTIES SHALL BE THE PRODUCTS OF A SINGLE MANUFACTURER. GROOVING TOOLS SHALL BE OF THE SAME MANUFACTURER AS THE GROOVED COMPONENTS.
- C. VALVES: SHALL BEAR UL AND/OR FM LABEL OR MARKING. PROVIDE MANUFACTURER'S NAME AND PRESSURE RATING ON VALVE BODY. ITEMS OF SIMILAR CLASS SHALL BE THE PRODUCTS OF THE SAME MANUFACTURER. MANUFACTURERS: KENNEDY VALVE MFG. CO., VICTAULIC, STOCKHAM, NIBCO, WATTS, HAMMOND, MILWAUKEE.
- D. PIPE & FITTINGS (ABOVE GRADE)
- STEEL PIPING: ASTM A53, SCHEDULE 40 SEAMLESS CARBON STEEL. SCHEDULE 10 PIPE SHALL BE ALLOWED FOR PIPE SIZES LARGER THAN 1-1/4" DIAMETER WHEN ROLL GROOVED MECHANICAL COUPLINGS ARE USED.
 - CAST IRON FITTINGS: ANSI/ASME B16.1, FLANGES AND FLANGED FITTINGS, ANSI/ASME B16.4, SCREWED FITTINGS.
 - MALLEABLE IRON FITTINGS: ANSI/ASME B16.3, SCREWED CLASS 300 TYPE. THREADS SHALL CONFORM TO ANSI/ASTM A47.
 - GROOVED MECHANICAL FITTINGS: ANSI A21.10/AWWA C-110 DUCTILE IRON, ASTM A536 GRADE 65-45-12 DUCTILE IRON, ASTM A234 GRADE WPB, OR FACTORY FABRICATED FROM CARBON STEEL PIPE CONFORMING TO ASTM A53, WITH GROOVES OR SHOULDERS DESIGNED TO ACCEPT GROOVED END COUPLINGS. FITTINGS SHALL BE OF THE SAME MANUFACTURER AS THE ADJOINING COUPLINGS.
 - GROOVED MECHANICAL COUPLINGS: ASTM A536 GRADE 65-45-12, DUCTILE IRON HOUSING, LASTOMER GASKET WITH NUTS AND BOLTS TO SECURE ROLL GROOVED PIPE AND FITTINGS.
 - RIGID TYPE COUPLINGS: HOUSINGS CAST WITH OFFSETTING, ANGLE-PATTERN BOLT PADS TO PROVIDE RIGIDITY AND SYSTEM SUPPORT AND HANGING IN ACCORDANCE WITH NFPA-13.
 - 1-1/4" THROUGH 4": FACTORY ASSEMBLED FOR INSTALLATION WITHOUT FIELD DISASSEMBLY, VICTAULIC STYLE 009 EZ.
 - 5" THROUGH 8": VICTAULIC FIRELOCK STYLE 005.
 - 10" AND LARGER: VICTAULIC ZERO-FLEX STYLE 07.
 - FLEXIBLE TYPE COUPLINGS: USE IN LOCATIONS WHERE VIBRATION ATTENUATION AND STRESS RELIEF ARE REQUIRED, AND FOR SEISMIC CONSIDERATIONS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. VICTAULIC STYLE 75.
- E. GASKETS
- WET SYSTEMS: C-SHAPE OR EZ STYLE 009.
- F. JOINTS
- GROOVED MECHANICAL COUPLINGS: ASTM A536 GRADE 65-45-12, DUCTILE IRON HOUSING, FLUSHSEAL OR QUICKVIC ELASTOMER GASKET WITH NUTS AND BOLTS TO SECURE ROLL GROOVED PIPE AND FITTINGS. HOUSINGS CAST WITH OFFSETTING, ANGLE-PATTERN BOLT PADS TO PROVIDE RIGIDITY, AND MANUFACTURED TO CONNECT COPPER TUBING AND FITTINGS WITHOUT FLARING. VICTAULIC STYLE 606 OR STYLE 607 QUICKVIC STAB-ON COUPLINGS.
 - ASTM B32, SOLDER, GRADE 95TA OR ANSI/AWS A5.8 BCUP SILVER BRAZE.
 - CAST IRON: AWWA C151 PIPING WITH AWWA C110 STANDARD THICKNESS FITTINGS AND AWWA C111 RUBBER GASKET JOINTS OR MECHANICAL GROOVED COUPLINGS WITH DUCTILE IRON HOUSING CLAMPS TO END SHAPED COMPOSITION SEALING GASKET, STEEL BOLTS, NUTS, AND WASHERS, GALVANIZED FOR GALVANIZED PIPE.
- G. DRAIN VALVES: COMPRESSION STOP: BRONZE WITH HOSE THREAD NIPPLE AND CAP.
- H. UNIONS & DIELECTRIC CONNECTIONS
- UNIONS FOR PIPE 2" AND UNDER:
 - FERROUS PIPING: 150 PSIG (1034 KPA) MALLEABLE IRON, THREADED.
 - COPPER PIPE: BRONZE, SOLDERED JOINTS.
 - DIELECTRIC CONNECTIONS: WATERWAY FITTING WITH WATER IMPERVIOUS ISOLATION BARRIER, VICTAULIC STYLE 47 OR APPROVED EQUAL.
- I. PIPE HANGERS AND SUPPORTS
- CONFORM TO NFPA 13 AND NFPA 14.
 - HANGERS: MALLEABLE IRON, CARBON STEEL, ADJUSTABLE SWIVEL, SPLIT RING, CARBON STEEL, ADJUSTABLE, CLEVIS.
 - MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS AND HANGER RODS.
 - WALL SUPPORT FOR PIPE SIZES TO 3": CAST IRON HOOK.
 - WALL SUPPORT FOR PIPE SIZES 4" AND OVER: WELDED STEEL BRACKET AND WROUGHT STEEL CLAMP.
 - VERTICAL SUPPORT: STEEL RISER CLAMP [ANGLE RING].
 - FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.

R. GENERAL INSTALLATION REQUIREMENTS FOR PIPE AND FITTINGS

- INSTALL PIPING IN ACCORDANCE WITH NFPA 13 FOR SPRINKLER SYSTEMS, NFPA 14 FOR STANDPIPE AND HOSE SYSTEMS, AND NFPA 24 FOR SERVICE MAINS.
 - PLACE PIPING IN CONCEALED SPACES ABOVE FINISHED CEILINGS UNLESS NOTED OTHERWISE.
 - ROUTE PIPING IN ORDERLY MANNER, PLUMB AND PARALLEL TO BUILDING STRUCTURE. MAINTAIN GRADIENT.
 - INSTALL PIPING TO CONSERVE BUILDING SPACE, TO NOT INTERFERE WITH USE OF SPACE AND OTHER WORK.
 - GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
 - INSTALL PIPE SLEEVE AT PIPING PENETRATIONS THROUGH FOOTINGS, PARTITIONS, WALLS, AND FLOORS. SEAL PIPE AND SLEEVE PENETRATIONS TO MAINTAIN FIRE RESISTANCE EQUIVALENT TO FIRE SEPARATION.
 - INTERFACE SYSTEM WITH BUILDING FIRE ALARM SYSTEM.
 - GROOVED JOINT COUPLINGS AND FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. GROOVED ENDS SHALL BE CLEAN AND FREE FROM IDENTIFICATIONS, PROJECTIONS, AND ROLL MARKS IN THE AREA FROM PIPE END TO GROOVE. GASKETS SHALL BE VERIFIED AS SUITABLE FOR THE INTENDED SERVICE PRIOR TO INSTALLATION. GASKETS SHALL BE MOLDED AND PRODUCED BY THE COUPLING MANUFACTURER. THE GROOVED COUPLING MANUFACTURER'S FACTORY TRAINED REPRESENTATIVE SHALL PROVIDE ON-SITE TRAINING FOR CONTRACTOR'S FIELD PERSONNEL IN THE USE OF GROOVING TOOLS, APPLICATION OF GROOVE, AND INSTALLATION OF GROOVED JOINT PRODUCTS. THE MANUFACTURER'S REPRESENTATIVE SHALL PERIODICALLY VISIT THE JOBSITE AND REVIEW INSTALLATION. CONTRACTOR SHALL REMOVE AND REPLACE ANY JOINTS DEEMED IMPROPERLY INSTALLED.
 - PITCH PIPING AND ARRANGE SYSTEMS TO DRAIN AT LOW POINTS. USE ECCENTRIC REDUCERS TO MAINTAIN TOP OF PIPE LEVEL.
 - PREPARE PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING. WHERE PIPE SUPPORT MEMBERS ARE WELDED TO STRUCTURAL BUILDING FRAMING, SCRAPE, BRUSH CLEAN, AND APPLY ONE COAT OF ZINC RICH PRIMER TO WELDING.
 - DO NOT PENETRATE BUILDING STRUCTURAL MEMBERS UNLESS INDICATED.
 - WHERE MORE THAN ONE PIPING SYSTEM MATERIAL IS SPECIFIED, INSTALL COMPATIBLE SYSTEM COMPONENTS AND JOINTS. INSTALL FLANGES, UNION, AND COUPLINGS AT LOCATIONS REQUIRING SERVICING.
 - DIE CUT THREADED JOINTS WITH FULL CUT STANDARD TAPER PIPE THREADS WITH RED LEAD AND LINSEED OIL OR OTHER NON-TOXIC JOINT COMPOUND APPLIED TO MALE THREADS ONLY.
 - PROVIDE DIELECTRIC FITTINGS WHENEVER JOINING TWO DISSIMILAR METALS.
 - PROVIDE SURGE RESTRAINERS ON ALL END OF BRANCHES AND ARM OVERS IN EXCESS OF 12".
- S. GENERAL INSTALLATION REQUIREMENTS FOR PIPE HANGERS AND SUPPORTS
- INSTALL IN ACCORDANCE WITH NFPA 13 AND NFPA 14.
 - INSTALL HANGERS TO WITH MINIMUM 1/2" SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK.
 - PLACE HANGERS WITHIN 12" OF EACH HORIZONTAL ELBOW.
 - USE HANGERS WITH 1-1/2" MINIMUM VERTICAL ADJUSTMENT. DESIGN HANGERS FOR PIPE MOVEMENT WITHOUT DISENGAGEMENT OF SUPPORTED PIPE.
 - SUPPORT VERTICAL PIPING AT EVERY FLOOR. SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.
 - WHERE INSTALLING SEVERAL PIPES IN PARALLEL AND AT SAME ELEVATION, PROVIDE MULTIPLE OR TRAPEZE HANGERS.
 - INSTALL COPPER PLATED HANGERS AND SUPPORTS FOR COPPER PIPING.
 - PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS. HANGERS AND SUPPORTS LOCATED IN CRAWL, SPACES, PIPE SHAFTS, AND SUSPENDED CEILING SPACES ARE NOT CONSIDERED EXPOSED.
- T. TESTING: PRESSURE TEST THE ABOVE GROUND SYSTEM IN ACCORDANCE TO NFPA 13. TESTING SHALL BE COMPLETED PRIOR TO PERMANENT SEALING OF WALLS AND PARTITIONS. PRESSURE TEST BELOW GRADE PIPING IN ACCORDANCE WITH NFPA 24.

21.13.10 - FIRE-SUPPRESSION SPRINKLER SYSTEMS

- A. SYSTEM DESCRIPTION (EXISTING BUILDING)
- PROVIDE A WET PIPE SYSTEM HYDRAULICALLY DESIGNED IN ACCORDANCE WITH NFPA 13 AND ALL REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION, TO PROVIDE COVERAGE FOR SPACES INDICATED ON THE DRAWINGS.
 - PROVIDE ALTERATIONS AND RENOVATIONS TO THE EXISTING SPRINKLER SYSTEM. FIELD VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING SHOP DRAWINGS INCLUDING BUT NOT LIMITED TO, LOCATION OF THE EXISTING SPRINKLER HEADS, LOCATIONS AND SIZES OF EXISTING SPRINKLER PIPING, AVAILABLE STATIC PRESSURE, RESIDUAL PRESSURE, AND FLOW AT THE BASE OF THE RISER. MODIFY SPRINKLER PIPING AS REQUIRED FOR THE LAYOUT OF NEW SPRINKLER HEADS, INCLUDING MODIFICATIONS TO EXISTING PIPING.
 - HYDRAULIC DATA AND WATER SUPPLY INFORMATION PROVIDED ON THE PLANS FOR REFERENCE ONLY. CONTRACTOR SHALL PERFORM A WATER FLOW TEST. RESULTS OF THE CONTRACTORS WATER FLOW TEST SHALL BE USED FOR PREPARING HYDRAULIC CALCULATIONS.
 - INTERFACE SYSTEM WITH BUILDING FIRE ALARM SYSTEM.
 - THE SPRINKLER LOCATIONS AND PIPING ARRANGEMENTS INDICATED ON THE CONTRACT DOCUMENTS ARE DIAGRAMMATIC.
 - SPRINKLER LOCATIONS INDICATED ARE FOR STANDARD COVERAGE SPRINKLERS, MAXIMUM 225 SQUARE FEET PER SPRINKLER FOR LIGHT HAZARD AND 130 SQUARE FEET PER SPRINKLER FOR ORDINARY HAZARD. EXTENDED COVERAGE SPRINKLERS SHALL NOT BE INSTALLED IN ANY LOCATIONS UNLESS SPECIFICALLY INDICATED.
- B. SUBMITTALS
- SUBMIT FIRE PROTECTIONS SHOP DRAWINGS DRAWN TO A MINIMUM SCALE OF 1/4"=1'-0". DRAWINGS SHALL INCLUDE DETAILED PIPE LAYOUT, PIPE MATERIALS USED, JOINING METHODS, HANGERS AND SUPPORTS, FLOOR AND WALL PENETRATION SEALS, CONTROLS, AND COMPONENTS AND ACCESSORIES.
 - SUBMIT HYDRAULIC CALCULATIONS PREPARED IN ACCORDANCE WITH NFPA 13.
 - SHOP DRAWINGS AND HYDRAULIC CALCULATIONS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED.
 - PRODUCT DATA: SUBMIT DATA ON SPRINKLERS, VALVES, AND SPECIALTIES.
 - AFTER REVIEW BY THE OWNER'S REPRESENTATIVE, SUBMIT SPRINKLER LAYOUT SHOP DRAWINGS, PRODUCT DATA, AND HYDRAULIC CALCULATIONS TO THE AUTHORITY HAVING JURISDICTION, FIRE MARSHALL, AND OWNER'S INSURANCE UNDERWRITER FOR APPROVAL. SUBMIT PROOF OF APPROVAL FROM SUCH AUTHORITIES/ORGANIZATIONS.
- C. SPRINKLERS
- MANUFACTURERS: VIKING, TYCO, VICTAULIC, GRINNELL CORP., RELIABLE SPRINKLER CORP.
 - SPRINKLERS SHALL BE ADJUSTABLE, GLASS BULB, AUTOMATIC SPRINKLERS WITH 1/2" ORIFICE AND 5.6 K-FACTOR UNLESS OTHERWISE INDICATED. TYPE OF SPRINKLER HEAD SHALL BE AS INDICATED ON THE PLANS AND IN ACCORDANCE WITH THE FOLLOWING.
 - SPRINKLER BODIES SHALL BE DIE CAST BRASS, WITH HEX SHAPED WRENCH BOSS INTEGRALLY CAST INTO THE SPRINKLER BODY TO REDUCE THE RISK OF DAMAGE DURING INSTALLATION.
 - UNLESS OTHERWISE INDICATED, ORDINARY TEMPERATURE RATED SPRINKLER HEADS SHALL BE PROVIDED.
 - WHERE SPRINKLERS WILL BE INSTALLED IN CLOSE PROXIMITY TO HEAT SOURCES AND SPECIAL LOCATIONS, AS IDENTIFIED IN NFPA 13, TEMPERATURE RATINGS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13
 - WHERE PLANS CALL FOR EXTENDED COVERAGE SPRINKLER HEADS, COORDINATE COVERAGE REQUIREMENTS WITH REQUIRED PRESSURE AND K-FACTOR.
 - SPARE SPRINKLERS: FURNISH SPARE AUTOMATIC SPRINKLERS IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13 FOR STOCK OF EXTRA SPRINKLERS. THE SPRINKLERS SHALL BE REPRESENTATIVE OF, AND IN PROPORTION TO, THE NUMBER OF EACH TYPE AND TEMPERATURE RATING OF THE SPRINKLERS INSTALLED. PROVIDE TWO SPECIAL SPRINKLER WRENCHES, OR MINIMUM ONE WRENCH FOR EACH CONTAINER OR SPRINKLER BOX, WHICHEVER IS GREATER.
 - IN AREAS WHERE SPRINKLERS ARE SUBJECT TO PHYSICAL DAMAGE, PROVIDE SPRINKLER GUARD ASSEMBLY OVER HEAD, FINISH TO MATCH SPRINKLER FINISH. THIS SHALL INCLUDE BUT NOT BE LIMITED TO SPRINKLERS IN ELEVATOR SHAFTS, UNDER LOWER RAKES OF STAIRWAYS, IN ELECTRICAL ROOMS, BOILER ROOMS AND OTHER MECHANICAL ROOMS, 7'-0" OR LESS ABOVE FINISHED FLOORS, AND IN GYMNASIUM/FITNESS CENTER AREAS.
- D. GENERAL INSTALLATION REQUIREMENTS FOR SPRINKLER SYSTEMS
- INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - INSTALL FIRE PROTECTION SYSTEMS IN ACCORDANCE WITH NFPA 13, NFPA 13D, NFPA 13R, AND NFPA 24 FOR SERVICE MAINS.
 - MINIMIZE SHUT-DOWNS OF EXISTING WATER SUPPLIES. WORK SHALL BE COMPLETE BEFORE MAKING THE FINAL CONNECTIONS TO THE EXISTING WATER SUPPLIES. NOTIFY THE OWNER'S REPRESENTATIVE BEFORE AFFECTING THE OPERATION OF ANY EXISTING FIRE PROTECTION EQUIPMENT.
 - LOCATE FIRE DEPARTMENT CONNECTION WITH SUFFICIENT CLEARANCE FROM WALLS, OBSTRUCTIONS, ETC., TO ALLOW FULL SWING OF FIRE DEPARTMENT WRENCH HANDLE. COORDINATE THE LOCATION OF THE FIRE DEPARTMENT CONNECTION WITH THE LOCAL FIRE OFFICIALS.
 - SPRINKLERS LOCATED IN FULL SIZE CEILING TILES SHALL BE CENTERED IN THE TILE. PROVIDE PIPING OFFSETS AS REQUIRED.
 - SPRINKLER BULB PROTECTOR SHALL REMAIN IN PLACE UNTIL THE SPRINKLER IS COMPLETELY INSTALLED. REMOVE THE BULB PROTECTOR BY HAND AFTER INSTALLATION AND BEFORE THE SYSTEM IS PLACED IN SERVICE.
 - COORDINATE FLOW SWITCHES, TAMPER SWITCHES, AND ALL OTHER SPRINKLER DEVICES WITH THE FIRE ALARM SYSTEM.
 - PROVIDE AND APPLY SIGNS TO CONTROL, DRAIN, TEST AND ALARM VALVES TO IDENTIFY THEIR PURPOSE AND FUNCTION.

DATE:	09/01/2022
DRAWN BY:	CLB
SCALE:	1/2" = 1'-0"
REVIEWED BY:	DSL
PROJECT NO.	2021-0091A

REVISIONS	
NO.	DATE
	11/28/22
DESCRIPTION	
ISSUED FOR BID	

FIRE PROTECTION SPECIFICATIONS

STATE PROJECT NO. 151-0304CV

ELEVATOR ADDITION

WASHINGTON ELEMENTARY SCHOOL

685 BALDWIN STREET
WATERBURY, CT 06706

CLS

Consulting Engineering Services, Inc.

811 Middle Street
Middletown CT 06457
860.432.1862
cesinfo.com

CES #20221178.00

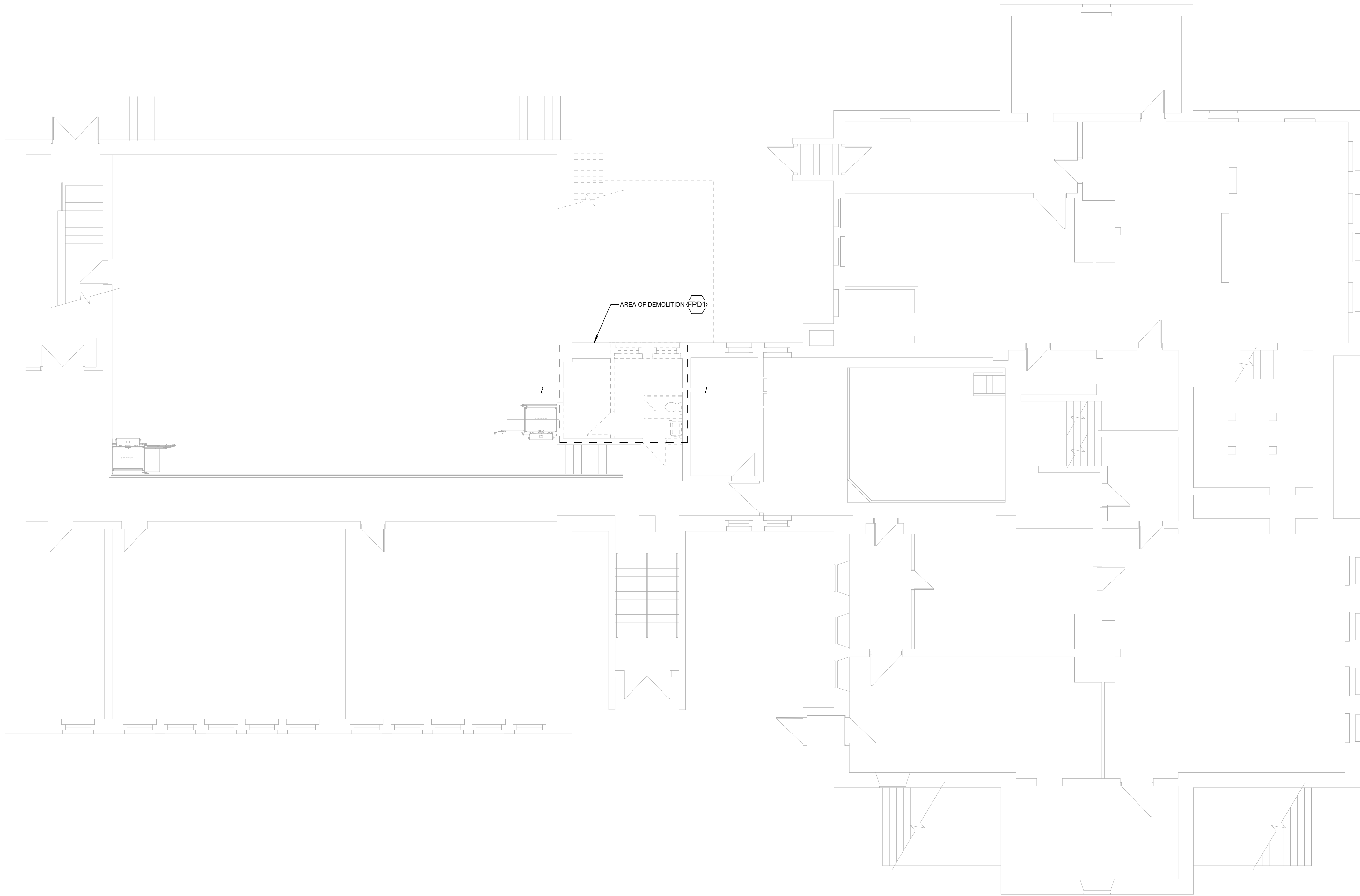
FRIAR

21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.

FP0.1

1 0 - FIRE PROTECTION BASEMENT FLOOR DEMOLITION PLAN
1/8" = 1'-0"




KEYNOTES - FIRE PROTECTION DEMOLITION	
Key Value	Keynote Text
FPD1	WITHIN AREA SHOWN REMOVE EXISTING REMOVE ALL SPRINKLERS. REMOVE ALL BRANCH PIPING BACK TO MAIN AND CAP FOR FUTURE USE.

REVISIONS	
NO.	DATE
	11/28/22
DESCRIPTION	
ISSUED FOR BID	

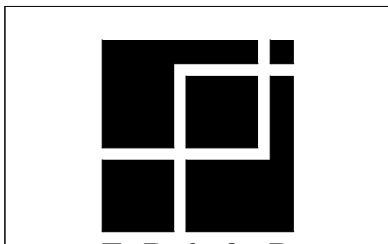
FIRE PROTECTION BASEMENT DEMOLITION PLAN	
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STATE PROJECT NO. 151-0304CV ELEVATOR ADDITION WASHINGTON ELEMENTARY SCHOOL 685 BALDWIN STREET WATERBURY, CT 06706



Consulting Engineering
Services, Inc.
811 Middle Street
Middletown CT 06457
860.432.1662
cesinc.com
CES #2022178.00



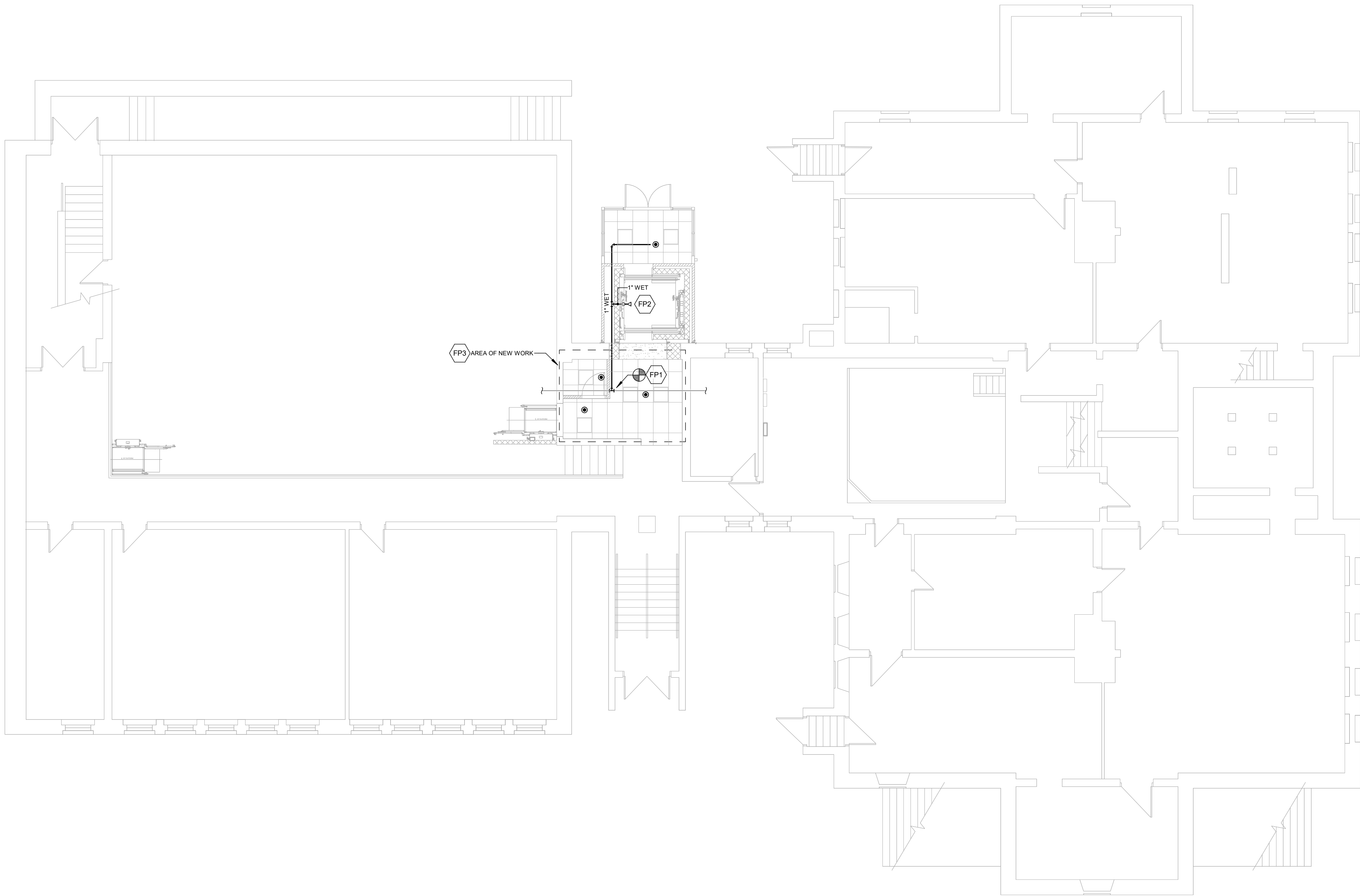


FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
FPD1.0

DATE:	09/01/2022
DRAWN BY:	CLB
SCALE:	1/8" = 1'-0"
REVIEWED BY:	DSL
PROJECT NO.	2021-091A

1 FIRE PROTECTION BASEMENT FLOOR PLAN
1/8" = 1'-0"

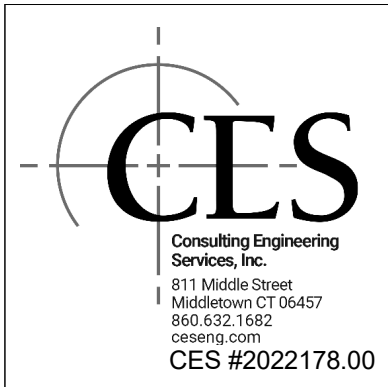


KEYNOTES - FIRE PROTECTION	
Key Value	Keynote Text
FP1	NEW 1" SPRINKLER PIPING BRANCH TO SERVE VESTIBULE. CONNECT TO EXISTING SPRINKLER MAIN.
FP2	SIDEWALL SPRAY SPRINKLER TO BE INSTALLED IN ELEVATOR PIT. SPRINKLER HEAD TO BE 1'-6" ABOVE FLOOR OF ELEVATOR PIT.
FP3	CONNECT NEW SPRINKLER HEADS TO EXISTING SYSTEM. WHERE APPLICABLE RE-USE EXISTING TAPS FROM SPRINKLER OR PROVIDE NEW BRANCH PIPING AND FITTINGS.

REVISIONS	
NO.	DATE
	11/29/22
DESCRIPTION	
ISSUED FOR BID	

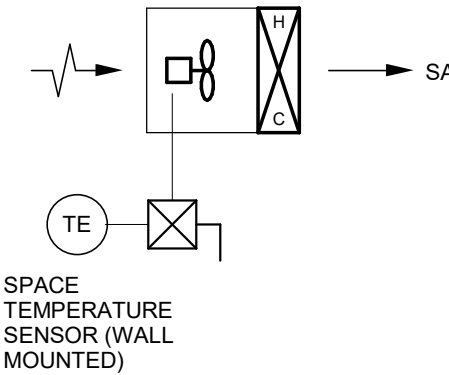
FIRE PROTECTION BASEMENT
PLAN

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706



SHEET NO.
FP1.0

ELECTRIC UNIT HEATER SCHEDULE																	
GENERAL				PERFORMANCE						ELECTRICAL			REMARKS				
TAG	MANUFACTURER	MODEL	LOCATION	KW	STAGES	MBH	CFM	FAN MOTOR RPM	LAT (°F)	AMPS	VOLTAGE	PHASE	TYPE	RATINGS	FEATURES	INSTALL	
UH-01	QMARK	CDF-548	ELEVATOR VESTIBULE	3	1	10.2	300	1400	92	14.4	208	3	1	1	ALL	ALL	
REMARKS - TYPE			REMARKS - RATINGS			REMARKS - FEATURES			REMARKS - INSTALL								
1. RECESS CEILING MOUNTED			1. LAT AT 60°F INLET AIR TEMPERATURE			1. DISCONNECT SWITCH 2. INTEGRAL SINGLE STAGE THERMOSTAT 3. 120 VOLT CONTROL 4. BUILT-IN FAN AUTO-ON SWITCH 5. MANUAL RESET OVERTEMPERATURE CUT-OUT			1. CEILING MOUNTED, COORDINATE LOCATION WITH ARCHITECTURAL CEILING GRID. 2. 120 VOLT SINGLE STAGE WALL MOUNTED THERMOSTAT								



SEQUENCE OF OPERATION

GENERAL

1. PROVIDE STAND-ALONE CONTROLS. PROVIDE LINE-VOLTAGE THERMOSTAT CONTROLS. REFER TO ELECTRICAL DRAWINGS.

OPERATION

1. IF THE SPACE TEMPERATURE DROPS BELOW SETPOINT THE UNIT SHALL ACTIVATE. IF THE SPACE TEMPERATURE SETPOINT IS SATISFIED, THE UNIT SHALL DEACTIVATE.
2. UNIT'S BUILT-IN TEMPERATURE HIGH-LIMIT CUT-OFF AUTOMATICALLY SHUTS OFF CURRENT IN THE EVENT OF OVERHEATING AND REACTIVATES UNIT WHEN TEMPERATURE RETURNS TO NORMAL.

1 UNIT HEATER - ELECTRIC NTS

DEMOLITION NOTES

DEMOLITION NOTES

1. SITE VISIT: THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. BEFORE SUBMITTING BID, VISIT AND CAREFULLY EXAMINE SITE TO IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. NO EXTRA PAYMENT WILL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVER.
2. PREPARATORY WORK: BEFORE STARTING WORK IN A PARTICULAR AREA OF THE PROJECT, VISIT SITE AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED INCLUDING PREPARATORY WORK DONE UNDER OTHER SECTIONS OR CONTRACTS BY OWNER. REPORT CONDITIONS THAT MIGHT AFFECT WORK ADVERSELY IN WRITING TO ARCHITECT AND OWNER. DO NOT PROCEED WITH WORK UNTIL DEFECTS HAVE BEEN CORRECTED AND CONDITIONS ARE SATISFACTORY. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS AND PREPARATORY WORK.
3. PHASING: DEMOLITION WORK SHALL COMPLY WITH THE PHASING REQUIREMENTS OF THE PROJECT AND BE COORDINATED WITH THE OWNER, ARCHITECT, CM AND ENGINEER. NO REMOVALS SHALL BE IMPLEMENTED WITHOUT A THOROUGH UNDERSTANDING OF THE PHASING REQUIREMENTS.
4. ABANDONING OF DUCTWORK, PIPING OR EQUIPMENT IN PLACE WITHIN SCOPE AREA IS PROHIBITED.
5. PROVIDE 2 WEEKS NOTICE TO OWNER FOR SHUT DOWN OF ANY SERVICES AND/OR SYSTEMS.
6. COORDINATE EXISTING EQUIPMENT AND MATERIALS THAT SHALL REMAIN THE PROPERTY OF THE OWNER. ITEMS OF VALUE WHICH ARE NOT DIRECTED TO BE RETURNED TO THE OWNER, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM SITE AND LEGALLY DISPOSED OF. STORAGE OR SALE OF ITEMS ON THE PROJECT SITE IS PROHIBITED.
7. PROTECTION: ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
8. UTILITIES: MAINTAIN ALL UTILITIES EXCEPT THOSE REQUIRING REMOVAL OR RELOCATION. KEEP UTILITIES IN SERVICE AND PROTECT FROM DAMAGE. DO NOT INTERRUPT UTILITIES SERVING OCCUPIED AREAS WITHOUT FIRST OBTAINING PERMISSION FROM THE OWNER IN WRITING. PROVIDE TEMPORARY SERVICES AS REQUIRED.
9. INFORMATION CONTAINED ON THESE DRAWINGS WAS OBTAINED FROM ARCHIVED DRAWINGS AND SITE VISITS. DRAWINGS ARE DIAGRAMMATIC ONLY AND REFLECT OVERALL SYSTEM REMOVAL. NOT EVERY ITEM OR COMPONENT OF A SYSTEM IS SHOWN. PROVIDE COMPLETE REMOVAL OF ASSOCIATED ANCHILLARY PIPES, HANGERS, VALVES AND ACCESSORIES SERVING SYSTEM SHOWN.
10. DEMOLITION WORK SHALL COMPLY WITH OSHA, EPA AND APPLICABLE STATE AND LOCAL CODES. COMPLY WITH HAULING AND DISPOSAL REGULATIONS.
11. REFER TO SPECIFICATIONS FOR ADDITIONAL DEMOLITION REQUIREMENTS AND PROCEDURES.

PRE-DEMO TESTING, ADJUSTING AND BALANCING (TAB)

1. CONFIRM SUPPLY, RETURN AND EXHAUST SYSTEM AIRFLOW CAPACITY THROUGH PRE-CONSTRUCTION TESTING AND BALANCING OF SYSTEMS AFFECTED BY THE WORK. REPORTS SHALL INCLUDE PIPE SIZE, FLOW RATE, SUPPLY PRESSURE AND RETURN PRESSURE.
2. CONFIRM HYDRONIC SYSTEM CAPACITY THROUGH PRE-CONSTRUCTION TESTING AND BALANCING REPORTS OF SYSTEMS AFFECTED BY THE WORK. REPORTS SHALL INCLUDE PIPE SIZE, FLOW RATE, SUPPLY PRESSURE AND RETURN PRESSURE.
3. CONFIRM STEAM PIPING CAPACITY THROUGH PRE-CONSTRUCTION TESTING AND BALANCING REPORTS OF SYSTEMS AFFECTED BY THE WORK. REPORTS SHALL INCLUDE PIPE SIZE AND STEAM PRESSURE (PSIG).

GENERAL NOTES

GENERAL

1. GENERAL NOTES, SYMBOLS AND DETAILS ARE APPLICABLE TO ALL DRAWINGS WITHIN DIVISION 23.
2. DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO INDICATE CAPACITY, SIZE, APPROXIMATE LOCATION AND GENERAL ARRANGEMENT. DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.
3. COORDINATE ROOF AND WALL PENETRATIONS WITH WORK OF OTHER SECTIONS AND WITH FLASHING REQUIREMENTS. COORDINATE SLAB PENETRATIONS WITH WORK OF OTHER SECTIONS.
4. RUN DUCTS AND PIPING CONCEALED, UNLESS SPECIFIED OTHERWISE OR AS APPROVED BY THE ARCHITECT.
5. INSTALL SENSORS (TEMPERATURE, HUMIDITY, CO2, THERMOSTATS) AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY ARCHITECT. MOUNTING HEIGHT AFF SHALL COMPLY WITH ADA AND SHALL BE MOUNTED LEVEL WITH ADJACENT SWITCHES (IE LIGHT SWITCHES).
6. COORDINATE WORK OF THIS SECTION WITH THAT OF OTHER SECTIONS AND WITH ALL TRADES INVOLVED. PROVIDE OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS.
7. NOT ALL ACCESS DOORS HAVE BEEN SHOWN ON THE PLANS FOR CLARITY. PROVIDE ACCESS PANELS THROUGH BUILDING ASSEMBLIES TO SERVICE AND MAINTAIN EQUIPMENT UNLESS SUCH EQUIPMENT IS INSTALLED IN EXPOSED LOCATIONS OR ABOVE LAY-IN CEILINGS. COORDINATE THE LOCATION OF ACCESS DOORS AND PANELS AND VERIFY THE EXACT QUANTITY, SIZE, AND LOCATIONS AFTER THE SYSTEMS AND EQUIPMENT REQUIRING ACCESS HAVE BEEN INSTALLED AND PRIOR TO THE CLOSURE OF THE AFFECTED CEILINGS AND BUILDING ASSEMBLIES. OBTAIN APPROVAL FOR ALL PANEL LOCATIONS FROM ARCHITECT.
8. AT SUBSTANTIAL COMPLETION, THE FOLLOWING ITEMS, NEW OR EXISTING, SHALL BE FULLY AND REASONABLY ACCESSIBLE: HVAC CONTROL BOXES, JUNCTION BOXES, VALVES, DDC CONTROL BOXES, ELECTRICAL PANELS, FILTERS, BELTS, WATER COILS, DISCONNECT SWITCHES AND ELEMENTS OF EQUIPMENT REQUIRING MAINTENANCE. "FULLY AND REASONABLY ACCESSIBLE" SHALL BE DEFINED AS NATIONAL ELECTRIC CODE REQUIRED CLEARANCE FOR POWERED EQUIPMENT AND CAPABLE OF BEING ACCESSED OR SERVICED WITHOUT REMOVING, MODIFYING OR DISTORTING OTHER COMPONENTS OF THE WORK. PROVIDE MANUFACTURER'S RECOMMENDED CLEARANCE FOR ALL EQUIPMENT.
9. SUPPORT EQUIPMENT, PIPING AND DUCTWORK FROM BUILDING STRUCTURE OR WITH STEEL SUPPORTS AND PLATFORMS AS REQUIRED. PROVIDE VIBRATION ISOLATION FOR ROTATING EQUIPMENT, DUCTWORK AND PIPING IN ACCORDANCE WITH THE SPECIFICATIONS.
10. CONTROL WIRING METHODS SHALL COMPLY WITH NEC, AND DIVISION 26 SPECIFICATIONS.
11. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S DRAWINGS. VERIFY AND PROVIDE FITTINGS TO TRANSITION TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.

CONTROLS GENERAL NOTES

1. GENERAL

- A. SEQUENCES OUTLINED SHALL BE PERFORMED BY DIRECT DIGITAL CONTROL FIELD PANELS (DDCFPS) AND LOCALLY MOUNTED DIRECT DIGITAL UNIT CONTROLLERS CONNECTED TO A CENTRAL BUILDING AUTOMATION SYSTEM. UNLESS OTHERWISE SPECIFIED, SYSTEM ARCHITECTURE SHALL BE BASED ON A PEER-TO-PEER DISTRIBUTED CONTROL SYSTEM NETWORK. SYSTEM SHALL INTEGRATE OPEN COMMUNICATION PROTOCOL CONTROLLERS. ALL DDCFP AND LOCAL CONTROLLERS SHALL BE CAPABLE OF INDEPENDENT OPERATION REGARDLESS OF THE STATUS OF THE BAS WORKSTATION.
- B. BMS (BUILDING MANAGEMENT SYSTEM), BAS (BUILDING AUTOMATION SYSTEM) AND DDC (DIRECT DIGITAL CONTROLS) MAY BE USED INTERCHANGEABLY AND SHARE THE SAME MEANING.
- C. ADDRESS IDENTIFIERS FOR ALL POINTS AND VARIABLES SHALL BE COORDINATED WITH OWNER AND EXISTING CONTROLS AND SHALL BE APPROVED BY THE FACILITY OWNER.
- D. COORDINATE SENSOR LOCATIONS WITH DUCTWORK AND PIPING SHOP DRAWINGS AND INDICATE PROPOSED LOCATIONS ON SUBMITTALS. PROVIDE MANUFACTURER'S RECOMMENDED UPSTREAM AND DOWNSTREAM PIPE OR DUCT DIAMETERS FOR FLOW SENSING ELEMENTS.
- E. FAIL SAFE POSITIONS INDICATED ARE POSITIONS THAT DEVICES WILL GO TO WHEN THE ASSOCIATED EQUIPMENT IS DE-ENERGIZED.
- F. PROVIDE ADEQUATE DAMPING OF ALL MODULATING CONTROL LOOPS TO PREVENT HUNTING. MAXIMUM RESPONSE TIME SHALL BE 30 SECONDS. ALL CONTROL LOOPS SHALL BE TUNED TO PROVIDE FOR STABLE OPERATION OF THE CONTROL DEVICE. LOOP TUNING MAY BE REQUIRED TO BE PERFORMED MULTIPLE TIMES DURING MULTIPLE CONTROL SCENARIOS.
- G. ALL INSTALLED CONTROL DEVICES SHALL BE INSTALLED IN SUCH A WAY TO BE ACCESSIBLE FOR MAINTENANCE AND REPAIR.

2. WIRING

- A. PROVIDE ALL CONTROLS, LOW VOLTAGE CONTROL WIRING, HARDWARE POINTS (ANALOG IN, ANALOG OUT, BINARY IN, BINARY OUT) AND ACCESSORIES AS REQUIRED TO PERFORM THE CONTROL SEQUENCES INDICATED. ADDITIONALLY, PROVIDE HARDWARE POINTS INDICATED REGARDLESS THAT SUCH POINTS MAY NOT BE REQUIRED TO PERFORM THE CONTROL SEQUENCES INDICATED.
- B. POWER WIRING SHALL COMPLY WITH REQUIREMENTS OF DIVISION 26 SECTIONS.
- C. PROVIDE NORMAL, [AND STANDBY] [AND EMERGENCY POWER] WIRING TO ALL CONTROL DEVICES, INCLUDING CONTROL PANELS, WORKSTATION AND HOST COMPUTERS.
- D. ELECTRICAL CIRCUITS FOR ALL CONTROLS SHALL BE DEDICATED ONLY TO THE BUILDING AUTOMATION CONTROL SYSTEM AND COMPONENTS. ALL WIRING FROM AND INCLUDING DEDICATED CIRCUIT BREAKERS TO THE POINT OF USE SHALL BE PROVIDED.

3. SAFETIES:

- A. SAFETY DEVICES SUCH AS FREEZESTATS, SMOKE DETECTION, AND HIGH STATIC PRESSURE SWITCHES SHALL BE MANUAL RESET AND SHALL PERFORM ALL ASSOCIATED SHUTDOWN/FAILSAFE ACTIONS VIA HARDWIRING. SOFTWARE SHALL NOT BE USED TO EXCLUSIVELY PERFORM ANY SHUTDOWN/FAILSAFE ACTIONS FROM SAFETY DEVICES. FOR EXAMPLE, FREEZESTATS SHALL SHUT OFF FAN, FULLY OPEN COIL VALVE, AND CLOSE OUTSIDE AIR DAMPER VIA HARDWIRING WITHOUT RELYING ON ANY SOFTWARE FUNCTIONS. SOFTWARE SHUTDOWN/FAILSAFE SHALL BE PROVIDED AS A REDUNDANT BACKUP TO THE REQUIRED HARDWIRED SHUTDOWNS.
- B. DEVICES SUCH AS CUH AND UH SHALL OPERATE ON A SOFT PERMISSIVE, ONLY ALLOWING FANS TO START AND CONTROL VALVES TO OPEN WHEN SYSTEM IS IN HEATING MODE, USE OF AQUASTATS IS NOT ACCEPTABLE.
- C. SAFETY DEVICES SHALL FUNCTION AND SHUT DOWN THE ASSOCIATED EQUIPMENT WHEN THE MANUAL SWITCHES ARE IN BOTH THE HAND AND AUTO POSITIONS.

4. ROOM SENSORS

- A. FOR CORRIDORS, RESTROOMS, VESTIBULES, STORAGE ROOMS, JANITOR CLOSETS, ELECTRICAL CLOSETS, DATA CLOSETS/ROOMS, AND MECHANICAL ROOMS, PROVIDE WALL MOUNTED, BRUSHED CHROME, WALL PLATE TYPE SENSORS.

5. SETPOINTS:

- A. UNLESS OTHERWISE NOTED, ROOM TEMPERATURE SETPOINTS SHALL BE ADJUSTABLE AT THE LOCAL ROOM THERMOSTAT.
- B. INITIAL SPACE TEMPERATURE SETPOINTS SHALL BE AS FOLLOWS:
 - a. OFFICES, CIRCULATION SPACES & TOILET ROOMS:
UNOCCUPIED HEATING 65 DEGREES F
 - b. UTILITY ROOMS (ELECTRICAL ROOMS, MECH. ROOMS & PENTHOUSES):
COOLING OR VENTILATION 85 DEGREES F (24 HOURS)
HEATING 60 DEGREES F MIN (24 HOURS)

DATE:	09/01/2022
DRAWN BY:	CLB
SCALE:	12" = 1'-0"
REVIEWED BY:	DSL
PROJECT NO.	2021-091A

REVISONS	DESCRIPTION	DATE
	ISSUED FOR BID	11/26/22
NO.		

MECHANICAL ABBREVIATIONS, NOTES AND SYMBOLS

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706



SHEET NO.
M0.0

23 00 00 - GENERAL

- A. THESE SPECIFICATIONS ARE APPLICABLE TO ALL PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS UNLESS NOTED OTHERWISE. REVIEW THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING DRAWINGS FOR NOTES, DIMENSIONS, ETC., AND COORDINATE WITH OTHER TRADES INVOLVED. THE WORK REQUIREMENTS DESCRIBED WITHIN DIVISION 20 SPECIFICATION SECTION "COMMON MECHANICAL, ELECTRICAL REQUIREMENTS" FORM COMPLIMENTARY REQUIREMENTS TO THE SCOPE OF WORK CONTAINED WITHIN DIVISION 23.
- B. DESCRIPTION
1. THIS PROJECT COMPRISES ALTERATIONS AND RENOVATIONS TO THE EXISTING BUILDING. THE EXISTING BUILDING IS CURRENTLY OCCUPIED AND THE PROJECT SHALL PROCEED IN A MANNER THAT MINIMIZES ANY INCONVENIENCE TO THE BUILDING OCCUPANTS.
 2. SCOPE OF WORK CONSISTS OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS AND WITHOUT LIMITING GENERALITY THEREOF CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTING, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL WORK AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN.
- C. DEFINITIONS: THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT
1. FURNISH: THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS"
 2. INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."
 3. PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."
 4. REMOVE: THE TERM "REMOVE" MEANS TO DISCONNECT FROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."
 5. SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND/OR METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT."
- D. DRAWINGS
1. DRAWINGS ARE DIAGRAMMATIC. THE FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. THOUGH SOME OFFSETS & TRANSITIONS MAY BE SHOWN IN PIPING & SHEET METAL TO HELP INDICATE THE PHYSICAL RELATIONSHIP BETWEEN THEM, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL PIPING & SHEET METAL OFFSETS & TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE WORK AND PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.
- E. CODES AND STANDARDS: WORK SHALL CONFORM TO THE CURRENT EDITIONS OF THE FOLLOWING:
1. SHEET METAL SMACNA STANDARDS
 2. INTERNATIONAL MECHANICAL CODE
 3. INTERNATIONAL ENERGY CONSERVATION CODE
 4. INTERNATIONAL EXISTING BUILDING CODE
 5. ALL OTHER APPLICABLE STATE AND LOCAL CODES AND ORDINANCES OWNER STANDARDS AND BASE BUILDING SPECIFICATIONS AND STANDARDS.
- F. PERMITS AND FEES:
1. THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL GOVERNMENT AND STATE SALES TAXES AND FEES WHERE APPLICABLE, AND OTHER COSTS, INCLUDING UTILITY CONNECTIONS OR EXTENSIONS IN CONNECTION WITH THE WORK. FILE ALL NECESSARY DRAWINGS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AND STATE DEPARTMENTS HAVING JURISDICTION, OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER A COPY TO THE OWNER AND ENGINEER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.
- G. EXISTING SYSTEMS AND EQUIPMENT
1. EXISTING TO BE REUSED/RELOCATED EQUIPMENT: REPORT ANY EXISTING EQUIPMENT DEFICIENCIES TO THE OWNER AND THE ARCHITECT AND/OR ENGINEER
 2. CONNECT WORK TO VARIOUS EXISTING SYSTEMS AS INDICATED ON THE DRAWINGS. WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM CONDITIONS. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED AS WELL AS WITH EXISTING SYSTEMS, THE STRUCTURE, AND OTHER OBSTRUCTIONS.
 3. PROVIDE THE FOLLOWING SERVICES ON ALL EXISTING HVAC EQUIPMENT INDICATED TO REMAIN:
 - a. CLEAN CONDENSATE PAN AND TRAP
 - b. CALIBRATE CONTROLS
 - c. FILTER CHANGES
 - d. VERIFY FAN ROTATION AND OPERATION
 - e. BALANCING
 - f. VERIFY PITCH OF CONDENSATE DRAIN PIPES AND DRAIN PAN
 - g. VERIFY EQUIPMENT CONTROL OPERATION
 - h. LUBRICATION OF FANS, MOTORS, ETC.
 - i. CLEAN HEATING/COOLING COILS
- H. SURVEY AND MEASUREMENTS
1. THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, SHALL BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITION OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS.
 2. DO NOT SCALE DRAWINGS. SCALE INDICATED ON DRAWINGS IS FOR ESTABLISHING REFERENCE POINTS ONLY. ACTUAL FIELD CONDITIONS SHALL GVERN ALL DIMENSIONS.
 3. PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCES AND ACCESS IS ALLOWED TO INSTALL THE COMPONENTS. ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER RIGGING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE.
 4. CONTRACTORS SHALL VERIFY, LAYOUT AND BE RESPONSIBLE FOR ALL MEASUREMENTS OF ALL EXISTING CONDITIONS BEFORE COMMENCING WORK AND SHALL NOTIFY ARCHITECT AND/OR ENGINEER IF A CONDITION EXISTS THAT PREVENTS THE CONTRACTOR FROM ACCOMPLISHING THE INTENT OF THE DRAWINGS.
- I. SUBMITTALS AND SHOP DRAWINGS
1. SUBMIT FOR REVIEW, ELECTRONIC SHOP DRAWINGS IN SEARCHABLE PDF FORMAT FOR THE FOLLOWING:
 - a. SUBMITTAL DATA FOR ALL MATERIAL AND EQUIPMENT. CLEARLY IDENTIFY DEVIATIONS OF THE SUBMITTED PRODUCTS FROM THE DESIGN.
 - b. CONTROLS SHOP DRAWINGS. INCLUDE EQUIPMENT AND SYSTEM CONTROL SCHEMATICS, SEQUENCES OF OPERATIONS, LOGIC DIAGRAMS AND SYSTEM COMPONENTS INCLUDING DETAILS OF TIE-IN TO EXISTING BUILDING CONTROL MANAGEMENT SYSTEM.
 2. DO NOT USE SHOP DRAWINGS WITHOUT AN APPROPRIATE FINAL STAMP INDICATING ACTION TAKEN IN CONNECTION WITH CONSTRUCTION.
 3. DO NOT ORDER ANY MATERIALS OR EQUIPMENT PRIOR TO RECEIVING FINAL APPROVED SUBMITTALS.
 4. SCHEDULE AT LEAST TEN WORKING DAYS EXCLUSIVE OF TRANSMITTAL TIME, FOR SUBMITTAL REVIEW.
- J. AS-BUILT DRAWINGS
- A. MAINTAIN ONE SET OF PRINTS ON THE SITE AND NOTE ALL CHANGES OR DEVIATIONS FROM THE ORIGINAL DESIGN THEREON. AT THE COMPLETION OF THE PROJECT, INCORPORATE ALL CHANGES INTO RECORD AS-BUILT DRAWINGS IN ELECTRONIC FORMAT AND SUBMIT FOR APPROVAL.

11. OPERATION AND MAINTENANCE

1. UPON COMPLETION OF ALL WORK AND TESTS, THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE OPERATION, ADJUSTMENT AND MAINTENANCE OF ALL EQUIPMENT FURNISHED. THE CONTRACTOR SHALL GIVE AT LEAST SEVEN (7) DAYS NOTICE TO THE OWNER AND THE ENGINEER IN ADVANCE OF THIS PERIOD.
 2. THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A COMPLETE OPERATION AND MAINTENANCE MANUAL, BOUND IN BOOKLET FORM. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL HEAVY-DUTY 3-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION AND DESIGNATION PARTITIONS WITH IDENTIFICATION TABS. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER.
 3. OPERATION AND MAINTENANCE MANUAL SHALL INCLUDE THE FOLLOWING:
 - a. MANUFACTURER'S PRINTED OPERATING AND MAINTENANCE PROCEDURES.
 - b. MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING.
 - c. COPIES OF WARRANTIES.
 - d. APPROVED SHOP DRAWINGS AND PRODUCT DATA.
 - e. INCLUDE IN THE MANUAL, A TABULATED EQUIPMENT SCHEDULE FOR ALL EQUIPMENT. SCHEDULE SHALL INCLUDE PERTINENT DATA SUCH AS: MAKE, MODEL NUMBER, SERIAL NUMBER, VOLTAGE, NORMAL OPERATING CURRENT, BELT SIZE, FILTER QUANTITIES AND SIZES, BEARING NUMBER, ETC. SCHEDULE SHALL INCLUDE MAINTENANCE TO BE DONE AND FREQUENCY.
 4. MAINTENANCE AND INSTRUCTION MANUALS SHALL BE SUBMITTED TO THE OWNER AT THE SAME TIME AS THE SEVEN (7) DAY NOTICE IS GIVEN PRIOR TO THE INSTRUCTION PERIOD.
12. CLEANING
1. ALL WORK AREAS SHALL BE LEFT AS CLEAN AS NEW. CLEAN INTERNALS OF ALL DUCTWORK AND AIR HANDLING UNITS AND REPLACE FILTERS AFTERWARDS.
 2. PIPING: AFTER CONDENSATE PIPING HAS BEEN PRESSURE TESTED AND APPROVED FOR TIGHTNESS, CLEAN AND FLUSH PIPING.
 3. EQUIPMENT: AFTER COMPLETION OF PROJECT, CLEAN THE EXTERIOR SURFACE OF EQUIPMENT INCLUDED IN THIS SECTION, INCLUDING REMOVAL OF CONCRETE RESIDUE.
 4. WORK AREA: AFTER COMPLETION OF PROJECT, REMOVE ALL CONSTRUCTION DEBRIS, TEMPORARY FACILITIES AND EQUIPMENT FROM WORK AREA. CLEAN WORK AREA TO PERMIT OCCUPATION.
13. GUARANTEE
1. GUARANTEE WORK OF THESE CONTRACT DOCUMENTS IN WRITING FOR NOT LESS THAN ONE (1) YEAR FROM DATE OF FINAL NOTICE OF ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD. PROMPT AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.
14. MEANS AND METHODS ALL TRADES
1. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 2. DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL, OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SKIDS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.
 3. MATERIALS AND EQUIPMENT SHALL BE UL LISTED WHERE STANDARD HAS BEEN ESTABLISHED.
 4. CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILINGS. PATCH AND PAINT SURFACES DISTURBED BY WORK UNDER THIS CONTRACT AS REQUIRED TO RESTORE THEM TO THEIR ORIGINAL CONDITION.
 5. SCAFFOLDING, RIGGING, HOISTING: THE CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES ANY EQUIPMENT AND APPARATUS FURNISHED UNDER THIS DIVISION. REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.
 6. EXCAVATION AND BACKFILLING: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE SIZES, DEPTHS, FILL AND BEDDING REQUIREMENTS AND ANY OTHER EXCAVATION WORK REQUIRED UNDER THESE SPECIFICATIONS
 7. WATERPROOFING: WHERE ANY WORK PIERCES WATERPROOFING, INCLUDING WATERPROOF CONCRETE, ROOFS, EXTERIOR WALL AND FLOORS IN WET AREAS, THE METHOD OF INSTALLATION SHALL BE REVIEWED BY THE ENGINEER BEFORE WORK IS DONE. THE CONTRACTOR SHALL FURNISH ALL NECESSARY SLEEVES, CAULKING AND FLASHING REQUIRED TO MAKE OPENINGS ABSOLUTELY WATERTIGHT.
 8. PROVIDE FIRESTOPPING AROUND ALL FIRE PROTECTION, PLUMBING, MECHANICAL AND ELECTRICAL PENETRATIONS THROUGH FIRE RATED PARTITIONS. PROVIDE ASBESTOS FREE FIRESTOPPING SYSTEM CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME AND GASES. SYSTEM SHALL BE UL LISTED AND COMPLY WITH ASTM E 814.
 9. PROVIDE ACCESS PANELS IN WALLS, FLOORS AND GYPSUM WALL BOARD CEILINGS TO ALLOW ACCESS TO: HEATERS, FAN BOXES AND OTHER APPARATUS AND EQUIPMENT REQUIRING PERIODIC SERVICE AND INSPECTION. NOT ALL ACCESS PANELS ARE INDICATED ON THE PLANS. REVIEW ARCHITECTURAL AND MECHANICAL PLANS TO DETERMINE THE LOCATION AND QUANTITY OF ACCESS PANELS REQUIRED. COORDINATE TYPE AND LOCATION WITH ARCHITECTURAL PLANS.

23 05 05 - DEMOLITION

- A. REFER TO DRAWINGS FOR GENERAL DESCRIPTION OF AREAS REQUIRING DEMOLITION.
- B. ANY DEMOLITION SHALL BE COORDINATED WITH OWNER, ARCHITECT, G.C. AND ENGINEER
- C. REFER TO GENERAL CONTRACTOR'S/CONSTRUCTION MANAGER'S INSTRUCTIONS FOR EXISTING EQUIPMENT AND MATERIALS THAT SHALL REMAIN THE PROPERTY OF THE OWNER.
- D. WHERE IT IS NOTED THAT ITEMS OF VALUE ARE NOT TO BE RETURNED TO THE OWNER, THE ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. STORAGE OR SALE OF ITEMS ON THE PROJECT SITE IS PROHIBITED. ITEMS SHALL BE REMOVED FROM SITE AND LEGALLY DISPOSED OF.
- E. PROTECTION: ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING/SITE DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGE TO THE CONDITION BEFORE BEING DAMAGED TO THE SATISFACTION OF THE ARCHITECT AND OWNER. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
- F. UTILITIES:
 1. MAINTAIN UTILITIES EXCEPT THOSE REQUIRING REMOVAL OR RELOCATION. KEEP UTILITIES IN SERVICE AND PROTECT FROM DAMAGE. DO NOT INTERRUPT UTILITIES SERVING IN USE AREAS WITHOUT FIRST OBTAINING PERMISSION FROM THE UTILITY COMPANY AND THE OWNER.
 2. COORDINATE ALL INTERRUPTIONS OF SERVICES AND LIMITATIONS OF ACCESS WITH THE OWNER NO LESS THAN 5 DAYS PRIOR TO THE INTERRUPTION.
 3. PROVIDE TEMPORARY SERVICES AS REQUIRED. SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION OF NEW WORK SHALL BE COORDINATED IN ADVANCE WITH THE CONSTRUCTION MANAGER AND BUILDING OWNER.
- G. DISCONNECT, DEMOLISH, AND REMOVE HVAC SYSTEMS, EQUIPMENT, AND COMPONENTS INDICATED TO BE REMOVED. PIPING TO BE REMOVED. REMOVE PORTION OF PIPING INDICATED TO BE REMOVED AND CAP REMAINING PIPING WITH SAME OR COMPATIBLE PIPING MATERIAL.
 1. PIPING TO BE ABANDONED IN PLACE: DRAIN PIPING AND CAP PIPING WITH SAME OR COMPATIBLE PIPING MATERIAL.
 2. DUCTS TO BE ABANDONED IN PLACE: CAP DUCTS WITH SAME OR COMPATIBLE DUCTWORK MATERIAL.
 3. EQUIPMENT TO BE REMOVED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT.
 4. EQUIPMENT TO BE REMOVED AND REINSTALLED: DISCONNECT AND CAP SERVICES AND REMOVE, CLEAN, AND STORE EQUIPMENT; WHEN APPROPRIATE, REINSTALL, RECONNECT, AND MAKE EQUIPMENT OPERATIONAL.
- H. IF PIPE, INSULATION, OR EQUIPMENT TO REMAIN IS DAMAGED IN APPEARANCE OR IS UNSERVICEABLE, REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF EQUAL CAPACITY AND QUALITY.

23 05 29 - HANGERS AND SUPPORTS

- A. PROVIDE PIPE STANDS, SUPPORTS, HANGERS AND OTHER SUPPORTING APPLIANCES AS NECESSARY TO SUPPORT WORK REQUIRED BY CONTRACT DOCUMENTS. SPACING OF HANGERS SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE BUILDING AND MECHANICAL CODES. STRUCTURAL STEEL SUPPORTS, HANGERS, ETC. SHALL BE ANGLE IRON, STEEL CHANNEL OR STEEL ROD USED WITH APPROVED CLAMPS, INSERTS, ETC. ALL SUPPORTS, HANGERS, BRACKETS, ETC., SHALL BE AS APPROVED BY THE ENGINEER.
- B. ALL HANGERS SHALL BE GALVANIZED.
- C. ATTACH HANGERS AND SUPPORTS DIRECTLY ONTO THE STRUCTURE BY FIRST REMOVING EXISTING FIRE PROOFING AND AFTER SECURING THE ATTACHMENT, REPAIRING THE FIRE PROOFING TO ITS ORIGINAL CONDITION, CONTINUOUSLY OVER THE ATTACHMENT.
- D. FOR EXPANSION BOLTS/SHELDOS USE RED HEAD, HILTI OR WEI-MEI SELF DRILLING OR STEEL SHIELD, LOAD RATED. DO NOT USE DRILLED ANCHORS IN POST TENSION SLABS WITHOUT APPROVAL OF OWNER. DO NOT CUT REINFORCING STEEL WITH DRILLED INSERTS.

23 05 48 - VIBRATION AND SEISMIC CONTROLS FOR HVAC

- A. PROVIDE VIBRATION ISOLATION FOR EACH PIECE OF ROTATING OR RECIPROCATING HVAC EQUIPMENT SHOWN ON THE DRAWINGS. ALL ISOLATION COMPONENTS SHALL BE SUPPLIED BY A SINGLE MANUFACTURER - MASON INDUSTRIES, KINETICS OR AMBER BOOTH. TYPES OF ISOLATORS, REQUIRED DEFLECTIONS, AND INSTALLATION PRACTICES SHALL BE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE VIBRATION ISOLATION MANUFACTURER.
- B. PROVIDE SEISMIC RESTRAINTS AS REQUIRED BY CODE. FOR EACH SEISMIC RESTRAINT, PROVIDE CERTIFIED CALCULATIONS TO VERIFY ADEQUACY TO MEET THE FOLLOWING DESIGN REQUIREMENTS: ABILITY TO ACCOMMODATE RELATIVE SEISMIC DISPLACEMENTS OF SUPPORTED ITEM BETWEEN POINTS OF SUPPORT. ABILITY TO ACCOMMODATE THE REQUIRED SEISMIC FORCES. FOR EACH RESPECTIVE SET OF ANCHOR BOLTS PROVIDE CALCULATIONS TO VERIFY ADEQUACY TO MEET COMBINED SEISMIC-INDUCED SHEAR AND TENSION FORCES. FOR EACH WELDMENT BETWEEN STRUCTURE AND ITEM SUBJECT TO SEISMIC FORCE, PROVIDE CALCULATIONS TO VERIFY ADEQUACY. CALCULATIONS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER WHO IS REGISTERED IN THE STATE WHERE THE WORK IS BEING PERFORMED AND HAS SPECIFIC EXPERIENCE IN SEISMIC CALCULATIONS. RESTRAINTS SHALL MAINTAIN THE RESTRAINED ITEM IN A CAPTIVE POSITION WITHOUT SHORT CIRCUITING THE VIBRATION ISOLATION.

23 05 53 - PIPE AND DUCT IDENTIFICATION

- A. MACHINERY SUCH AS RTU'S, FANS, ETC., SHALL BE LABELED WITH PLASTIC LABELS WITH ENGRAVED EQUIPMENT NUMBER CORRESPONDING TO DRAWING SCHEDULE NUMBERS.

23 05 93 - TESTING, ADJUSTING AND BALANCING

- A. PROVIDE QUALIFIED PERSONNEL, EQUIPMENT, APPARATUS AND SERVICES FOR START-UP, TESTING AND BALANCING OF MECHANICAL SYSTEMS, TO PERFORMANCE DATA SHOWN IN SCHEDULES, AS SPECIFIED, AND AS REQUIRED BY CODES, STANDARDS, REGULATIONS AND AUTHORITIES HAVING JURISDICTION INCLUDING CITY INSPECTORS, OWNERS AND ARCHITECT
- B. PROVIDE THE SERVICES OF AN INDEPENDENT TESTING, ADJUSTING, AND BALANCING (TAB) AGENCY TO PROVIDE TAB SERVICES FOR THE MECHANICAL SYSTEMS. THE TAB AGENCY SHALL BE CERTIFIED BY NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) OR THE ASSOCIATED AIR BALANCE COUNCIL (AABC) IN THOSE TESTING AND BALANCING DISCIPLINES REQUIRED FOR THIS PROJECT. THE TAB AGENCY SHALL HAVE AT LEAST ONE PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE SERVICES ARE TO BE PERFORMED AND CERTIFIED BY NEBB OR AABC AS A TEST AND BALANCE ENGINEER.
- C. PRIOR TO TESTING, ADJUSTING, AND BALANCING, THE MECHANICAL CONTRACTOR SHALL VERIFY THAT THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING AS SPECIFIED. APPROVED SHOP DRAWINGS, AS BUILT DRAWINGS, AND ALL OTHER DATA REQUIRED FOR EACH SYSTEM AND/OR COMPONENT TO BE TESTED SHALL BE MADE AVAILABLE AT THE JOB SITE DURING THE ENTIRE TAB EFFORT. THE OWNER SHALL BE NOTIFIED IN WRITING OF ALL EQUIPMENT, COMPONENTS, OR BALANCING DEVICES, THAT ARE DAMAGED, INCORRECTLY INSTALLED, OR MISSING, AS WELL AS ANY DESIGN DEFICIENCIES THAT WILL PREVENT PROPER TESTING, ADJUSTING, AND BALANCING. TESTING, ADJUSTING, AND BALANCING SHALL NOT COMMENCE UNTIL APPROVED BY THE OWNER.
- D. PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM IDENTIFIED, IN ACCORDANCE WITH THE DETAILED PROCEDURES OUTLINED IN EITHER NEBB: "PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS" OR AABC, "NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE." THE TAB AGENCY SHALL TEST, ADJUST, AND BALANCE THE FOLLOWING MECHANICAL SYSTEMS:
 1. VERIFY OPERATION OF ALL TEMPERATURE CONTROL SYSTEMS
 2. TEST SYSTEMS FOR PROPER SOUND AND VIBRATION LEVELS
- A. SUBMIT TESTING, ADJUSTING, AND BALANCING REPORTS BEARING THE SEAL AND SIGNATURE OF THE TAB PROFESSIONAL ENGINEER. PREPARE A REPORT OF RECOMMENDATIONS FOR CORRECTING UNSATISFACTORY MECHANICAL PERFORMANCES WHEN A SYSTEM CANNOT BE SUCCESSFULLY BALANCED.
- B. START UP ALL SYSTEMS, PRESSURE TEST DUCTWORK AND PIPING, AND BALANCE SYSTEMS INCLUDING, BUT NOT LIMITED TO, ALL NEW AND EXISTING REGISTERS, GRILLES, DIFFUSERS, TERMINAL UNITS, FANS, ETC. WITHIN THE AREA OF WORK TO PERFORMANCE DATA SHOWN ON PLANS, SCHEDULES, AND AS SPECIFIED.
- C. DO NOT COVER OR CONCEAL WORK BEFORE TESTING AND INSPECTION AND OBTAINING APPROVAL.
- D. LEAKS, DAMAGE AND DEFECTS DISCOVERED OR RESULTING FROM STARTUP, TESTING, AND BALANCING SHALL BE REPAIRED OR REPLACED TO LIKE-NEW CONDITION WITH ACCEPTABLE MATERIALS. TEST SHALL BE CONTINUED UNTIL SYSTEM OPERATES WITHOUT ADJUSTMENT OR REPAIR.
- E. REPORT ON REPORTING FORMS, SUBMITTED TO ARCHITECT FOR APPROVAL IN ADVANCE.
- F. SUBMIT PROCEDURES, RECORDING FORMS, AND TEST EQUIPMENT FOR REVIEW PRIOR TO BALANCING, AS DESCRIBED IN SPECIFICATIONS. SUBMIT ELECTRONIC COPY OF TESTING AND BALANCING REPORTS TO ARCHITECT FOR APPROVAL.
- G. FURNISH ALL TEST MEDIUMS AND DISPOSE OF ALL TEST MEDIUMS AT AN APPROVED OFF-SITE LOCATION AFTER TESTING IS COMPLETE.
- H. NOTE REQUIREMENT ABOVE FOR CFM AND STATIC PRESSURE READINGS PRIOR TO DEMOLITION.
- I. THE BALANCING CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL DIRECTIONAL ADJUSTMENT OF ALL LINEAR DIFFUSERS AS INDICATED ON PLANS. IF NO DIRECTIONAL FLOW IS INDICATED INTERIOR LINEAR DIFFUSERS SHALL BE DIRECTED HORIZONTALLY AND PERIMETER LINEAR DIFFUSER SHALL BE DIRECTED VERTICALLY. IF PERIMETER LINEAR DIFFUSERS HAVE MULTIPLE SLOTS THE PERIMETER SLOT DIRECTED VERTICALLY, AND THE INTERIOR SLOT DIRECTED HORIZONTALLY TOWARDS THE INTERIOR SPACE.

23 08 00 - COMMISSIONING OF HVAC

- A. SCOPE OF HVAC TESTING SHALL INCLUDE HEAT GENERATION THROUGH DISTRIBUTION SYSTEMS TO EACH NEW CONDITIONED SPACE. TESTING SHALL INCLUDE MEASURING CAPACITIES AND EFFECTIVENESS OF OPERATIONAL AND CONTROL FUNCTIONS.
- B. TEST ALL OPERATING MODES, INTERLOCKS, CONTROL RESPONSES, AND RESPONSES TO ABNORMAL OR EMERGENCY CONDITIONS.
- C. THE CXA ALONG WITH THE HVAC CONTRACTOR, TESTING AND BALANCING CONTRACTOR, AND CONTROLS CONTRACTOR SHALL PREPARE DETAILED TESTING PLANS, PROCEDURES, AND CHECKLISTS FOR HVAC SYSTEMS, SUBSYSTEMS, AND EQUIPMENT.
- D. PERFORM COMMISSIONING TESTS AT THE DIRECTION OF THE CXA. PROVIDE TECHNICIANS, INSTRUMENTATION, AND TOOLS REQUIRED TO PERFORM COMMISSIONING TESTS. PROVIDE INFORMATION REQUESTED BY THE CXA FOR FINAL COMMISSIONING DOCUMENTATION.

23 09 00 - INSTRUMENTATION AND CONTROLS

- A. PROVIDE COMPLETE SYSTEM OF AUTOMATIC TEMPERATURE CONTROLS (ATC). CONTROL SYSTEM SHALL BE CAPABLE OF PERFORMING ALL SEQUENCES OF OPERATION SHOWN ON THE DRAWINGS OR DESCRIBED IN THESE SPECIFICATIONS. INDIVIDUAL CONTROL COMPONENTS MAY NOT BE SHOWN ON CONTRACT DOCUMENTS, BUT THE CONTRACTOR SHALL SUPPLY ALL COMPONENTS, AND CONTROL WIRING NECESSARY FOR A COMPLETE OPERABLE SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SYSTEM COMPONENTS, WHETHER THE ELECTRICAL OR OTHER WORK IS SUBCONTRACTED OR NOT.
- B. INSTALL THERMOSTATS AT MOUNTING HEIGHTS ABOVE FINISHED FLOOR IN ACCORDANCE WITH "ADA" REQUIREMENTS, OR AS DIRECTED OTHERWISE BY ARCHITECT.
- C. ALL SAFETY SWITCHES AND CUT OUTS SHALL BE FIELD CALIBRATED AND SET PRIOR TO START-UP EQUIPMENT.
- D. ALL CONTROL WIRING SHALL COMPLY WITH THE REQUIREMENTS OF THE ELECTRICAL SPECIFICATIONS.
- E. SUBMIT TO ARCHITECT A POINT-TO-POINT WIRING DIAGRAM LAYOUT SHOWING MANUFACTURERS AND MODEL NUMBERS OF ALL CONTROL COMPONENTS. INCLUDE WRITTEN DESCRIPTION OF SYSTEM OPERATION.
- F. WIRING BETWEEN FIRE ALARM SYSTEM AND TEMPERATURE CONTROL SYSTEM, EXCEPT FOR DUCT MOUNTED SMOKE DETECTORS, SHALL BE BY MECHANICAL CONTRACTOR.
- G. ROOM THERMOSTAT SENSORS AND TRANSMITTERS IN PUBLIC AREAS SHALL HAVE METAL COVER WITH TAMPER PROOF SCREWS AND CONCEALED ADJUSTMENT. HEATING/COOLING THERMOSTATS SHALL HAVE AN ADJUSTABLE DEADBAND.
- H. LOCAL CONTROLLERS, RELAYS, SWITCHES, AND OTHER CONTROL COMPONENTS SHALL BE MOUNTED ON ENCLOSED CONTROL PANELS WITH HINGE-LOCK DOOR MOUNTED NEXT TO SYSTEM CONTROLLED. TEMPERATURE SETTINGS, ADJUSTMENTS AND CALIBRATIONS SHALL BE MADE AT SYSTEM CONTROL PANEL. PANEL SHALL HAVE CANOPY LIGHT AND ON-OFF SWITCH.

23 82 00 - HEATING AND COOLING UNITS

- A. UNIT HEATERS
 1. PROVIDE UNIT HEATERS OF TYPE AND CAPACITIES AS INDICATED ON SCHEDULES. PROVIDE THERMOSTATS AND MANUFACTURER'S STANDARD SAFETY CONTROLS. ACCEPTABLE MANUFACTURERS: TRANE, MCGUAY, AAF, Q-MARK, INDEECO OR STERLING.

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STATE PROJECT NO. 1511-0304CV

ELEVATOR ADDITION

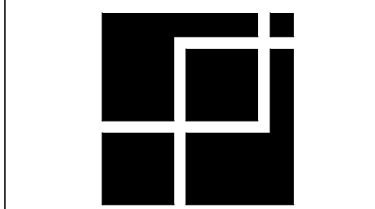
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MECHANICAL SPECIFICATIONS

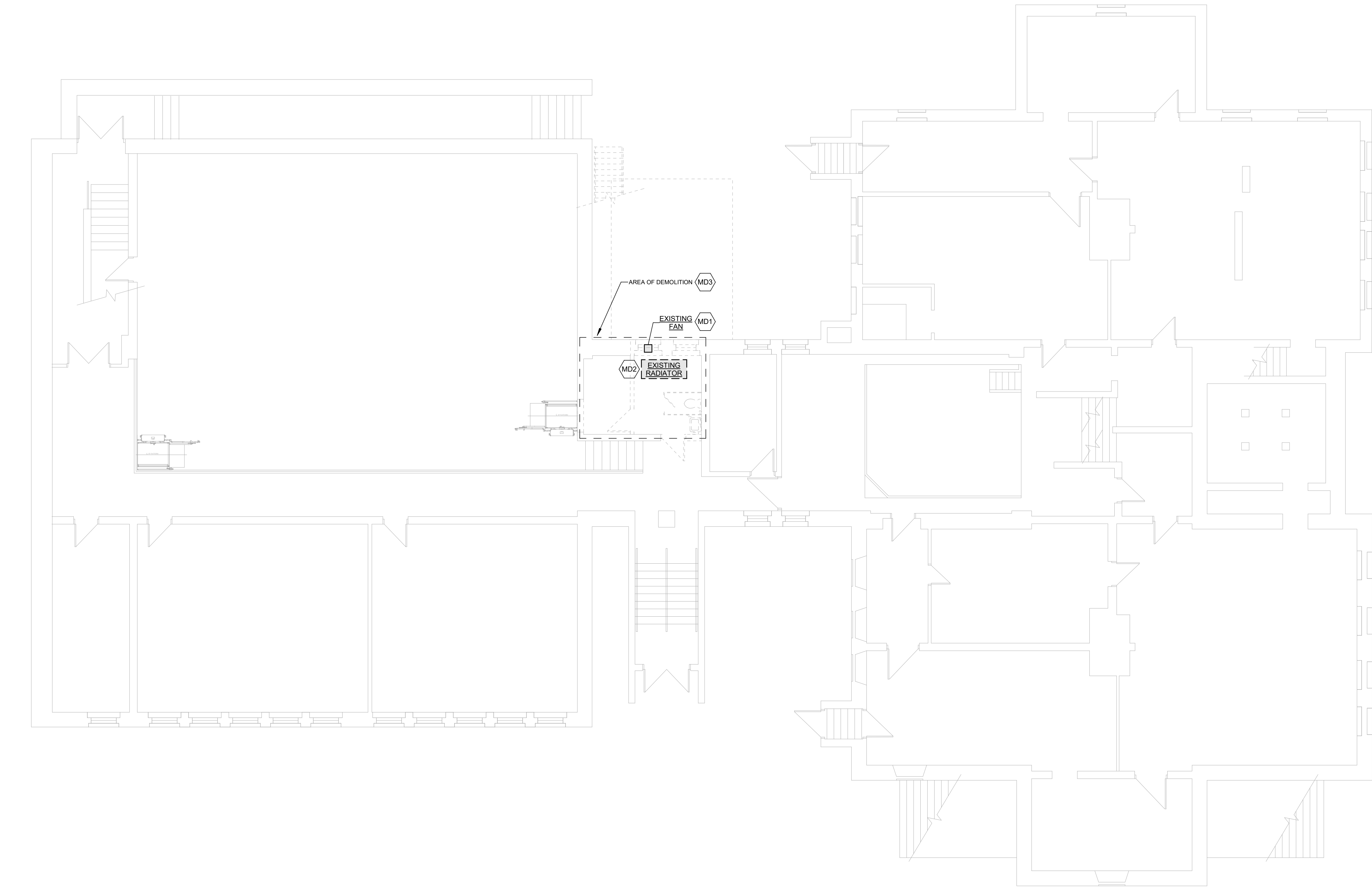


Consulting Engineering
Services, Inc.
111 Main Street
Middletown CT 06457
860-432-1862
ces@ces.com
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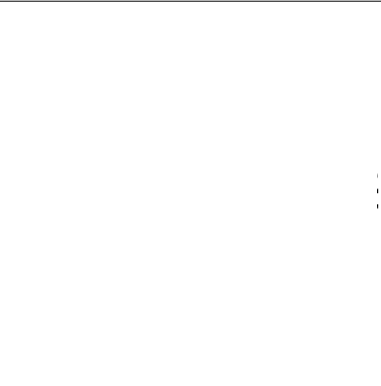
1 0 - MECHANICAL BASEMENT FLOOR DEMOLITION PLAN
1/8" = 1'-0"

KEYNOTES - MECHANICAL DEMOLITION	
Key Value	Keynote Text
MD1	COMPLETELY REMOVE EXISTING EXHAUST FAN INCLUDING FAN AND WIRING.
MD2	DISCONNECT AND REMOVE EXISTING CEILING MOUNTED RADIATOR. REMOVE SUPPLY AND RETURN PIPING BACK TO BE ABOVE NEW CEILING LEVEL AND CAP PIPING.
MD3	UNLESS OTHERWISE NOTED, REMOVE MECHANICAL SYSTEMS SERVING THIS AREA. ANY PIPING OR DUCTWORK TO BE CUT AND CAPPED AT NEAREST MAIN. MECHANICAL SYSTEMS PASSING THROUGH THIS REGION TO REMAIN.

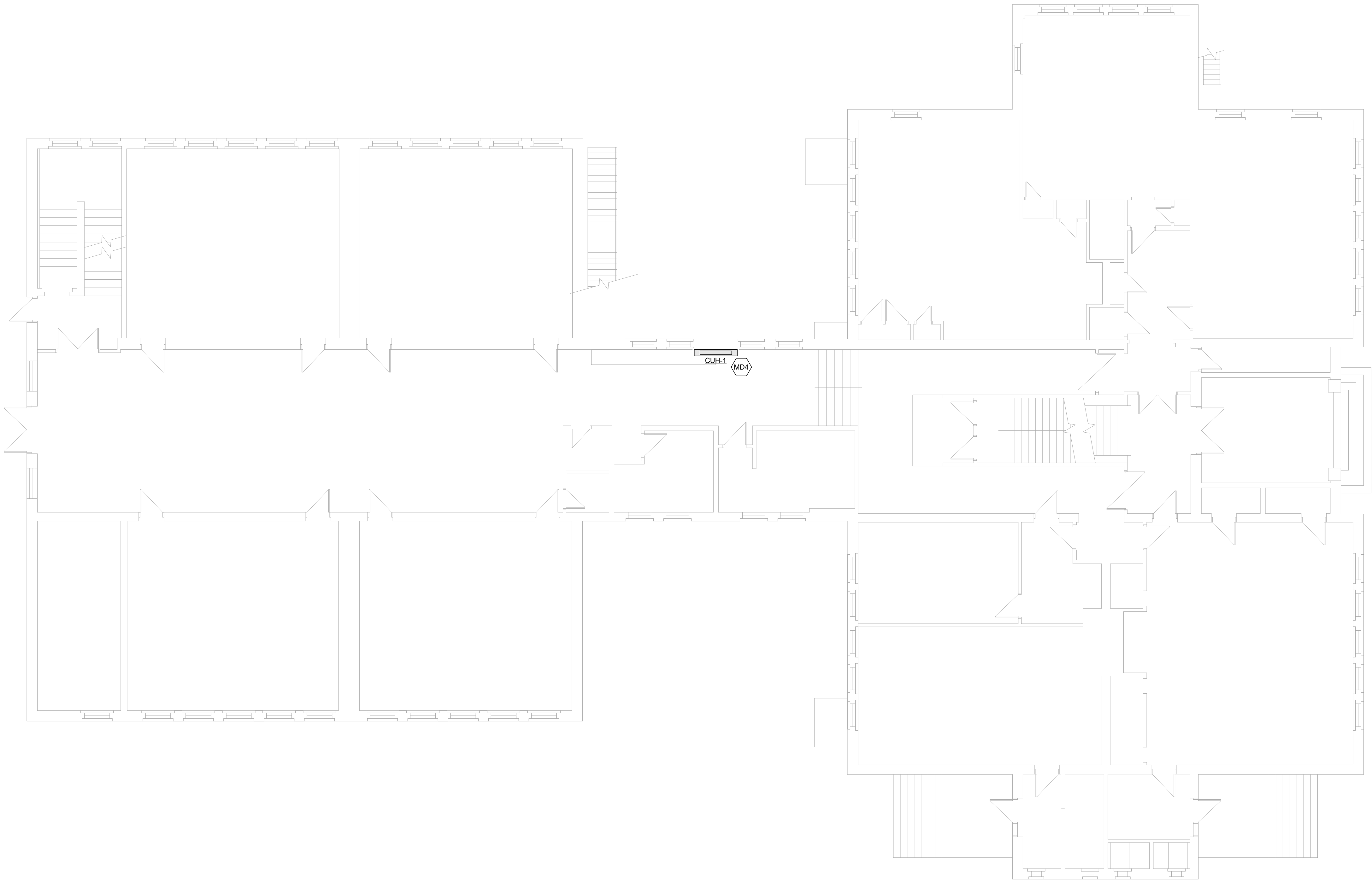
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MECHANICAL BASEMENT
DEMOLITION PLAN

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
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SHEET NO.
MD1.0



1 - MECHANICAL FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0"

KEYNOTES - MECHANICAL DEMOLITION	
Key Value	Keynote Text
MD4	EXISTING CABINET UNIT HEATER TO BE REMOVED. PIPING CONNECTIONS TO BE CUT AND CAPPED FOR FUTURE USE. MEASURE FLOW TO UNIT FOR FUTURE BALANCING.

REVISIONS	
NO.	DATE
1	11/28/22
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MECHANICAL FIRST FLOOR DEMOLITION PLAN	
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STATE PROJECT NO. 151-0304CV ELEVATOR ADDITION WASHINGTON ELEMENTARY SCHOOL 685 BALDWIN STREET WATERBURY, CT 06706



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SHEET NO.
MD1.1

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1 2 - MECHANICAL SECOND FLOOR DEMOLITION PLAN
1/8" = 1'-0"



KEYNOTES - MECHANICAL DEMOLITION	
Key Value	Keynote Text
MD4	EXISTING CABINET UNIT HEATER TO BE REMOVED. PIPING CONNECTIONS TO BE CUT AND CAPPED FOR FUTURE USE. MEASURE FLOW TO UNIT FOR FUTURE BALANCING.

REVISIONS		
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**MECHANICAL SECOND FLOOR
DEMOLITION PLAN**

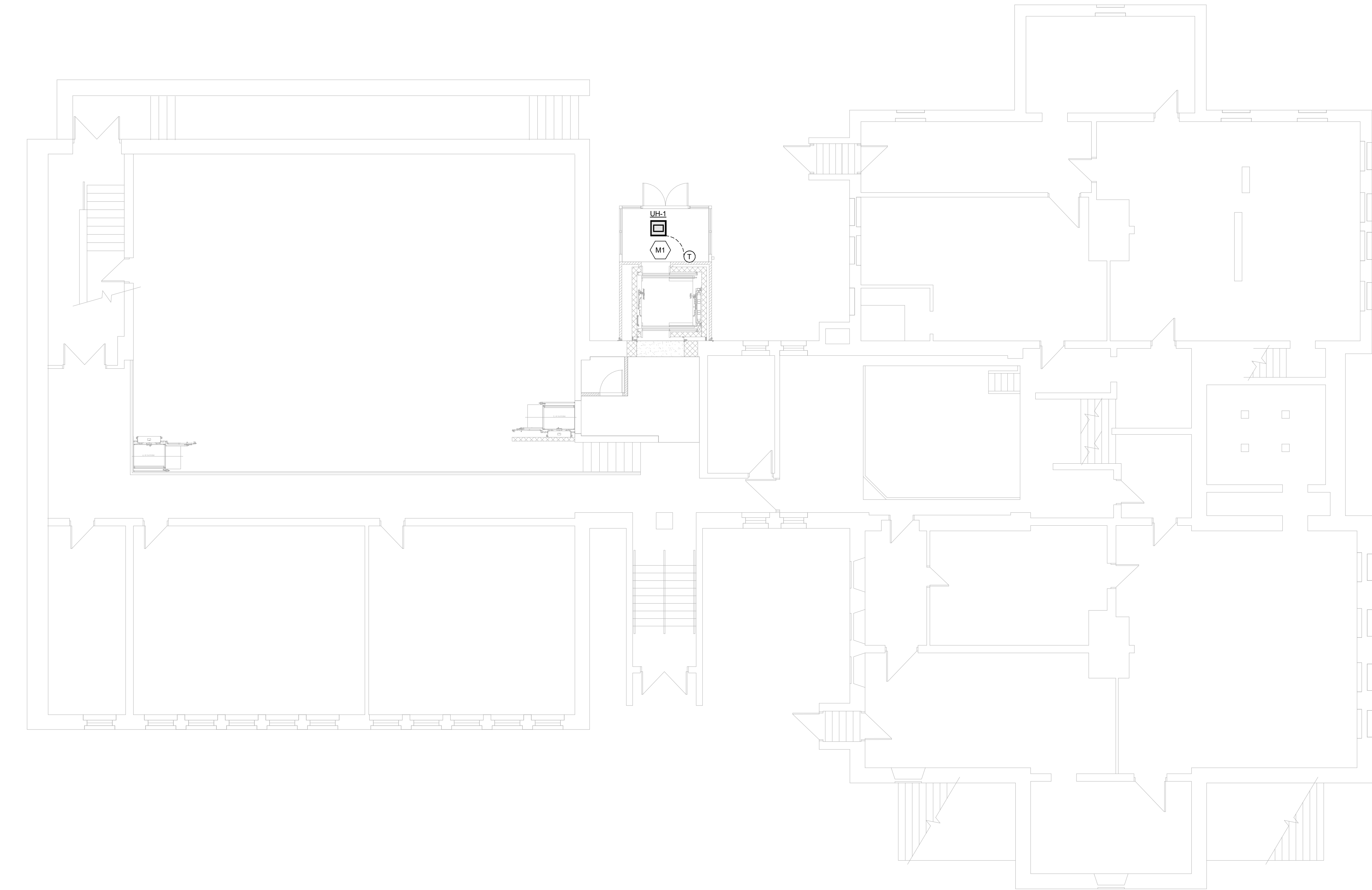
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MD1.2

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SCALE: 1/8" = 1'-0"	DSL
REVIEWED BY: 2021-091A	PROJECT NO.



1 0 - MECHANICAL BASEMENT FLOOR PLAN
1/8" = 1'-0"

KEYNOTES - MECHANICAL	
Key Value	Keynote Text
M1	THERMOSTAT SERVING UH-1 TO BE WALL MOUNTED. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE MOUNTING HEIGHTS AND COORDINATE EXACT MOUNTING LOCATION WITH OTHER TRADES.

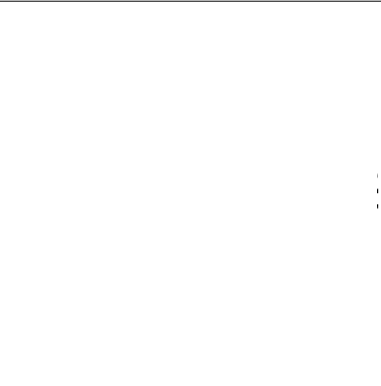
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MECHANICAL BASEMENT FLOOR
PLAN

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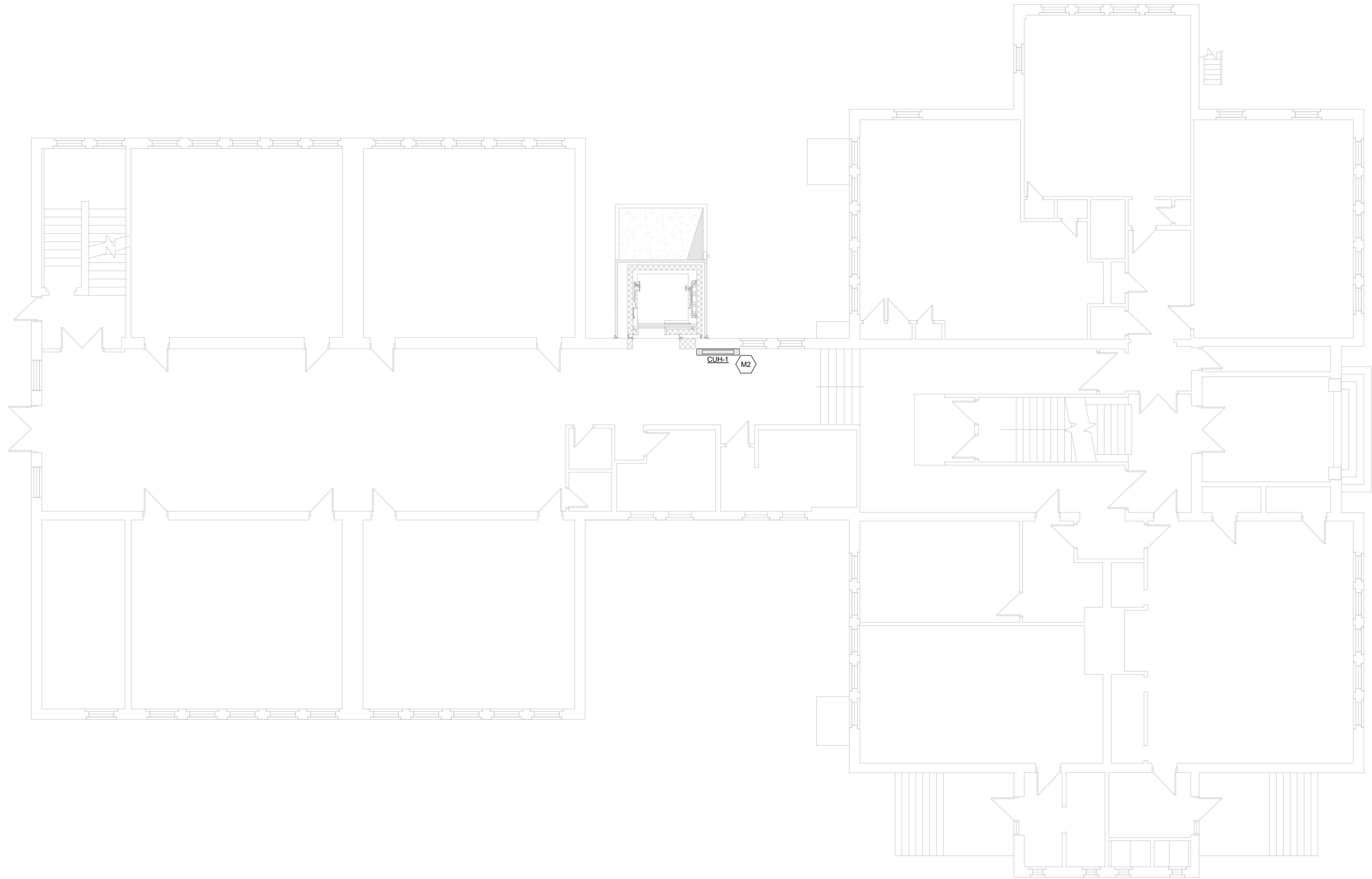


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SHEET NO.
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1 1 - MECHANICAL FIRST FLOOR PLAN
1/8" = 1'-0"

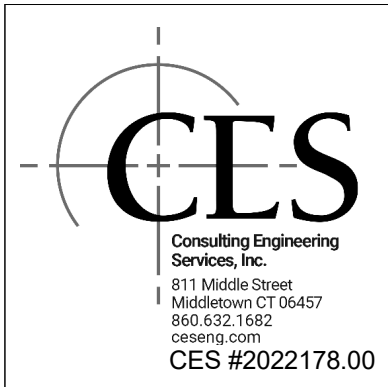


KEYNOTES - MECHANICAL	
Key Value	Keynote Text
M2	EXISTING UNIT HEATER TO BE RELOCATED TO PREVIOUS POSITION. CONNECT TO EXISTING PIPING AND PROVIDE NEW PIPING AND FITTINGS IN ORDER TO RE-ESTABLISH CONNECTIONS WITH UNIT. BALANCE FLOW TO MATCH EXISTING SYSTEM.

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MECHANICAL FIRST FLOOR PLAN

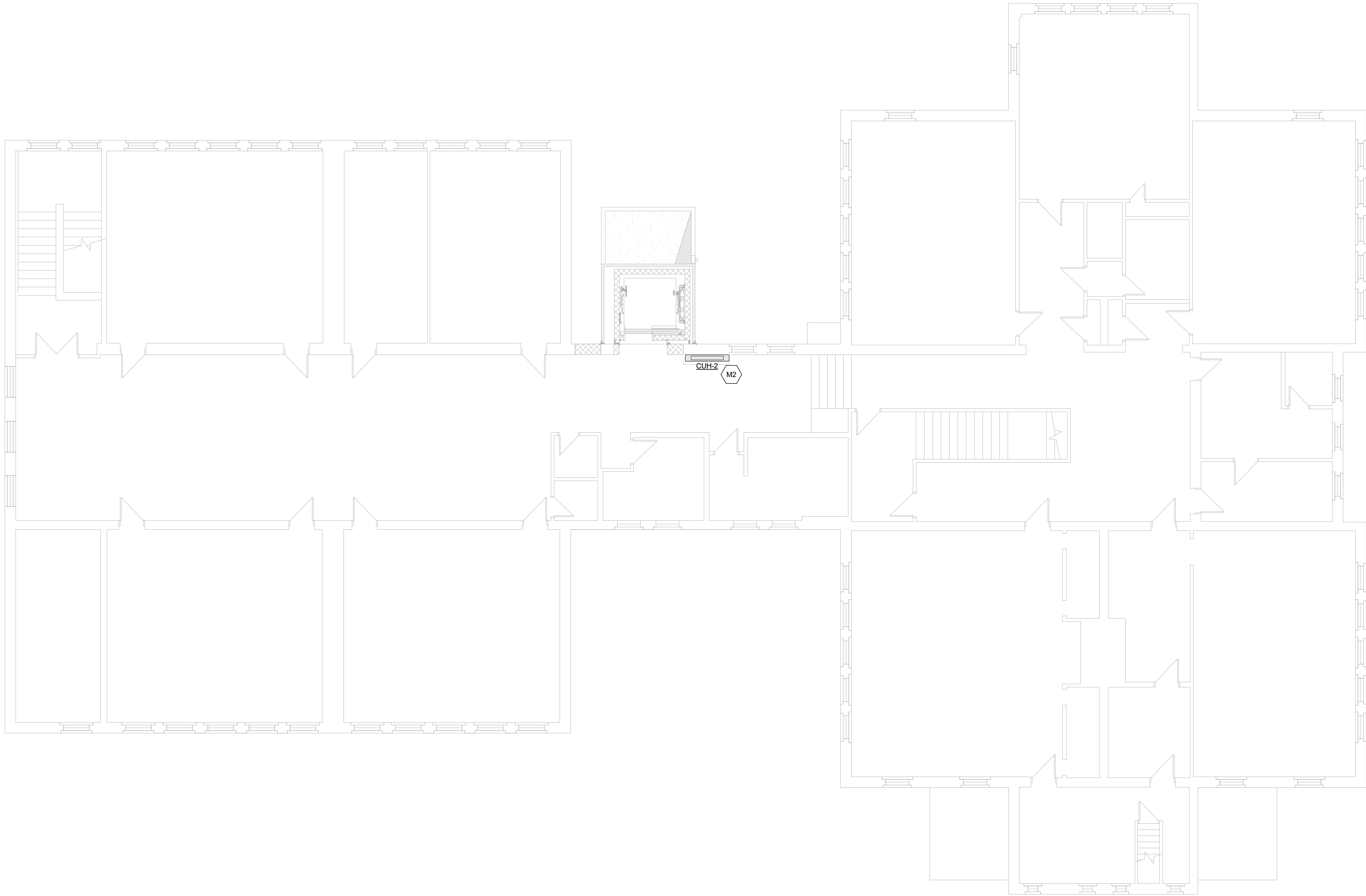
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1 2 - MECHANICAL SECOND FLOOR PLAN
1/8" = 1'-0"



KEYNOTES - MECHANICAL	
Key Value	Keynote Text
M2	EXISTING UNIT HEATER TO BE RELOCATED TO PREVIOUS POSITION. CONNECT TO EXISTING PIPING AND PROVIDE NEW PIPING AND FITTINGS IN ORDER TO RE-ESTABLISH CONNECTIONS WITH UNIT. BALANCE FLOW TO MATCH EXISTING SYSTEM.

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MECHANICAL SECOND FLOOR
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ELECTRICAL ABBREVIATIONS	
A/AMP	AMPERE
AC	ALTERNATING CURRENT
AFCI	ARC-FAULT CIRCUIT INTERRUPTER
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CURRENT
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAL WIRE GAUGE
BSMT	BASEMENT
C	CONDUIT
CATV	CABLE TELEVISION
C/B	CIRCUIT BREAKER
CKT	CIRCUIT
COMP	COMPRESSOR
CP	CONDENSATE PUMP
CT	CURRENT TRANSFORMER
CJ	CONDENSING UNIT OR COPPER
CUH	CABINET UNIT HEATER
D	DRYER
DEG.	DEGREE
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
ETR	EXISTING TO REMAIN
EF	EXHAUST FAN
ELEC	ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
EMT	ELECTRIC METALLIC TUBING
EP	EMERGENCY PANEL
EUH	ELECTRIC UNIT HEATER
EW	ELECTRIC WATER COOLER
FWH	ELECTRIC WATER HEATER
F	FAHRENHEIT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FC	FOOT CANDLE
FCU	FAN COIL UNIT
G	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HP	HORSE POWER
HPS	HIGH PRESSURE SODIUM
HR	HOUR
HZ	HERTZ
IG	ISOLATED GROUND
IN	INCHES
JB	JUNCTION BOX
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERE
KW	KILOWATT
MAX	MAXIMUM
MAU	MAKE-UP AIR UNIT
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MH	METAL HALIDE OR MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
NA	NOT APPLICABLE
NE	NEW DEVICE INSTALLED IN SAME LOCATION AS EXISTING REMOVED DEVICE
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
NL	NEW LOCATION OF RELOCATED DEVICE
NR	NEW TO REPLACE EXISTING
NTS	NOT TO SCALE
P	POLE
PE	PRIMARY ELECTRIC SERVICE
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PVC	POLYVINYL CHLORIDE CONDUIT
RE	EXISTING TO BE REMOVED
REF	REFRIGERATOR
RGS	RIGID GALVANIZED STEEL CONDUIT
RL	EXISTING TO BE RELOCATED
RM	ROOM
RN	EXISTING TO BE REMOVED AND REPLACED WITH NEW (EXISTING BACKBOXES, CONDUIT AND WIRING TO REMAIN)
RR	EXISTING TO BE RELOCATED IN SAME LOCATION ON NEW SURFACE
RTU	ROOFTOP UNIT
SE	SECONDARY ELECTRICAL SERVICE
SPEC	SPECIFICATION
SWBD	SWITCHBOARD
SPD	SURGE PROTECTION DEVICE
TELE	TELECOMMUNICATIONS/TELEPHONE
TV	TELEVISION
T/TX	TRANSFORMER
TYP	TYPICAL
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT AMPERE
VAC	VOLTS ALTERNATING CURRENT
VIF	VERIFY IN FIELD
W	WATT OR WIRE
WA	WASHER
WG	WIRE GUARD
WP	WEATHERPROOF

LIGHTING SYMBOLS	
SYMBOL	DESCRIPTION
	RECESSED LIGHTING FIXTURE
	INDUSTRIAL OR STRIP TYPE FIXTURE
	WALL MOUNTED EXIT SIGN, DOUBLE FACED
	WALL MOUNTED EXIT SIGN
	CEILING MOUNTED EXIT SIGN
	CEILING MOUNTED EXIT SIGN, DOUBLE FACED
	SELF CONTAINED EMERGENCY LIGHTING FIXTURE WITH BATTERY
	SELF CONTAINED EMERGENCY LIGHTING FIXTURE WITH REMOTE CAPABILITY

FIRE ALARM LEGEND	
SYMBOL	DESCRIPTION
EQUIPMENT	
	EMERGENCY 2-WAY COMMUNICATION SYSTEM AREA CALL STATION. REFER TO 2-WAY COMMUNICATION SYSTEM WIRING DIAGRAM FOR ADDITIONAL INFORMATION.
	EMERGENCY 2-WAY COMMUNICATION SYSTEM MASTER STATION. REFER TO 2-WAY COMMUNICATION SYSTEM WIRING DIAGRAM FOR ADDITIONAL INFORMATION.
INITIATING DEVICES	
	CEILING MOUNTED SMOKE DETECTOR
	CEILING MOUNTED SMOKE DETECTOR WIRED TO ELEVATOR RECALL SYSTEM
	CEILING MOUNTED HEAT DETECTOR WITH TEMPERATURE RATING OF 135 DEGREES UNLESS OTHERWISE NOTED
	CEILING MOUNTED COMBINATION FIXED TEMPERATURE / RATE-OF-RISE HEAT DETECTOR
	HEAT DETECTOR FOR ELEVATOR RECALL CONTROLS
INTERFACE MODULES	
	FIRE ALARM MONITOR MODULE
	FIRE ALARM CONTROL MODULE
NOTIFICATION DEVICES	
	WALL MOUNTED COMBINATION SPEAKER / STROBE LIGHT WITH A MULTI-CANDELA STROBE. MOUNT AT 6'-8" AFF.
	WALL MOUNTED STROBE-ONLY UNIT WITH A MULTI-CANDELA STROBE. MOUNT AT 6'-8" AFF.
	MANUAL FIRE ALARM PULL STATION.

ELECTRICAL SYMBOLS	
SYMBOL	DESCRIPTION
	SURFACE MOUNTED PANELBOARD
	RECESSED PANELBOARD
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MOTOR (REFER TO MOTOR CIRCUIT SCHEDULE FOR POWER REQUIREMENTS)
	TRANSFORMER
	ELECTRICAL METER
	SURGE PROTECTIVE DEVICE
	BRANCH CIRCUIT WIRING, CONCEALED IN WALLS OR CEILINGS
	HOMERUN TO PANELBOARD
	SWITCHED BRANCH CIRCUIT WIRING
	JUNCTION BOX
	SURFACE MOUNTED RACEWAY RISER TO NEAREST ACCESSIBLE CEILING
	WIREMOLD, LOCATE DEVICES AS INDICATED ON DRAWINGS
	DUPLEX WALL MOUNTED RECEPTACLE, 18" AFF UNLESS OTHERWISE NOTED
	DOUBLE DUPLEX WALL MOUNTED RECEPTACLE, 18" AFF UNLESS OTHERWISE NOTED
	RECEPTACLE, MOUNT 6" ABOVE COUNTER OR CASEWORK
	RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTION
	RECEPTACLE WITH WEATHERPROOF COVER
	PHOTOCELL FOR LIGHTING CONTROL
	CARD READER: PROVIDE COMPATIBLE SINGLE-GANG BOX WITH MUD RING @ 42" AFF WITH 3/4" C AND NYLON PULLSTRING STUBBED ABOVE ACCESSIBLE CEILING. COORDINATE EXACT LOCATION OF BACKBOX WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN. ELECTRICAL CONTRACTOR SHALL PROVIDE A CONNECTION TO THE EXISTING SCHOOL SECURITY SYSTEM FOR KEY FOR CONTROL OF ACCESS TO ELEVATORS AND DOORS, WHERE SHOWN. EXTENSION OF THE SYSTEMS SHALL BE BY THE CITY OF WATERBURY'S SECURITY VENDORS. PROVISIONS OF ALL CONDUIT, WIRING, PROGRAMMING AND POWER FOR A COMPLETELY OPERATIONAL SYSTEM SHALL BE PROVIDED.

DATE:	09/01/2022
DRAWN BY:	ML/MC
SCALE:	N.T.S.
REVIEWED BY:	
PROJECT NO.	2021-091A

REVISIONS	
NO.	DATE
	11/29/22
DESCRIPTION	
ISSUED FOR BID	

ELECTRICAL ABBREVIATIONS, NOTES AND SYMBOLS	
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STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706

Consulting Engineering Services, Inc.
811 Middle Street
Middletown CT 06457
860.432.1662
ceseng.com
CES #2022178.00

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FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
E0.0

SECTION 26 04 00 - GENERAL CONDITIONS FOR ELECTRICAL TRADES

A. DESCRIPTION

1. THIS PROJECT COMPRISES ALTERATIONS AND RENOVATIONS TO THE EXISTING BUILDING. THE EXISTING BUILDING IS CURRENTLY OCCUPIED AND THE PROJECT WILL PROCEED IN A MANNER WHICH WILL MINIMIZE ANY INCONVENIENCE TO THE BUILDING OCCUPANTS.

2. SCOPE OF WORK CONSISTS OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS AND WITHOUT LIMITING GENERALITY THEREOF CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTING, PLANT, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL WORK AS SHOWN ON THE DRAWINGS AND AS DESCRIBED HEREIN.

B. DEFINITIONS:

1. FURNISH: THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS."

2. INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."

3. PROVIDE: THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.

4. REMOVE: THE TERM "REMOVE" MEANS TO DISCONNECT/FROM ITS PRESENT POSITION; REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."

5. SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT.

C. EQUIPMENT EQUIVALENTS AND SUBSTITUTIONS:

1. CERTAIN MANUFACTURERS OF MATERIAL, APPARATUS OR APPLIANCES ARE INDICATED IN THE DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT. THESE ITEMS HAVE BEEN USED AS THE BASIS OF DESIGN, AND AS A CONVENIENCE IN FIXING THE MINIMUM STANDARD OF WORKMANSHIP, FINISH AND DESIGN THAT IS REQUIRED. IF THE CONTRACTORS USES AN APPROVED EQUAL ALTERNATIVE TO THE MATERIALS, EQUIPMENT, OR IF THE FEATURES OF THAT ALTERNATIVE HAVE AN IMPACT ON OTHER COMPONENTS OF THE PROJECT, THE CONTRACTOR SHALL INCLUDE THE NECESSARY ADJUSTMENTS IN THOSE COMPONENTS, WHETHER FOR ARCHITECTURAL, MECHANICAL, ELECTRICAL, OR IF THE FEATURES OF THAT ALTERNATIVE, OR ANY OTHER ELEMENTS, PLUS ANY ADJUSTMENTS FOR DIFFERENCE IN PERFORMANCE.

2. EQUIPMENT, MATERIAL OR DEVICES SUBMITTED FOR REVIEW AS AN "EQUIVALENT" SHALL MEET THE FOLLOWING REQUIREMENTS:

A. THE EQUIVALENT SHALL HAVE THE SAME CONSTRUCTION FEATURES SUCH AS, BUT NOT LIMITED TO:

1. MATERIAL THICKNESS, GAUGE, WEIGHT, DENSITY, ETC.

2. WELDED, BOLTED, ETC., CONSTRUCTION

3. FINISH, UNDERCOATING, CORROSION PROTECTION

B. THE EQUIVALENT WITH THE SAME FEATURES, BUT BETTER OPERATING EFFICIENCY.

C. THE EQUIVALENT SHALL BE LOCALLY REPRESENTED BY THE MANUFACTURER FOR SERVICE, PARTS AND TECHNICAL INFORMATION.

D. THE EQUIVALENT SHALL BE LOCALLY REPRESENTED BY THE MANUFACTURER FOR SERVICE, PARTS AND TECHNICAL INFORMATION.

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CU. THE EQUIVALENT SHALL BE LOCALL

DATE: 09/01/2022	
DRAWN BY: ML/JMC	
SCALE: 12" = 1'-0"	
REVIEWED BY: _____	
PROJECT NO. 2021-091A	

REVISIONS	
NO.	DATE DESCRIPTION ISSUED FOR BID
	11/28/22


ELECTRICAL SPECIFICATIONS

STATE PROJECT NO. 151-0304CV


ELEVATOR ADDITION

WASHINGTON ELEMENTARY SCHOOL

685 BALDWIN STREET
WATERBURY, CT 06706



CES
Consulting Engineering
Services, Inc.
811 Middle Street
Middlebury CT 06457
860.632.1682
ceseng.com
CES #2022178.00



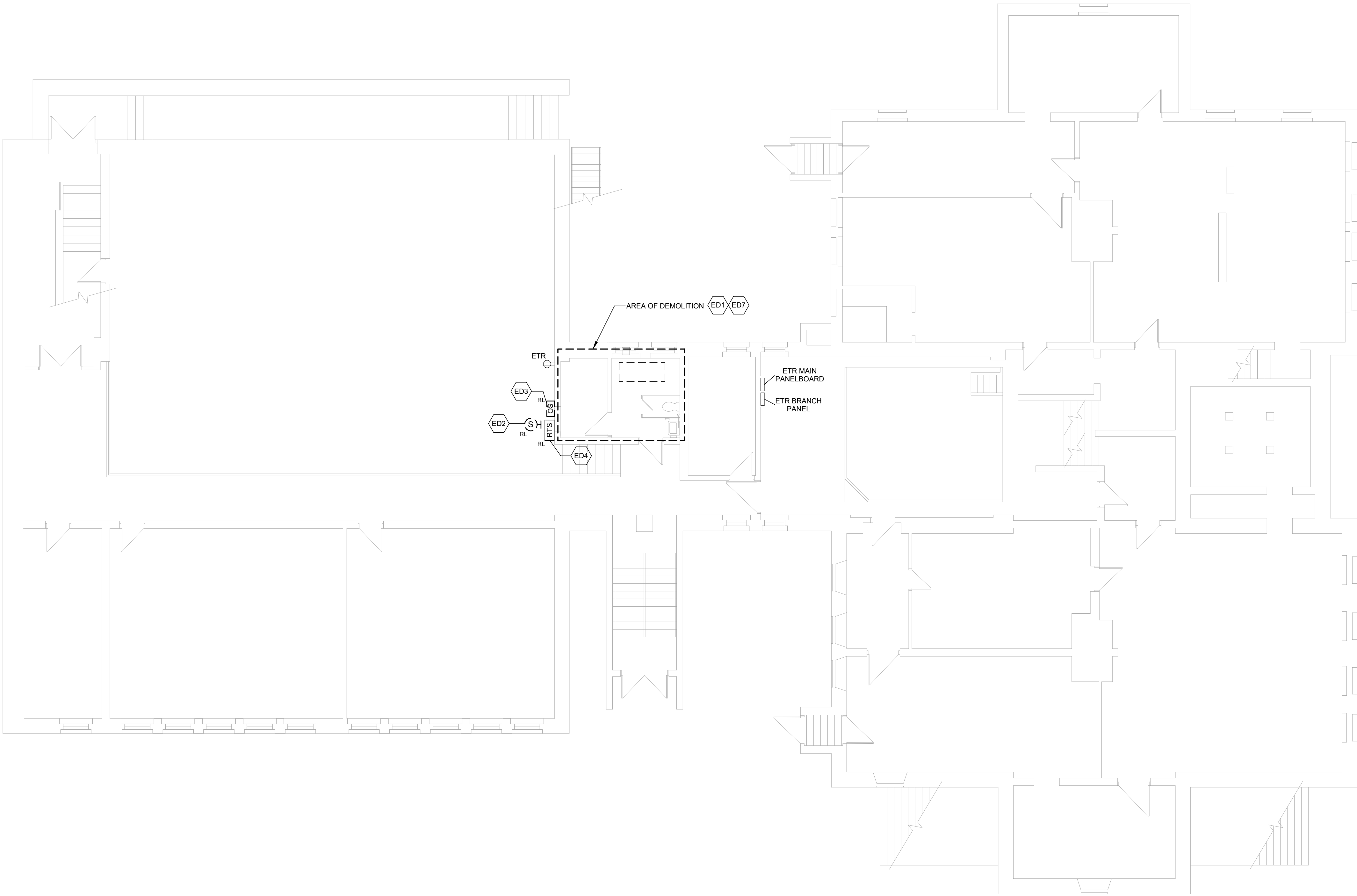
FRIAR
21 Talcott Notch Road
Farmington, CT 06032

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KEYNOTES - ELECTRICAL DEMOLITION	
Key Value	Keynote Text
ED1	UNLESS OTHERWISE NOTED, COMPLETELY REMOVE EXISTING ELECTRICAL SYSTEMS WITHIN THIS REGION IN ITS ENTIRETY. ANY ELECTRICAL SYSTEMS THAT CROSS THROUGH THIS REGION THAT SERVE AREAS OTHER THAN THE AREA OF DEMOLITION SHALL BE MAINTAINED. REFER TO GENERAL ELECTRICAL DEMOLITION NOTES FOR ADDITIONAL INFORMATION.
ED2	EXISTING PAGING SYSTEM SPEAKER AND ASSOCIATED CALL STATION SHALL BE RELOCATED. REFER TO NEW WORK PLANS.
ED3	EXISTING OCCUPANCY SENSOR SHALL BE RELOCATED. REFER TO NEW WORK PLANS.
ED4	EXISTING REMOTE TEST SWITCH FOR DUCT SMOKE DETECTOR SHALL BE RELOCATED. REFER TO NEW WORK PLANS.
ED5	EXISTING MANUAL FIRE ALARM PULL STATION SHALL BE RELOCATED. REFER TO NEW WORK PLANS.
ED6	EXISTING SECURITY CAMERAS SHALL BE RELOCATED. REFER TO NEW WORK PLANS.
ED7	REMOVE EXISTING LIGHT FIXTURES WITHIN AREA OF DEMOLITION. EXISTING LIGHTING CONTROLS TO REMAIN. DISCONNECT EXISTING LIGHTING BRANCH CIRCUIT AND CONTROLS, MAKE SAFE FOR CONNECTION TO NEW LIGHTING FIXTURES. REFER TO NEW WORK PLANS.

ELECTRICAL DEMOLITION NOTES	
1.	EXISTING ELECTRICAL DEVICES IN REGIONS OF DEMOLITION SHALL BE REMOVED UNLESS NOTED OTHERWISE. INCLUDING BUT NOT LIMITED TO RECEPTACLES, LIGHT FIXTURES, TELECOMMUNICATION DEVICES, FIRE ALARM DEVICES, SECURITY DEVICES, AND MECHANICAL EQUIPMENT CONNECTIONS. REMOVAL SHALL BE COMPLETE INCLUDING BOXES, BRACKETS, HANGERS AND BRANCH CIRCUIT WIRING BACK TO SOURCE PANEL BOARD OR LAST ACTIVE DEVICE TO REMAIN.
2.	ELECTRICAL DEMOLITION PLANS ARE DIAGRAMMATIC AND NOT INTENDED TO DEPICT THE ENTIRE SCOPE OF ELECTRICAL DEMOLITION. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING DEVICES. ADDITIONAL DEMOLITION AND MODIFICATION WORK NOT SHOWN SHOULD BE ANTICIPATED.
3.	REFER TO DRAWING E010 FOR SYMBOL LIST AND OTHER ABBREVIATIONS.
4.	DEMOLITION OF EXISTING TELECOMMUNICATIONS DEVICES SHALL INCLUDE REMOVAL OF CONNECTORS, FACEPLATE, BACKBOX, CONDUIT AND WIRING BACK TO SOURCE.
5.	DEMOLITION OF EXISTING SECURITY AND FIRE ALARM DEVICES SHALL INCLUDE REMOVAL OF DEVICE, CONNECTORS, MOUNTING HARDWARE, BACKBOX, CONDUIT AND WIRING BACK TO SOURCE OR LAST ACTIVE DEVICE TO REMAIN.
6.	DEMOLITION OF EXISTING LIGHTING FIXTURES SHALL ALSO INCLUDE REMOVAL OF ASSOCIATED SWITCHES AND SWITCHED WIRING UNLESS OTHERWISE NOTED IN NEW WORK PLANS. LOCATIONS OF ALL SWITCHES SHALL BE FIELD VERIFIED PRIOR TO DEMOLITION.
7.	REFER TO MECHANICAL/PLUMBING DEMOLITION DRAWINGS FOR EXISTING MECHANICAL AND PLUMBING EQUIPMENT TO BE REMOVED. FOR THIS EQUIPMENT, DISCONNECT AND REMOVE WIRING BACK TO SOURCE AND REMOVE ASSOCIATED STARTERS, DRIVES AND DISCONNECT SWITCHES AT EQUIPMENT LOCATIONS.
8.	CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ALL ITEMS TO BE REMOVED IN A SAFE, LEGAL AND RESPONSIBLE MANNER.
9.	CONTRACTOR SHALL MODIFY EXISTING CIRCUITS, WHEN EXISTING DEVICES ARE REMOVED, AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY.
10.	PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.
11.	CONTRACTOR SHALL BE RESPONSIBLE FOR STORAGE AND HANDLING OF EXISTING TO BE RELOCATED EQUIPMENT AND DEVICES.
12.	EXISTING FIRE ALARM SYSTEM SHALL BE MODIFIED IN AREA OF WORK AND BE MAINTAINED OUTSIDE OF AREA OF WORK. MAINTAIN OPERATION OF THE EXISTING FIRE ALARM SYSTEM DURING DEMOLITION. DEVICES ARE TO BE REMOVED BACK TO NEXT DEVICE OUTSIDE THE AREA OF WORK. EXTEND CIRCUITS WITH WIRING TO MATCH EXISTING CLASS AND STYLE TO MAINTAIN CONTINUITY OF CIRCUITS UPSTREAM AND DOWNSTREAM OF THE WORK AFFECTED BY DEMOLITION. PROTECT EXISTING DEVICES DURING CONSTRUCTION. TAKE DEVICES OFF-LINE IF NECESSARY. COORDINATE BYPASSING AND REACTIVATION OF THESE DEVICES WITH OWNER. PROVIDE TESTING AND REPROGRAMMING OF SYSTEM, AND COORDINATE ACCEPTANCE TESTING WITH THE LOCAL AHJ.
13.	PANELBOARDS THAT ARE EXISTING TO REMAIN SHALL HAVE THEIR DIRECTORY UPDATED TO INDICATE CIRCUITS THAT ARE EXISTING TO REMAIN. CIRCUITS THAT HAVE BEEN REMOVED AS PART OF DEMOLITION SHALL BE INDICATED IN THE REVISED DIRECTORY AS SPARES.
14.	WHERE EXISTING LIGHT FIXTURES ARE SCHEDULED FOR RELOCATION, RECONFIGURATION OR REINSTALLATION IN NEW CEILINGS, CLEAN, RE-LAMP (IF APPLICABLE) AND TEST THE FIXTURES. REPLACE DAMAGED LENSES AND DEFECTIVE BALLASTS OR DRIVERS AS NEEDED.
15.	REPLACE BATTERIES FOR EMERGENCY LIGHTING UNITS THAT ARE SCHEDULED TO BE RELOCATED AND REINSTALLED.



1 0 - ELECTRICAL BASEMENT FLOOR DEMOLITION PLAN
1/8" = 1'-0"

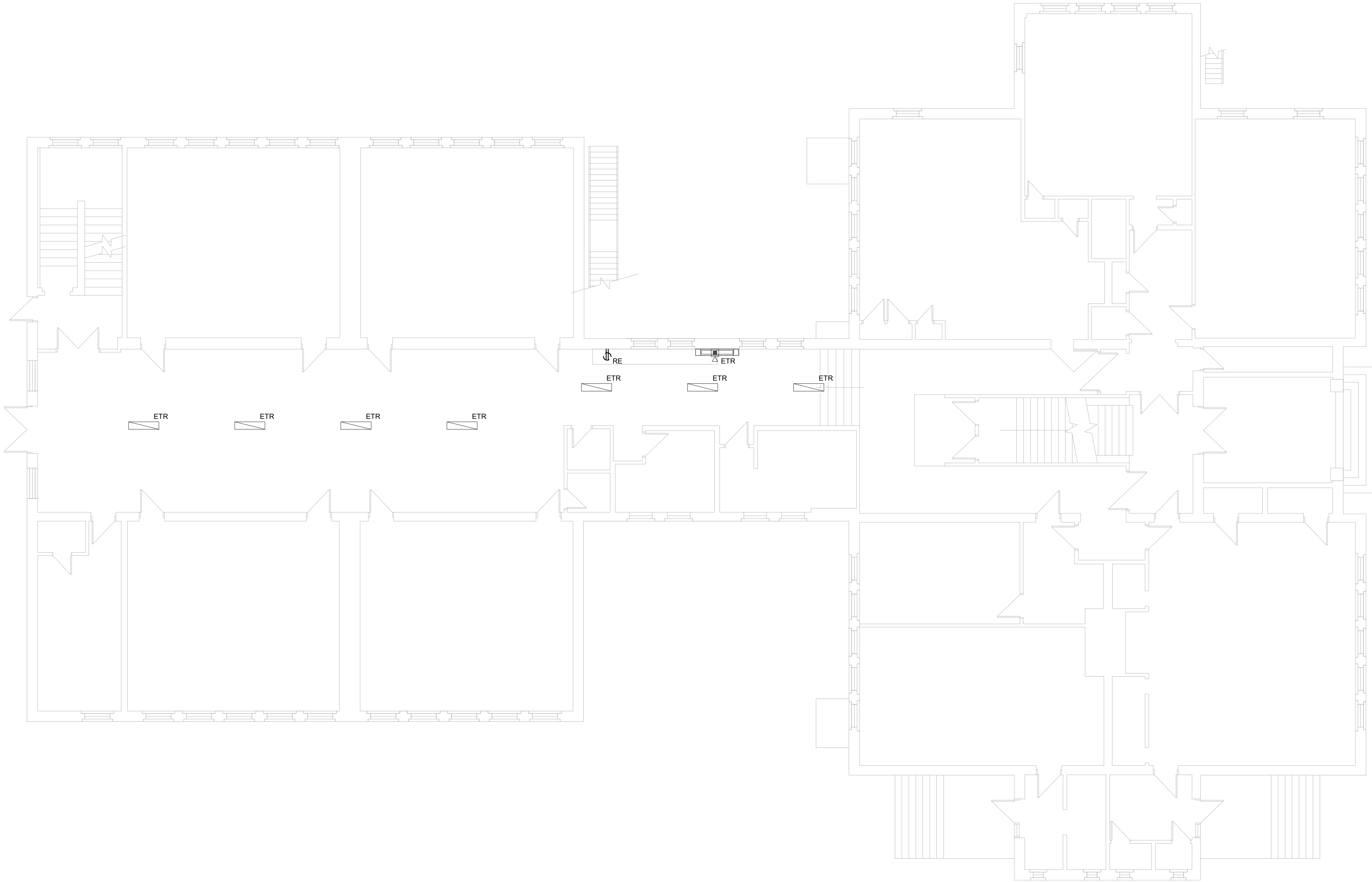
DATE:	09/01/2022
DRAWN BY:	ML/MC
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PROJECT NO.	2021-091A

REVISIONS	
NO.	DESCRIPTION
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ELECTRICAL BASEMENT
DEMOLITION PLAN

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706





KEYNOTES - ELECTRICAL DEMOLITION	
Key Value	Keynote Text
ED1	UNLESS OTHERWISE NOTED, COMPLETELY REMOVE EXISTING ELECTRICAL SYSTEMS WITHIN THIS REGION IN ITS ENTIRETY. ANY ELECTRICAL SYSTEMS THAT CROSS THROUGH THIS REGION THAT SERVE AREAS OTHER THAN THE AREA OF DEMOLITION SHALL BE MAINTAINED. REFER TO GENERAL ELECTRICAL DEMOLITION NOTES FOR ADDITIONAL INFORMATION.
ED2	EXISTING PAGING SYSTEM SPEAKER AND ASSOCIATED CALL STATION SHALL BE RELOCATED. REFER TO NEW WORK PLANS.
ED3	EXISTING OCCUPANCY SENSOR SHALL BE RELOCATED. REFER TO NEW WORK PLANS.
ED4	EXISTING REMOTE TEST SWITCH FOR DUCT SMOKE DETECTOR SHALL BE RELOCATED. REFER TO NEW WORK PLANS.
ED5	EXISTING MANUAL FIRE ALARM PULL STATION SHALL BE RELOCATED. REFER TO NEW WORK PLANS.
ED6	EXISTING SECURITY CAMERAS SHALL BE RELOCATED. REFER TO NEW WORK PLANS.
ED7	REMOVE EXISTING LIGHT FIXTURES WITHIN AREA OF DEMOLITION. EXISTING LIGHTING CONTROLS TO REMAIN. DISCONNECT EXISTING LIGHTING BRANCH CIRCUIT AND CONTROLS. MAKE SAFE FOR CONNECTION TO NEW LIGHTING FIXTURES. REFER TO NEW WORK PLANS.

ELECTRICAL DEMOLITION NOTES	
1.	EXISTING ELECTRICAL DEVICES IN REGIONS OF DEMOLITION SHALL BE REMOVED UNLESS NOTED OTHERWISE. INCLUDING BUT NOT LIMITED TO RECEPTACLES, LIGHT FIXTURES, TELECOMMUNICATION DEVICES, FIRE ALARM DEVICES, SECURITY DEVICES, AND MECHANICAL EQUIPMENT CONNECTIONS. REMOVAL SHALL BE COMPLETE INCLUDING BOXES, BRACKETS, HANGERS AND BRANCH CIRCUIT WIRING BACK TO SOURCE PANEL BOARD OR LAST ACTIVE DEVICE TO REMAIN.
2.	ELECTRICAL DEMOLITION PLANS ARE DIAGRAMMATIC AND NOT INTENDED TO DEPICT THE ENTIRE SCOPE OF ELECTRICAL DEMOLITION. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING DEVICES. ADDITIONAL DEMOLITION AND MODIFICATION WORK NOT SHOWN SHOULD BE ANTICIPATED.
3.	REFER TO DRAWING E010 FOR SYMBOL LIST AND OTHER ABBREVIATIONS.
4.	DEMOLITION OF EXISTING TELECOMMUNICATIONS DEVICES SHALL INCLUDE REMOVAL OF CONNECTORS, FACEPLATE, BACKBOX, CONDUIT AND WIRING BACK TO SOURCE.
5.	DEMOLITION OF EXISTING SECURITY AND FIRE ALARM DEVICES SHALL INCLUDE REMOVAL OF DEVICE, CONNECTORS, MOUNTING HARDWARE, BACKBOX, CONDUIT AND WIRING BACK TO SOURCE OR LAST ACTIVE DEVICE TO REMAIN.
6.	DEMOLITION OF EXISTING LIGHTING FIXTURES SHALL ALSO INCLUDE REMOVAL OF ASSOCIATED SWITCHES AND SWITCHED WIRING UNLESS OTHERWISE NOTED IN NEW WORK PLANS. LOCATIONS OF ALL SWITCHES SHALL BE FIELD VERIFIED PRIOR TO DEMOLITION.
7.	REFER TO MECHANICAL/PLUMBING DEMOLITION DRAWINGS FOR EXISTING MECHANICAL AND PLUMBING EQUIPMENT TO BE REMOVED. FOR THIS EQUIPMENT, DISCONNECT AND REMOVE WIRING BACK TO SOURCE AND REMOVE ASSOCIATED STARTERS, DRIVES AND DISCONNECT SWITCHES AT EQUIPMENT LOCATIONS.
8.	CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ALL ITEMS TO BE REMOVED IN A SAFE, LEGAL AND RESPONSIBLE MANNER.
9.	CONTRACTOR SHALL MODIFY EXISTING CIRCUITS, WHEN EXISTING DEVICES ARE REMOVED, AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY.
10.	PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.
11.	CONTRACTOR SHALL BE RESPONSIBLE FOR STORAGE AND HANDLING OF EXISTING TO BE RELOCATED EQUIPMENT AND DEVICES.
12.	EXISTING FIRE ALARM SYSTEM SHALL BE MODIFIED IN AREA OF WORK AND BE MAINTAINED OUTSIDE OF AREA OF WORK. MAINTAIN OPERATION OF THE EXISTING FIRE ALARM SYSTEM DURING DEMOLITION. DEVICES ARE TO BE REMOVED BACK TO NEXT DEVICE OUTSIDE THE AREA OF WORK. EXTEND CIRCUITS WITH WIRING TO MATCH EXISTING CLASS AND STYLE TO MAINTAIN CONTINUITY OF CIRCUITS UPSTREAM AND DOWNSTREAM OF THE WORK AFFECTED BY DEMOLITION. PROTECT EXISTING DEVICES DURING CONSTRUCTION. TAKE DEVICES OFF-LINE IF NECESSARY. COORDINATE BYPASSING AND REACTIVATION OF THESE DEVICES WITH OWNER. PROVIDE TESTING AND REPROGRAMMING OF SYSTEM, AND COORDINATE ACCEPTANCE TESTING WITH THE LOCAL AHJ.
13.	PANELBOARDS THAT ARE EXISTING TO REMAIN SHALL HAVE THEIR DIRECTORY UPDATED TO INDICATE CIRCUITS THAT ARE EXISTING TO REMAIN. CIRCUITS THAT HAVE BEEN REMOVED AS PART OF DEMOLITION SHALL BE INDICATED IN THE REVISED DIRECTORY AS SPARES.
14.	WHERE EXISTING LIGHT FIXTURES ARE SCHEDULED FOR RELOCATION, RECONFIGURATION OR REINSTALLATION IN NEW CEILINGS, CLEAN, RE-LAMP (IF APPLICABLE) AND TEST THE FIXTURES. REPLACE DAMAGED LENSES AND DEFECTIVE BALLASTS OR DRIVERS AS NEEDED.
15.	REPLACE BATTERIES FOR EMERGENCY LIGHTING UNITS THAT ARE SCHEDULED TO BE RELOCATED AND REINSTALLED.

1 - ELECTRICAL FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0"

DATE:	09/01/2022
DRAWN BY:	ML/MC
SCALE:	As Indicated
REVIEWED BY:	
PROJECT NO.:	2021-091A

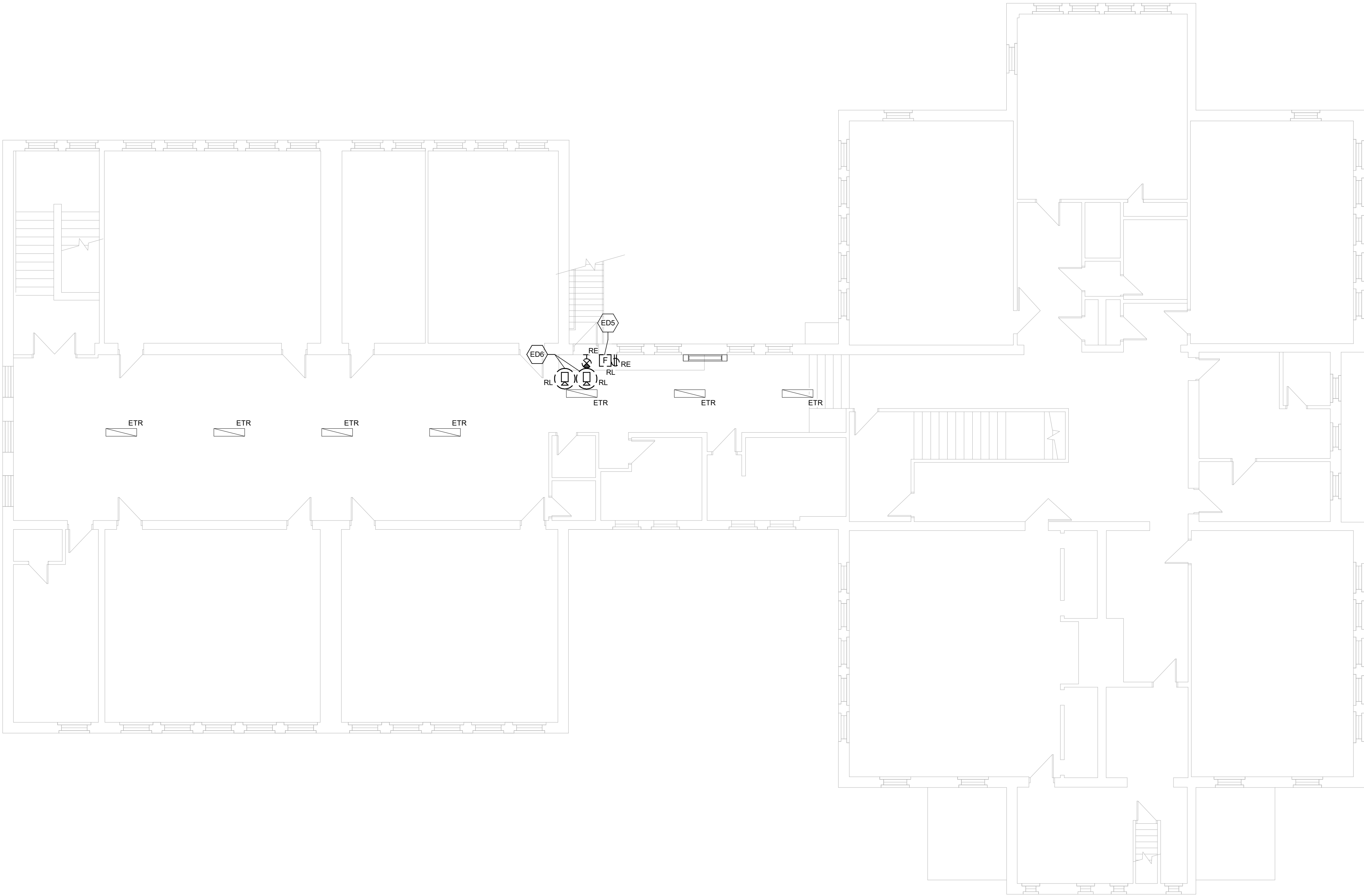
REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR BID
DATE:	11/28/22

ELECTRICAL FIRST FLOOR
DEMOLITION PLAN

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706



SHEET NO.
ED1.1



KEYNOTES - ELECTRICAL DEMOLITION	
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DATE:	09/01/2022
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SCALE:	As Indicated
REVIEWED BY:	
PROJECT NO.	2021-091A

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DATE	11/28/22

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
**WASHINGTON
ELEMENTARY SCHOOL**
685 BALDWIN STREET
WATERBURY, CT 06706

**ELECTRICAL SECOND FLOOR
DEMOLITION PLAN**

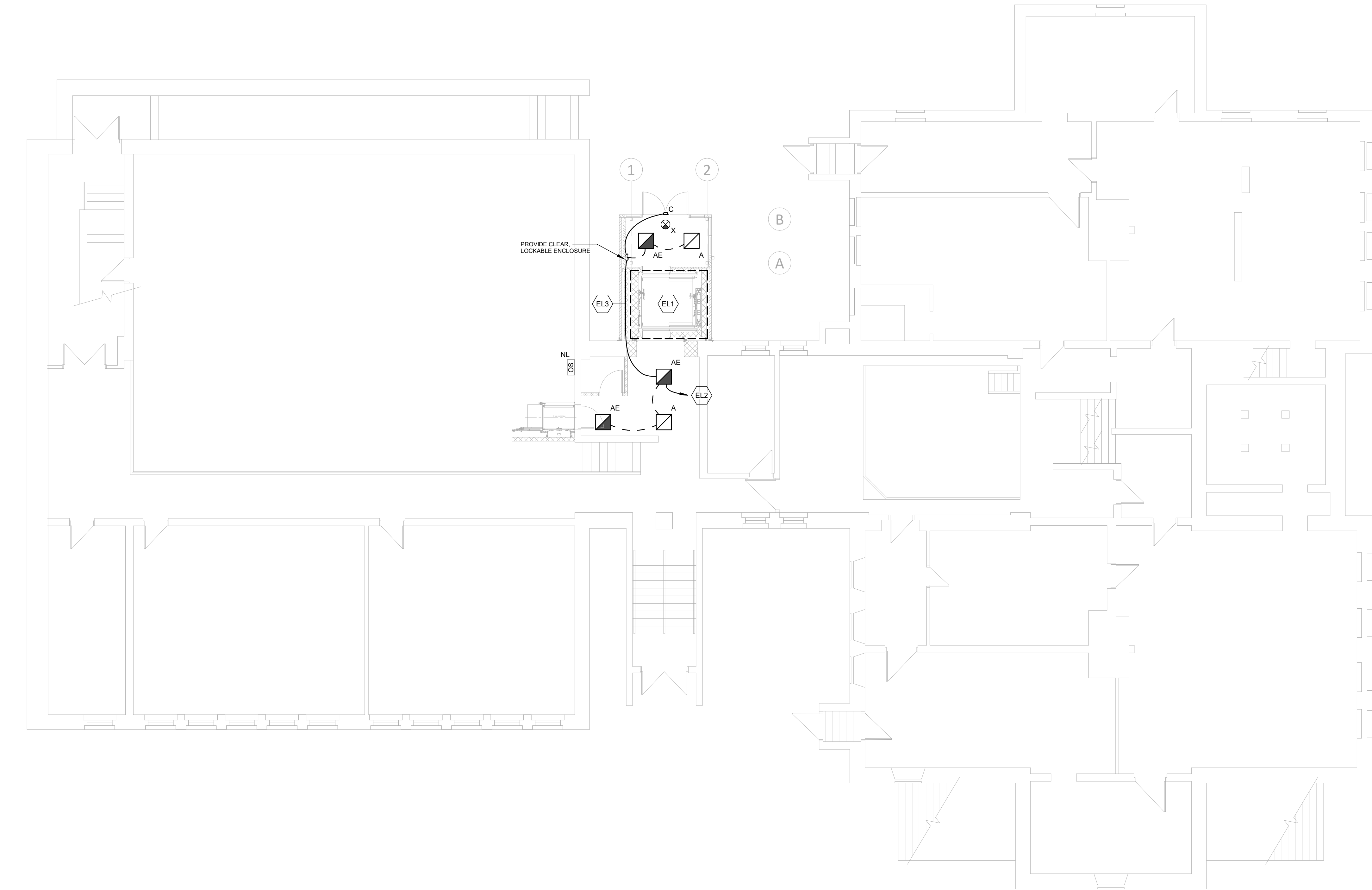
STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
**WASHINGTON
ELEMENTARY SCHOOL**
685 BALDWIN STREET
WATERBURY, CT 06706

CES
Consulting Engineering
Services, Inc.
811 Middle Street
Middletown CT 06457
860.632.1662
ceseng.com
CES #2022178.00

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

**SHEET NO.
ED1.2**

1 2 - ELECTRICAL SECOND FLOOR DEMOLITION PLAN
1/8" = 1'-0"



1 0 - ELECTRICAL LIGHTING BASEMENT FLOOR PLAN
1/8" = 1'-0"

ELECTRICAL LIGHTING NOTES	
1. REFER TO DRAWING E5.0 FOR LIGHTING FIXTURE SCHEDULE. 2. EXIT SIGNS AND EMERGENCY BATTERY UNITS SHALL BE WIRED TO LINE SIDE OF LOCAL LIGHTING BRANCH CIRCUIT, AHEAD OF ALL SWITCHING DEVICES.	
KEYNOTES - ELECTRICAL LIGHTING	
Key Value	Keynote Text
EL1	REFER TO ELEVATOR DETAILS ON DRAWING E5.0 FOR ADDITIONAL INFORMATION.
EL2	WIRE NEW LIGHT FIXTURES TO EXISTING BRANCH LIGHTING CIRCUIT AND CONTROLS WITHIN ROOM. REFER TO ELECTRICAL DEMOLITION PLANS FOR ADDITIONAL INFORMATION.
EL3	WIRE NEW LIGHT FIXTURES AND CONTROLS TO EXISTING BRANCH LIGHTING CIRCUIT WITHIN ADJACENT ROOM, AS SHOWN ON PLANS. USE 2#12, #12G, 3/4" AS REQUIRED.

DATE:	09/01/2022
DRAWN BY:	ML/MC
SCALE:	As indicated
REVIEWED BY:	
PROJECT NO.	2021-091A

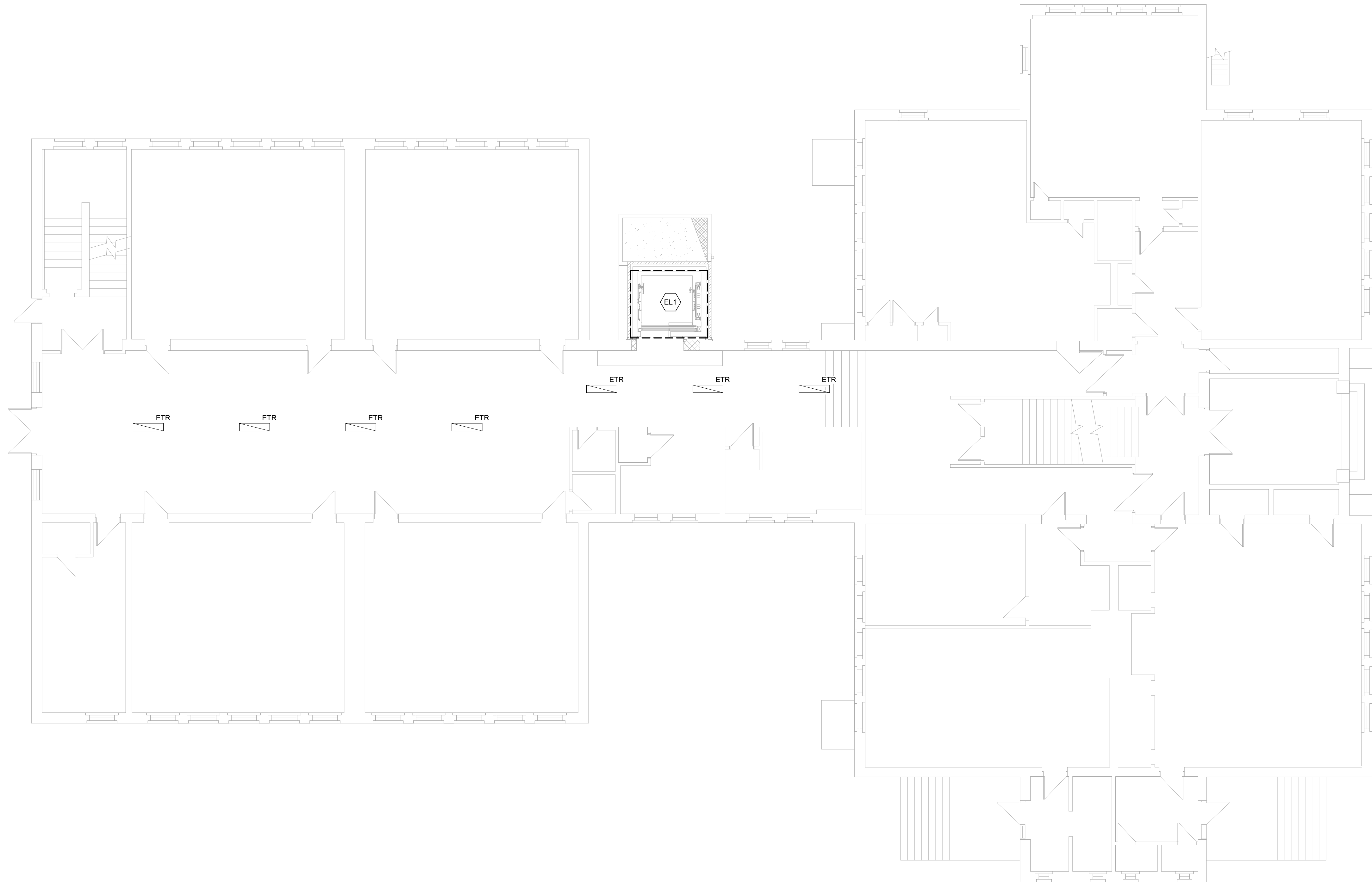
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ELECTRICAL LIGHTING BASEMENT
FLOOR PLAN

STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706



SHEET NO.
EL1.0




1 - ELECTRICAL LIGHTING FIRST FLOOR PLAN
1/8" = 1'-0"

ELECTRICAL LIGHTING NOTES	
1. REFER TO DRAWING E5.0 FOR LIGHTING FIXTURE SCHEDULE. 2. EXIT SIGNS AND EMERGENCY BATTERY UNITS SHALL BE WIRED TO LINE SIDE OF LOCAL LIGHTING BRANCH CIRCUIT, AHEAD OF ALL SWITCHING DEVICES.	
KEYNOTES - ELECTRICAL LIGHTING	
Key Value	Keynote Text
EL1	REFER TO ELEVATOR DETAILS ON DRAWING E5.0 FOR ADDITIONAL INFORMATION.

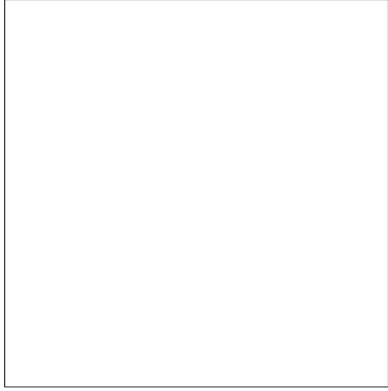
REVISIONS	
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STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
**WASHINGTON
ELEMENTARY SCHOOL**
685 BALDWIN STREET
WATERBURY, CT 06706

**ELECTRICAL LIGHTING FIRST
FLOOR PLAN**



Consulting Engineering
Services, Inc.
811 Middle Street
Middletown CT 06457
860.432.1662
ceseng.com
CES #2022178.00

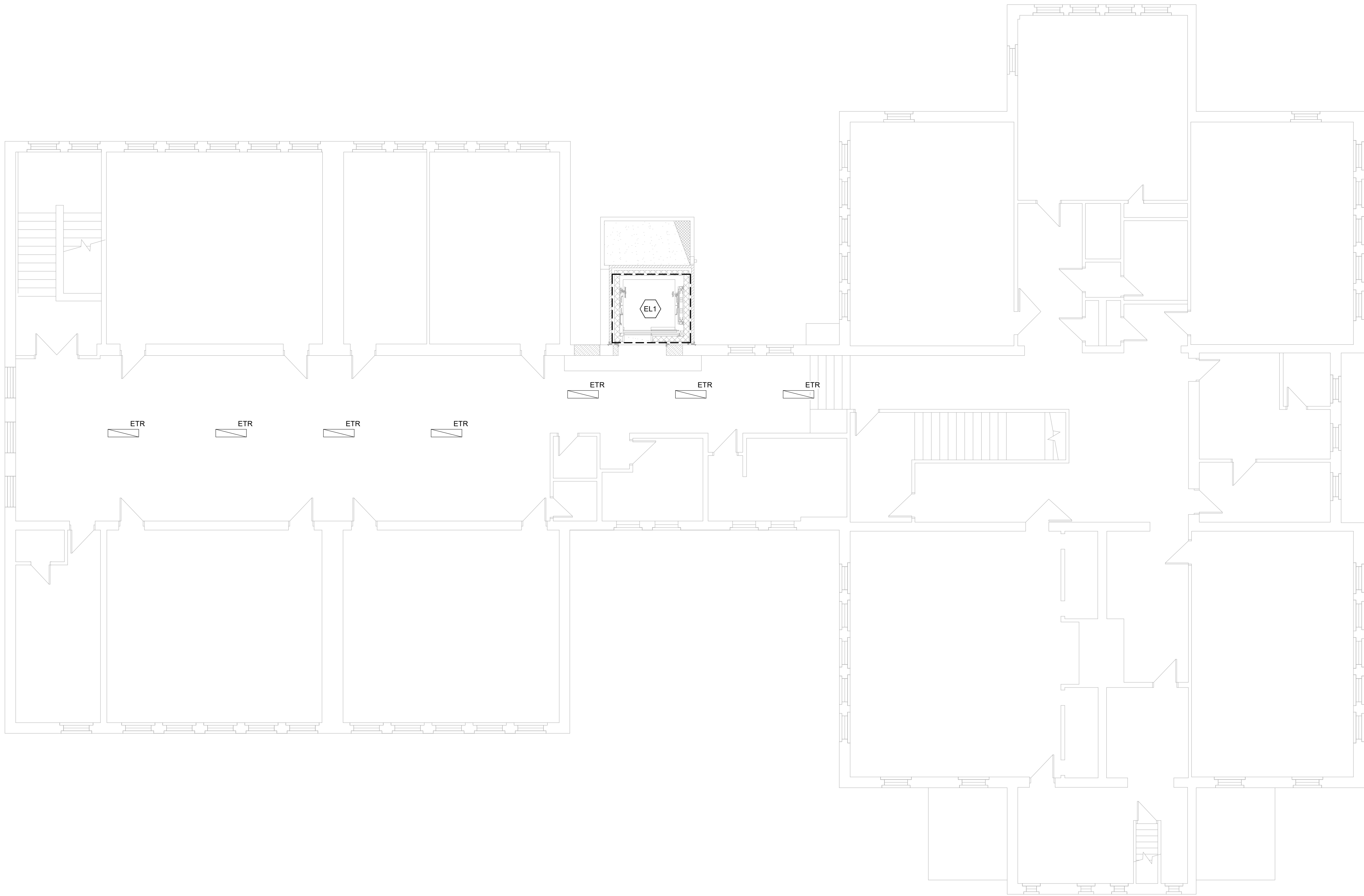




FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
EL1.1

DATE:	09/01/2022
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1 2 - ELECTRICAL LIGHTING SECOND FLOOR PLAN
1/8" = 1'-0"

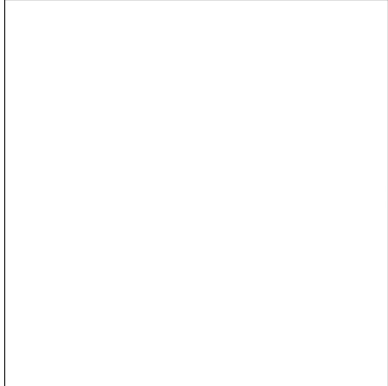
ELECTRICAL LIGHTING NOTES	
1. REFER TO DRAWING E5.0 FOR LIGHTING FIXTURE SCHEDULE. 2. EXIT SIGNS AND EMERGENCY BATTERY UNITS SHALL BE WIRED TO LINE SIDE OF LOCAL LIGHTING BRANCH CIRCUIT, AHEAD OF ALL SWITCHING DEVICES.	
KEYNOTES - ELECTRICAL LIGHTING	
Key Value	Keynote Text
EL1	REFER TO ELEVATOR DETAILS ON DRAWING E5.0 FOR ADDITIONAL INFORMATION.

REVISIONS	
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STATE PROJECT NO. 151-0304CV
ELEVATOR ADDITION
**WASHINGTON
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**ELECTRICAL LIGHTING SECOND
FLOOR PLAN**


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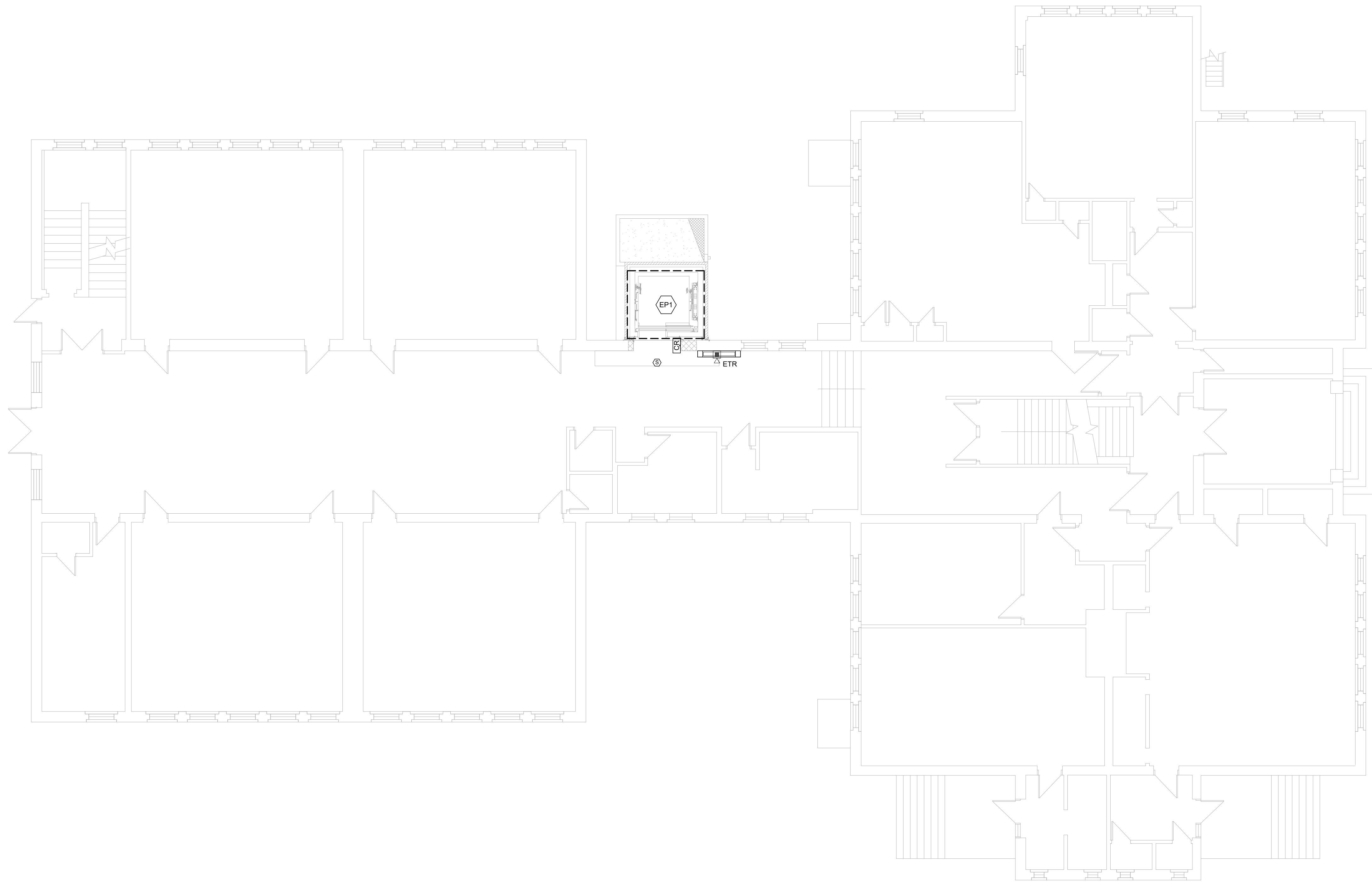



21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
EL1.2

DATE:	09/01/2022
DRAWN BY:	ML/MC
SCALE:	As indicated
REVIEWED BY:	
PROJECT NO.	2021-091A

1 - ELECTRICAL POWER FIRST FLOOR PLAN
1/8" = 1'-0"

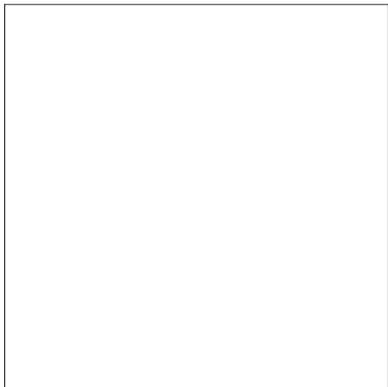
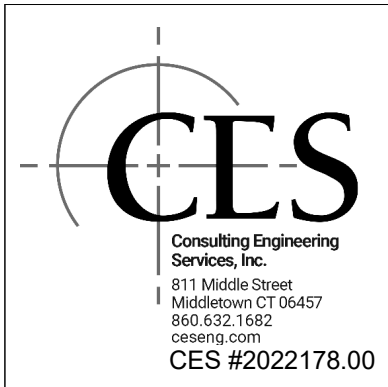


KEYNOTES - ELECTRICAL POWER	
Key Value	Keynote Text
EP1	REFER TO ELEVATOR DETAILS ON DRAWING E5.0 FOR ADDITIONAL INFORMATION.

REVISIONS	
NO.	DATE
	11/28/22
DESCRIPTION	
ISSUED FOR BID	

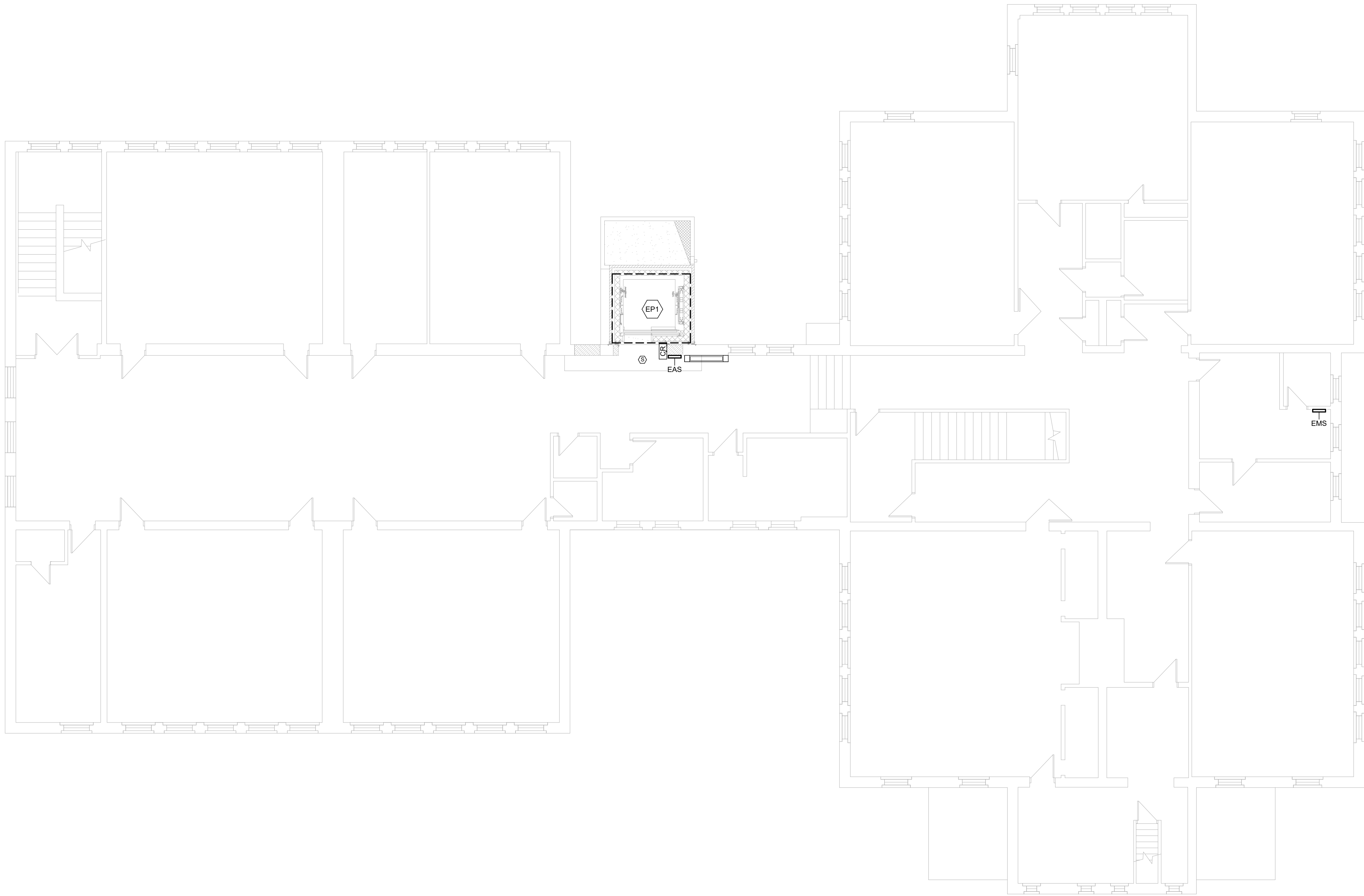
ELECTRICAL POWER FIRST FLOOR
PLAN

STATE PROJECT NO. 151-0304CV
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SHEET NO.
EP1.1

1 2 - ELECTRICAL POWER SECOND FLOOR PLAN
1/8" = 1'-0"

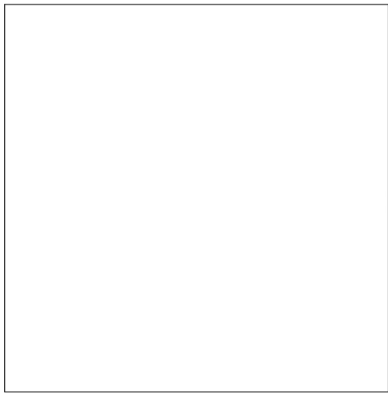
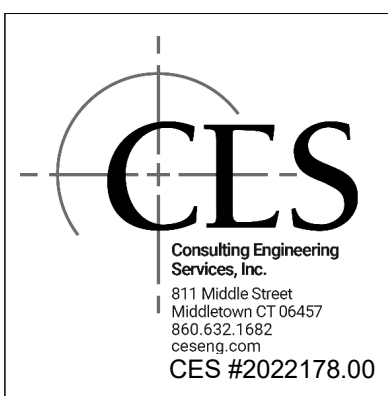


KEYNOTES - ELECTRICAL POWER	
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ELECTRICAL POWER SECOND FLOOR PLAN

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ELEVATOR ADDITION
WASHINGTON
ELEMENTARY SCHOOL
685 BALDWIN STREET
WATERBURY, CT 06706



SHEET NO.
EP1.2

Branch Panel: ELEVATOR													
Location:				Volts: 120/208 Wye				A.I.C. Rating: 22K					
Supply From:				Phases: 3				Bus Material: CU					
Mounting: Surface				Wires: 4				Bus Rating: 150 A					
Enclosure: Type 1				MCB Rating / MLO: 150A/3P MCB									
CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	PLATFORM LIFT	20 A	1	1.00	9.38					3	110 A	ELEVATOR: MAIN FEED	2
3	ELEVATOR: CAB LIGHTS	20 A	1			0.10	9.38			--	--		4
5	ELEVATOR: PIT RCPT	20 A	1					0.18	9.38	--	--		6
7	ELEVATOR: SHAFT RCPT	20 A	1	0.18	0.10					1	20 A	ELEVATOR: PIT LIGHT	8
9	ELEVATOR: SHAFT LIGHT	20 A	1			0.10	1.00			3	20 A	UH-1	10
11	SPARE	20 A	1					0.00	1.00	--	--		12
13	SPARE	20 A	1	0.00	1.00					--	--		14
15	SPARE	20 A	1			0.00	0.00			1	20 A	SPARE	16
17	SPARE	20 A	1					0.00	0.00	1	20 A	SPARE	18
				Phase Load:		11.66 kVA		10.58 kVA					
				Phase...:		97.2 A		88.2 A					
				Total Load:		32.81 kVA		88 A					
				Total Amps:		91.08 A							
Notes:													
SUPPLY FROM: MAIN ELECTRICAL PANEL - SEE POWER PLANS													
LOCATION: MAIN ELECTRICAL ROOM													

LIGHTING FIXTURE SCHEDULE				
TYPE	BASIS OF DESIGN MANUFACTURER / MODEL	VOLTAGE	SOURCE	FIXTURE DESCRIPTION - BASIS OF DESIGN
A	COLUMBIA LIGHTING CFP22-40/33/2835	UNV	4000LM, 40W 3500K LED	2'x2' RECESSED LED FLAT PANEL WITH ADJUSTABLE LUMEN OUTPUT. FROSTED ACRYLIC LENS, 80+ CRI, 0-10V DIMMABLE, LED RATED LIFE OF 54,000 HOURS AT L70.
AE	COLUMBIA LIGHTING CFP22-40/33/2835-PLD10M	UNV	4000LM, 40W 3500K LED	SAME AS TYPE "A2" EXCEPT WITH INTEGRAL EMERGENCY BATTERY PACK. PROVIDE WITH DUAL-LITE PLRTS REMOTE TEST SWITCH.
B	COLUMBIA LIGHTING MPS-4-35-HL-C-W-ED-U-ELL14-MPSWG4	UNV	5800LM, 42W 3500K LED	4' LED UTILITY STRIP FIXTURE. STEEL HOUSING WITH CURVED FROSTED ACRYLIC LENS, 80+ CRI, 0-10V DIMMABLE, LED RATED LIFE OF 60,000 HOURS AT L80. PROVIDE WITH WIRE GUARD AND EMERGENCY BATTERY PACK ACCESSORIES.
C	LITHONIA LIGHTING WSQ LED-P2-30K-SR3-MVOLT-E10WH-PIR	UNV	2900LM, 29W 3000K LED	ARCHITECTURAL LED WALL SCONCE FIXTURE. TYPE III DISTRIBUTION, WITH INTEGRAL EMERGENCY BATTERY AND PASSIVE INFRARED MOTION SENSOR AND AMBIENT LIGHT SENSOR OPTION.
X	DUAL-LITE EVE-U-X-W-E-I	UNV	LED	LED EXIT SIGN, UL LISTED 90 MINUTE RUN TIME, INTEGRAL BATTERY BACKUP, THERMOPLASTIC HOUSING, UNIVERSAL MOUNTING AS APPROPRIATE FOR LOCATION INDICATED ON PLANS. SELF-DIAGNOSTIC TESTING FEATURE INCLUDED.
<div>NOTES:</div> <div>1. LIGHT FIXTURES IN THE SCHEDULE SHALL BE CONSIDERED BASIS OF DESIGN. EQUAL FIXTURE SUBSTITUTIONS ARE ACCEPTABLE FOR ALL FIXTURES IN THE LIGHTING FIXTURE SCHEDULE, UNLESS INDICATED OTHERWISE. EQUAL FIXTURE APPROVAL SHALL BE AS JUDGED BY THE ENGINEER AND THE ARCHITECT. IN ADDITION TO THE REQUIREMENTS LISTED IN THE LIGHTING FIXTURE SCHEDULE AND IN THE SPECIFICATIONS, THE PROPOSED EQUAL FIXTURES SHALL: A. BE THE SAME GENERAL SIZE, STYLE AND SHAPE, INCLUDING BUT NOT LIMITED TO LENS CONSTRUCTION AND SHADING. B. BE OF EQUAL QUALITY CONSTRUCTION AND FINISH. C. BE SUPPLIED WITH ALL REQUIRED ACCESSORIES TO MATCH THE SPECIFIED (BASIS OF DESIGN) FIXTURE. D. PROVIDE THE SAME DISTRIBUTION, EFFICACY AND SOURCE LUMEN OUTPUT. E. HAVE THE SAME LISTINGS AS THE BASIS OF DESIGN FIXTURE, INCLUDING DLC AND ENERGY STAR QUALIFICATIONS. 2. ALL FIXTURES SHALL BE UL LISTED. 3. ALL NECESSARY MOUNTING HARDWARE, HANGERS, BRACKETS, RAILS, YOKES, CANOPIES, STEMS, CHAINS, ROW JOINERS, ETC. SHALL BE FURNISHED AND INSTALLED. 4. REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFIC DETAILS, ARRANGEMENT, MOUNTING HEIGHTS, SUSPENSION LENGTHS, CEILING CONSTRUCTION, ETC. ALL COLORS AND FINISHES SHALL BE SELECTED BY ARCHITECT 5. FIXTURES SHALL BE SEISMICALLY SUPPORTED AS REQUIRED BY THE APPLICABLE BUILDING CODE. FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE AND SHALL BE INDEPENDENT OF DUCTS, PIPES, CEILINGS AND THEIR SUPPORTING MEMBERS. FIXTURES SHALL BE SUPPORTED WITH A MINIMUM OF 2 SUPPORTS. 6. WIRE EMERGENCY FIXTURES AND EXIT SIGNS AHEAD OF SWITCHED LEGS. 7. MINIMUM MOUNTING HEIGHT OF FIXTURES IN MECHANICAL AND ELECTRICAL SPACES IS 8'-6" AFF. COORDINATE MOUNTING HEIGHT IN FIELD WITH EQUIPMENT IN ROOM SUCH THAT LIGHTING IS NOT OBSTRUCTED BY DUCTWORK, PIPING AND CONDUIT. PROVIDE NECESSARY CHAIN-MOUNTING HARDWARE TO SUSPEND FIXTURES WHERE REQUIRED. 8. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. 9. WHERE EXIT SIGNS ARE SHOWN AS WALL MOUNTED ABOVE A DOOR, MOUNT SUCH THAT THE BOTTOM OF THE SIGN IS NO MORE THAN 3" ABOVE THE DOOR FRAME, UNLESS INDICATED OTHERWISE ON PLANS.</div>				

DATE:	09/01/2022
DRAWN BY:	ML/MC
SCALE:	NTS
REVIEWED BY:	
PROJECT NO.	2021-091A

REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR BID
NO.	DATE
	11/7/2022

ELECTRICAL SCHEDULES AND DIAGRAMS	
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STATE PROJECT NO. 151-0304CV ELEVATOR ADDITION WASHINGTON ELEMENTARY SCHOOL 685 BALDWIN STREET WATERBURY, CT 06706

<div>CES</div> <div>Consulting Engineering Services, Inc. 811 Middle Street Middletown CT 06457 860.432.1662 ceseng.com CES #2022178.00</div>

--

<div>FRIAR</div> <div>21 Talcott Notch Road Farmington, CT 06032</div>
--

SHEET NO. E6.0

MOUNTING HEIGHTS

ELECTRICAL MOUNTING HEIGHTS

ALL MOUNTING HEIGHTS TO BE COORDINATED WITH BLOCK COURSING AS OCCURS. CONSULT ARCHITECT IF EXISTING CONDITIONS DIFFER

ALL DIMENSIONS ARE TO THE CENTER OF THE DEVICE UNLESS OTHERWISE NOTED. SEE ELECTRICAL DRAWINGS FOR TYPES AND LOCATIONS.

RECEPTACLES: 18" A.F.F. (AT LOCATIONS ABOVE CASEWORK, MOUNT BOTTOM OF RECEPTACLE AT 2" ABOVE BACKSPASH, AT LOCATIONS BELOW CASEWORK, MOUNT AT 24" A.F.F.)

WIREMOLD: 24" A.F.F. (AT LOCATIONS ABOVE CASEWORK, MOUNT BOTTOM OF WIREMOLD AT 2" ABOVE BACKSPASH)

EXTERIOR RECEPTACLES: 24" A.F.F. (20" A.F.F.)

SWITCHES: 48" A.F.F.

BOILER EMERGENCY SWITCHES : 60" A.F.F.

DATA / PHONE OUTLETS: 18" A.F.F.

TV OUTLETS: 18" A.F.F. OR 18" BELOW FINISHED CEILING*
* FIELD VERIFY CEILING HEIGHTS WITH COORDINATION DRAWINGS

WALL PHONE: 48" A.F.F. TO CENTER OF EARPIECE

SECURITY KEYPAD: 48" A.F.F.

MICROPHONE WALL JACK : 18" A.F.F.

FIRE ALARM PULL STATION: 48" A.F.F.

FIRE ALARM VISUAL/AUDIO INDICATING UNITS: 6'-8" TO BOTTOM OF UNIT

AREA OF REFUGE CALL STATION: 48" A.F.F.

EMERGENCY SHUT-OFF SWITCH / PUSH BUTTON: 48" A.F.F.

EMERGENCY CALL SWITCH: 36" A.F.F.

EMERGENCY CALL BELL / LIGHT: +/- 7'-6" A.F.F., CENTER ABOVE DOOR

WALL MOUNTED EXIT SIGNS: 7'-6" A.F.F.

WALL MOUNTED CLOCKS AND SPEAKERS: +/- 7'-6" A.F.F.

NOTES

CONSTRUCTION NOTES

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL NATIONAL, STATE AND LOCAL CODES AND ORDINANCES.
- DO NOT SCALE DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION OF DIMENSIONS FROM THE ARCHITECT BEFORE CONTINUING WITH CONSTRUCTION.
- CONTRACT DRAWINGS MAY VARY FROM ACTUAL FIELD CONDITIONS. CONTRACTOR SHALL CORRECT DIMENSIONS OF ALL MATERIALS TO CARRY OUT THE INTENT OF THE CONTRACT DRAWINGS. VERIFY ALL DIMENSIONS AND EXISTING CONDITIONS IN FIELD BEFORE ORDERING ANY MATERIALS. CONTRACTOR SHALL NOTIFY ARCHITECT PROMPTLY OF ANY CRITICAL DISCREPANCIES BEFORE PROCEEDING WITH WORK.
- ALL NEW WORK SHALL BE IMPLEMENTED SO AS TO PROVIDE A SMOOTH AND CONTINUOUS SURFACE WITH ALL EXISTING CONDITIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK NECESSARY TO ACHIEVE THIS REQUIREMENT, EVEN THOUGH PROCEDURES ARE NOT DETAILED FOR EACH SPECIFIC CONDITION OR COMBINATION OF CONDITIONS. QUALITY OF WORKMANSHIP, MATERIALS AND FINISHES SHALL BE EQUAL TO THE LEVEL ESTABLISHED FOR SIMILAR CONSTRUCTION, EXCEPT WHERE EXISTING APPEARANCE IS TO BE MATCHED TO ACHIEVE CONTINUITY.
- CUTTING AND PATCHING SHALL BE THE RESPONSIBILITY OF THE TRADE WHOSE WORK RESULTS IN THE NEED FOR CUTTING AND PATCHING UNLESS A SPECIFIC CONTRACTOR IS CALLED OUT ON THE DRAWINGS. ALL HOLES LEFT BY REMOVING MECHANICAL, PLUMBING AND ELECTRICAL EQUIPMENT, ETC. SHALL BE PATCHED.
- UNLESS OTHERWISE NOTED OR DIMENSIONED, NEW PARTITIONS SHALL BE CENTERED ON BUILDING COLUMN GRID OR WINDOW MULLIONS.
- CONTRACTOR SHALL PROVIDE WOOD BLOCKING AT WALLS AS REQUIRED TO SUPPORT PIPING, CABINETS TV BRACKETS AND RELATED ITEMS.
- WHERE REQUIRED, SEISMIC BRACING SHALL BE PROVIDED AT SUSPENDED CEILINGS. SEE A9.2.
- ALL EGRESS DOORS SHALL BE NON-LOCKING IN DIRECTION OF TRAVEL.
- ALL PARTITIONS ARE TO EXTEND TO UNDERSIDE OF DECK ABOVE.

DEMOLITION NOTES

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH ALL NATIONAL, STATE, LOCAL CODES & ORDINANCES.
- THE DEMOLITION PLANS ARE DIAGRAMMATIC AND INTENDED TO HOW THE GENERAL EXTENT OF THE WORK ONLY. THE CONTRACTOR SHALL INCLUDE ALL DEMOLITION WORK REQUIRED TO ACCOMPLISH THE INTENT OF THE PLANS AND SPECIFICATIONS.
- ALL DEMOLISHED ITEMS SHALL BE REMOVED FROM BUILDING / SITE UNLESS NOTED OTHERWISE. COORDINATE WITH OWNER FOR DELIVERY OF ITEMS NOTED TO REMAIN OWNERS PROPERTY. THE PROJECT SITE / BUILDING SHALL BE CLEANED OF DEBRIS ON A DAILY BASIS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING AND SUPPORT (TEMPORARY OR PERMANENT) FOR ALL PORTIONS OF CONSTRUCTION DURING DEMOLITION AND CONSTRUCTION.
- ALL ABANDONED MECHANICAL / ELECTRICAL / PLUMBING LINES SHALL BE CAPPED OFF BEHIND FINISHES, UNLESS NOTED OTHERWISE. REFER TO MECHANICAL / ELECTRICAL / PLUMBING DRAWINGS FOR ADDITIONAL INFORMATION.
- CONTRACTOR SHALL SAWCUT ALL MASONRY OR CONCRETE OPENINGS INDICATED. MASONRY SHALL BE TOOTHED IN AND / OR RETURNED TO FINISHED OPENING.
- ALL OPENINGS WHERE EXISTING CONSTRUCTION HAS BEEN REMOVED, AND WHICH ARE NOT NOTED TO REMAIN, SHALL BE FILLED AND / OR PATCHED TO MATCH THE ADJACENT EXISTING OR NEW FINISH, INCLUDING ANY FIRE RATINGS REQUIRED.
- ALL AREAS OF FLOORS, WALLS AND CEILINGS DISTURBED BY DEMOLITION SHALL BE FILLED, PATCHED OR OTHERWISE REFINISHED TO MATCH EXISTING OR NEW FINISH AS DESIGNATED, INCLUDING ALL REQUIRED RATINGS.
- CONTRACTOR MUST VERIFY LOCATIONS OF ALL EXISTING STRUCTURAL, MECHANICAL, PLUMBING & ELECTRICAL ELEMENTS PRIOR TO START OF DEMOLITION.

GENERAL NOTES

- DIMENSION CRITERIA
 - FROM FACE OF METAL STUD TO FACE OF METAL STUD.
 - FROM FACE OF METAL STUD TO FACE OF CONCRETE MASONRY UNIT.
 - FROM FACE OF CONCRETE MASONRY UNIT TO FACE OF CONCRETE MASONRY UNIT.
- REFER TO SHEET R1.2 FOR WALL TYPES.

SYMBOLS LEGEND

ARCHITECTURAL SYMBOLS

BUILDING SECTION	
WALL SECTION	
COLUMN CENTERLINE	
DETAIL DESIGNATION, PLAN DETAIL, LARGE SCALE PLANS	
INTERIOR ELEVATIONS	
CASEWORK ELEVATIONS	
CEILING DESIGNATION	
ROOM NUMBER	
DOOR NUMBER	
WINDOW DESIGNATION	
DEMOLITION TAG	
WALL TYPES	
PHOTO LOCATION	
REVISION NUMBER	
DATUM / ELEVATION / LEVEL LINE	
EXISTING CONSTRUCTION TO REMAIN	
NEW STUD CONSTRUCTION	
NEW CONCRETE BLOCK	
NEW FACE BRICK	
SOFFITS / OVERHANG ABOVE	
AREA OF REFUGE WHEELCHAIR SPACE ACCESS, CLEAR FLOOR SPACE ASSEMBLY WHEELCHAIR SEAT 30"x48" CLEAR FLOOR SPACE	
ACCESSIBLE ELEMENT	

ARCHITECTURAL MATERIALS

ACOUSTICAL TILE		PLASTER	
ALUMINUM		PLYWOOD (SMALL)	
BATT INSULATION		RIGID INSULATION	
BITUMINOUS		ROUGH WOOD (CONTINUOUS)	
BRASS OR BRONZE		ROUGH WOOD (INTERRUPTED)	
CARPET		RUBBLE	
CAST STONE		SHEATHING INSUL.	
CERAMIC TILE		SLATE, FLAGGING, SOAPSTONE	
C.M.U.		STEEL	
CONCRETE		STRUCTURAL CLAY	
EARTH		STRUCT. GLAZED FACING TILE	
FACE BRICK		TERRA-COTTA	
FACE GRAIN		TERRAZZO	
FINISHED WOOD		ELEVATIONS	
FIRE BRICK		BRICK	
GLASS BLOCK		CONCRETE BLOCK	
GLAZED BRICK (CALL OUT)		CERAMIC TILE	
GLAZING		GLASS	
GRAVEL		METAL PANEL CORRUGATED	
GYPSUM BOARD		SLATE, FLAGGING, SOAPSTONE	
MARBLE		SHINGLES	
METAL LATH		FLAT METAL PANEL	
METAL (SMALL)			

ABBREVIATIONS

ABOVE FINISH FLOOR	A.F.F.	MASONRY	MAS.
ABOVE FINISH GRADE	A.F.G.	MASONRY OPENING	M.O.
ACOUSTIC	AC.	MATERIAL	MATL.
ACOUSTIC TILE	A.C.T.	MAXIMUM	MAX.
AIR CONDITIONING	A.C.	MECHANICAL	MECH.
AIR HANDLING UNIT	A.H.U.	METAL	MET.
ALTERNATE	ALT.	MEZZANINE	MEZZ.
ALUMINUM	ALUM.	MINIMUM	MIN.
ANCHOR, ANCHORAGE	ANCH.	MISCELLANEOUS	MISC.
ANCHOR BOLTS	AB		
ANGLE	ANG.		
ANODIZED	ANOD.	OFFICE	OFF.
APPROVED	APPD.	ON CENTER	O.C.
ARCHITECTURAL / ARCHITECT	ARCH.	OPPOSITE HAND	O.H.
ASBESTOS	ASB.	OPENING	OPG.
ASPHALT	ASPH.	OUTSIDE DIAMETER	O.D.
ASSEMBLY	ASSY.		
ASSISTANT	ASST		
AT	@		
AUTOMATIC	AUTO.		
		PAINTED	PTD.
BEAM	BM.	PAIR	PR.
BEARING	BRG.	PAPER TOWEL DISPENSER	P.T.D.
BETWEEN	BET.	PERPENDICULAR	PERP.
BEVEL / BEVELED	BEV.	PLASTER	PLAS.
BITUMINOUS	BIT.	PLASTIC LAMINATE	P.LAM.
BLOCK	BLK.	PLATE	PL.
BLOCKING	BLKG.	PLUMBING	PLBG.
BOARD	BD.	PLYWOOD	PLYWD.
BOTTOM OF	B/O	PREFAB	P.C.
BOTTOM	BOTT.	PREFABRICATED	PREFAB.
BUILDING	BLDG.	PROJECT, PROJECTION	PROJ.
BUILT-UP ROOF	B.U.R.	POINT	PT.
		QUANTITY	QTY.
CABINET	CAB.	QUARRY TILE	Q.T.
CABINET UNIT HEATER	C.U.H.		
CAPACITY	CAP.		
CEILING	CLG.	RADIUS	RAD.
CEILING HEIGHT	CLG. HGT.	RAIN WATER LEADER	RWL.
CEMENT	CEM.	RECEIVING	RECV.
CENTER	CTR.	REFRIGERATOR	REF.
CENTERLINE	CL	REINFORCED / REINFORCING	REINF.
CERAMIC	CT	REQUIRED	REQD.
CHALKBOARD	C.B.D.	REVISION, REVISED	REV.
CHANNEL	CH.	RISER	R.
CLOSET	CLOS.	ROOF DRAIN	R.D.
COLUMN	COL.	ROOM	RM.
CONFERENCE	CONF.		
CONTROL OR	C.J.	SANITARY NAPKIN DISPENSER	S.N.D.
CONSTRUCTION JOINT	CONJT.	SANITARY NAPKIN RECEPTACLE	S.N.R.
CONTINUOUS	CONTR.	SCHEDULE	SCHED.
CONTRACTOR	COR.	SCUPPER	SC.
CORRIDOR	CRS.	SECTION	SECT.
COURSE / COURSES		SEISMIC JOINT	S.J.
DAMP PROOFING	DAMPFR.	SERVICE SINK	S.S.
DEGREE	DEG.	SHEET	SHT.
DEMOLITION	DEMO.	SIMILAR	SIM.
DEPARTMENT	DEPT.	SOAP DISPENSER	S.D.
DETAIL	DIA.	SOUND TRANSMISSION CLASS	S.T.C.
DIAMETER	DIM.	SPECIFICATIONS	SPEC.
DIMENSION	DIST.	SPLASH BLOCK	S.B.
DISTANCE	DR.	SQUARE	SQ.
DOOR	DBL.	SQUARE INCH (S)	SQ.IN.
DOUBLE	D.H.	SQUARE YARD (S)	SQ.YD.
DOUBLE HUNG	DN.	SQUARE FEET (FOOT)	S.F.
DOWN	D.S.	STAINLESS STEEL	STL.
DOWNSPOUT	DWG.	STANDARD	STD.
DRAWING	D.F.	STEEL	STL.
DRINKING FOUNTAIN		STORAGE	STOR.
		STRUCTURAL	STRUCT.
EACH	E.A.	STRUCTURAL GLAZED FACING TILE	SGFT.
ELECTRIC / ELECTRICAL	ELEC.	STRUCTURAL STEEL	STRUCT. STL.
ELECTRIC WATER COOLER	EW.C.	SUSPEND. SUSPENSION	SUSP.
ELEVATION	EL.	SURFACE	SURF.
ELEVATOR	ELEV.	SYSTEM	SYS.
EXISTING FIRE EXTINGUISHER	EXFE		
EMERGENCY	EMG.		
EQUAL	EQ.		
EQUIPMENT	EQUIP.		
EXISTING	EXIST.	TACKBOARD	T.BD.
EXISTING TO REMAIN	EXST.	TELEPHONE	TEL.
EXPANSION	EXP.	TEMPERATURE/TEMPORARY	TEMP.
EXPANSION JOINT	E.J.	TONGUE & GROOVE	T & G
EXTERIOR	EXT.	THRESHOLD	THLD.
EXTERIOR INSULATION		THICK	THK.
FINISH SYSTEM	EIFS.	TOILET	TLT.
		TOP OF	T/O
EQUIPMENT	EQUIP.	TREAD	T.
EXISTING	EXIST.	TYPICAL	TYP.
EXISTING TO REMAIN	EXST.		
EXPANSION	EXP.		
EXPANSION JOINT	E.J.	UNDERWRITER'S LABORATORIES	U.L.
		UNIT HEATER	U.H.
FEET, FOOT	FT.	UNIT VENTILATOR	U.V.
FINISH, FINISHED	FIN.	UNLESS NOTED OTHERWISE	U.N.O.
FIRE DAMPER	FD.	URINAL	UR.
FIRE EXTINGUISHER	FE.		
FIRE RETARDANT	FR.	VENT THRU ROOF	V.T.R.
FIREPROOFING	FPFRG.	VERIFY IN FIELD	V.I.F.
FIXTURE	FIXT.	VERTICAL	VERT.
FLASHING	FLASH.	VINYL ASBESTOS TILE	V.A.T.
FLOOR	FL.	VINYL COMPOSITION TILE	V.C.T.
FLOOR DRAIN	FD.		
FLOOR FINISH	FLR. FIN.	WATER CLOSET	W.C.
FOOTING	FTG.	WATERPROOFING	W.P.
FOUNDATION	FDN.	WELODED WIRE FABRIC	W.W.F.
FURNISH / FURNISHED	FURN.	WEIGHT	WT.
FURRED / FURRING	FURR.	WHITE BOARD	WBD.
		WITH	W/
		WOOD	WD.
GAUGE	GA.		
GALVANIZED	GALV.		
GYPSUM BOARD	GYP BD.		
HANDRAIL	HR.		
HANDICAPPED	H.C.		
HEIGHT	HGT.		
HIGH POINT	HP.		
HOLLOW METAL	HM.		
HORIZONTAL	HORIZ.		
HOSE BIB	HB.		
INCH OR INCHES	IN. OR "		
INCLUDE / INCLUDING	INCL.		
INFORMATION	INFO.		
INSIDE DIAMETER	I.D.		
INSULATION	INSUL.		
INTERIOR	INT.		
JOINT	JT.		
KICKPLATE	KP.		
LABORATORY	LAB.		
LAVATORY	LAV.		
LIGHTING	LTO.		
MACHINE	MACH.		
MAINTENANCE	MAINT.		
MANUFACTURER	MFR.		
MARKER BOARD	MBO.		

DATE:	9/1/2022
DRAWN BY:	JIM
SCALE:	N.T.S.
REVIEWED BY:	RWR
PROJECT NO.	2022-043A
	(R1.1) REFERENCE SHEET

REVISIONS	DESCRIPTION
NO.	DATE
	ISSUED FOR R0
	11/28/22

NOTES, LEGENDS & REFERENCE INFORMATION

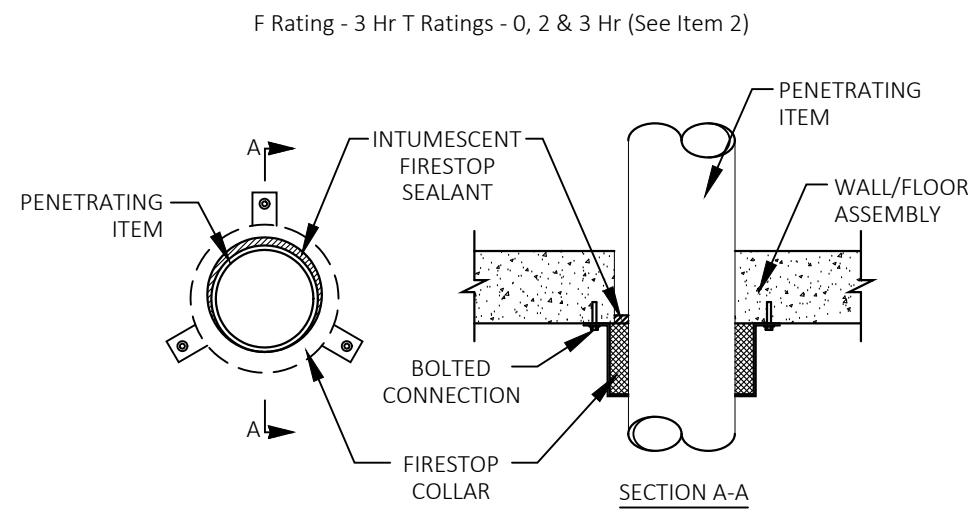
STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

ARCHITECT'S SEAL

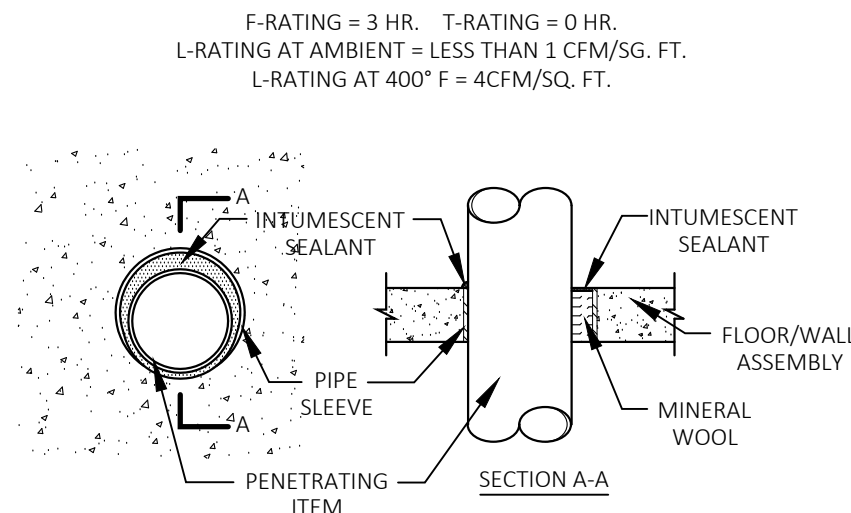
FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
R1.1

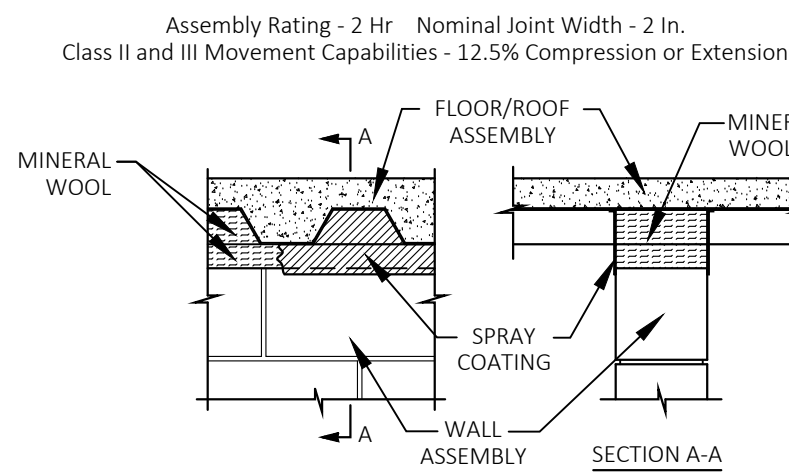
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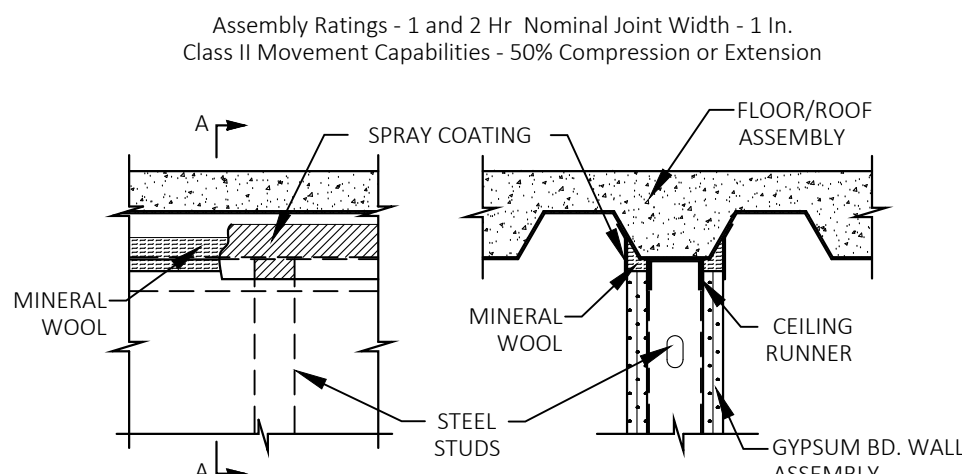
System No: C-AJ-2109
PLASTIC PIPE THROUGH CONCRETE
CONC. FLOOR/WALL



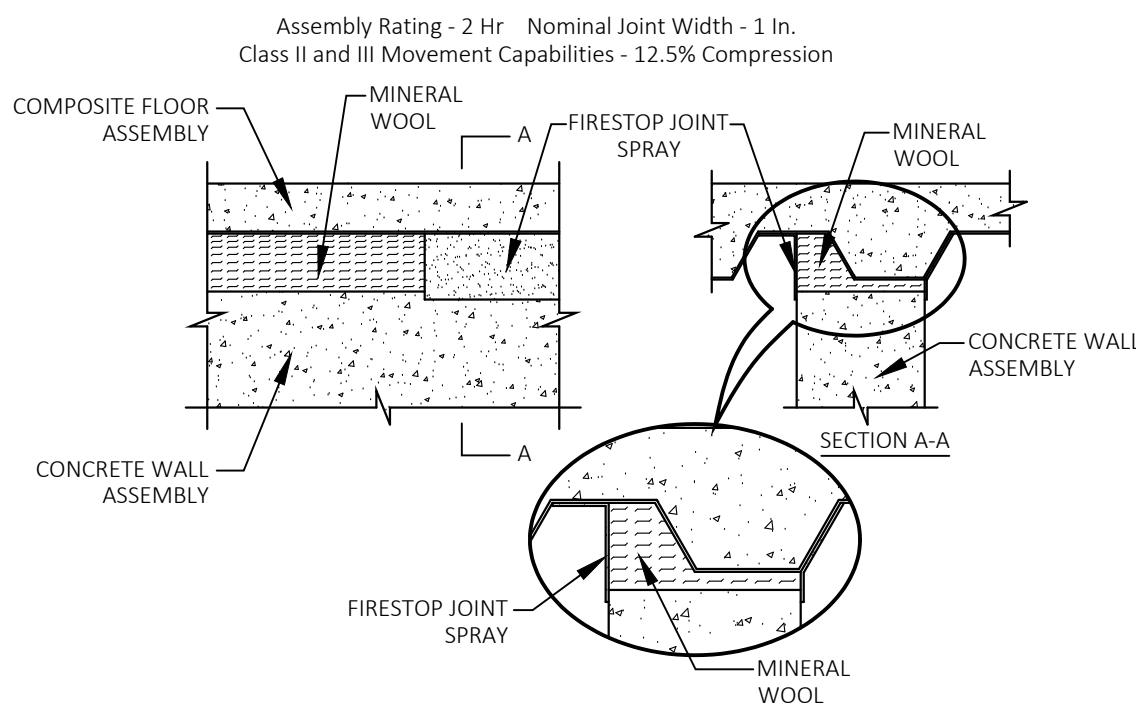
System No: C-AJ-1226
METAL PIPE THROUGH A SLEEVE IN
CONC. FLOOR/WALL



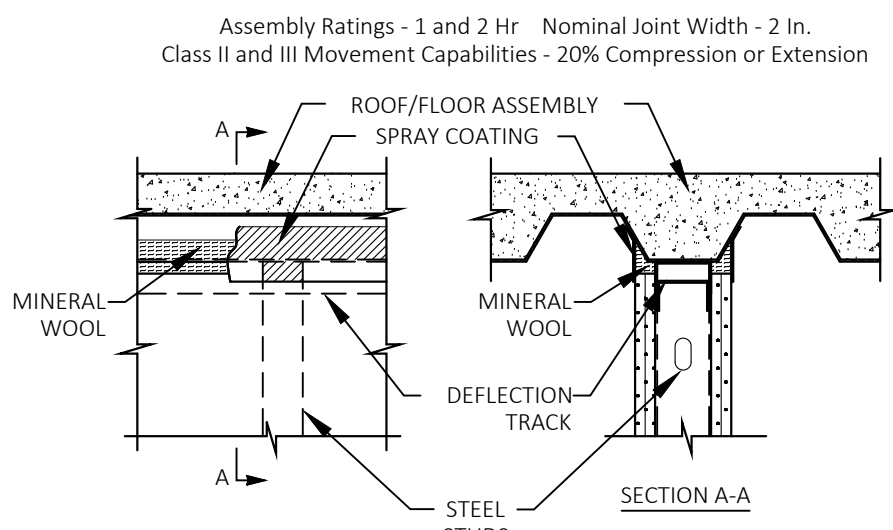
System No: HW-D-0098
TOP OF WALL JOINT
2HR CONCRETE/BLOCK WALL ASSEMBLY



System No: HW-D-0049
TOP OF WALL JOINT
1 OR 2HR GYPSUM WALL ASSEMBLY



System No: HW-D-0181
TOP OF WALL JOINT
2HR CONCRETE/BLOCK WALL ASSEMBLY



System No: HW-D-0089
TOP OF WALL JOINT
1 OR 2HR GYPSUM WALL ASSEMBLY

CODE INFORMATION

Date of Original Construction Renovation

1. GROUP CLASSIFICATION (Primary) Educational Assembly (Incidental) E -

2. CONSTRUCTION TYPE (Chapter 6) Minimum Type Required: 2B Actual Type Provided: (existing) 2B (new) 2B

3. BUILDING HEIGHT (Chapter 5) Allowable Height (story/feet) 3 STORIES / 75 FEET Actual Height (story/feet) 4 STORIES / 36 FEET (Stories Above Grade) 3

4. BUILDING AREA (Chapter 5) Building Area: (Total) Existing Construction 39,169 s.f. New Construction 204 s.f. Total Floor 39,373 s.f.

8. FIRE-RESISTANCE RATED REQUIREMENTS FOR BUILDING ELEMENTS (Table 601)

1) Structural frame: including columns, girders, trusses 0 Hr(s)

2) Bearing Walls: Exterior 0 Hr(s) Interior 0 Hr(s)

3) Nonbearing walls and partitions (Exterior) see Table 602

4) Nonbearing walls and partitions (Interior) 0 Hr(s)

5) Floor Construction (including supporting beams and joists) 0 Hr(s)

6) Roof Construction, (including supporting beams and joists) 0 Hr(s)

13. SPRINKLER PROTECTION X Entire Building None

14. CODES TO WHICH THIS PROJECT WAS DESIGNED

State Building Code w/Supplement 2015 w/ 2018 Supplement

State Fire Code w/Supplement 2015 w/ 2018 Supplement

State Health Code 2017 w/current amendment

OSHA Current

Section 504 Rehabilitation Act of 1973 and Americans With Disabilities Act of 1990 with all amendments

ADA 2010

Other -

15. THRESHOLD BUILDING CONDITIONS Yes X No

16. BUILDING AREAS FOR GRANT CALCULATIONS (ENTIRE FACILITY)

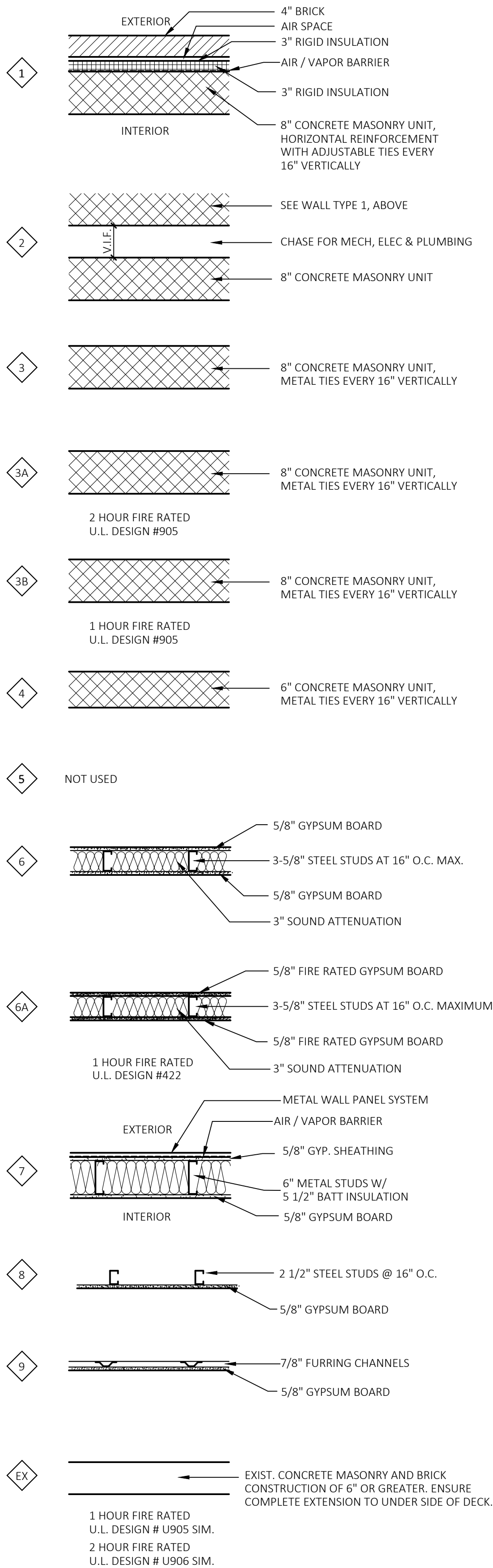
EXISTING UNRENOVATED CONSTRUCTION	39,169
EXISTING RENOVATED CONSTRUCTION	0
EXISTING BEING DEMOLISHED	0
TOTAL EXISTING CONSTRUCTION	39,169
TOTAL NEW CONSTRUCTION	204
TOTAL FACILITY	39,373

CODE INFORMATION

2015 International Building Code *	2015 International Residential Code *
2015 International Mechanical Code *	2015 International Existing Building Code *
2015 International Plumbing Code *	2009 Accessible and Usable Buildings and Facilities (ICC A117.1-2009) *
2015 International Energy Conservation Code *	2017 National Electrical Code (NFPA 70) *
2013 Installation of Sprinkler Systems (NFPA 13)	2015 International Fire Code *

* With Connecticut Amendments and General Statute requirements

WALL TYPES



DATE: 9/1/2022

DRAWN BY: JIM

SCALE: N.T.S.

REVIEWED BY: JMY

PROJECT NO. 2022-043A

(R1.1) WALL TYPE & UL

REVISIONS

NO.	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

CODE INFORMATION,
WALL TYPES, UL RATINGS

STATE PROJECT NO. 151-0305 CV

ELEVATOR ADDITION

BUNKER HILL

ELEMENTARY SCHOOL

170 BUNKER HILL AVENUE

WATERBURY, CT 06706

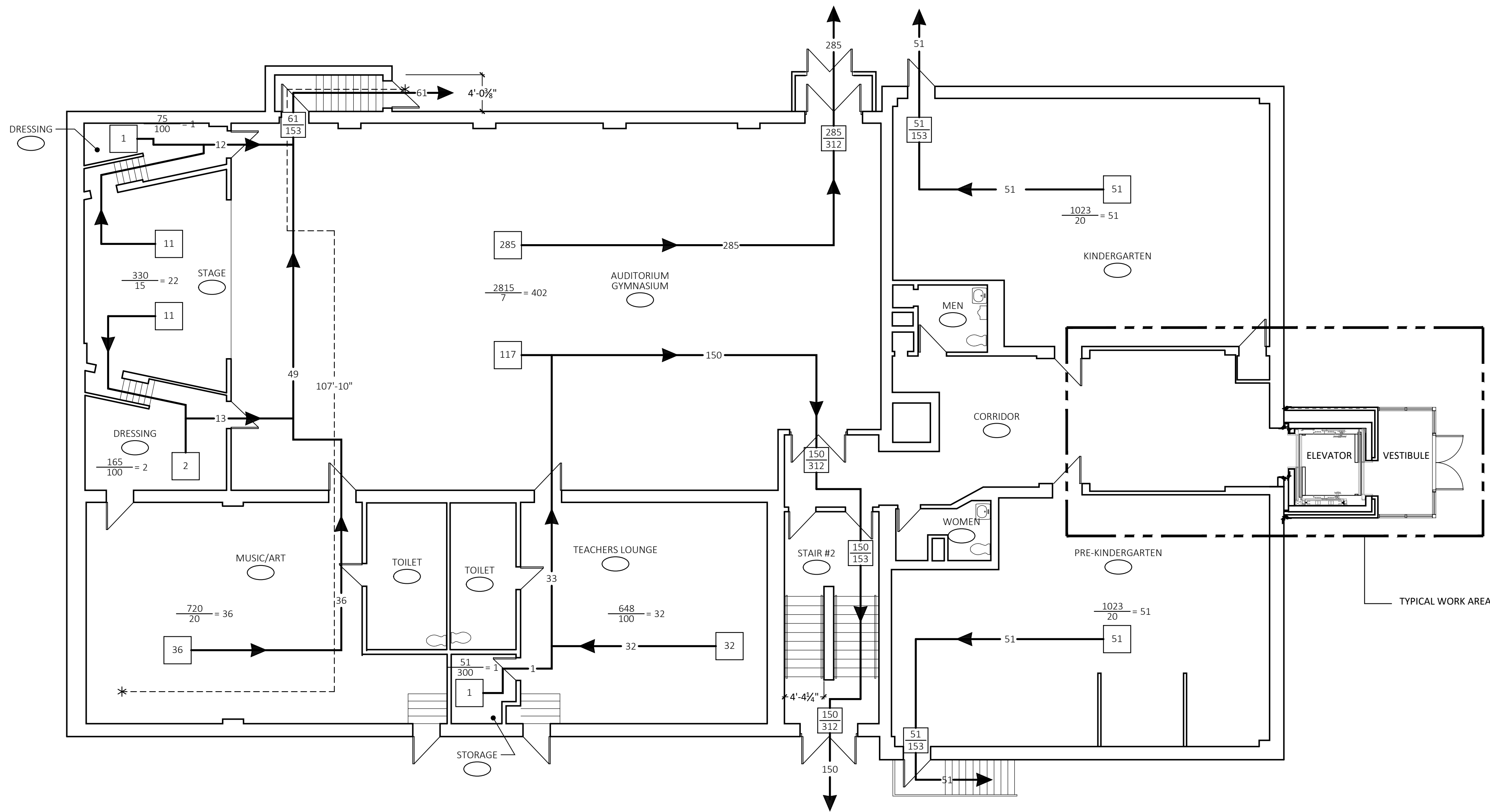
ARCHITECT'S SEAL

ARCHITECT'S SEAL

FRIAR

21 Talcott Notch Road

Farmington, CT 06032



BASEMENT EGRESS PLAN

SCALE: 1/8" = 1'-0"

EGRESS PLAN LEGEND

- ROOM NUMBER
- ROOM OCCUPANCY LOAD
- AREA IN SQUARE FEET
- OCCUPANCY LOAD FACTOR
- EXIT CAPACITY
- ACTUAL EGRESS OCCUPANCY OF DOOR OR STAIR
- MAXIMUM ALLOWABLE EGRESS OCCUPANCY OF DOOR OR STAIR
- DIRECTION OF TRAVEL
- WITH ACCUMULATED OCCUPANCY LOAD
- MAXIMUM TRAVEL DISTANCE
- FROM FURTHEST POINT

NOTES:

1. A VALUE OF 0.2 INCHES OF WIDTH PER OCCUPANT HAS BEEN USED TO CALCULATE DOOR AND CORRIDOR EGRESS CAPACITY. IN ALL CASES, THE ACTUAL CLEAR OPENING OF THE DOOR AND ACTUAL CLEAR WIDTH OF CORRIDOR IS USED.
2. A VALUE OF 0.3 INCHES OF WIDTH PER OCCUPANT HAS BEEN USED TO CALCULATE STAIRWAY EGRESS CAPACITY. IN ALL CASES, THE ACTUAL CLEAR WIDTH BETWEEN HAND-RAILS IS USED.

DATE:	9/7/2022
DRAWN BY:	JIM
SCALE:	NOTED
REVIEWED BY:	JNY
PROJECT NO.	2022-043A
	SELECT DEMO

NO.	DATE	DESCRIPTION	ISSUED FOR BID
	11/28/22		

BASEMENT

EGRESS PLAN

STATE PROJECT NO. 151-0305 CV

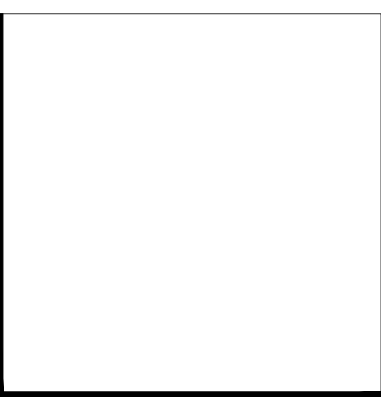
ELEVATOR ADDITION

BUNKER HILL

ELEMENTARY SCHOOL

170 BUNKER HILL AVENUE

WATERBURY, CT 06706

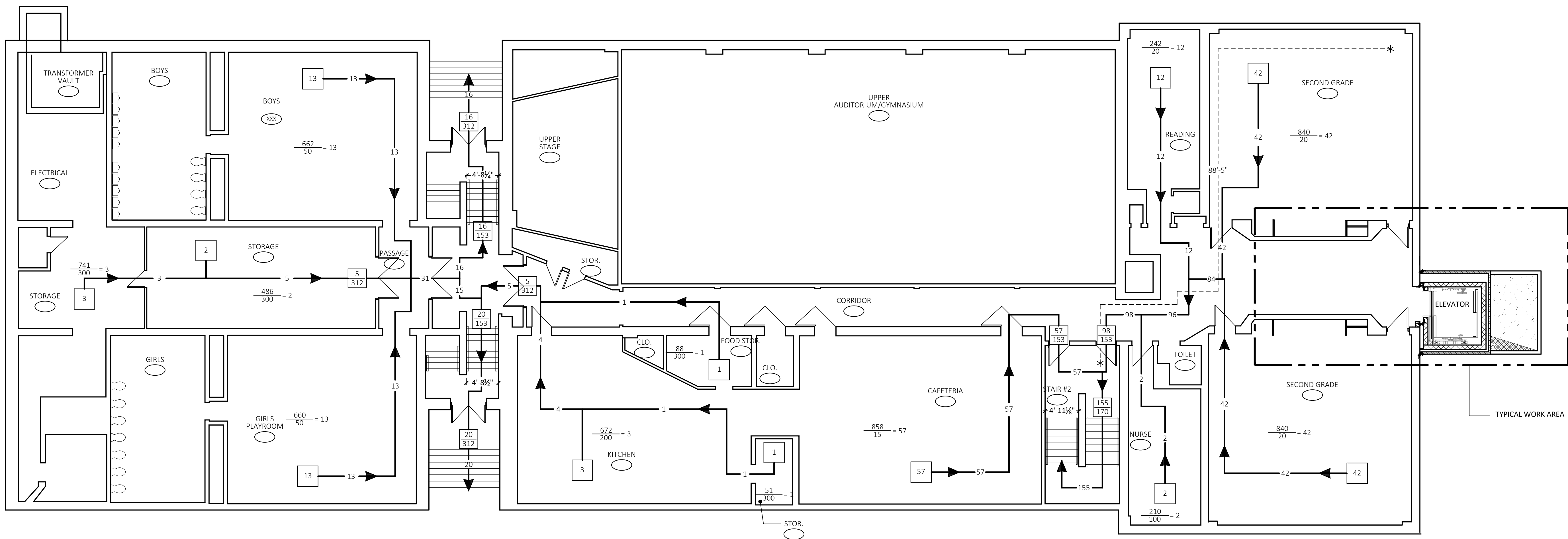


ARCHITECT'S SEAL



SHEET NO.

R1.3



FIRST FLOOR
EGRESS PLAN

SCALE: 1/8" = 1'-0"

DATE:	9/1/2022
DRAWN BY:	JIM
SCALE:	NOTED
REVIEWED BY:	JNY
PROJECT NO.	2022-043A
	SELECT DEMO

REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR BID
2	
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FIRST FLOOR
EGRESS PLAN

STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06706



SHEET NO.
R1.4



SCALE: 1/8" = 1'-0"

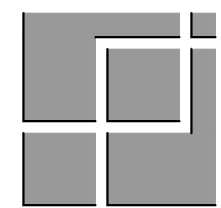
DATE: 9/1/2022
DRAWN BY: JIM
SCALE: NOTED
REVIEWED BY: JIMY
PROJECT NO. 2022-043A
SELECT DEMO

REVISIONS		
NO.	DATE	DESCRIPTION
	11/28/22	ISSUED FOR BID

SECOND FLOOR
EGRESS PLAN

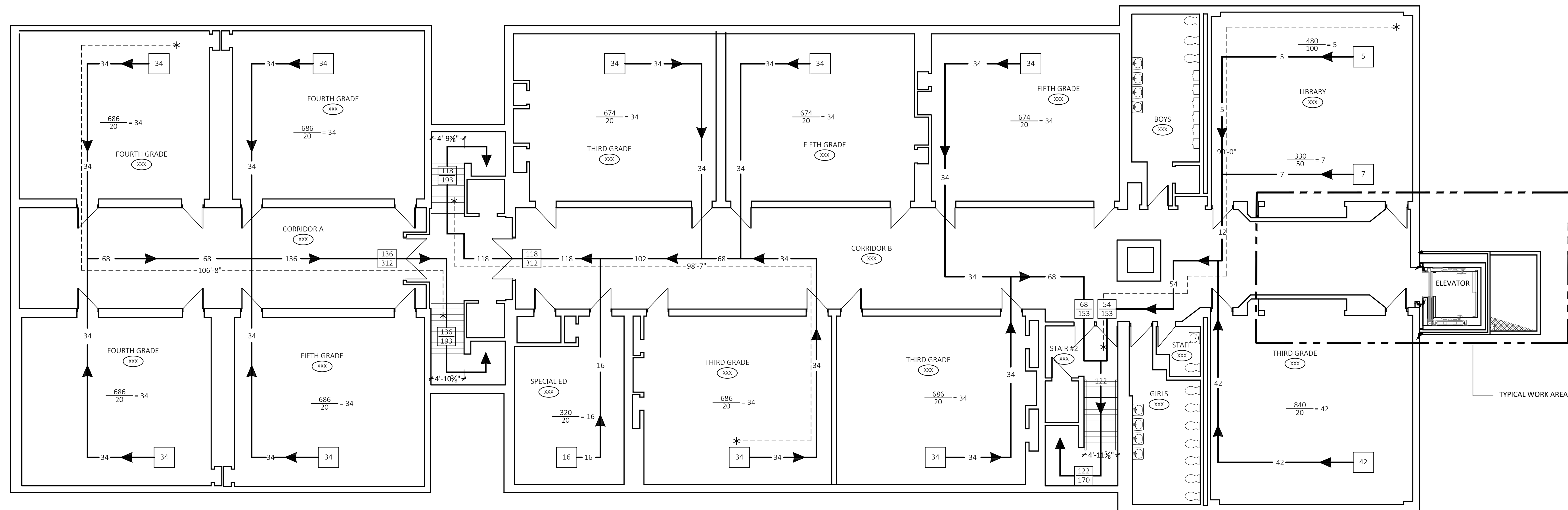
STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

ARCHITECT'S SEAL



FRIAR
1 Talcott Notch Road
Farmington, CT 06030

SHEET NO.
R1.5



DATE: 9/1/2022
DRAWN BY: JIM
SCALE: NOTED
REVIEWED BY: JIMY
PROJECT NO. 2022-043A
SELECT DEMO

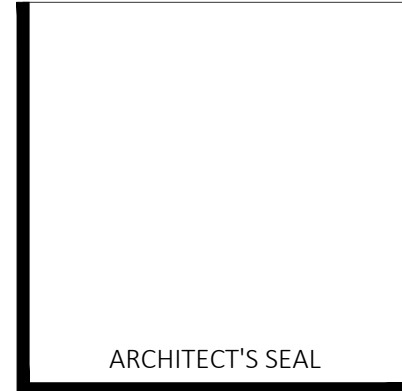
REVISIONS		
NO.	DATE	DESCRIPTION
	11/28/22	ISSUED FOR BID

THIRD FLOOR

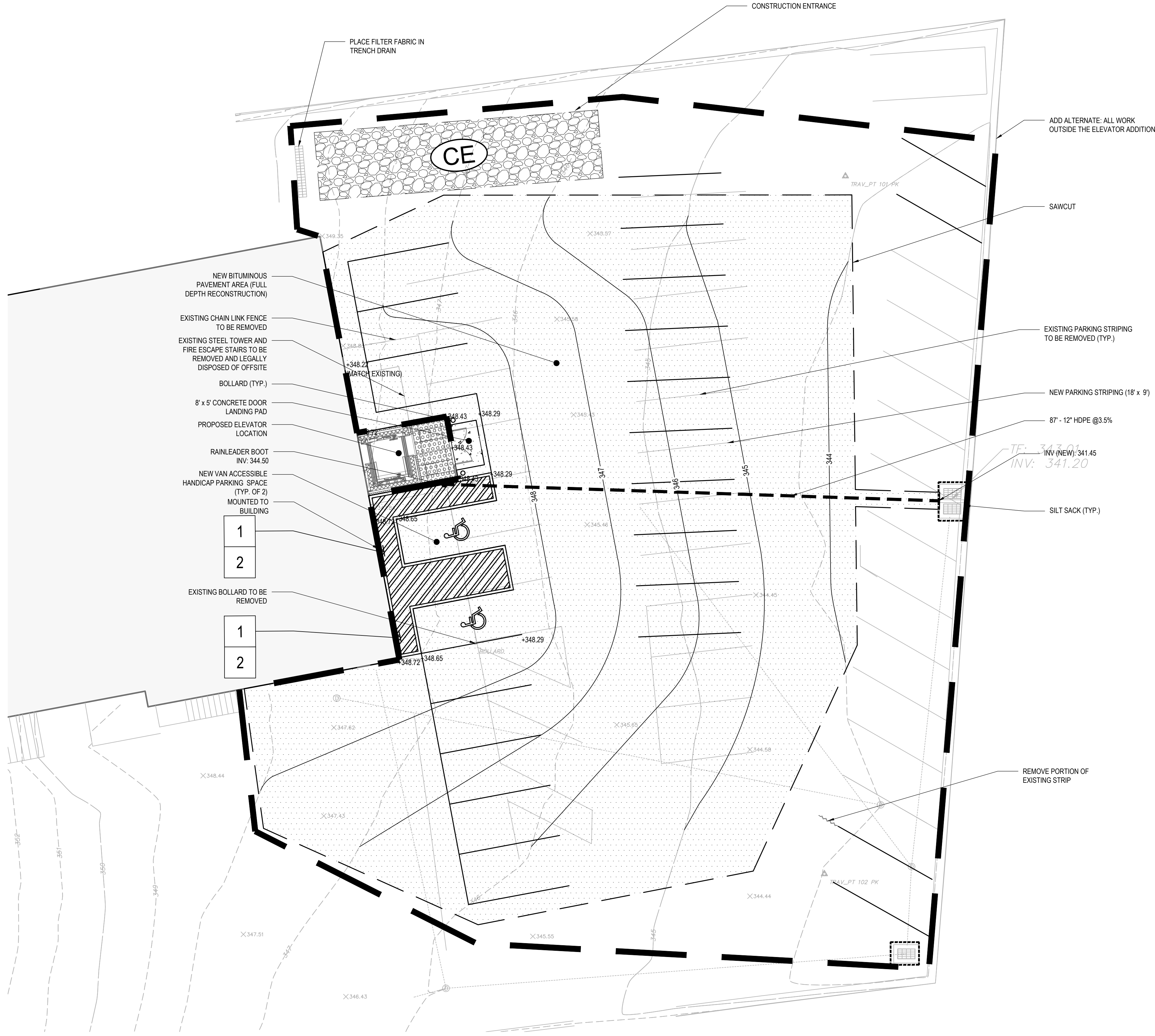
EGRESS PLAN

STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

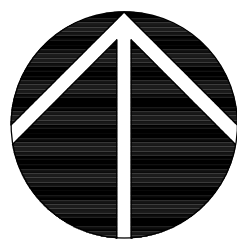
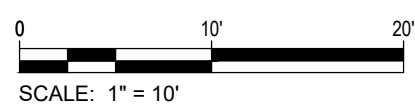
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FRIAR
21 Talcott Notch Road
Farmington, CT 06032



1 SITE PLAN
SCALE: 1"=10'



SITE PREP/EROSION CONTROL NOTES:

1. PRIOR TO ANY DEMOLITION ACTIVITY THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES.
2. BEFORE BEGINNING ANY WORK, THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT 1.800.922.4455. THE RESPECTIVE UTILITY COMPANIES AND LOCAL AUTHORITIES TO CONFIRM THE LOCATION OF ALL EXISTING UTILITIES. ANY COSTS INCURRED BY THE CONTRACTOR AS A RESULT OF FAILURE TO CONTACT PROPER AUTHORITIES SHALL BE BORN BY THE CONTRACTOR.
3. CARE SHOULD BE TAKEN IN ALL EXCAVATIONS DUE TO POSSIBLE EXISTENCE OF UNRECORDED UTILITY LINES.
4. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE DUE TO HIS CONTRACT OPERATIONS.
5. CONTRACTOR SHALL PROTECT AND SUSTAIN IN NORMAL SERVICE ALL EXISTING UTILITIES, STRUCTURES, EQUIPMENT, ROADWAYS AND DRIVEWAYS.
6. LIMITS OF EXISTING PAVEMENTS AND CURBS TO REMAIN SHALL BE NEATLY SAWCUT TO PROVIDE FOR A NEAT, CLEAN JOINT/OR FINISHED EDGE.
7. ANY STOCKPILED MATERIAL SHALL BE SUBJECT TO EROSION CONTROL MEASURES THAT INCLUDE A MINIMUM OF SILT FENCE OR HAY BALE BARRIER. COVER STOCKPILES IF SIGNIFICANT RAINFALL IS PREDICTED.
8. NO RUNOFF SHALL BE ALLOWED TO ENTER ANY STORMWATER SYSTEM OR EXIT THE SITE PRIOR TO TREATMENT FOR SEDIMENT REMOVAL.
9. THE CONTRACTOR SHALL MAINTAIN A CLEAN CONSTRUCTION SITE AND SHALL NOT ALLOW THE ACCUMULATION OF RUBBISH OR CONSTRUCTION DEBRIS. ALL TRASH SHALL BE CLEANED ON A DAILY BASIS AND THE SITE SHALL BE LEFT IN A NEAT CONDITION AT THE END OF EACH WORK DAY.
10. FOR DUST CONTROL, PERIODICALLY MOISTEN EXPOSED SOIL SURFACES WITH WATER AND MAINTAIN ADEQUATE MOISTURE LEVELS.
11. SWEEP ADJACENT ROADWAYS IF MUD OR SOIL IS TRACKED ON TO THEM, OR AS DIRECTED BY THE ENGINEER.

CONSTRUCTION NOTES:

1. MATERIALS AND CONSTRUCTION PROCEDURES SHALL COMPLY WITH CT DOT FORM 818 AND THE TOWN OF WATERBURY
2. NEW PAVEMENT TO MEET LINE & GRADE OF EXISTING PAVEMENTS.
3. ALL LINES AND DIMENSIONS ARE PARALLEL OR PERPENDICULAR TO THE LINES FROM WHICH THEY ARE MEASURED.
4. FIELD ADJUSTMENTS MUST BE APPROVED BY THE OWNER'S REPRESENTATIVE AND APPROPRIATE MUNICIPAL OFFICIALS PRIOR TO CONSTRUCTION.
5. SLOPES ALONG THE ACCESSIBLE ROUTE SHALL BE LESS THAN 1:20 (5%) AND THE CROSS SLOPES SHALL NOT EXCEED 1:50 (2%). CHANGES IN LEVELS SHALL NOT BE GREATER THAN 1/4 INCH.
6. SLOPES WITHIN THE HCP PARKING SPACE SHALL NOT EXCEED 1:50 (2%) IN ANY DIRECTION.
7. THE LOCATIONS OF EXISTING SITE FEATURES AS SHOWN HAVE BEEN OBTAINED FROM MAPS, SURVEYS, FIELD INSPECTIONS, AND OTHER AVAILABLE INFORMATION. THEY MUST BE CONSIDERED APPROXIMATE BOTH TO LOCATION, SIZE, AND AS-BUILT CONDITION AND ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL FIELD CONDITIONS.
8. COMPLY WITH CONNECTICUT BUILDING CODE FOR ALL SITE CONSTRUCTION, INCLUDING HANDICAPPED ACCESSIBILITY.
9. PROPOSED GRADES INDICATE DESIGN INTENT. VERIFY ELEVATIONS AND MAKE ADJUSTMENTS TO MEET FIELD CONDITIONS. DO NOT PROCEED WITH ANY ADJUSTMENT OR FIELD MODIFICATION UNTIL APPROVED BY THE ENGINEER.
10. THE CONTRACTOR SHALL COMPLY WITH ALL STATE, LOCAL, AND FEDERAL REGULATIONS.

SIGNAGE TABLE						
#	MUTCD NO.	CT CATALOG NO.	LEGEND	WIDTH	HEIGHT	SIGN DETAIL
1	N/A	PKE-35215-CT	ACCESSIBLE SIGN	18 IN.	12 IN.	XI VIOLATORS WILL BE FINED \$150 RESERVED PARKING PERMIT REQUIRED
2	R7-8P	31-0648	VAN ACCESSIBLE (PLAQUE)	18 IN.	9 IN.	IX VAN ACCESSIBLE

PARKING TABLE	
A. EXISTING PARKING =	31 SPACES
B. PROPOSED PARKING =	34 SPACES
C. REQUIRED HC PARKING =	2 SPACES
D. PROPOSED HC PARKING =	2 SPACES

LEGEND

- 345 5' CONTOUR
- 346 1' CONTOUR
- X 345.55 EXIST. SPOT ELEVATION
- +348.29 PROP. SPOT ELEVATION
- SILT SACK
- PROP. BITUMINOUS PAVEMENT AREA
- CE CONSTRUCTION ENTRANCE

DATE:	09/01/2022
DRAWN BY:	JJD
SCALE:	1" = 10'
REVIEWED BY:	WGW
PROJECT NO.	2021.091A

REVISE	
NO.	DATE
1	11/28/22
DESCRIPTION	
ISSUED FOR BID	

benesch
120 Hebron Avenue, 2nd Floor
Glastonbury, Connecticut 06033
P 860-633-8341
F 860-633-1068
www.Benesch.com

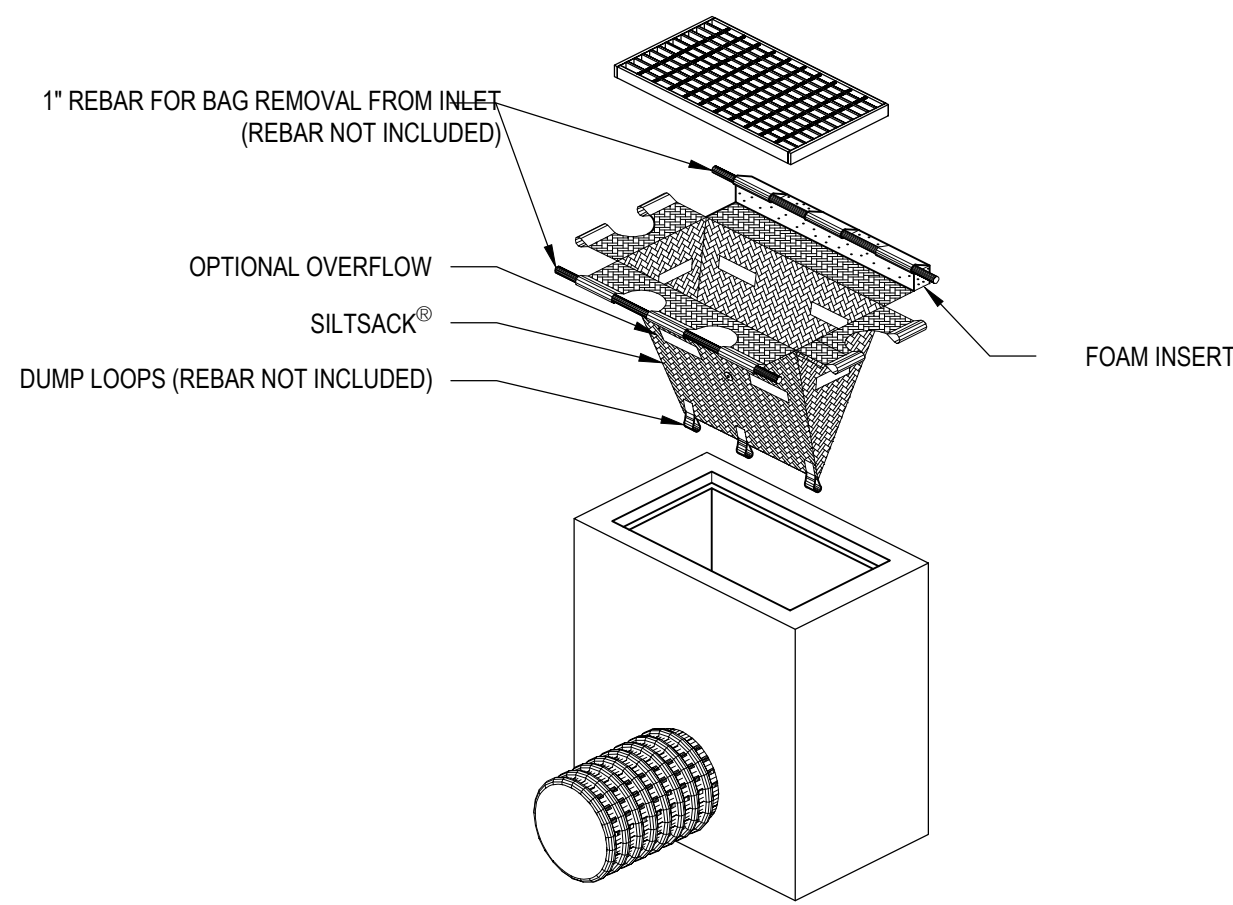
SITE PLAN

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

ARCHITECT'S SEAL

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

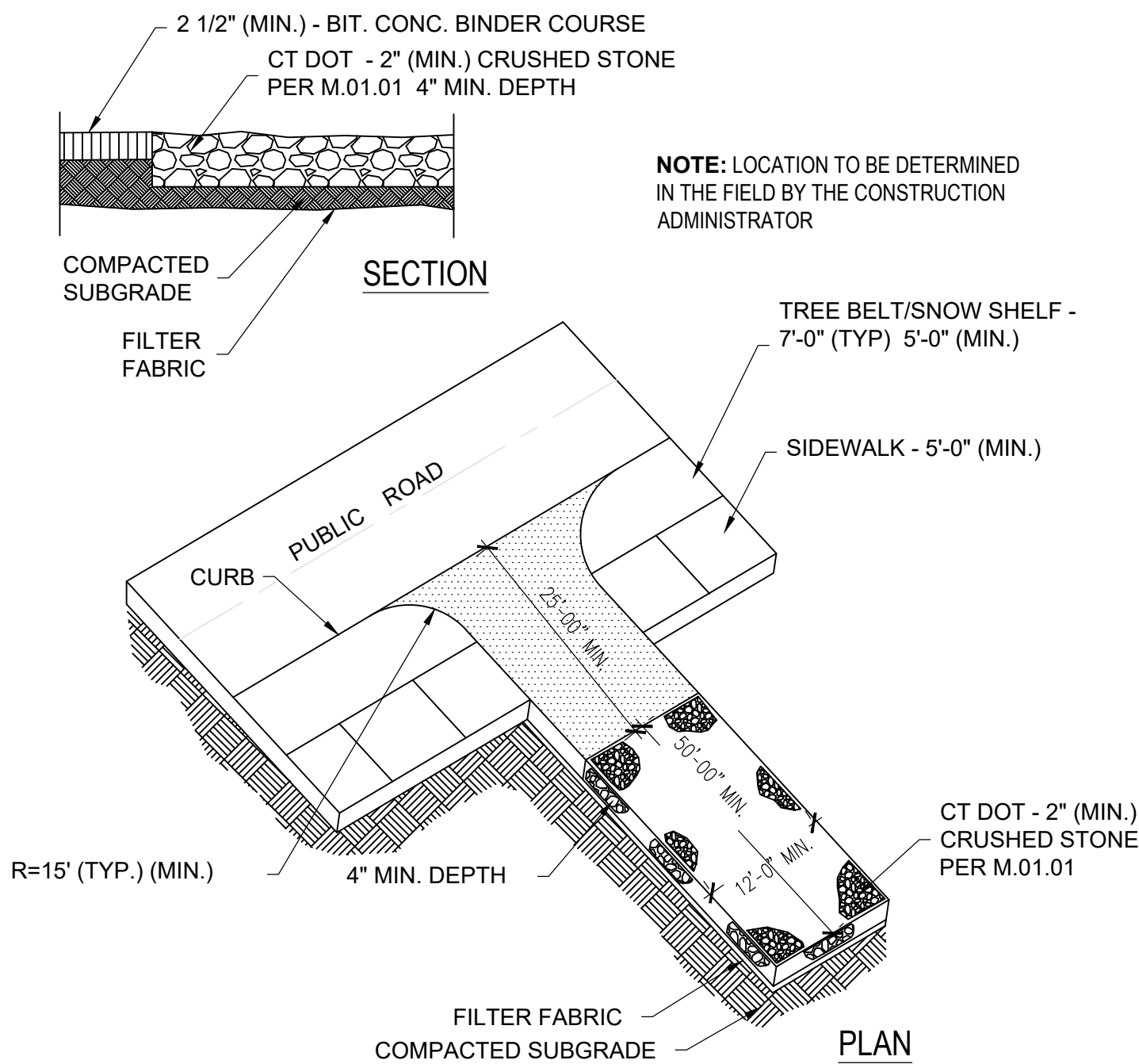
SHEET NO.
C1.0



"SILTSACK" SEDIMENT CONTROL DEVICE, TERRAFIX GEOSYNTHETICS INC. TORONTO, ONTARIO, CA
WWW.TERRAFIXGEO.COM

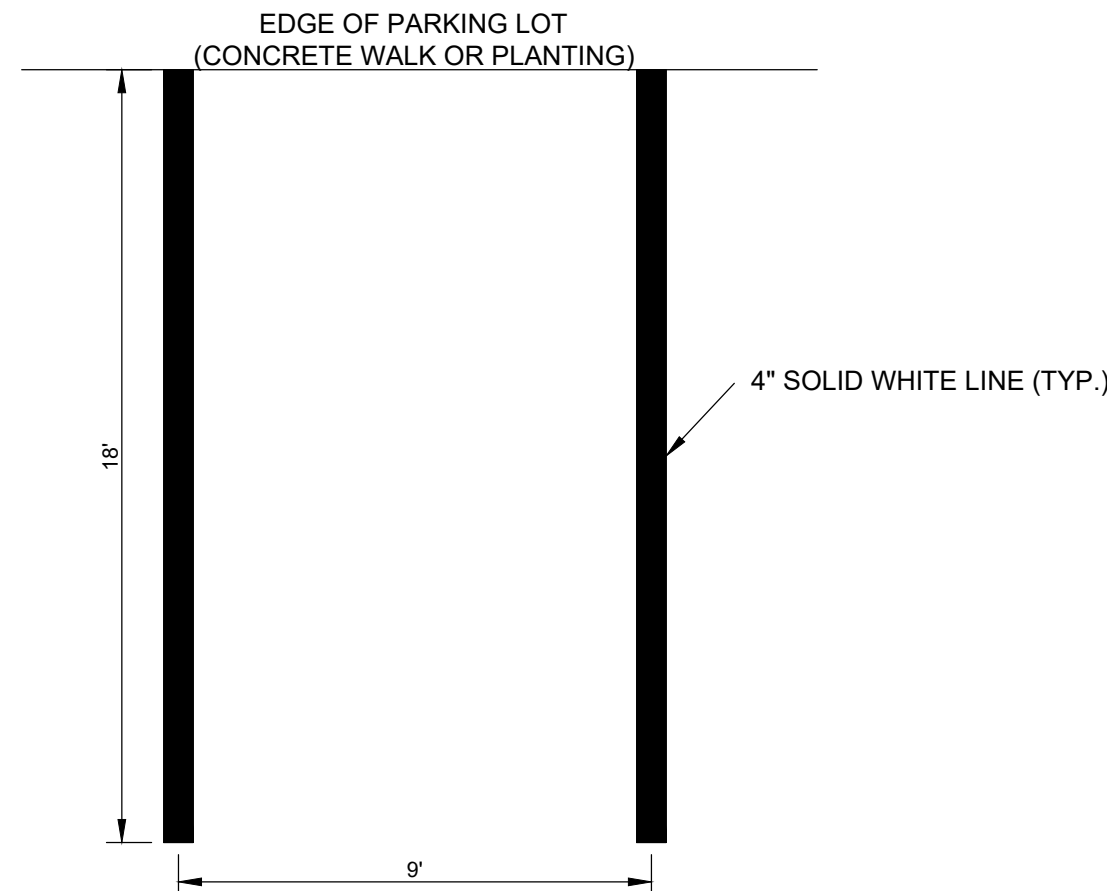
SILT SACK (SS)

SCALE: NONE



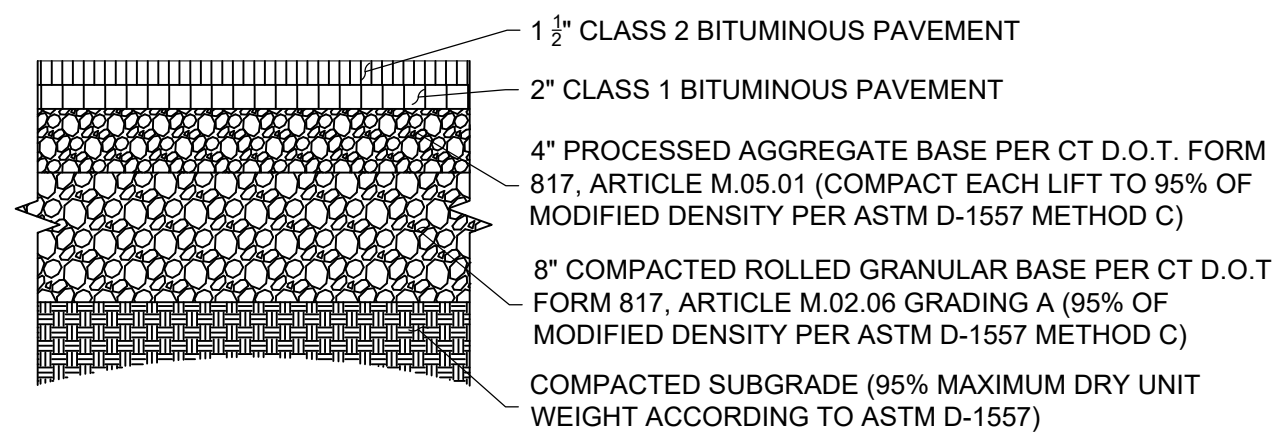
CONSTRUCTION ENTRANCE

SCALE: NONE



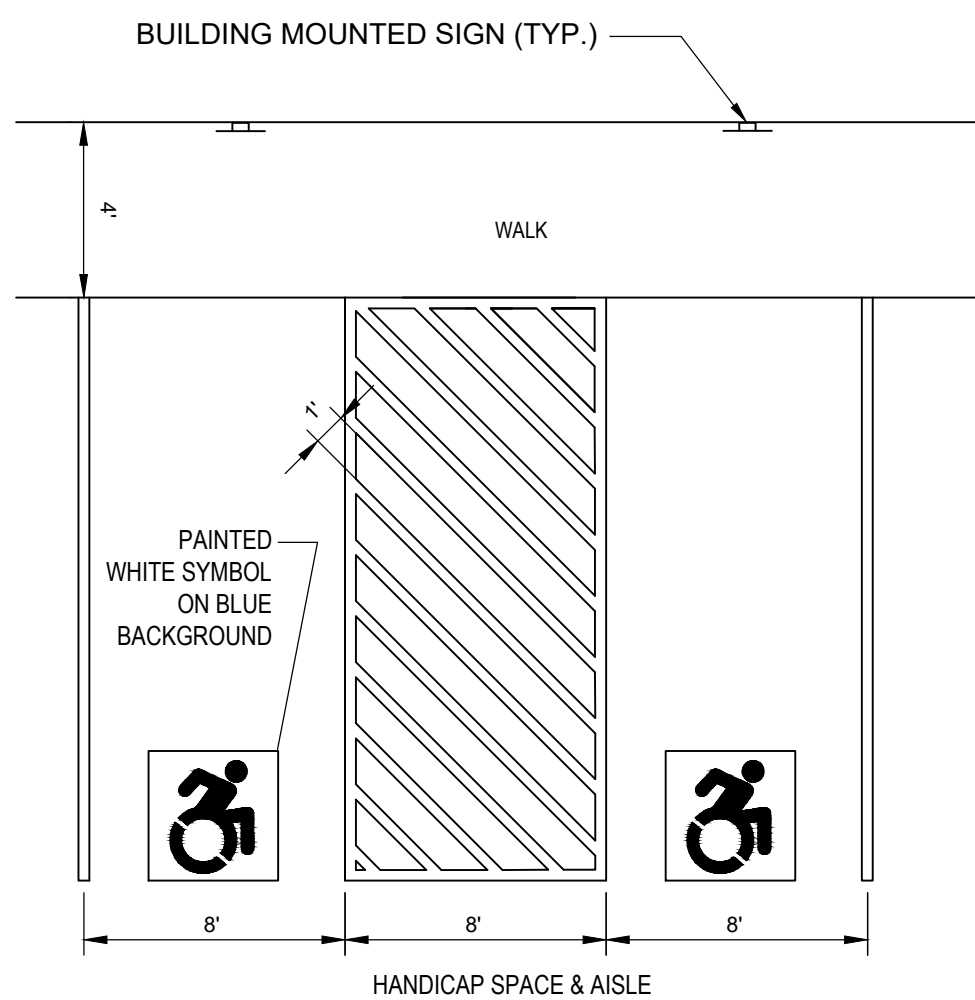
STANDARD PAINTED PARKING MARKINGS

SCALE: NONE



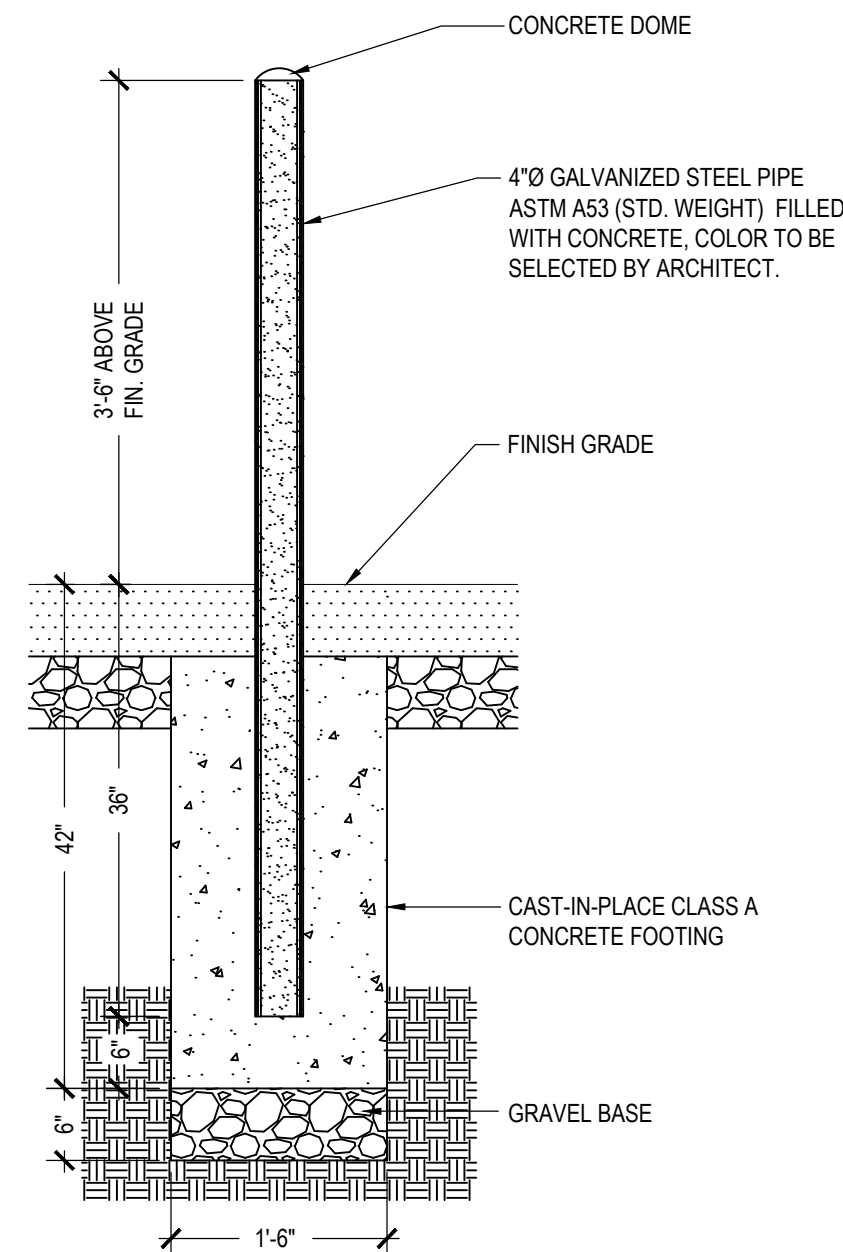
BITUMINOUS CONCRETE PAVEMENT

SCALE: NONE



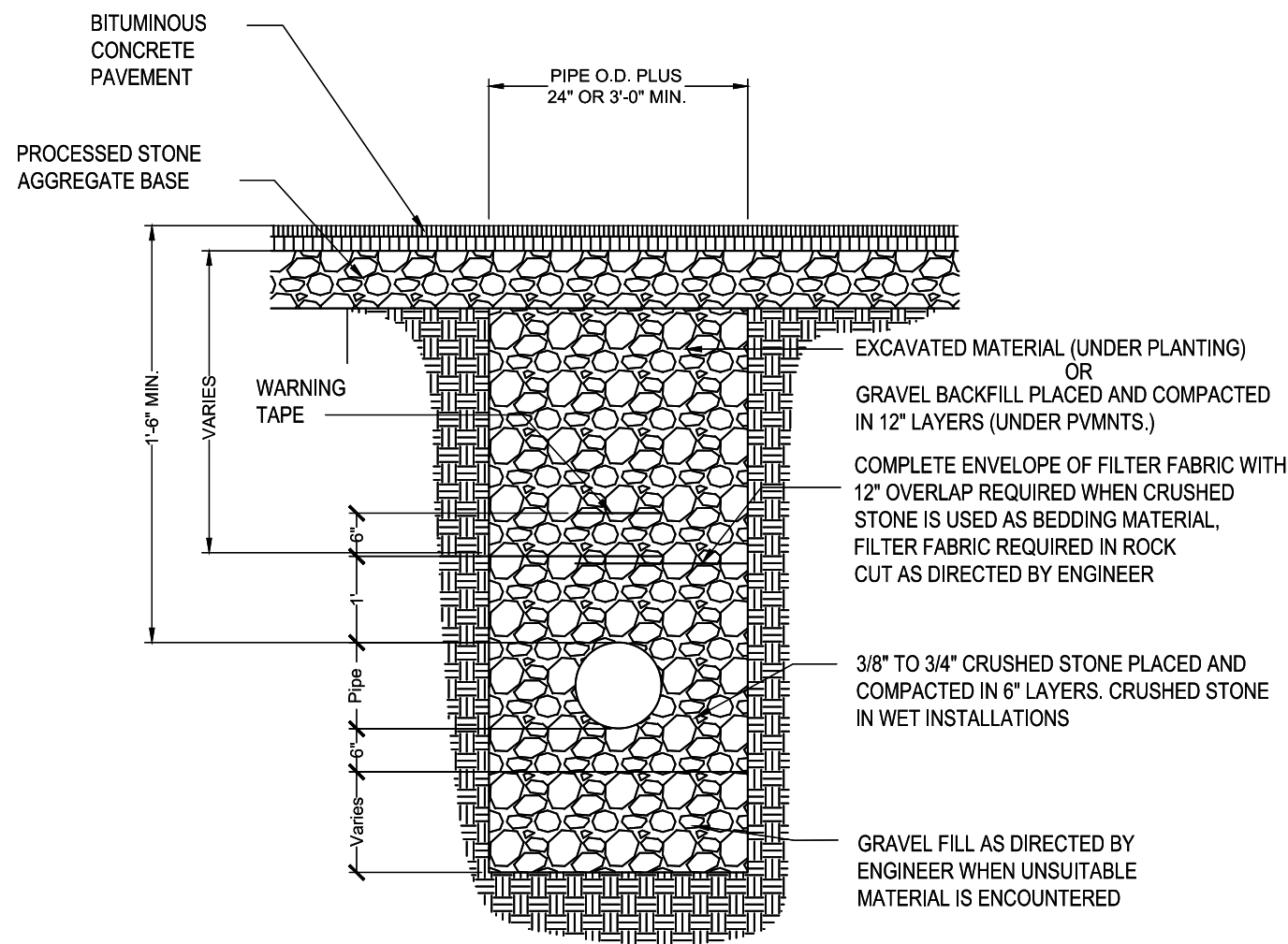
HANDICAP PARKING STALL LAYOUT

SCALE: NONE



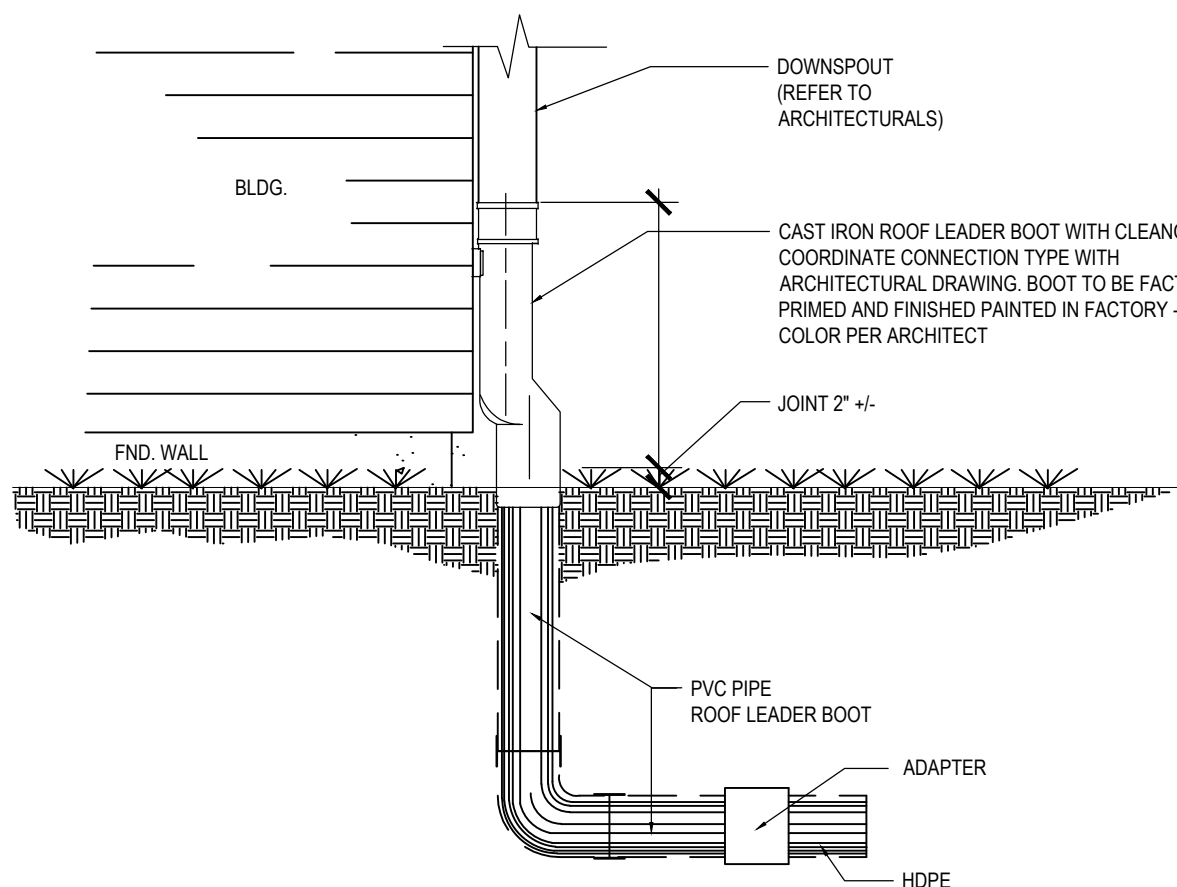
4" STEEL BOLLARD

SCALE: NONE



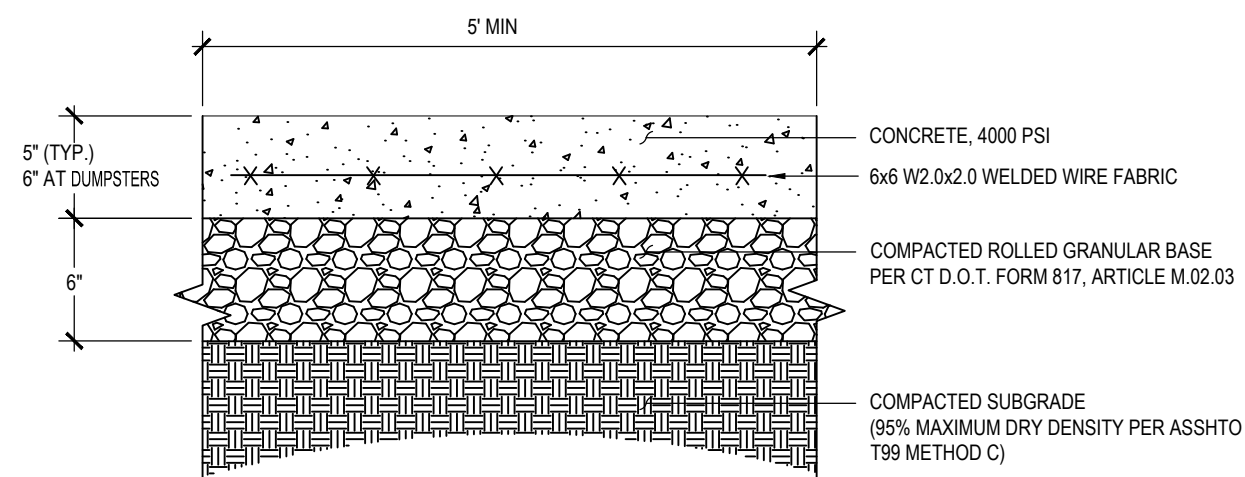
STORM TRENCH

SCALE: NONE



ROOF LEADER BOOT

SCALE: NONE



CONCRETE DOOR LANDING PAD

SCALE: NONE

DATE:	09/01/2022
DRAWN BY:	JUD
SCALE:	1" = 10'
REVIEWED BY:	JWV
PROJECT NO.	2021-091A

NO.	1	DESCRIPTION	ISSUED FOR BID
DATE	11/28/22		

benesch
120 Hebron Avenue, 2nd Floor
Glastonbury, Connecticut 06033
P 860-633-8341
F 860-633-1068
www.Benesch.com

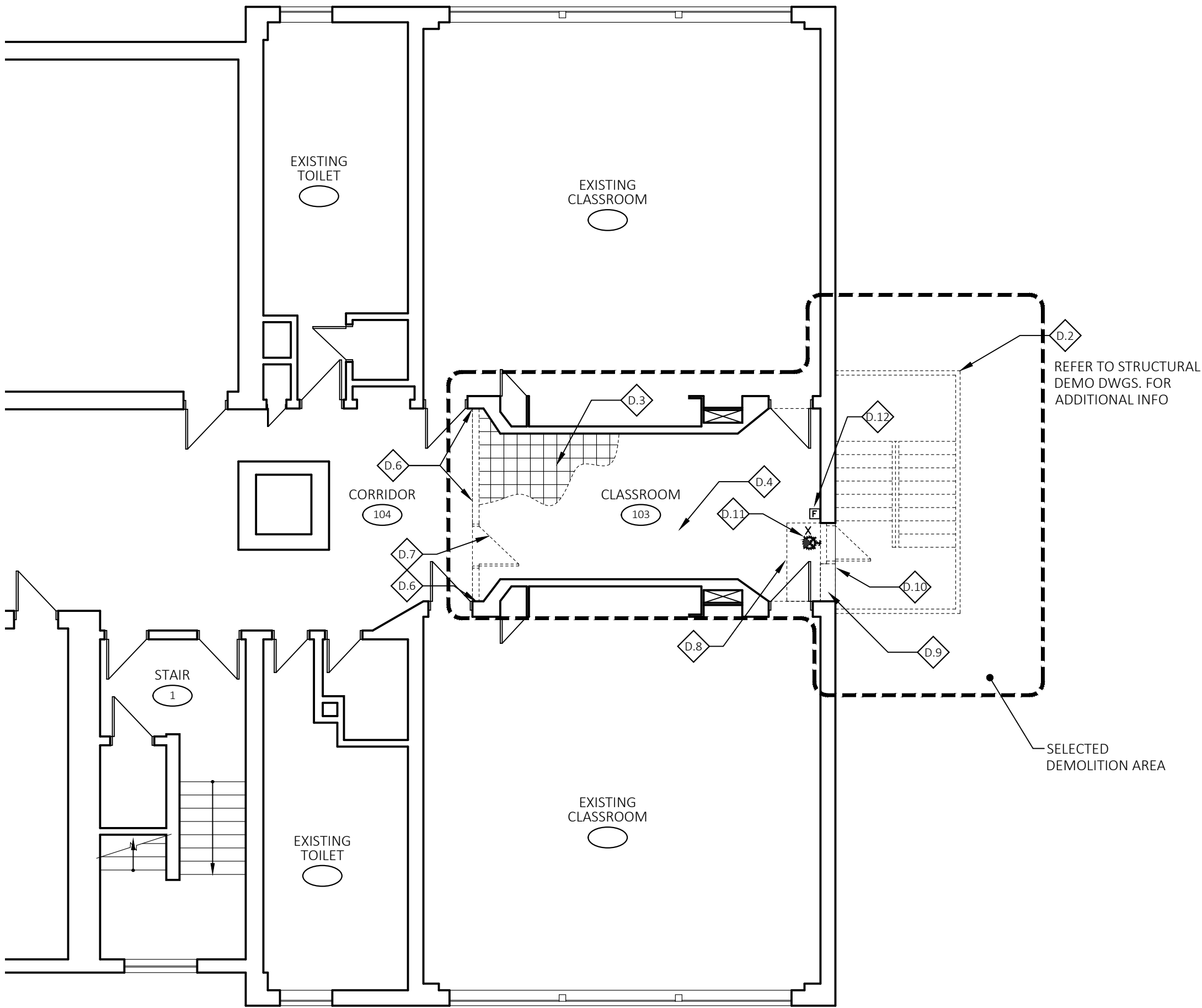
SITE DETAILS

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708



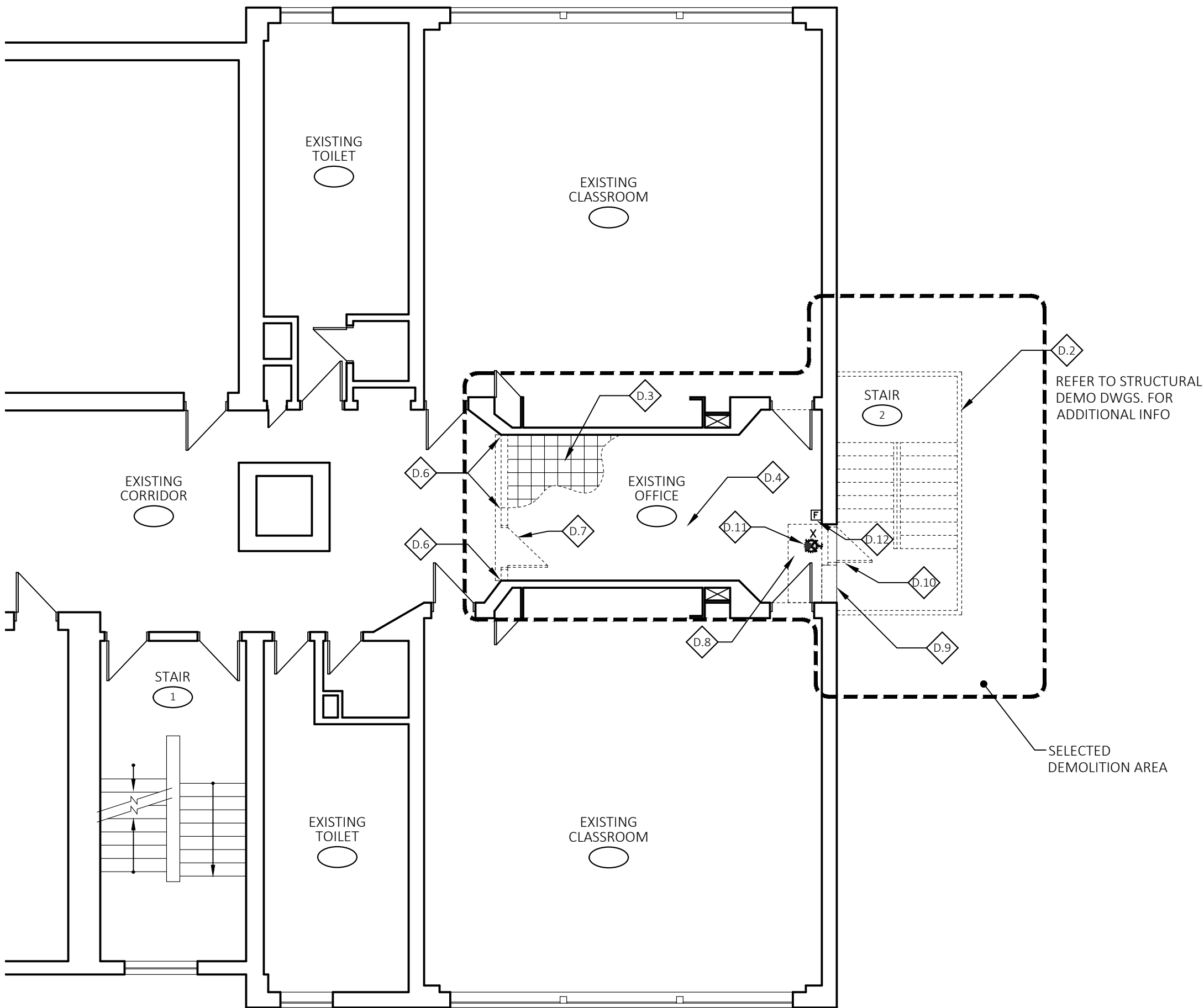
FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
C2.0



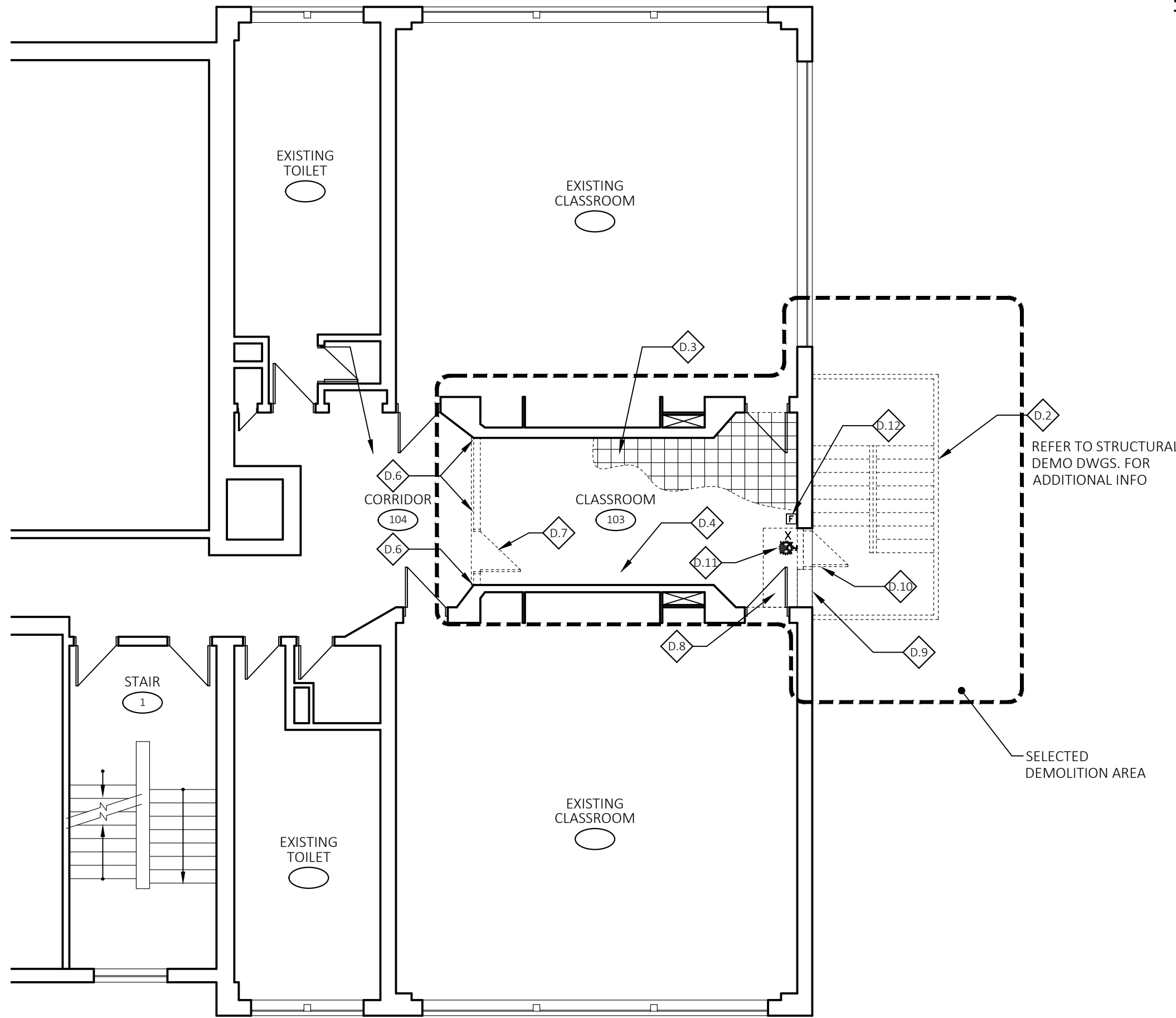
THRID FLOOR DEMO PLAN

SCALE: 1/8"=1'-0"



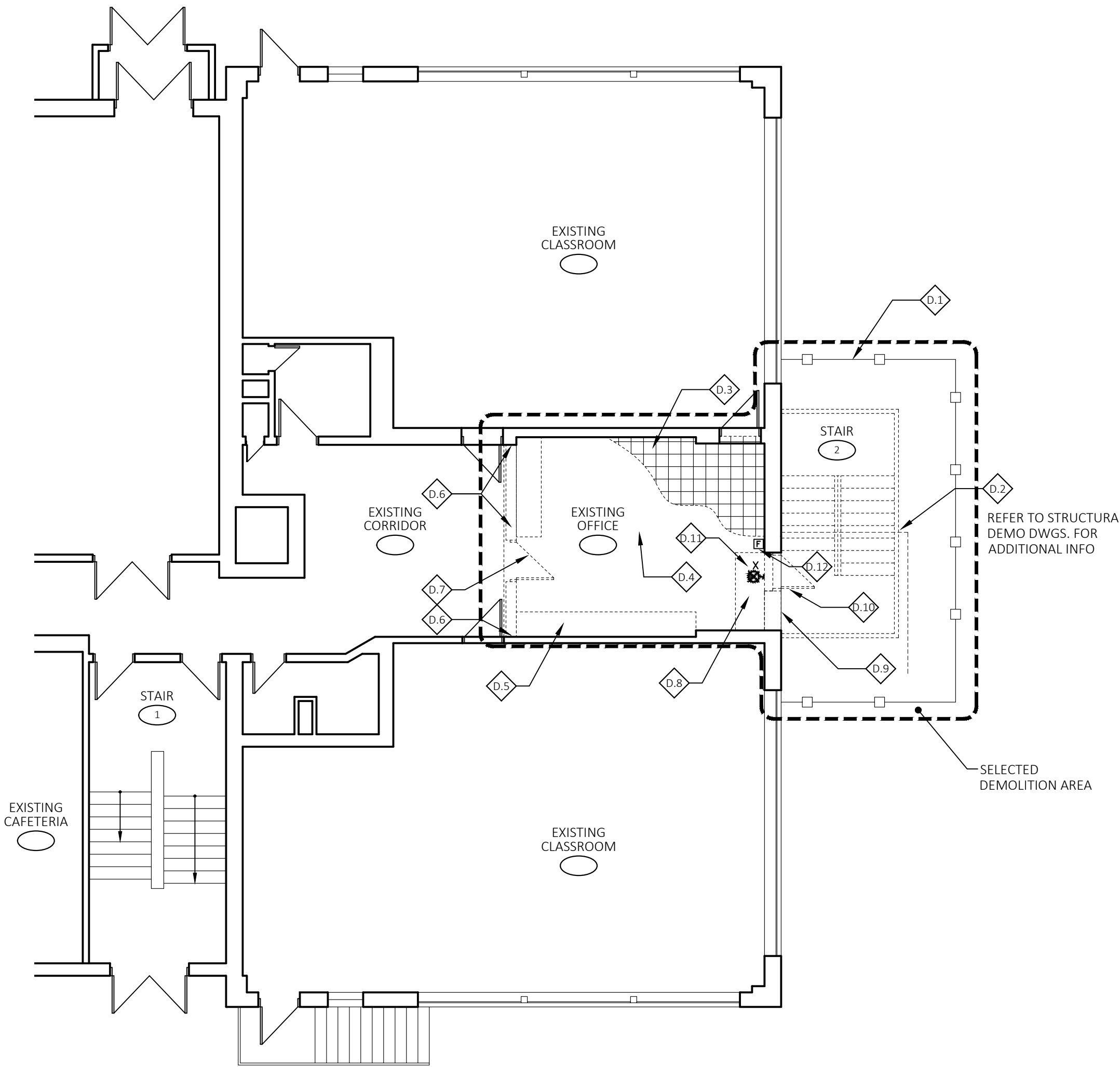
SECOND FLOOR DEMO PLAN

SCALE: 1/8"=1'-0"



FIRST FLOOR DEMO PLAN

SCALE: 1/8"=1'-0"



BASEMENT DEMO PLAN

SCALE: 1/8"=1'-0"

DEMOLITION NOTES

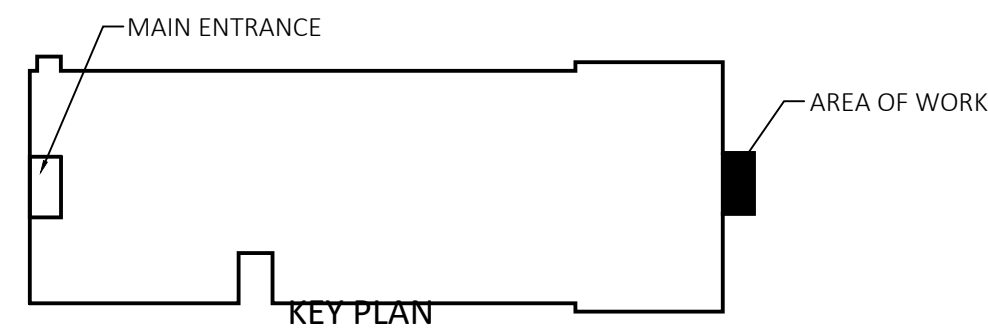
- D.1 DEMO AND REMOVE EXISTING CHAIN LINK FENCE, GATE AND ASSOCIATED HARDWARE.
- D.2 DEMO AND REMOVE EXISTING METAL STAIRCASE, SUPPORTS, EXTERIOR METAL SIDING, FRAMEWORK, WINDOWS AND ASSOCIATED HARDWARE.
- D.3 DEMO AND REMOVE EXISTING SPLINE CEILING SYSTEM, INCLUDING ALL CEILING FRAMEWORK AND HANGERS. DEMO AND REMOVE ALL EXISTING LIGHTING AND DEVICES ATTACHED TO CEILING.
- D.4 DEMO AND REMOVE EXISTING VCT TILE FLOORING. PREP SLAB FOR NEW FLOOR.
- D.5 DEMO AND REMOVE EXISTING SHELVES AND CABINETS.
- D.6 DEMO AND REMOVE EXISTING WALL ASSEMBLY. PREP FLOOR AND CEILING FOR NEW WORK. PATCH, REPAIR AND PAINT ADJACENT WALL AND PROVIDE CLEAN, SMOOTH FINISH.
- D.7 DEMO AND REMOVE EXISTING HOLLOW METAL FRAME, WOOD DOOR AND ASSOCIATED HARDWARE. TURN OVER TO OWNER.
- D.8 DEMO AND REMOVE EXISTING VAT AS PER ABATEMENT CONTRACTOR. PREP SLAB FOR NEW FLOORING.
- D.9 DEMO AND REMOVE EXISTING MASONRY WALL ASSEMBLY. (GLAZED BLOCK, CMU AND BRICK. PREP FOR NEW INFILL.
- D.10 DEMO AND REMOVE EXISTING HOLLOW METAL FRAME, METAL DOOR AND ASSOCIATED HARDWARE.
- D.11 DEMO AND REMOVE EXISTING WALL MOUNTED EXIT SIGNAGE. TURN OVER TO OWNER.
- D.12 EXISTING FIRE ALARM PULL STATION TO REMAIN IN ORIGINAL LOCATION. PROTECT DEVICE DURING THE DEMOLITION PROCESS.

REFER TO TYPICAL DEMOLITION NOTES ON SHEET R1.1

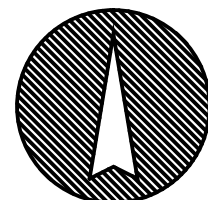
HAZARDOUS MATERIAL NOTES

HAZARDOUS MATERIAL WORK IS TO BE PERFORMED IN ACCORDANCE WITH AN APPROVED ASBESTOS WORK PLAN FROM THE STATE OF CONNECTICUT DEPARTMENT OF PUBLIC HEALTH, UNDER CONTAINMENT WITH A PRESSURE DIFFERENTIAL AND CONTIGUOUS DECONTAMINATION UNITS. REFER TO HAZARDOUS MATERIAL TESTING, REPORTS & DOCUMENTATION IN REGARD TO THE EXISTING BUILDING.

GENERAL DEMOLITION SHALL NOT COMMENCE UNTIL ALL EXISTING SPACES & CONDITIONS HAVE BEEN CLEANED OF ALL HAZARDOUS MATERIAL.



PROJECT NORTH

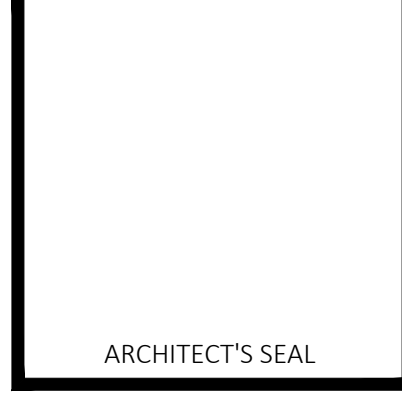
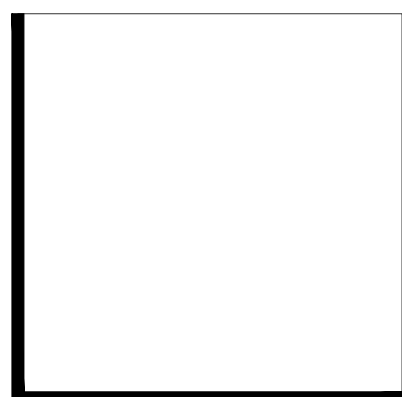


DATE:	9/1/2022
DRAWN BY:	JIM
SCALE:	1/8" = 1'-0"
REVIEWED BY:	JMY
PROJECT NO.	2022-043A
	SELECT DEMO

NO.	DATE	DESCRIPTION
	11/28/22	ISSUED FOR BID

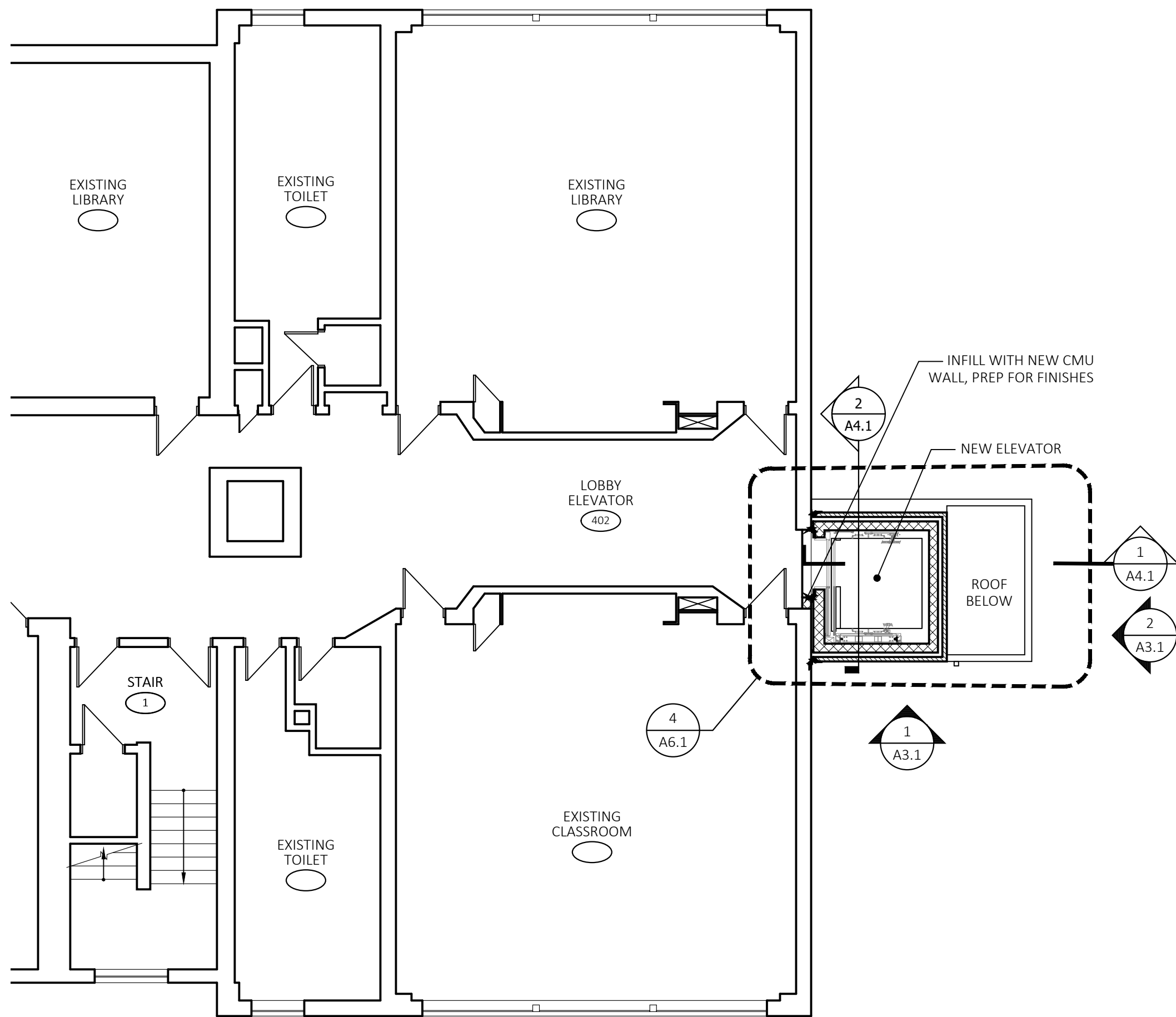
DEMOLITION FLOOR PLANS

STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

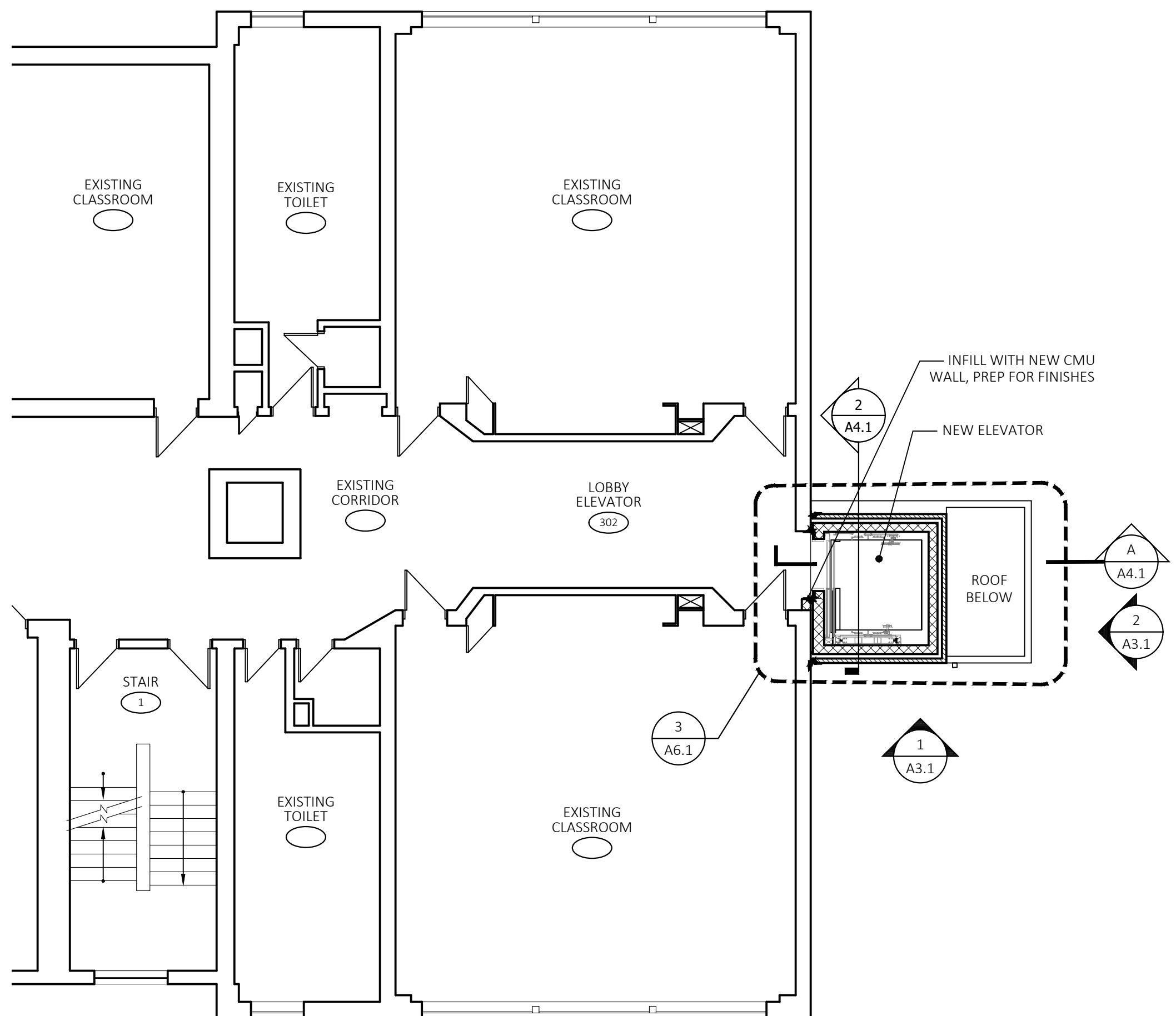


FRIAR
21 Talcott Notch Road
Farmington, CT 06032

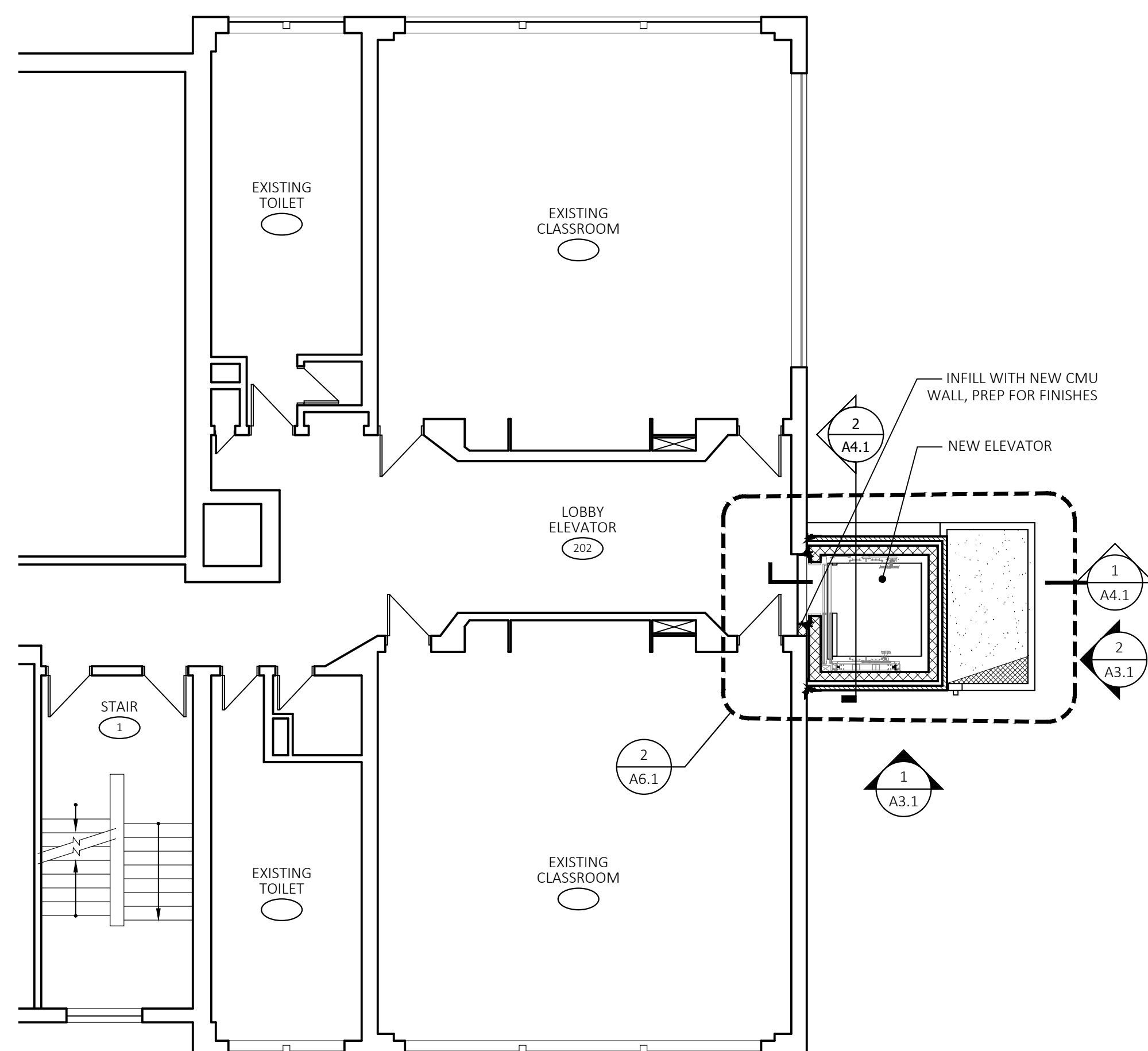
SHEET NO.
D1.1



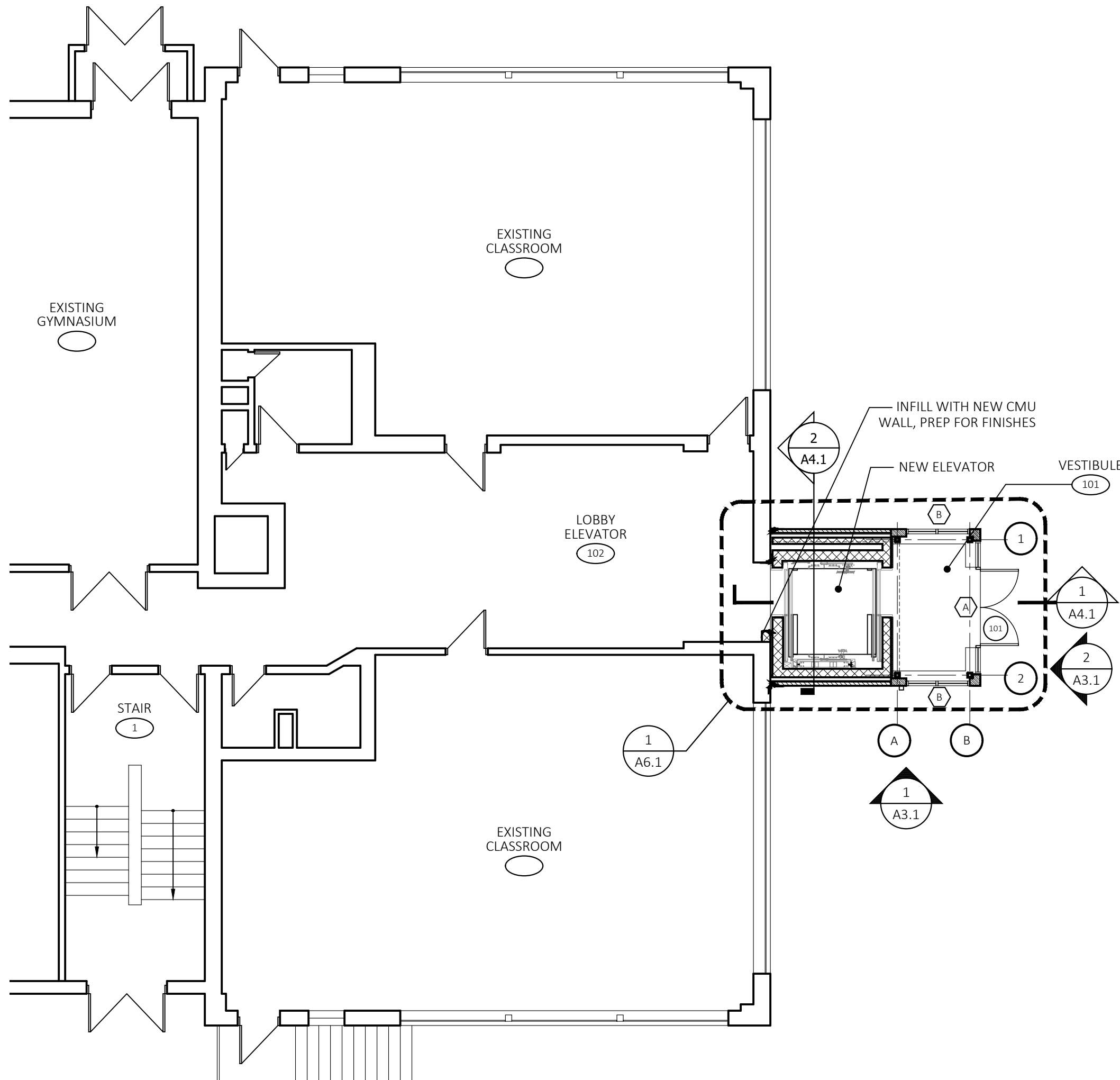
4 NEW CONSTRUCTION THIRD FLOOR PLAN
SCALE: 1/8" = 1'-0"



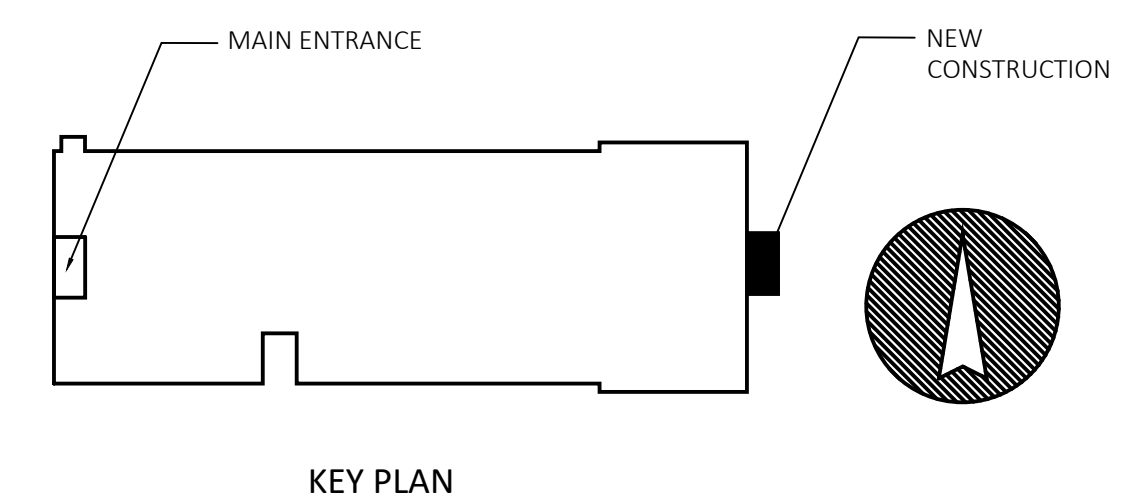
3 NEW CONSTRUCTION SECOND FLOOR PLAN
SCALE: 1/8" = 1'-0"



2 NEW CONSTRUCTION FIRST FLOOR PLAN
SCALE: 1/8" = 1'-0"



1 NEW CONSTRUCTION BASEMENT FLOOR PLAN
SCALE: 1/8" = 1'-0"



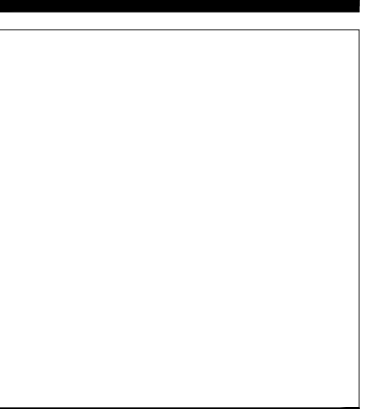
KEY PLAN

DATE:	9/7/2022
DRAWN BY:	RS
SCALE:	1/8" = 1'-0"
REVIEWED BY:	JMY
PROJECT NO.	2022-043A
	(A1.1) DEMO AND CONST

NO.	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

CONSTRUCTION FLOOR PLANS

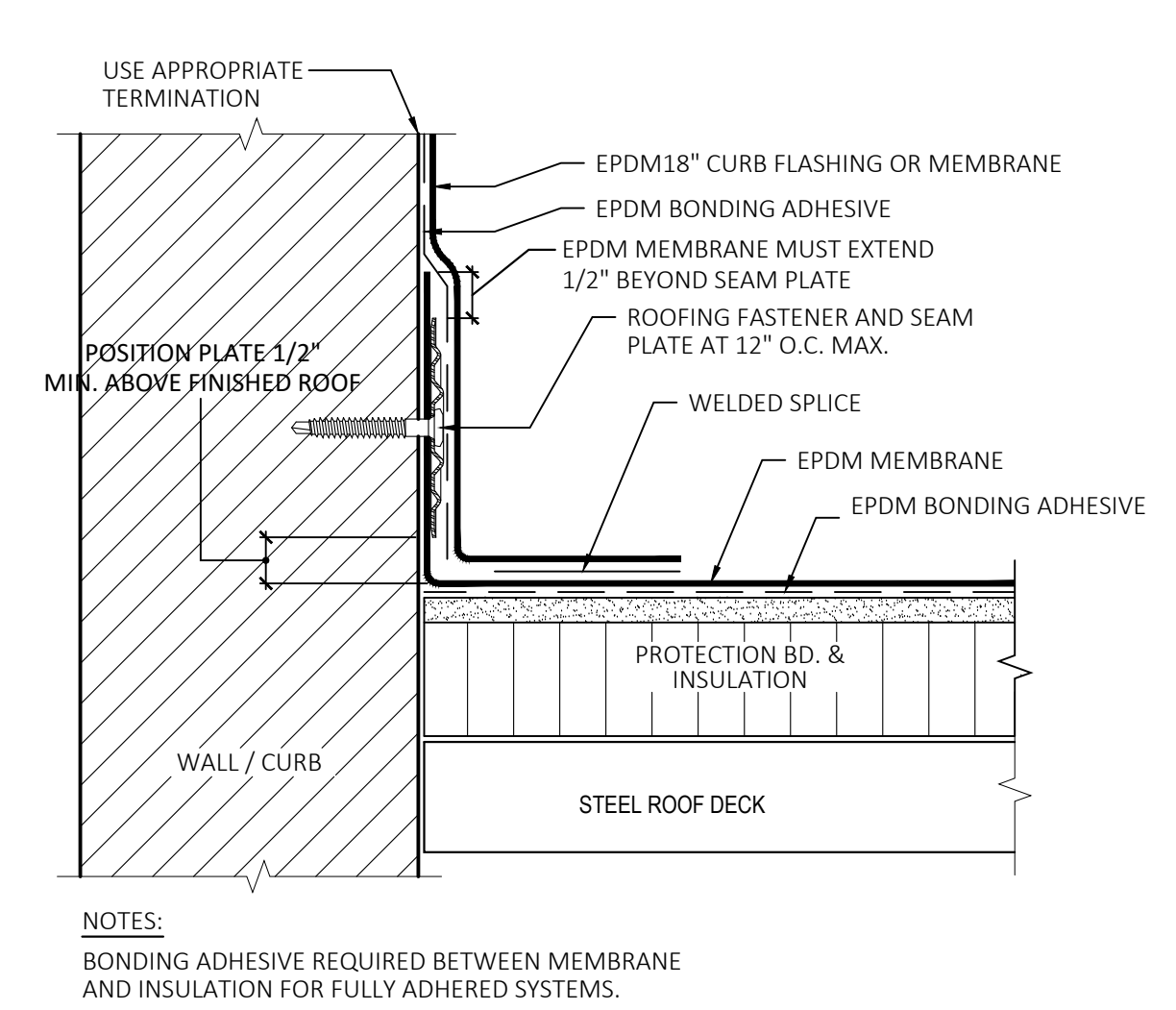
STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06706



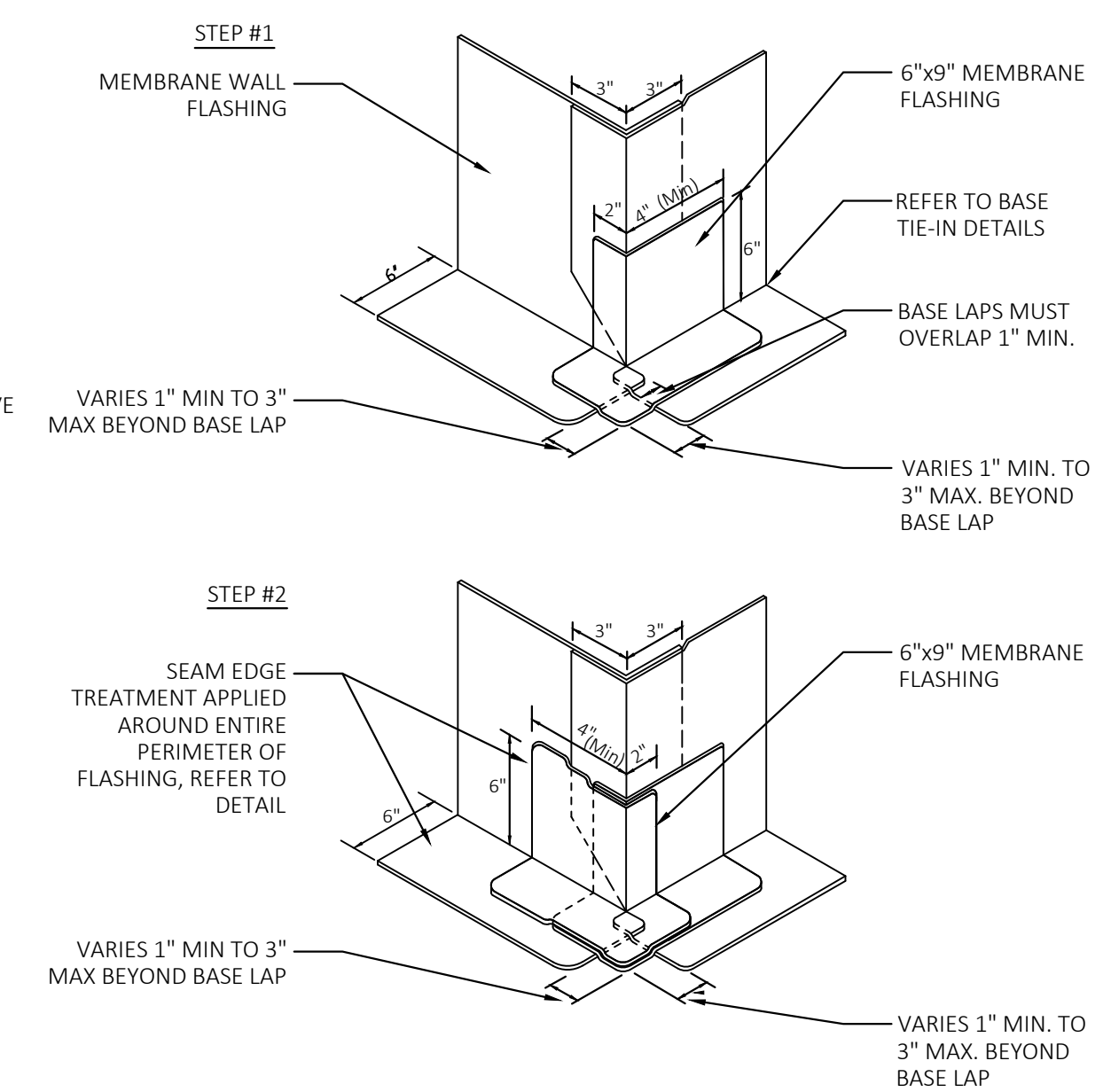
ARCHITECT'S SEAL

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

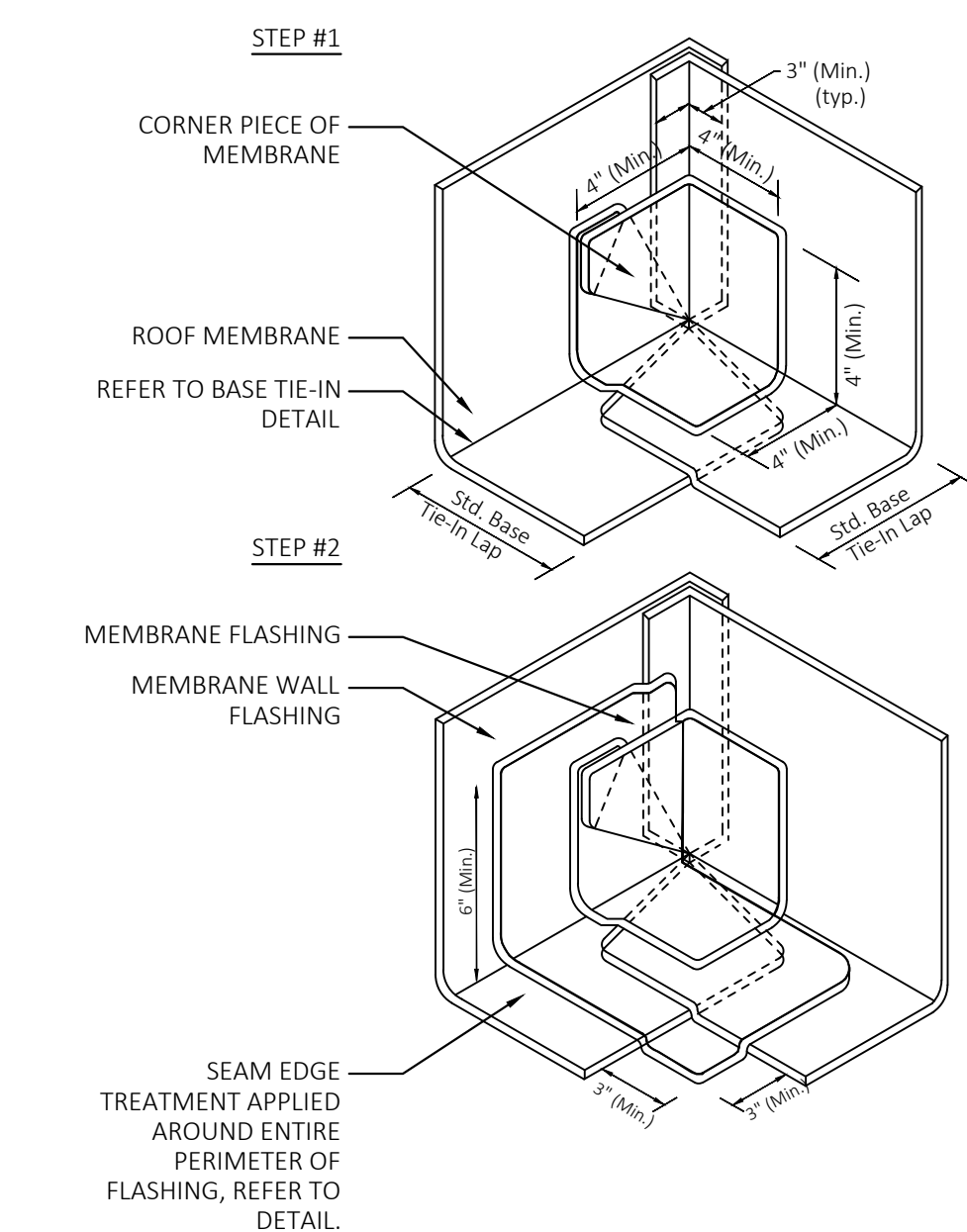
SHEET NO.
A1.1



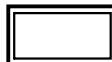
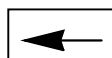
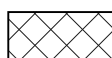
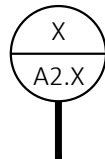
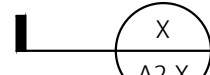
3 FLASHING DETAIL



2 TYPICAL OUTSIDE CORNER DETAIL



1 TYPICAL INSIDE CORNER DETAIL

	20-YEAR EPDM ROOF SYSTEM, TAPERED INSULATION MIN. SLOPE $\frac{1}{4}$:12 - REFER TO SPECIFICATION SECTION 075323 EPDM ROOFING, TYPICAL
	TAPERED RIGID INSULATION SLOPE = 1/4:12 TYPICAL
	CRICKET WITH PITCH TO DRAIN.
EJ	INSTALL NEW EXPANSION JOINT & ASSOCIATED CURB, REFER TO ROOF DETAILS FOR INSTALLATION & FLASHING
SC	INSTALL NEW THRU THE WALL SCUPPER DRAIN @ PARAPET WALL, REFER TO ROOF DETAILS FOR INSTALLATION & FLASHING
DS	NEW METAL DOWNSPOUTS @ SCUPPER W/ SPLASH BLOCKS TYPICAL
OS	NEW OVERLOW SCUPPER @ EACH NEW ROOF, 2" MAXIMUM ABOVE ROOF LOW POINT @ DRAIN, TYPICAL
	ROOF DETAIL LOCATION, REFER TO SHEET NO.
	ROOF SECTION DETAIL LOCATION, REFER TO SHEET NO.

-
- PRE-MANUFACTURED SCUPPER BOX/
CONDUCTOR HEAD. SIZE TO MATCH SCUPPER
OPENING. BOTTOM OPENING TO MATCH RWL.
COLOR TO MATCH FASCIA/ TRIM
- RECTANGULAR RAIN WATER
LEADER, NON CORRUGATED
WITH PIPE-LOCK SEAM. SECURE
TO CONDUCTOR HEAD.



PROJECT NORTH

REVISIONS		
NO.	DATE	DESCRIPTION
	11/28/22	ISSUED FOR BID

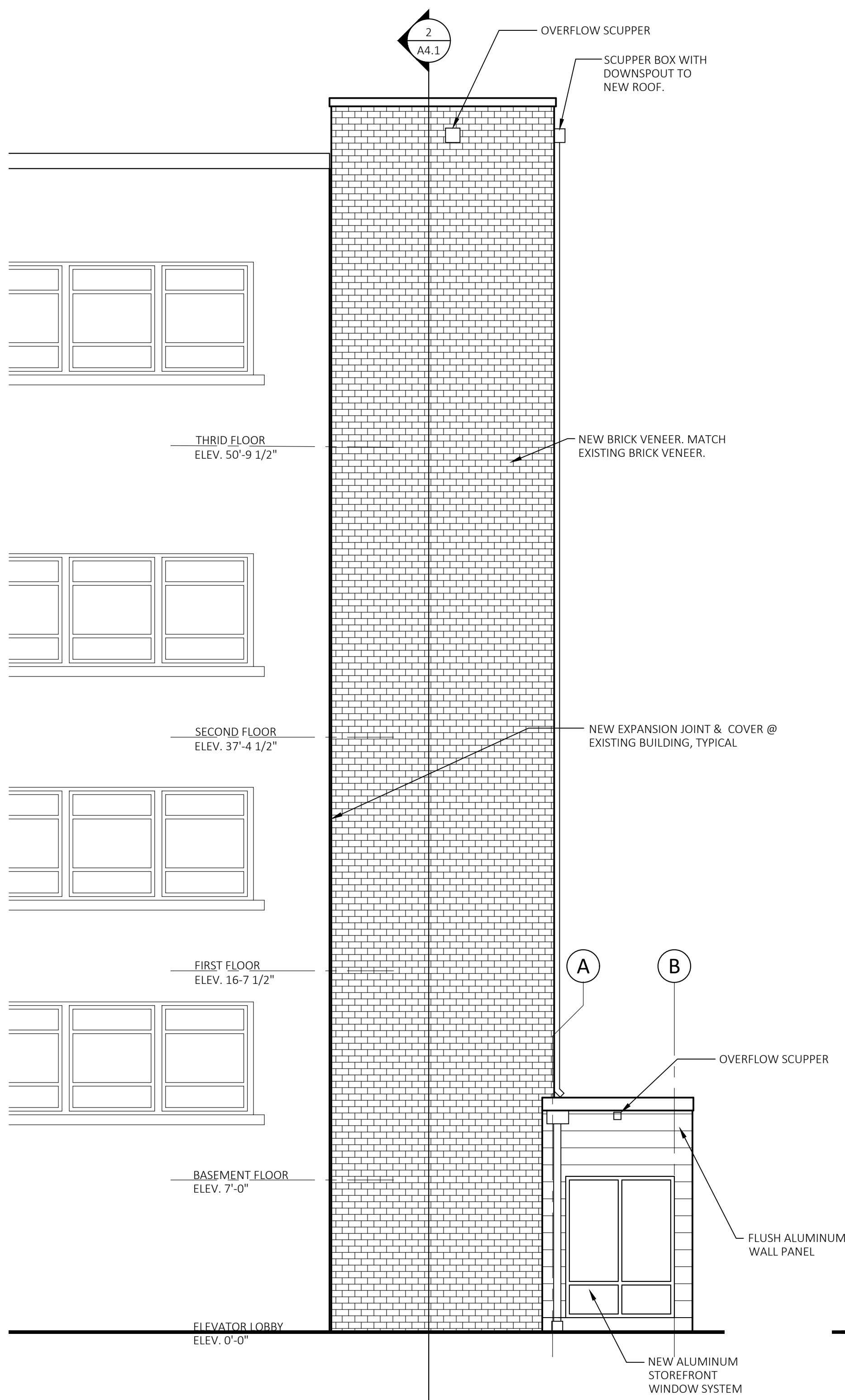
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

ARCHITECT'S SEAL

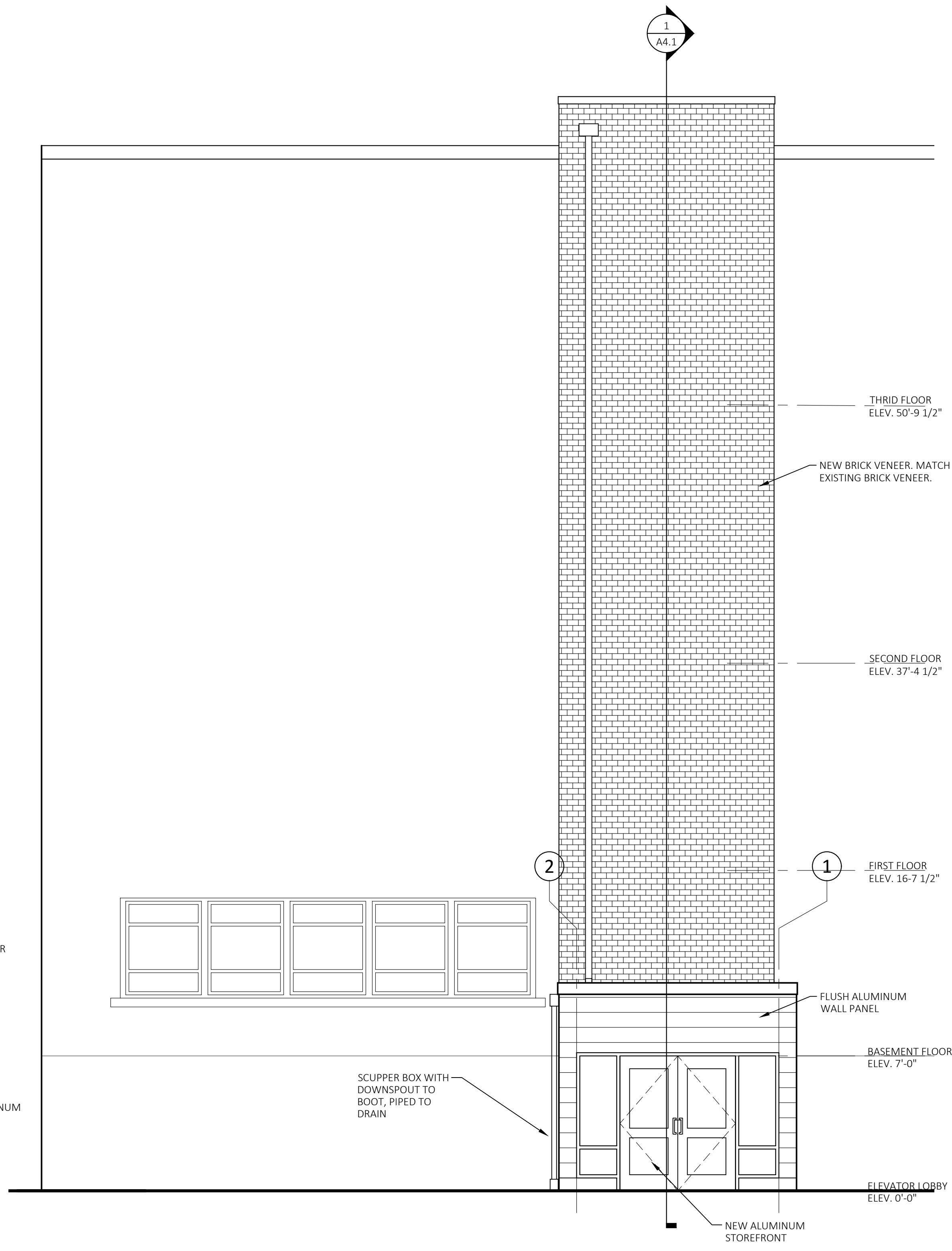


FRIAR
Talcott Notch Road
Farmington, CT 06032

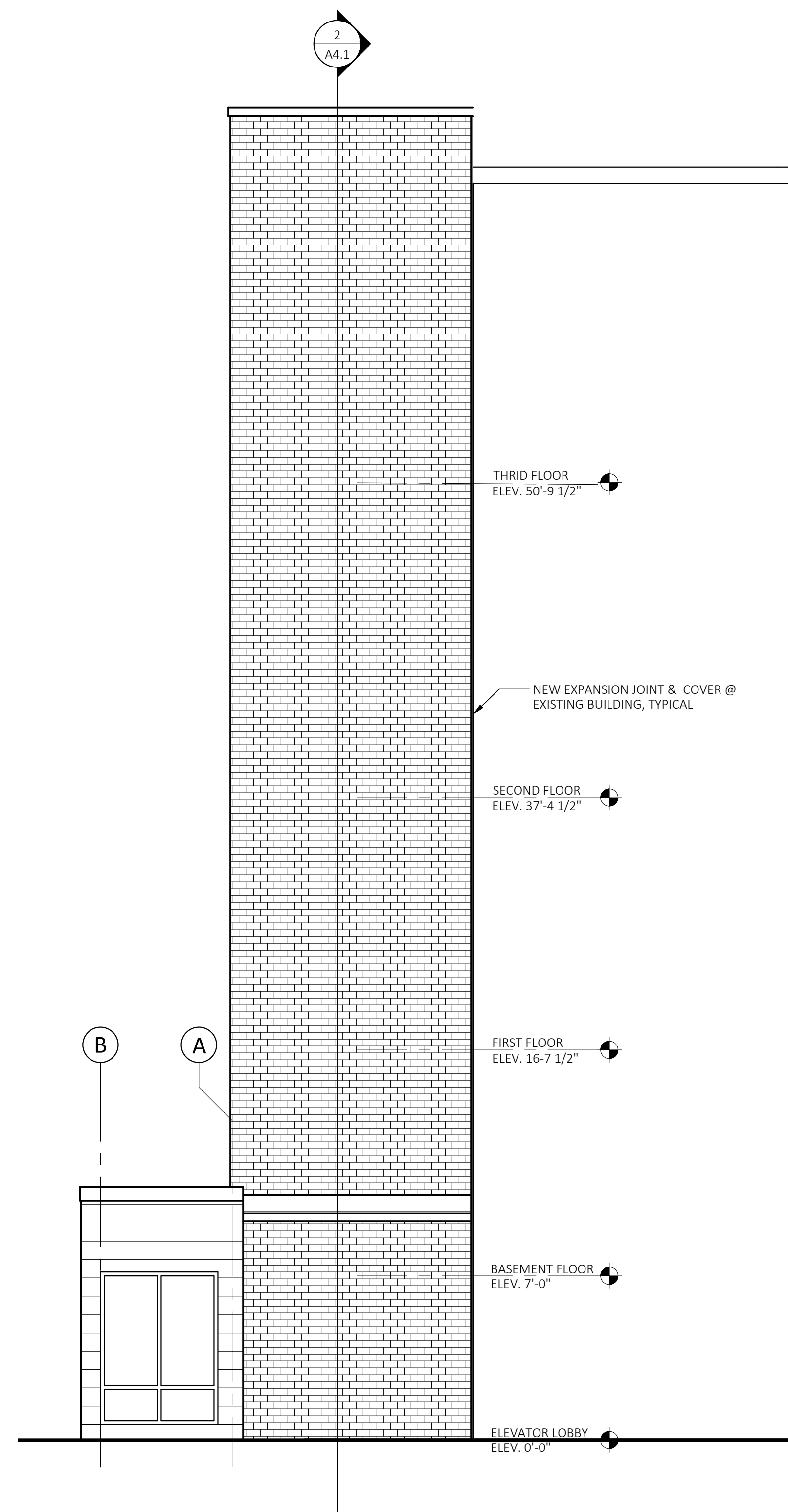
SHEET NO.
A2.1



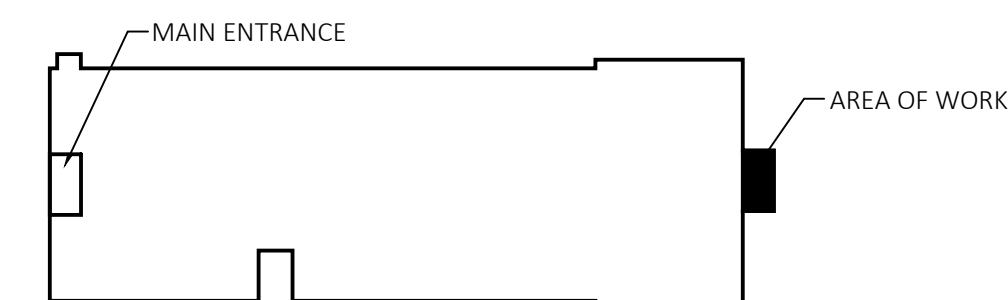
1 SOUTH ELEVATION
SCALE: 1/4" = 1'-0"



2 EAST ELEVATION
SCALE: 1/4" = 1'-0"

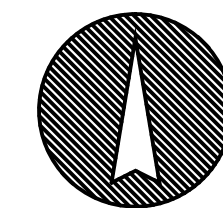


1 NORTH ELEVATION
SCALE: 1/4" = 1'-0"



KEY PLAN

PROJECT NORTH

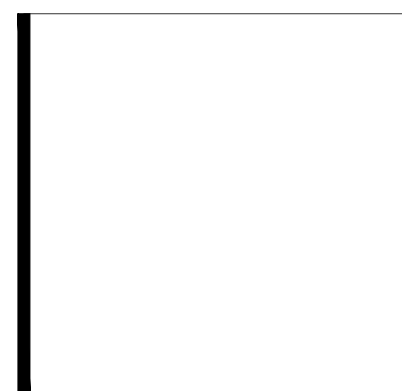


DATE:	9/1/2022
DRAWN BY:	JIM
SCALE:	1/8" = 1'-0"
REVIEWED BY:	JMY
PROJECT NO.	2022-043A
(A1.1) DEMO AND CONST	

REVISIONS		
NO.	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

EXTERIOR BUILDING ELEVATIONS

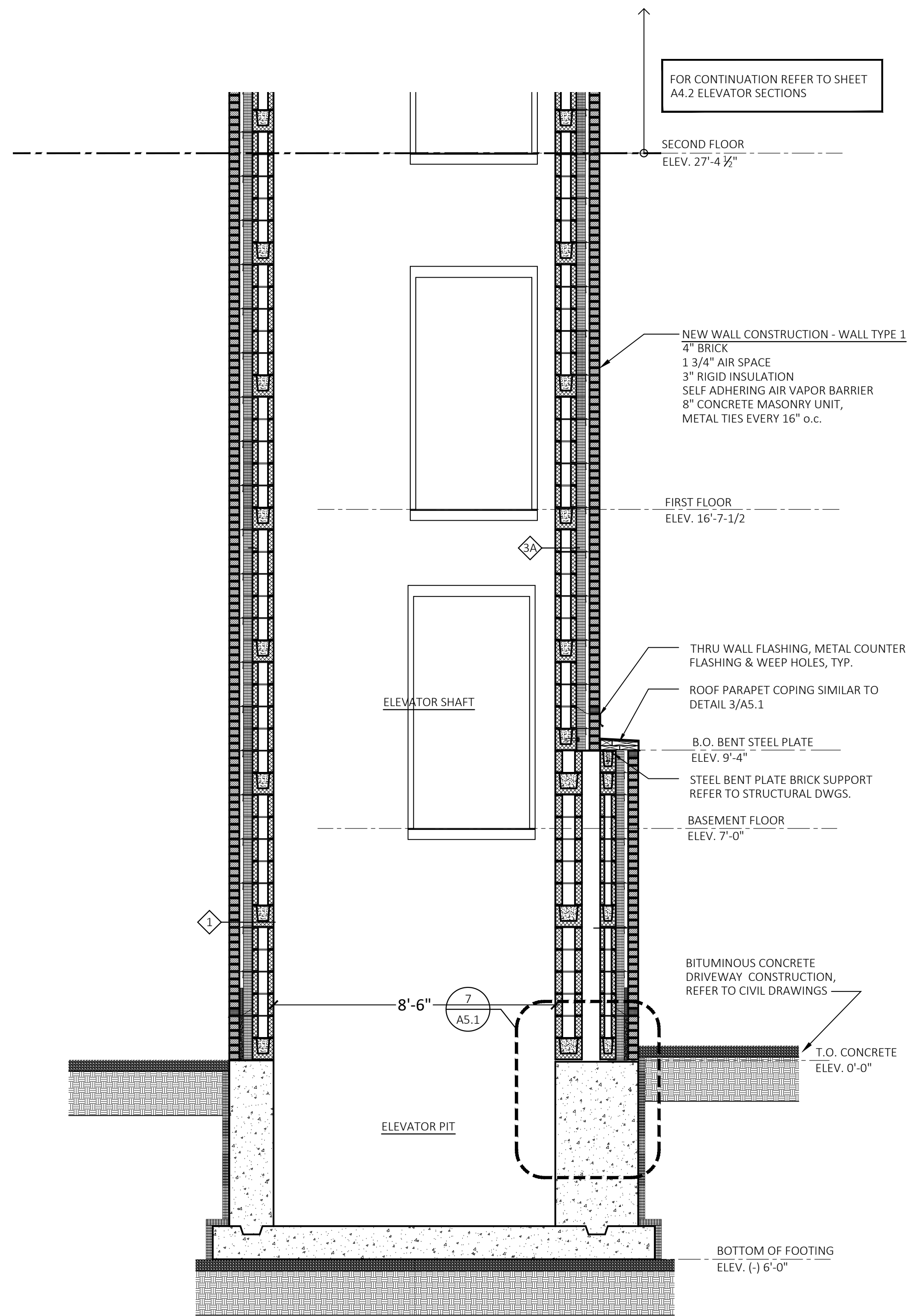
STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06706



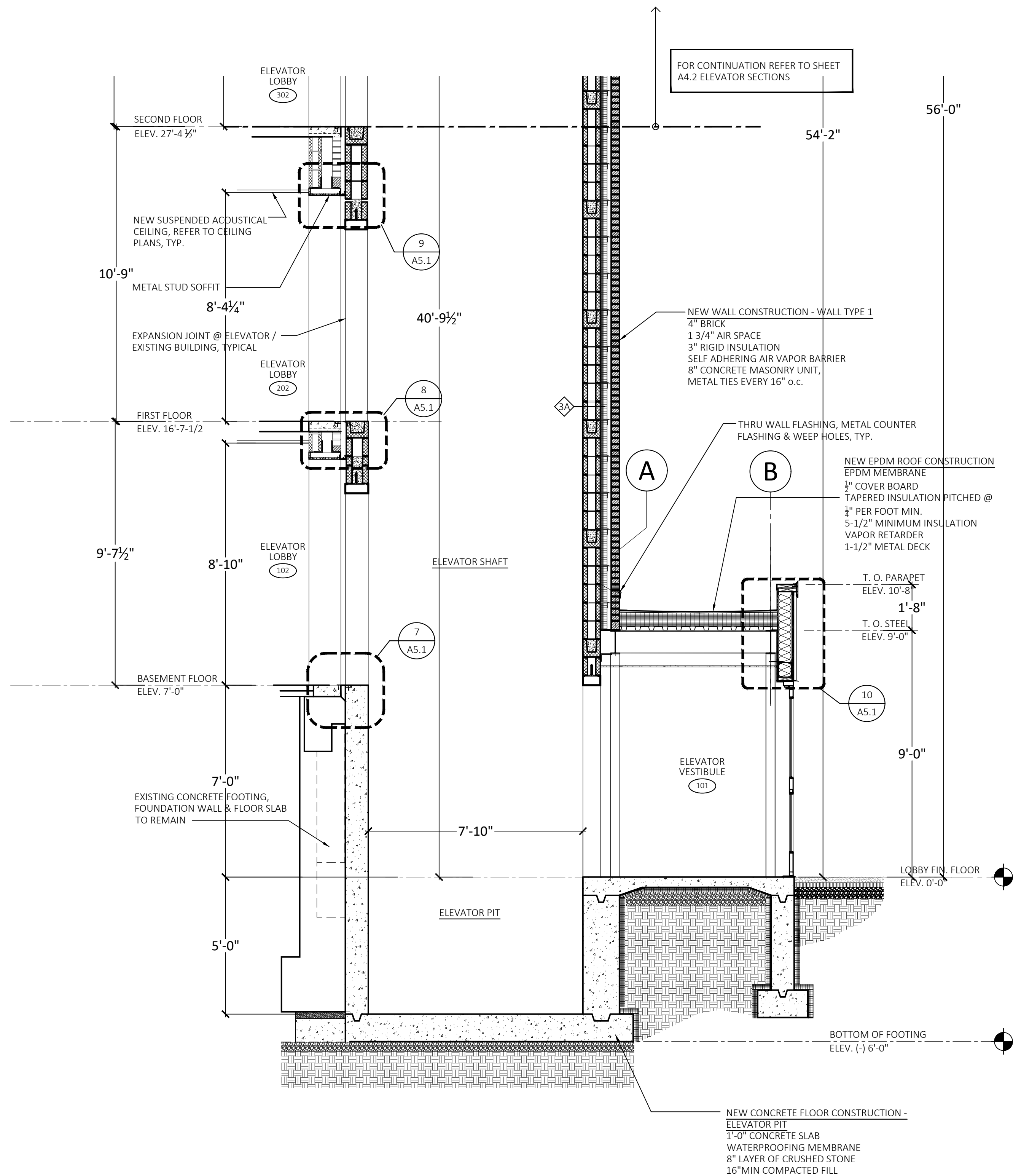
ARCHITECT'S SEAL

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

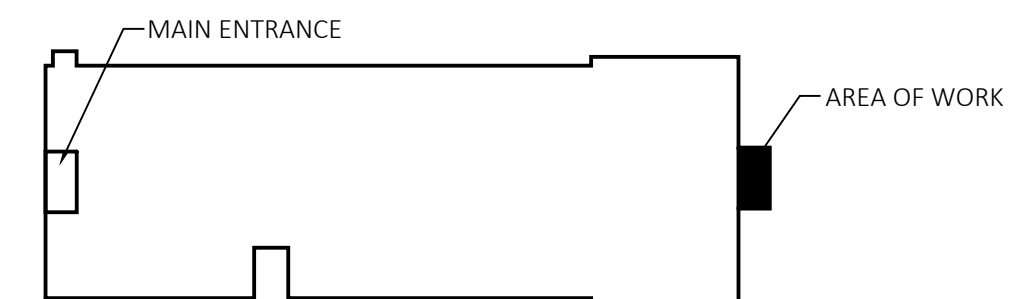
SHEET NO.
A3.1



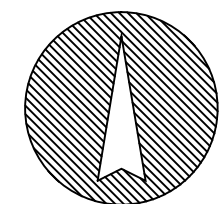
2 ELEVATOR SECTION
SCALE: 3/8"=1'-0"



1 ELEVATOR SECTION
SCALE: 3/8"=1'-0"



KEY PLAN
PROJECT NORTH



DATE: 9/1/2022
DRAWN BY: JIM
SCALE: 1/8" = 1'-0"
REVIEWED BY: JIM
PROJECT NO. 2022-043A
(A1.1) DEMO AND CONST

REVISIONS		
NO.	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

BUILDING SECTIONS

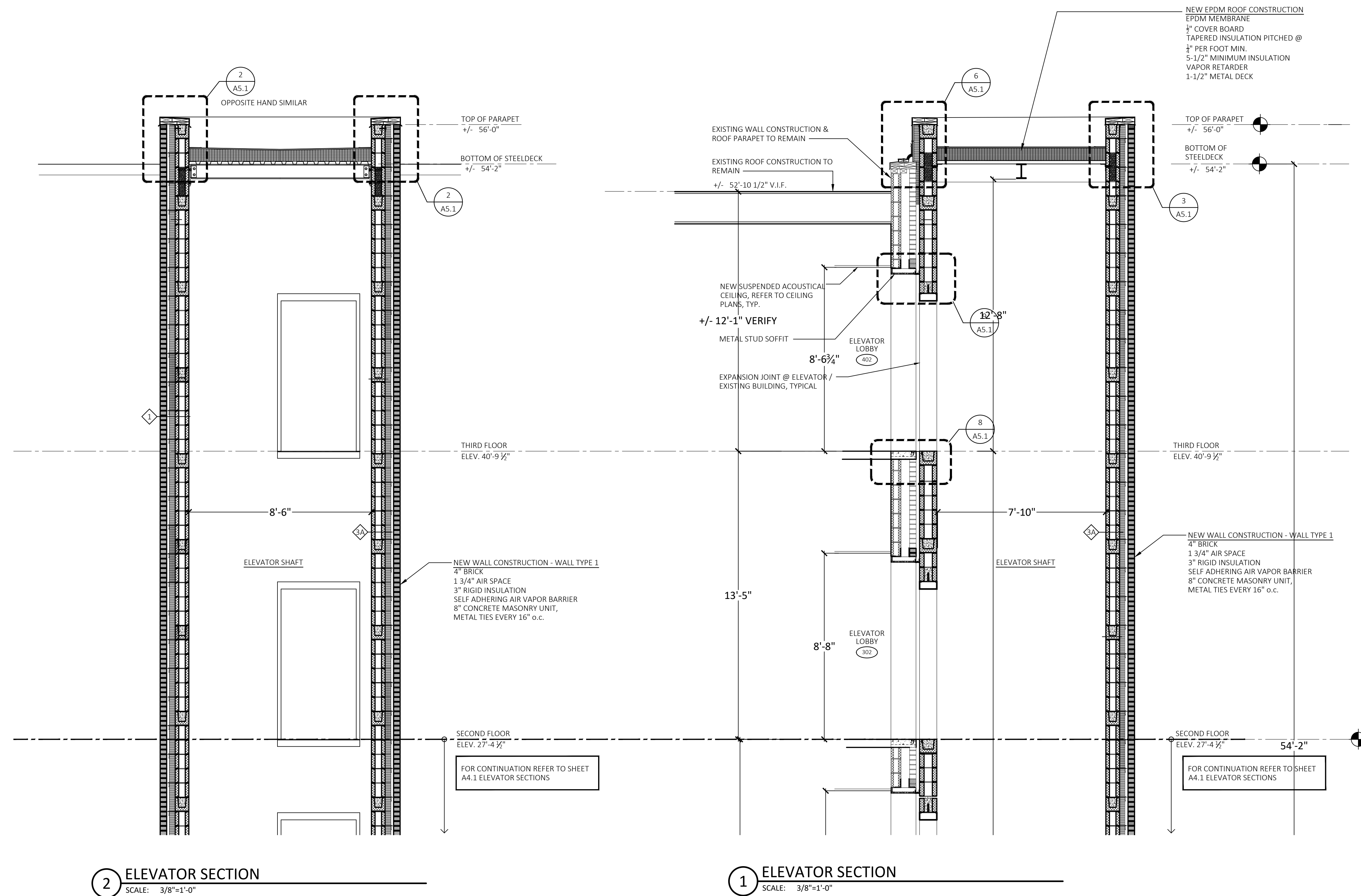
STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

ARCHITECT'S SEAL

ARCHITECT'S SEAL

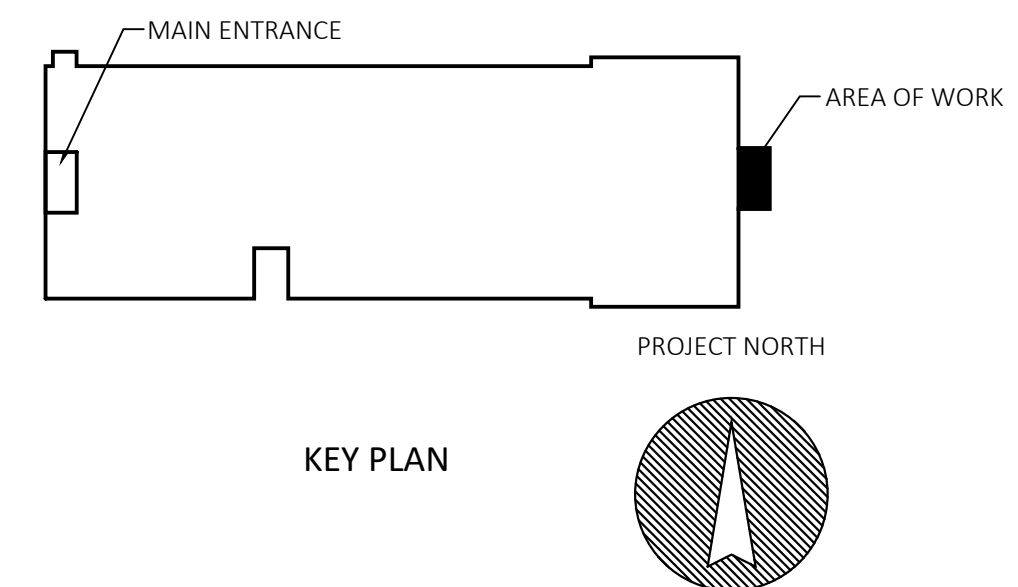
FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
A4.1



2 ELEVATOR SECTION
SCALE: 3/8"=1'-0"

1 ELEVATOR SECTION
SCALE: 3/8"=1'-0"



DATE:	9/1/2022
DRAWN BY:	JIM
SCALE:	1/8" = 1'-0"
REVIEWED BY:	JIM
PROJECT NO.	2022-043A
(A1.1) DEMO AND CONST	

NO.	REVISIONS	
	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

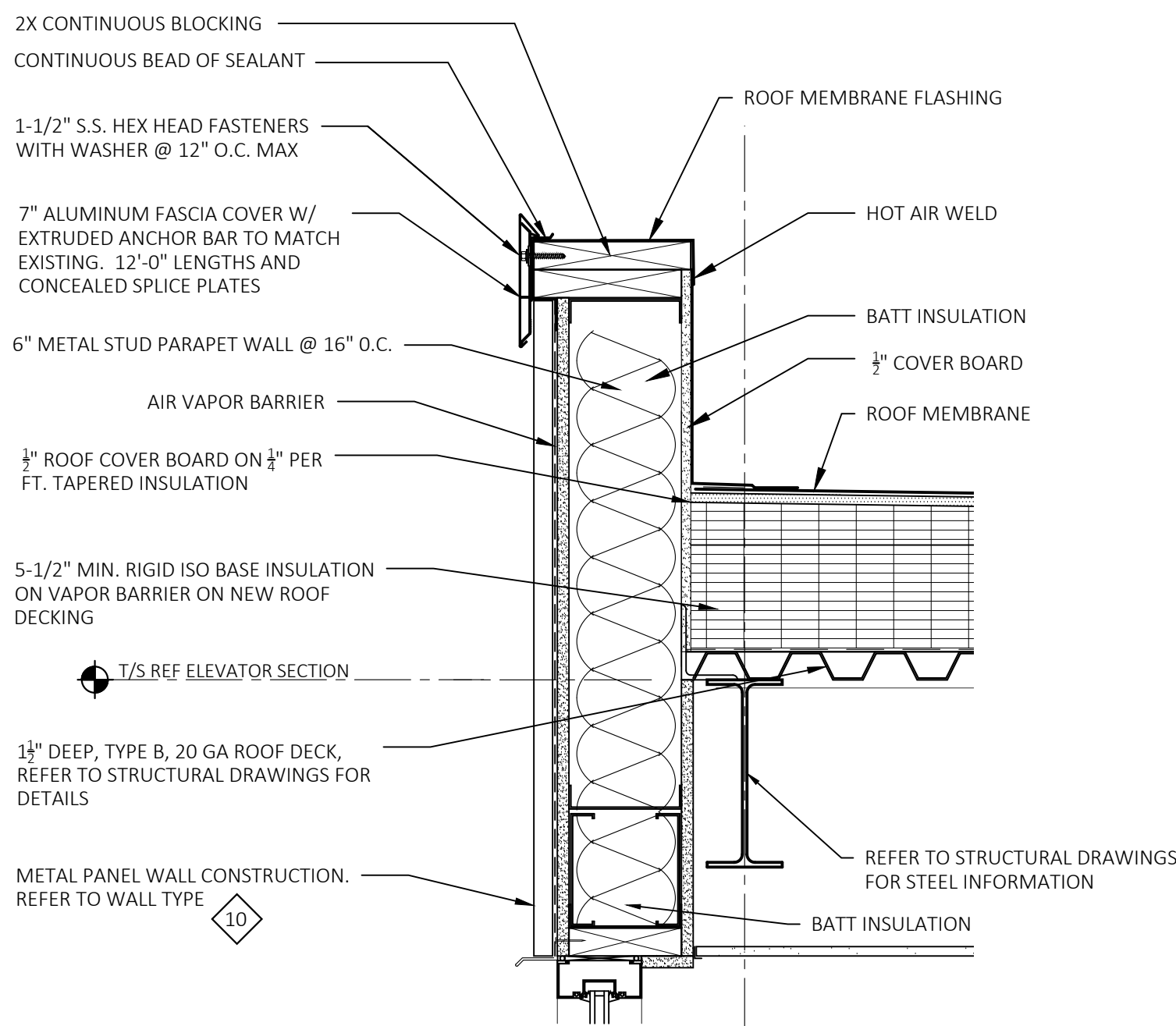
BUILDING SECTIONS

STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

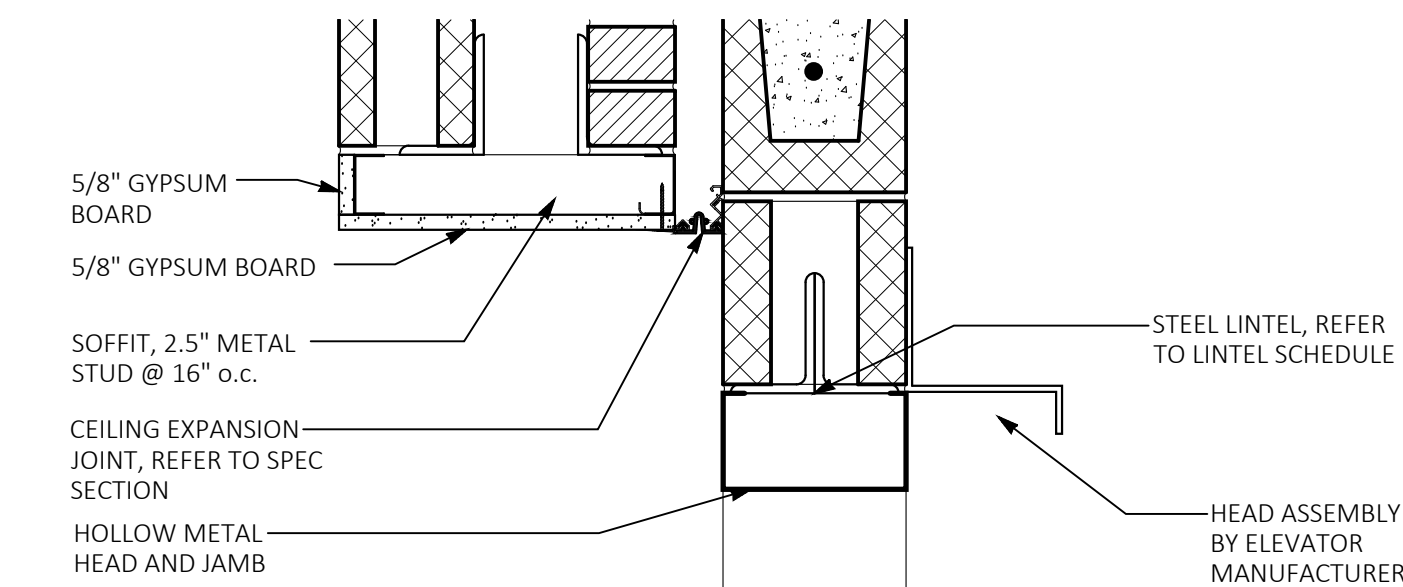
ARCHITECT'S SEAL



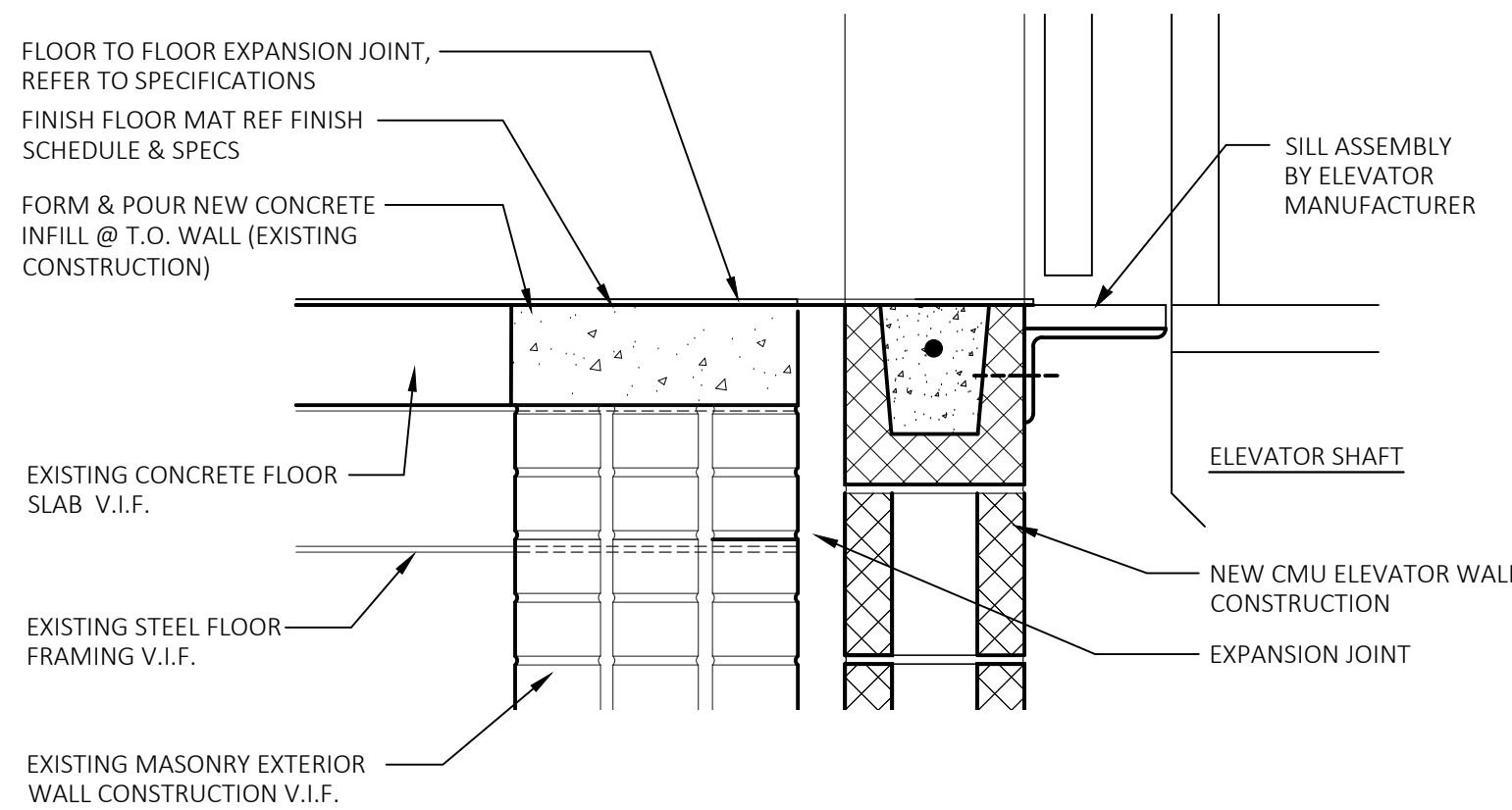
SHEET NO.
A4.2



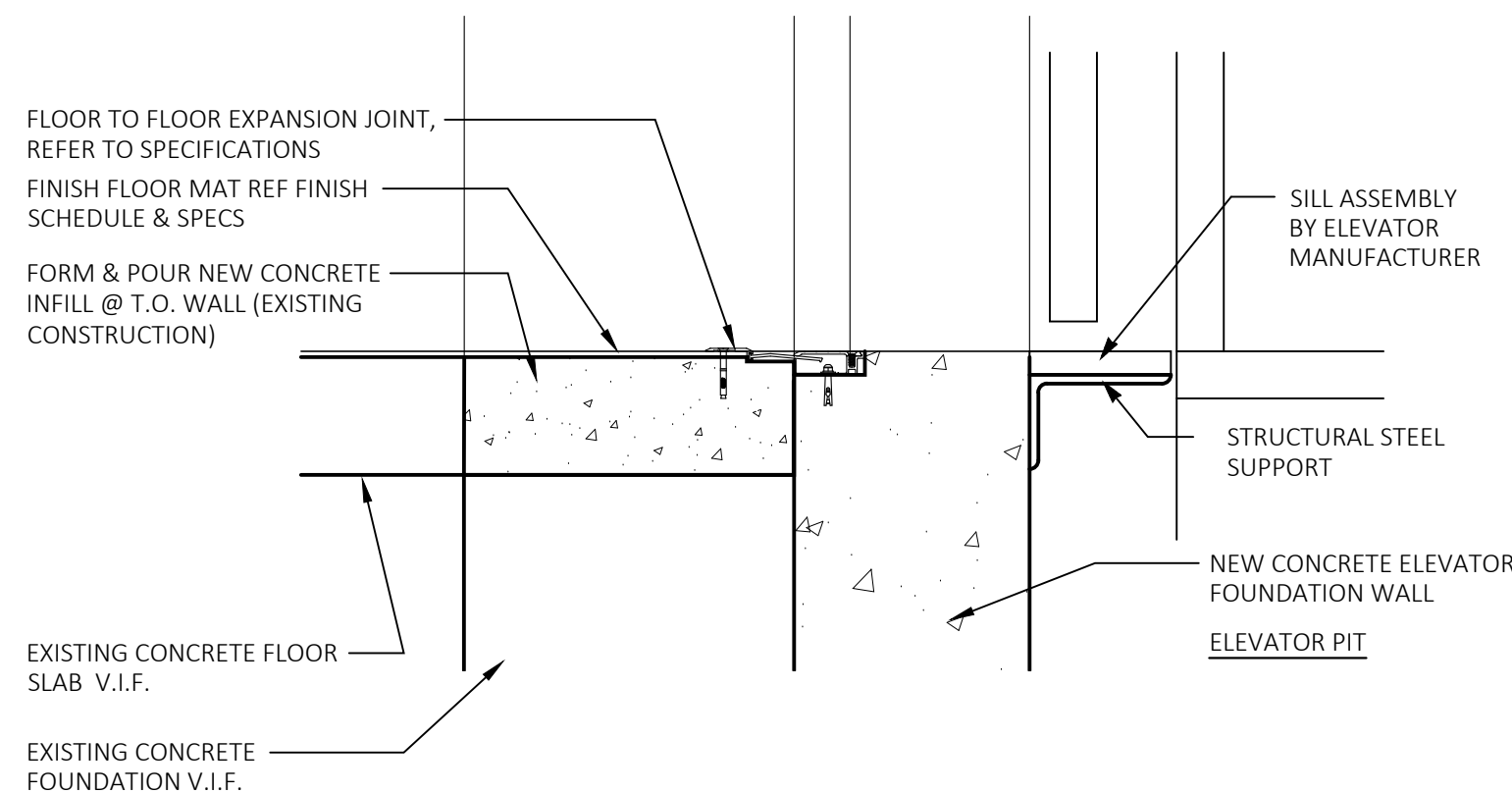
10 SECTION DETAIL @ LOW ROOF
SCALE: 1 1/2"=1'-0"



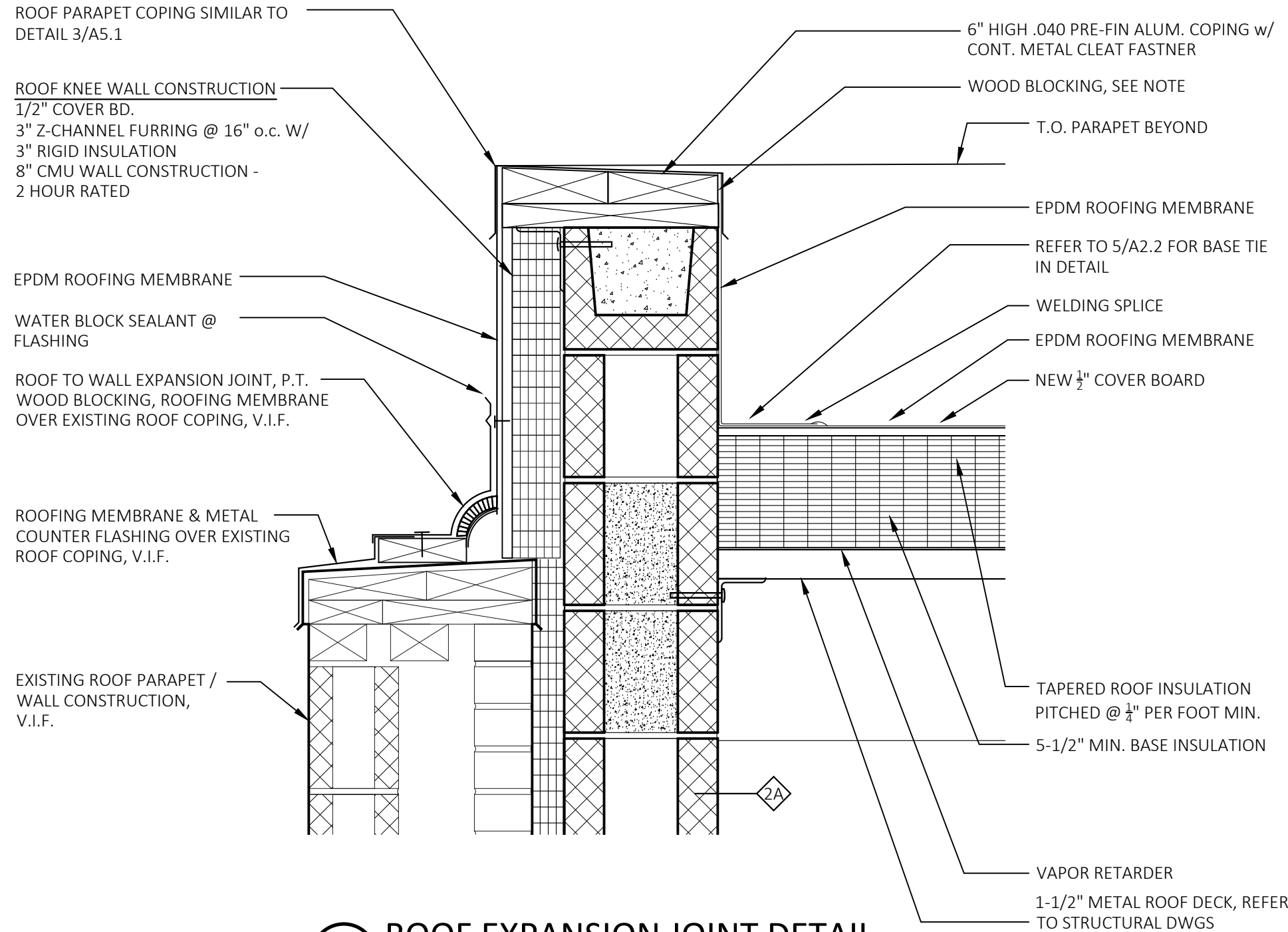
9 ELEVATOR HEAD DETAIL
SCALE: 1'-1/2"=1'-0"



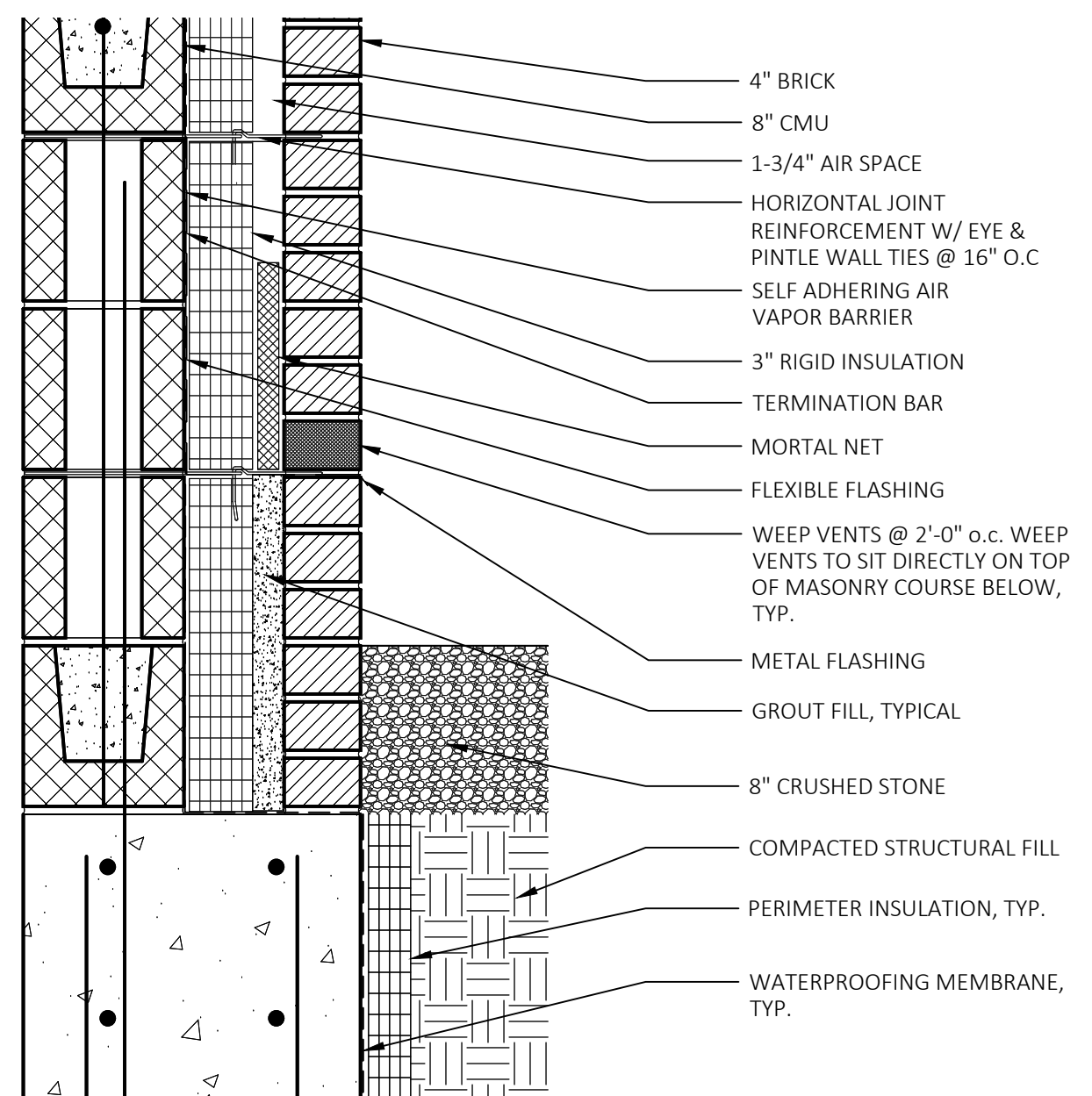
8 ELEVATOR SILL DETAIL
SCALE: 1'-1/2"=1'-0"



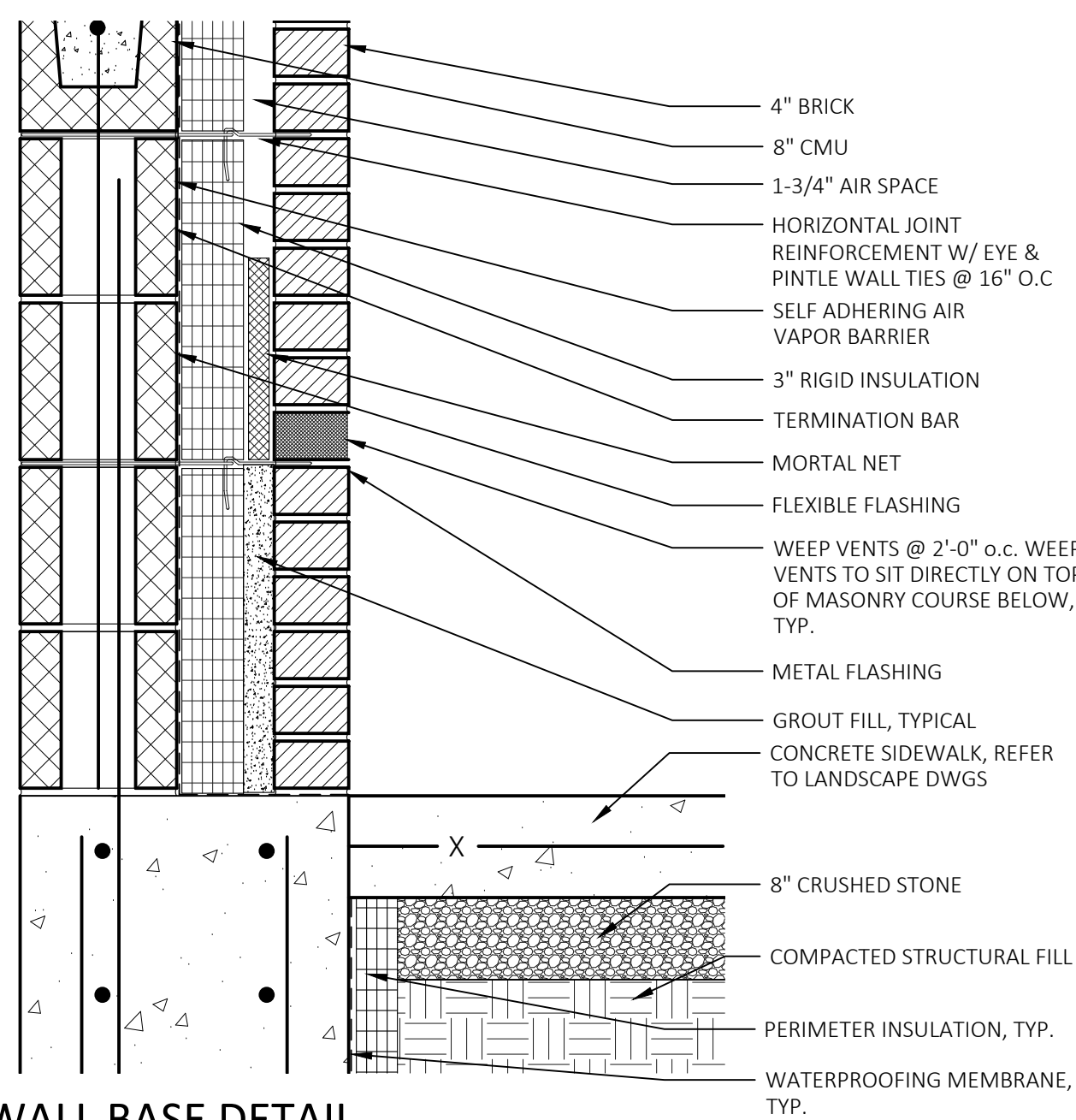
7 ELEVATOR SILL DETAIL
SCALE: 1'-1/2"=1'-0"



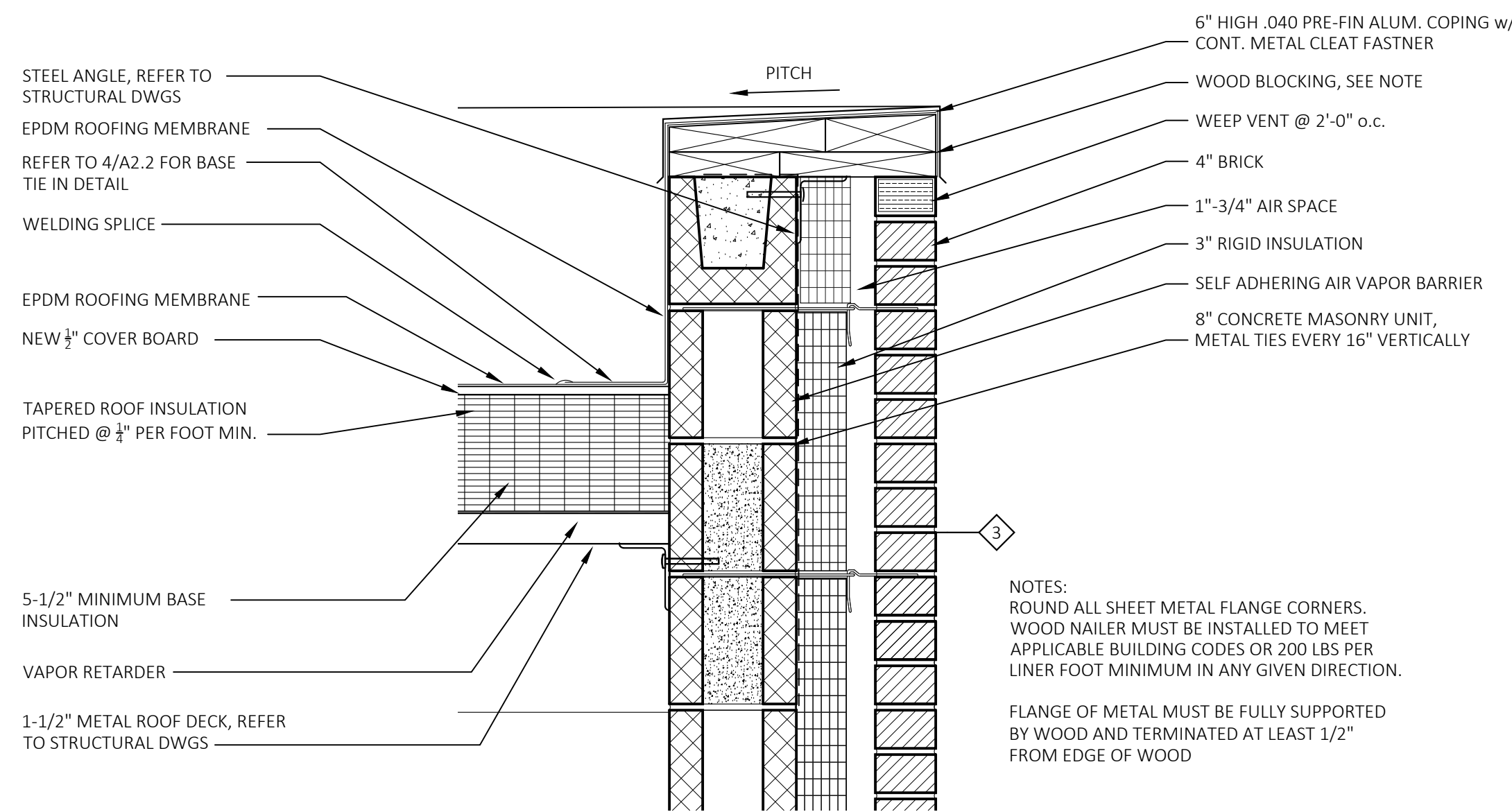
6 ROOF EXPANSION JOINT DETAIL
SCALE: 1-1/2"=1'-0"



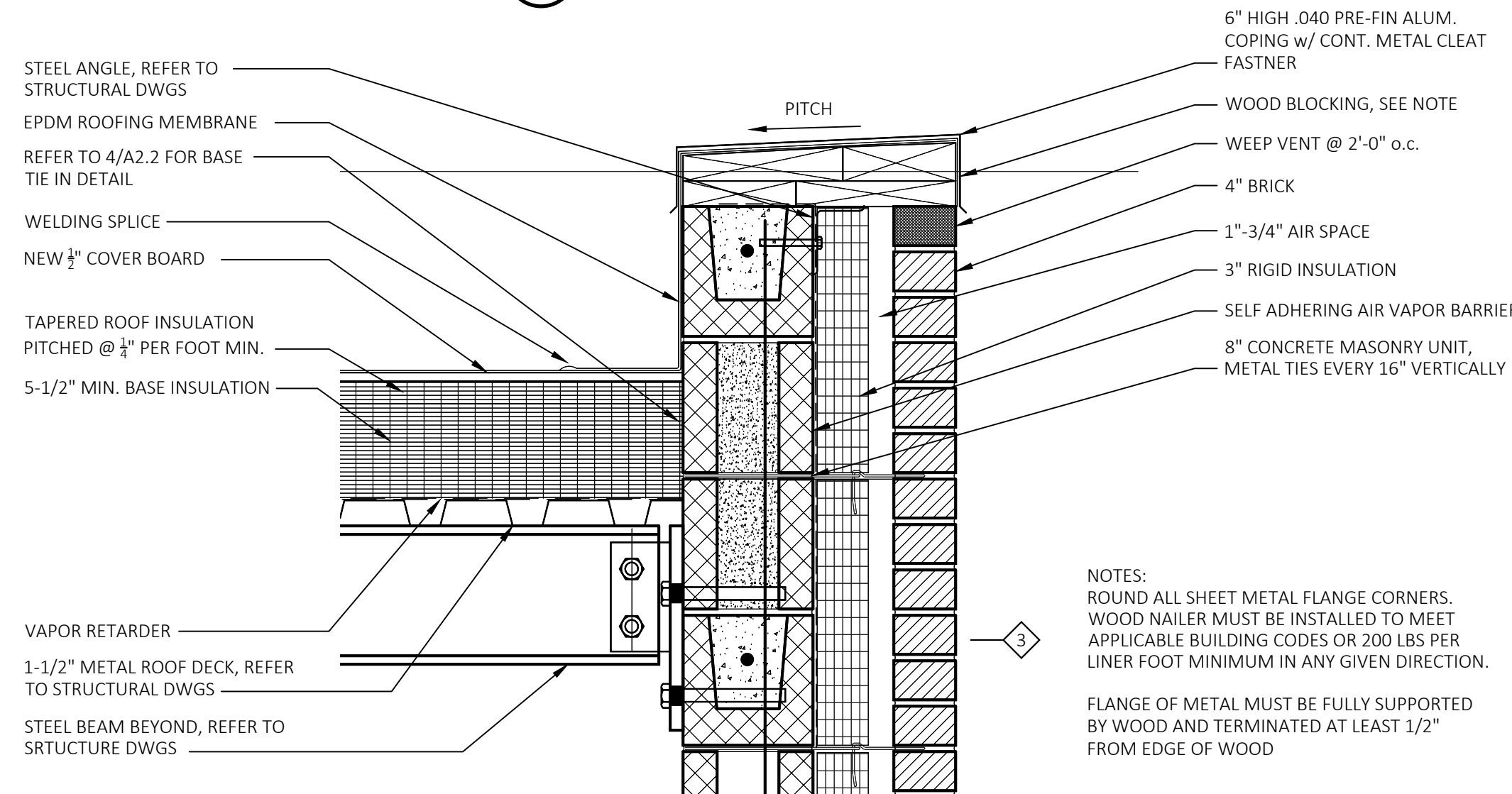
5 WALL BASE DETAIL
SCALE: 1-1/2"=1'-0"



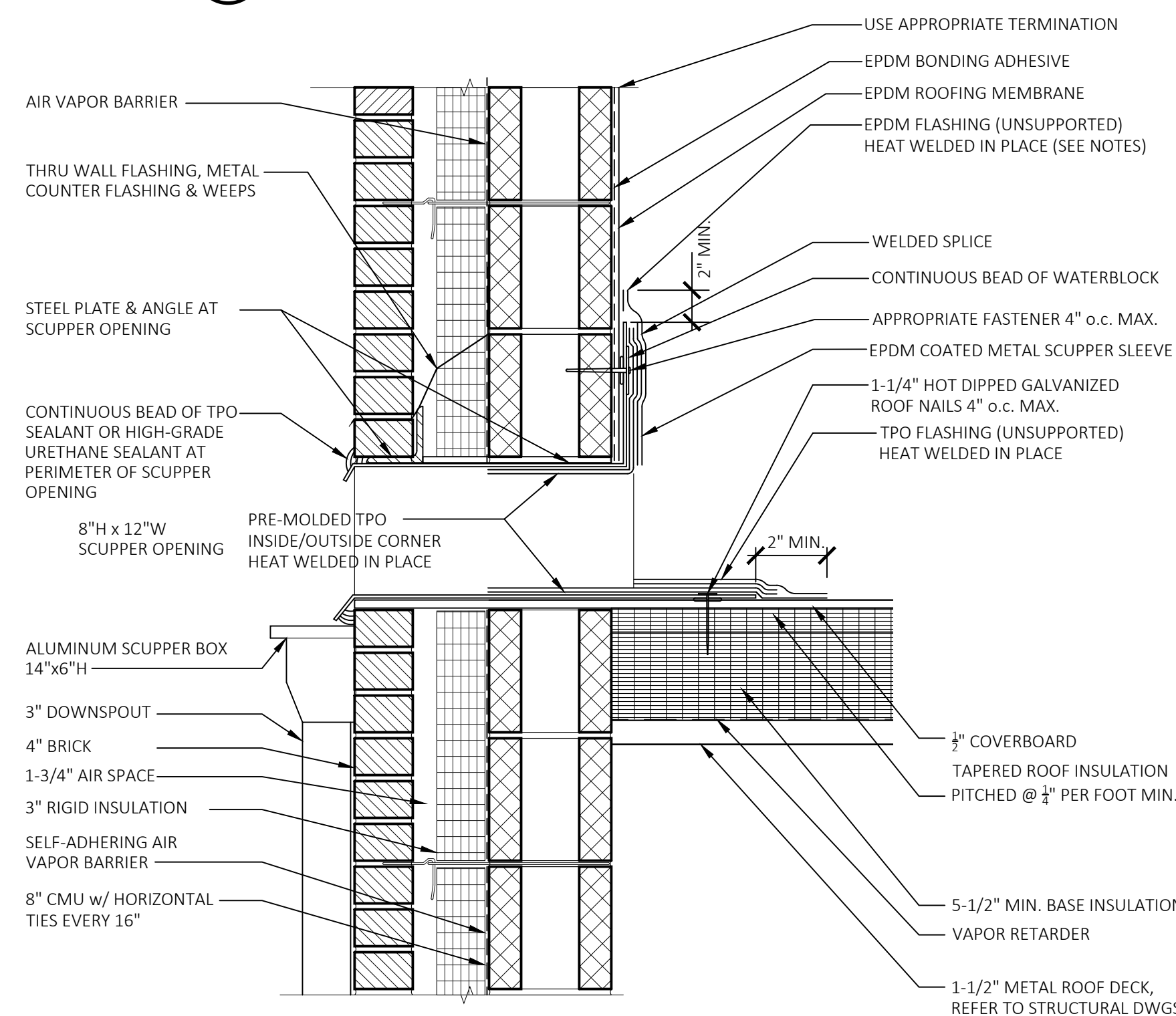
4 WALL BASE DETAIL
SCALE: 1-1/2"=1'-0"



3 PARAPET DETAIL
SCALE: 1-1/2"=1'-0"



2 PARPET DETAIL
SCALE: 1-1/2"=1'-0"



1 ROOF DETAIL - SCUPPER
SCALE: 1-1/2"=1'-0"

DATE: 9/1/2022
DRAWN BY: PEH
SCALE: 1/2" = 1'-0"
REVIEWED BY: BRS
PROJECT NO. 2022-043A
(A5-1) SECTION DETAILS

NO.	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

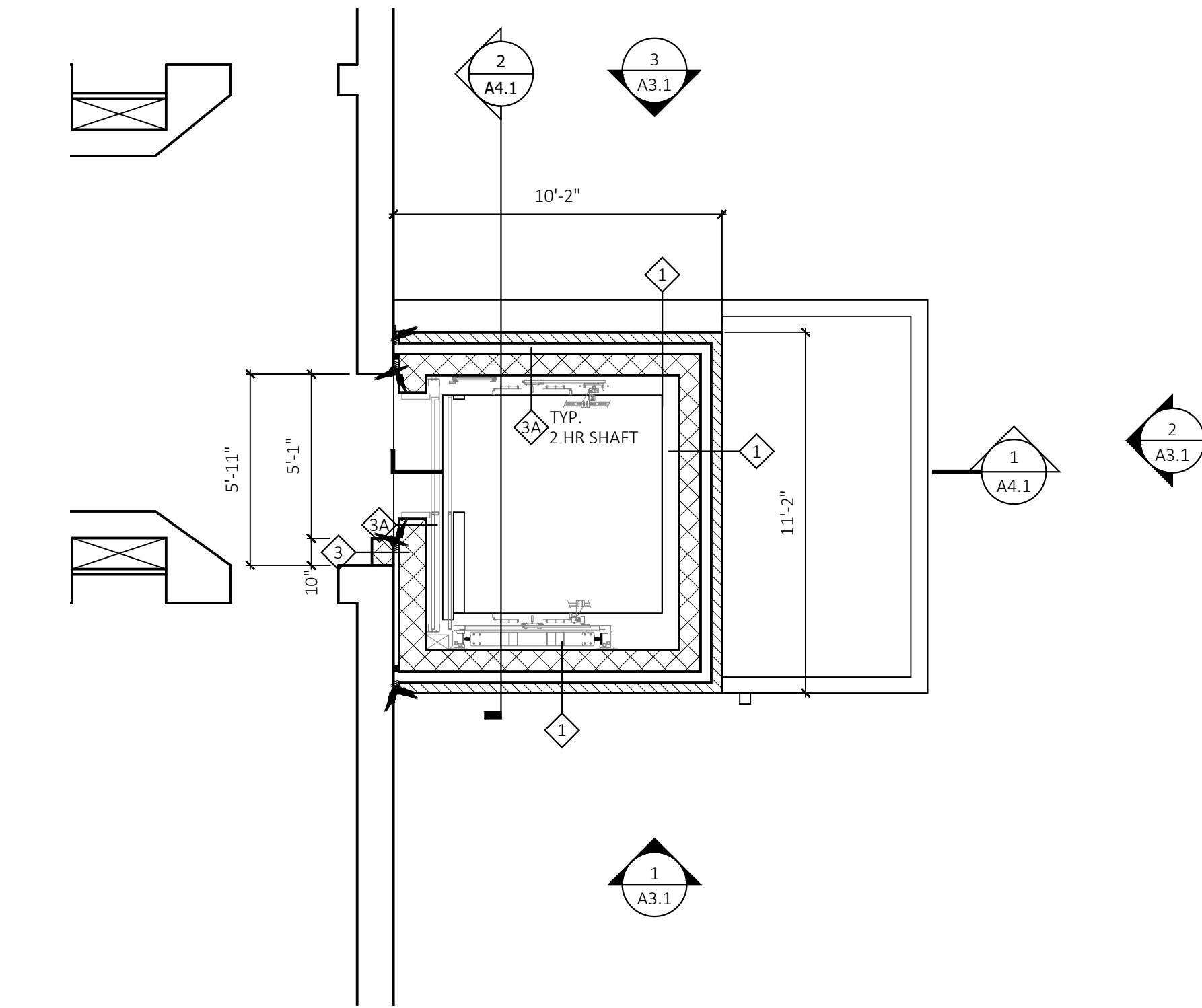
SECTION DETAILS

STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

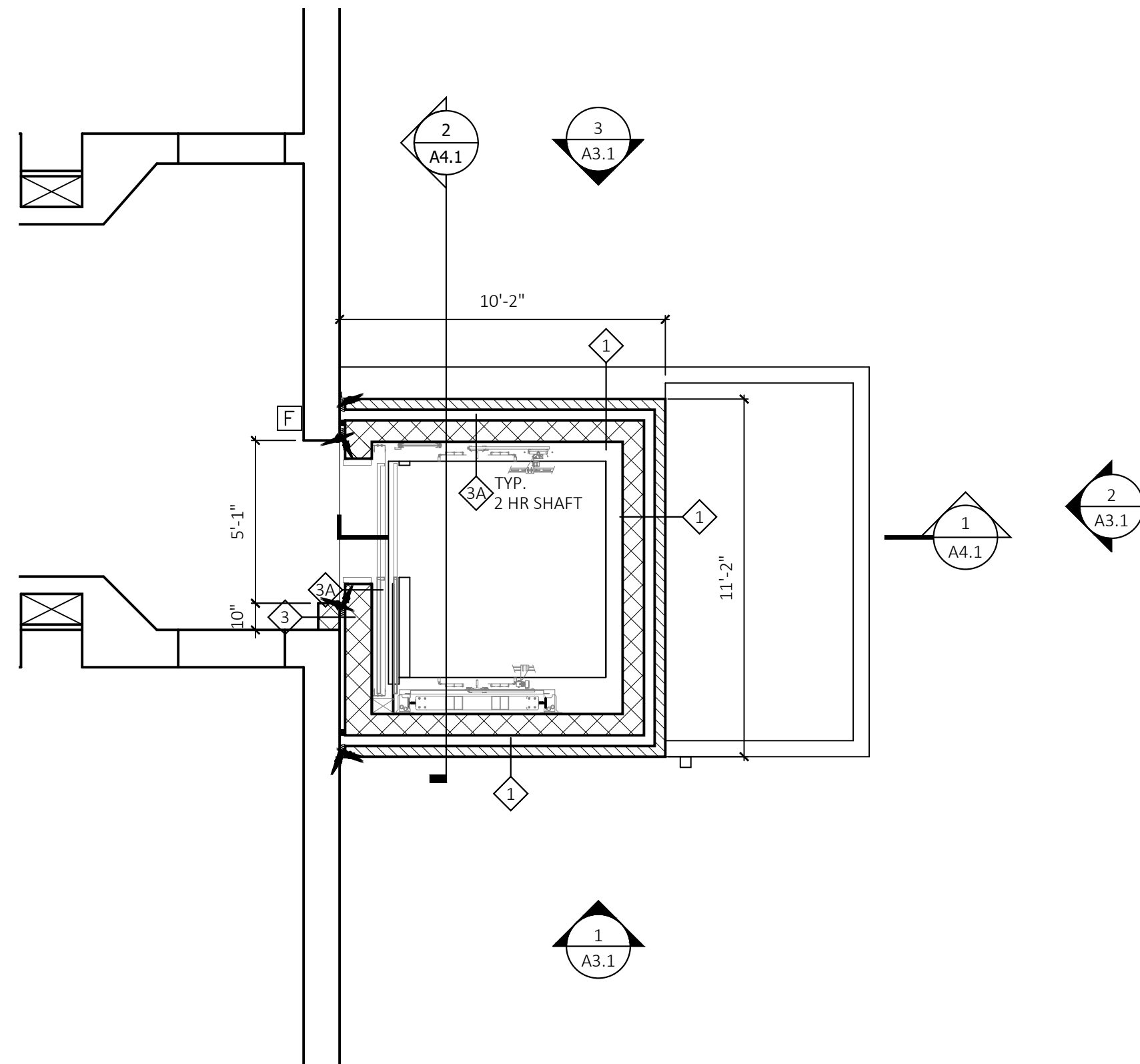
ARCHITECT'S SEAL



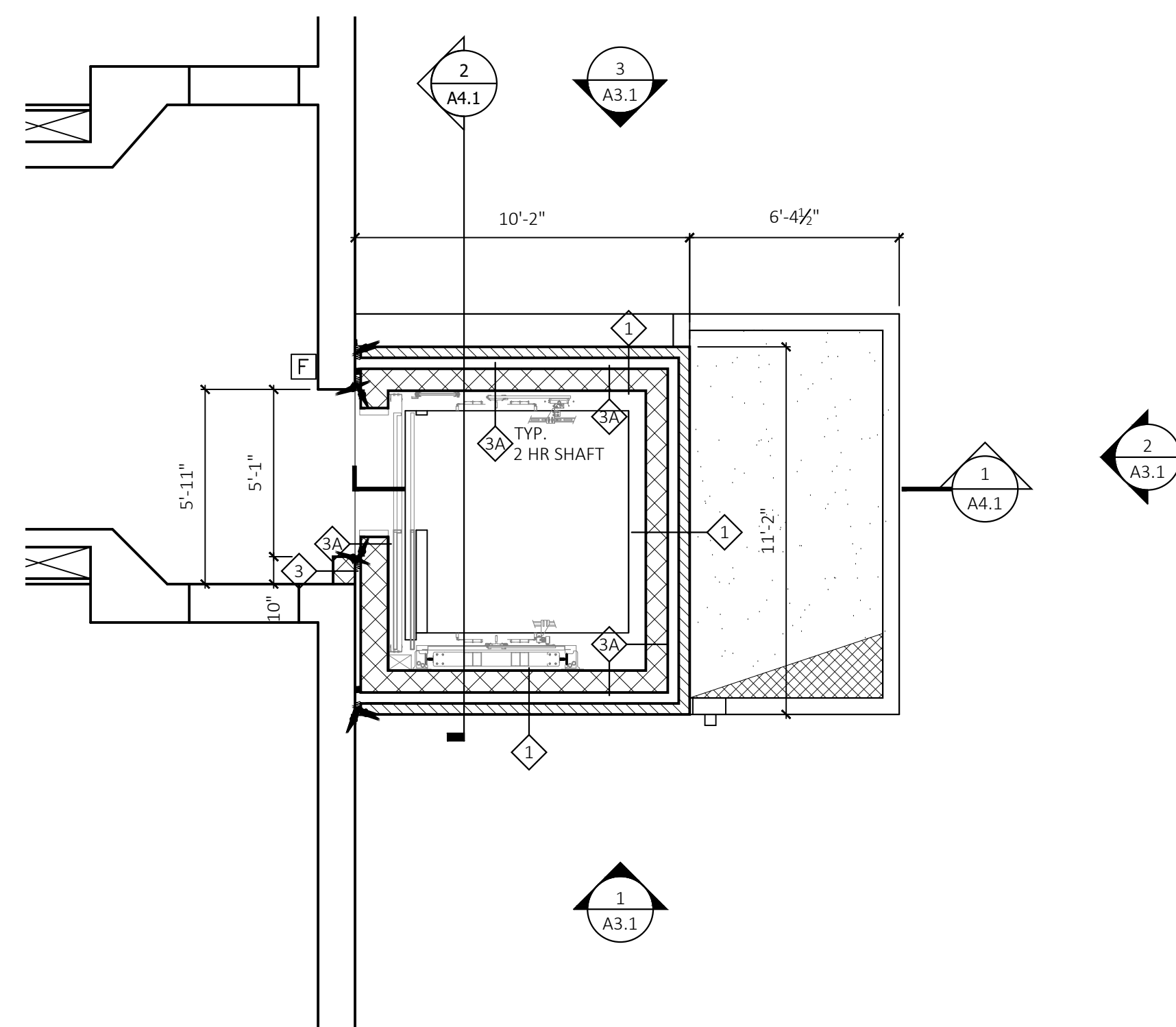
SHEET NO.
A5.1



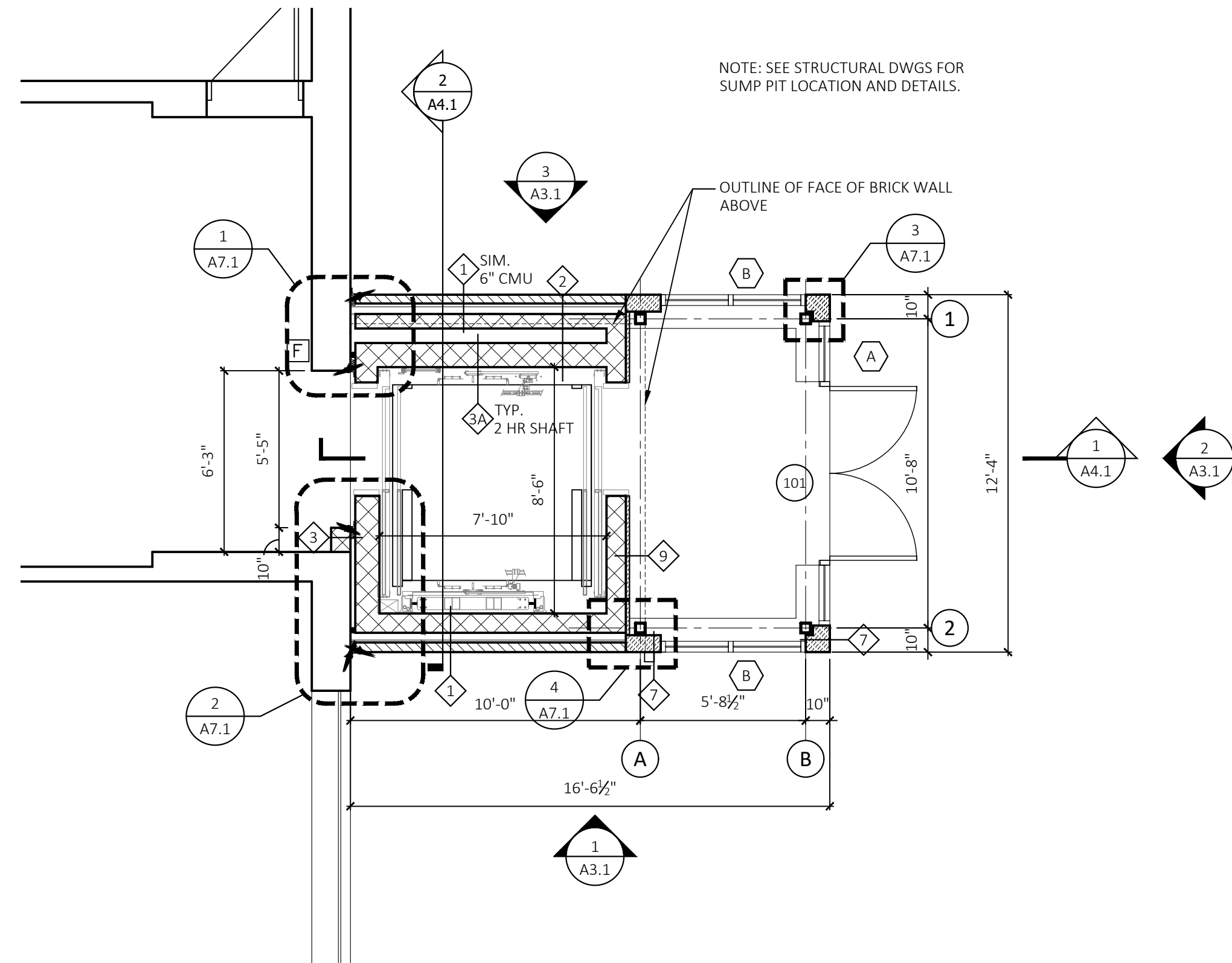
4 NEW CONSTRUCTION
THIRD FLOOR PLAN
SCALE: 1/4" = 1'-0"



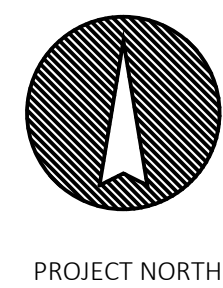
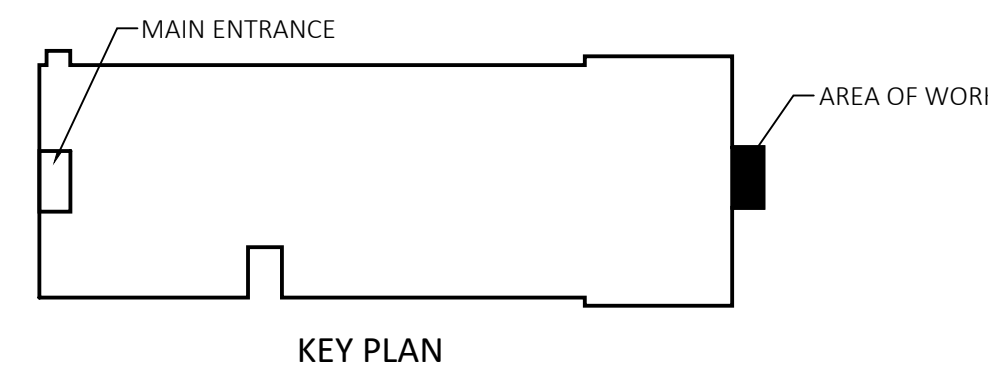
3 NEW CONSTRUCTION
SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"



2 NEW CONSTRUCTION
FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"



1 NEW CONSTRUCTION
BASEMENT FLOOR PLAN
SCALE: 1/4" = 1'-0"

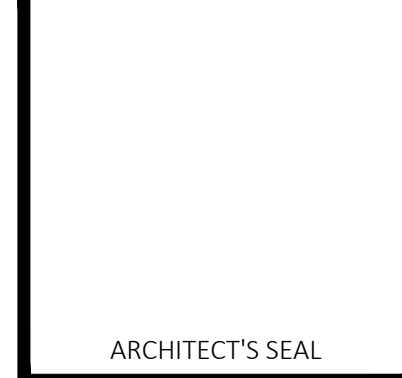


DATE:	9/1/2022
DRAWN BY:	PEH
SCALE:	AS NOTED
REVIEWED BY:	JMY
PROJECT NO.	2022-043A
enlarged plans	

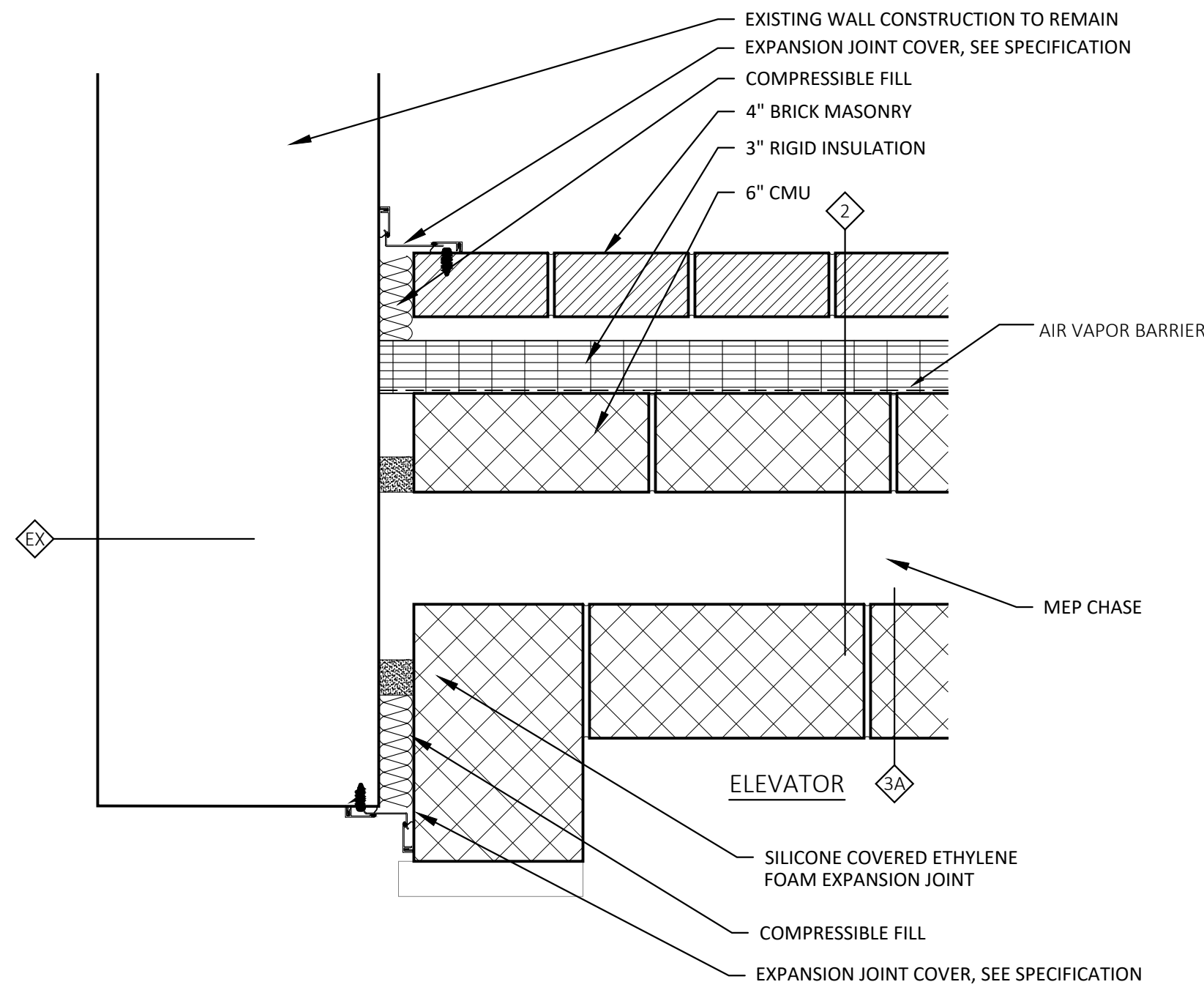
NO.	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

ENLARGED FLOOR PLANS

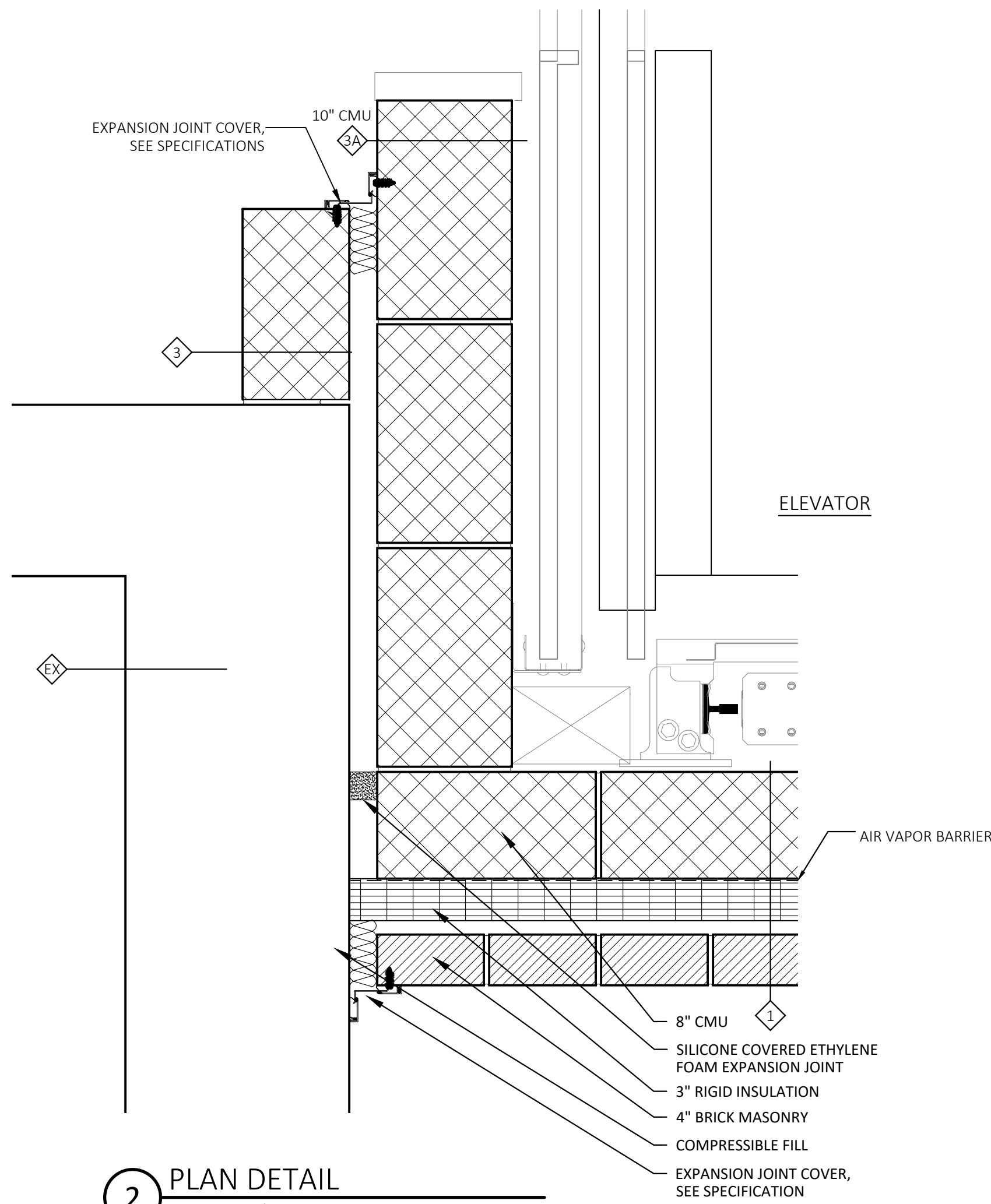
STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06706



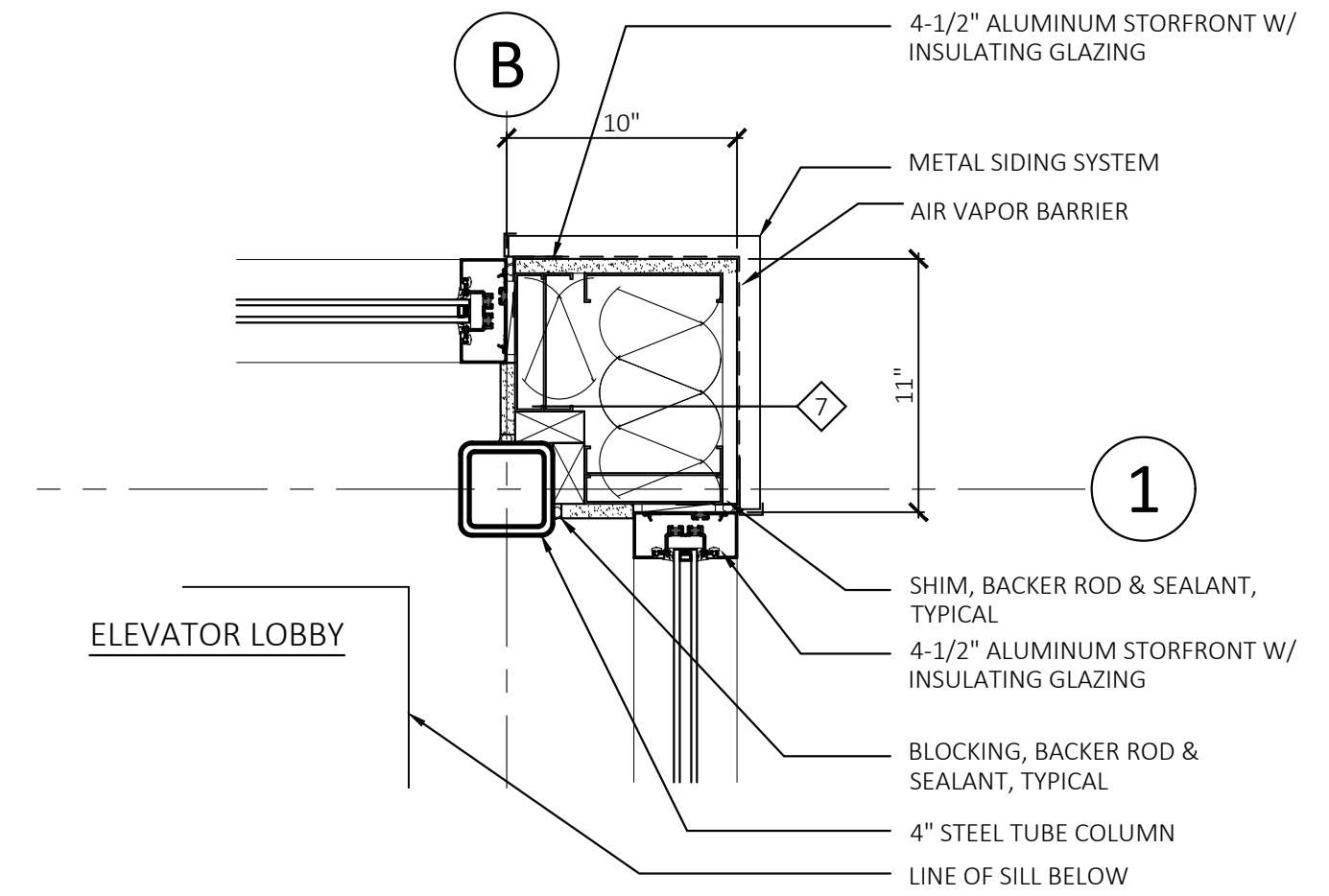
SHEET NO.
A6.1



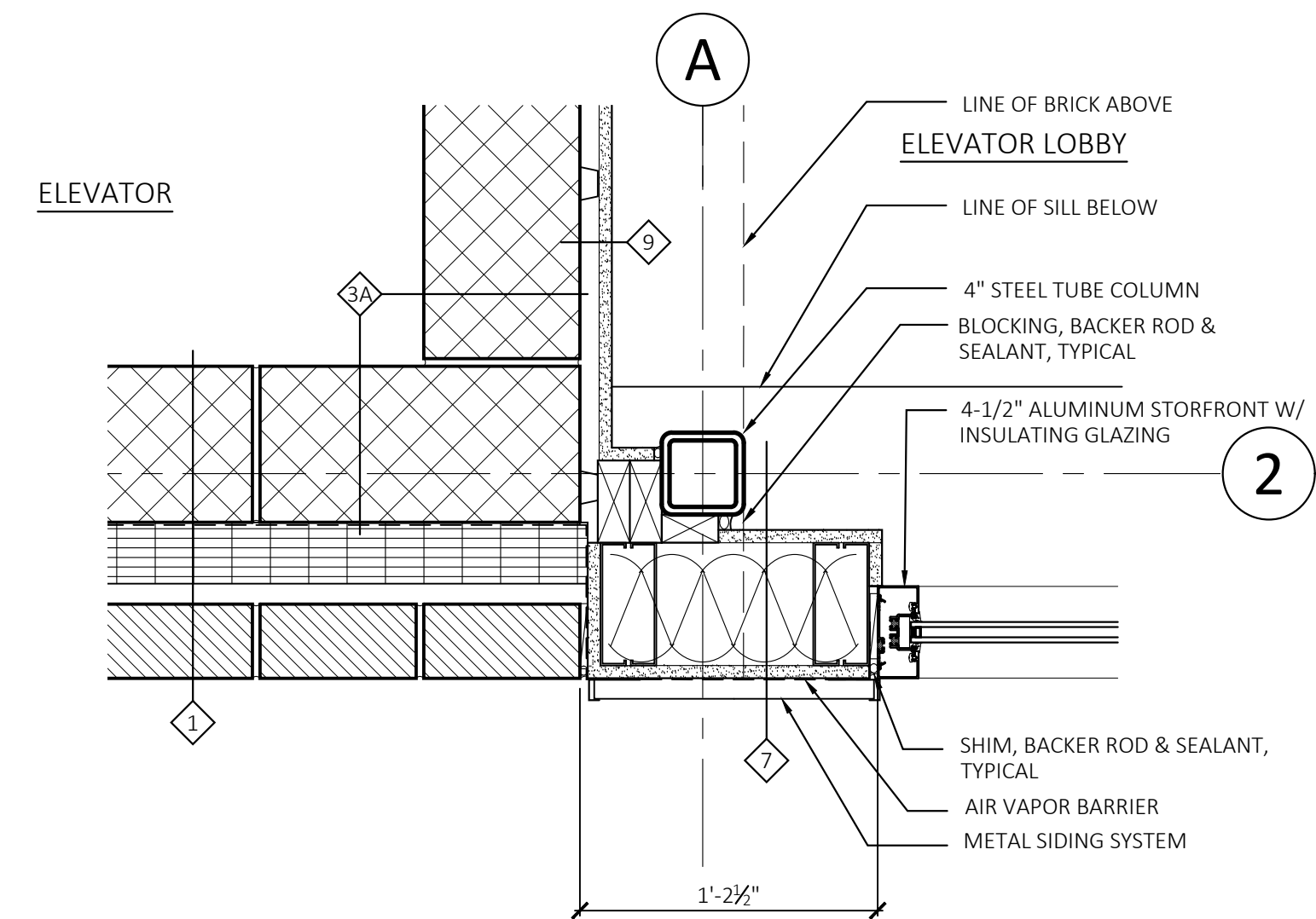
1 PLAN DETAIL
SCALE: 1-1/2" = 1'-0"



2 PLAN DETAIL
SCALE: 1-1/2" = 1'-0"



3 PLAN DETAIL
SCALE: 1-1/2" = 1'-0"



4 PLAN DETAIL
SCALE: 1-1/2" = 1'-0"

DATE:	9/1/2022
DRAWN BY:	XXX
SCALE:	XXX
REVIEWED BY:	XXX
PROJECT NO.	2022-043A
	XXX

NO.	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

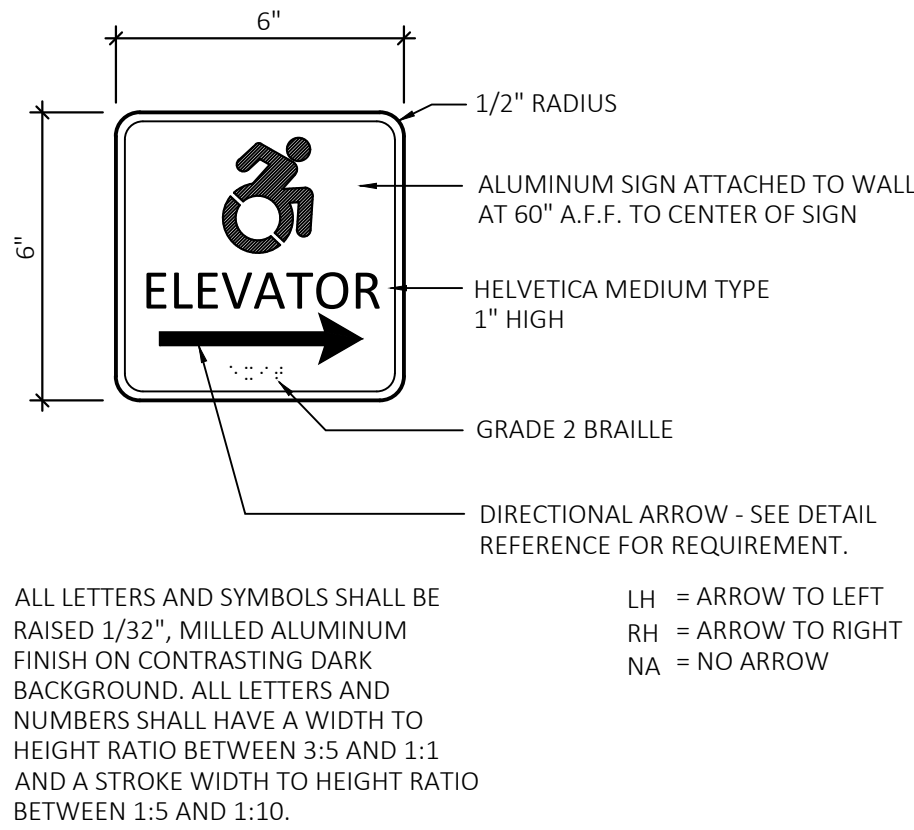
PLAN DETAILS

STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

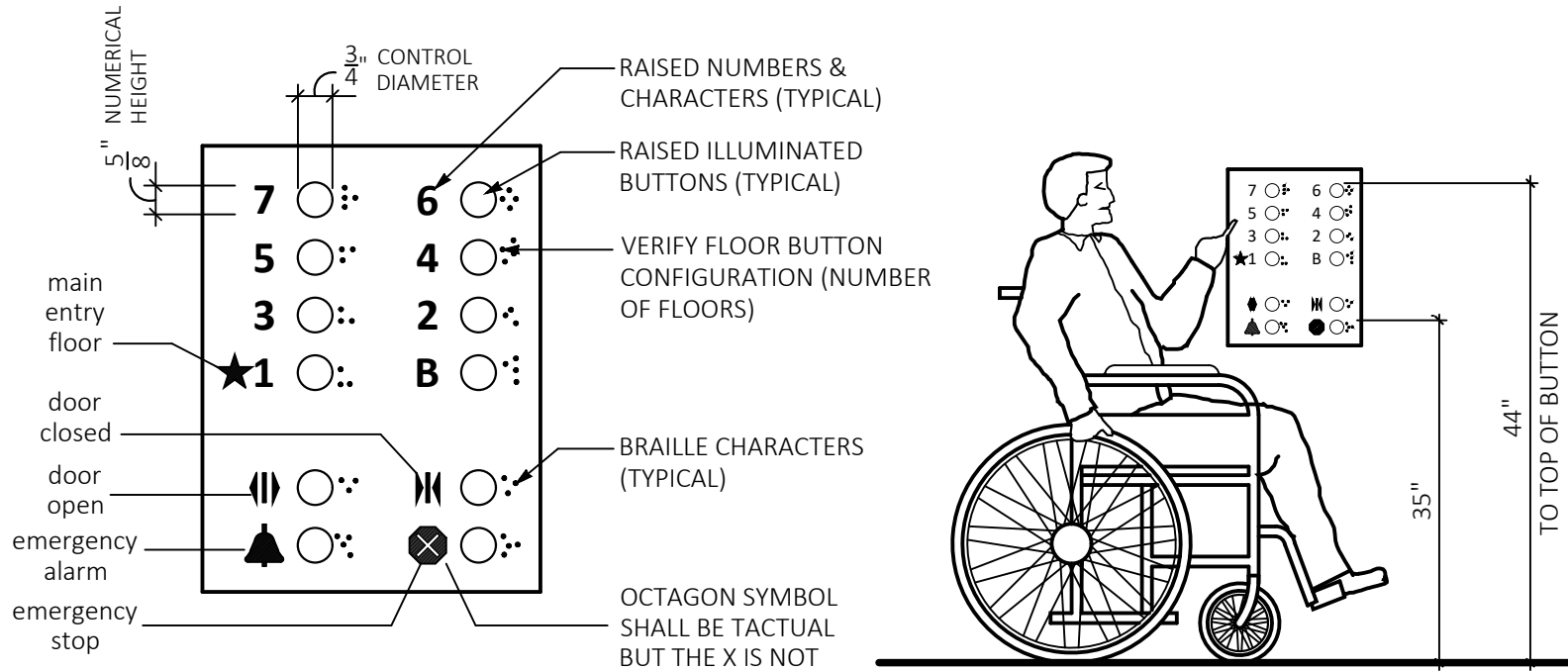
ARCHITECT'S SEAL

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

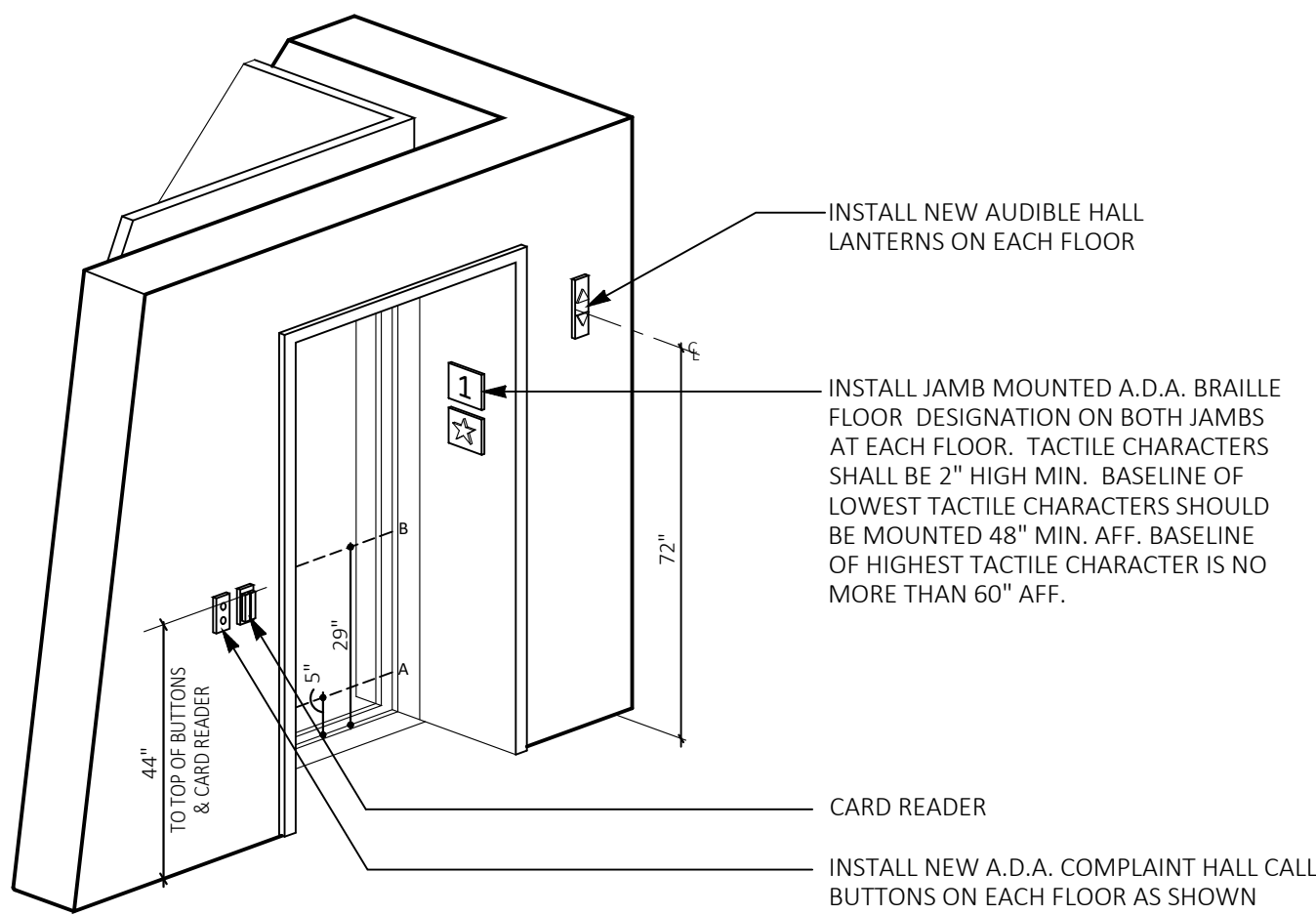
SHEET NO.
A7.1



8 ELEVATOR SIGNAGE
SCALE: 3"=1'-0"



7 ELEVATOR CAB CONTROL PANEL DIAGRAM
SCALE: N.T.S



6 ELEVATOR EXTERIOR CONTROL PANEL
SCALE: N.T.S

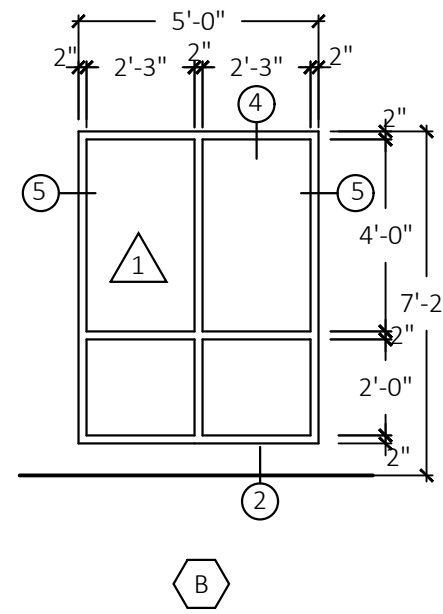
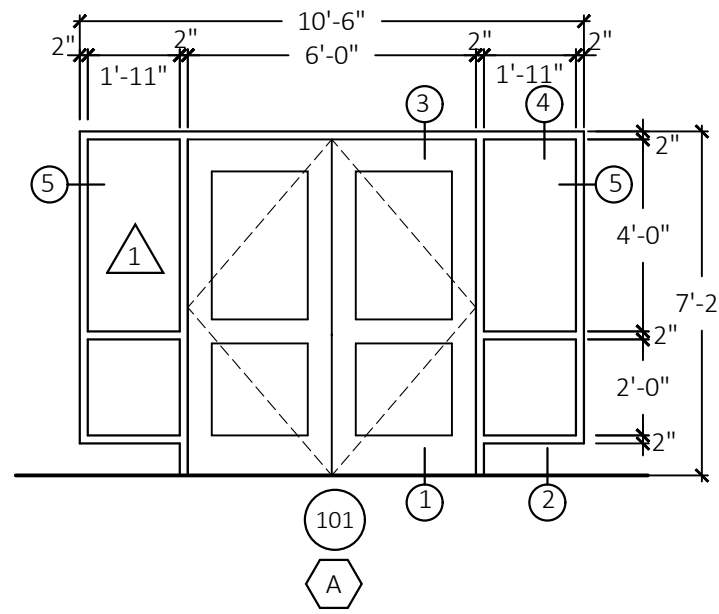
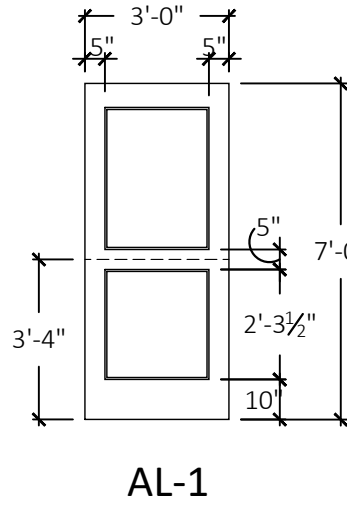
WINDOW TYPE SCHEDULE					
ELEV. TAG #	FRAME	HEAD	JAMB	SILL	GLASS TYPE
A	4 1/2" DEEP ALUM.	3, 4/A8.1	5/A8.1	1, 2/A8.1	1
B	4 1/2" DEEP ALUM.	4/A8.1	5/A8.1	2/A8.1	1

GLASS SCHEDULE	
TYPE 1	1" INSULATING GLASS UNIT, CLEAR
△	INDICATES GLASS TYPE

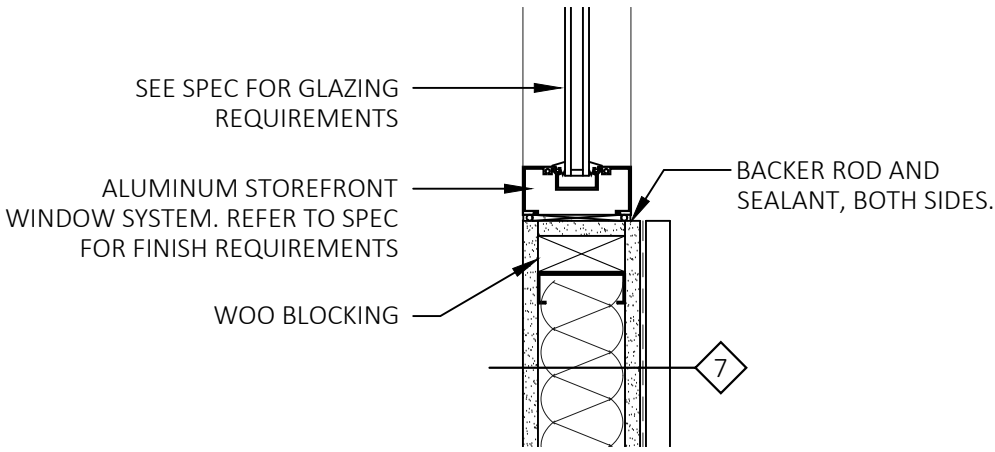
DOOR SCHEDULE																		
DOOR NUMBER	DESCRIPTION OF WORK	DOOR		FRAME		RATING (DOOR & FRAME)	THRESHOLD DETAIL		HARDWARE - SEE SPECIFICATIONS		<div><div><div>○ INDICATES EXISTING CONDITION</div><div>● INDICATES REQUIRED WORK</div><div>● REUSE EXISTING - REMOVE FROM EXISTING AND INSTALL ON NEW</div></div><div>REFER TO EXISTING SIGNAGE, NEW SIGNAGE TO MATCH EXISTING VERIFY W/ OWNER, ROOM NAME & NUMBER</div></div>							
		SIZE	MATERIAL/TYPE	TYPE	HEAD DETAIL		JAMB DETAIL	FIRE CODE	ACCESSIBILITY									
		DOOR WIDTH	DOOR HEIGHT					PANIC RELEASE LATCH	AUTOMATIC HOLD/RELEASE	SPRING HINGE	AUTO CLOSER	POSITIVE LATCHING HARDWARE	DELAYED ACTION CLOSER	LEVER HANDLES	TACTILE WARNING	16" HIGH KICK PLATES	4.4 ACCESSIBLE THRESHOLD	
REMARKS																		
101		●	6'-0"	7'-0"	AL-1				-	1/A8.1		●					●	KEY CARD ACCESS

DOOR TYPE

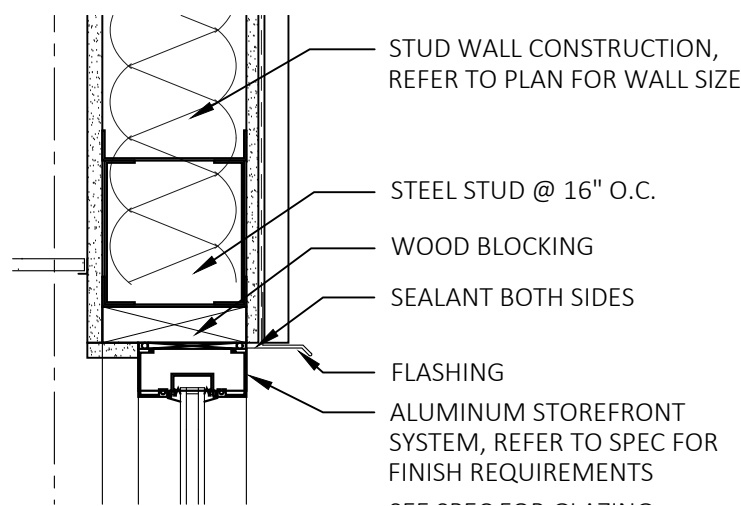
WINDOW TYPES



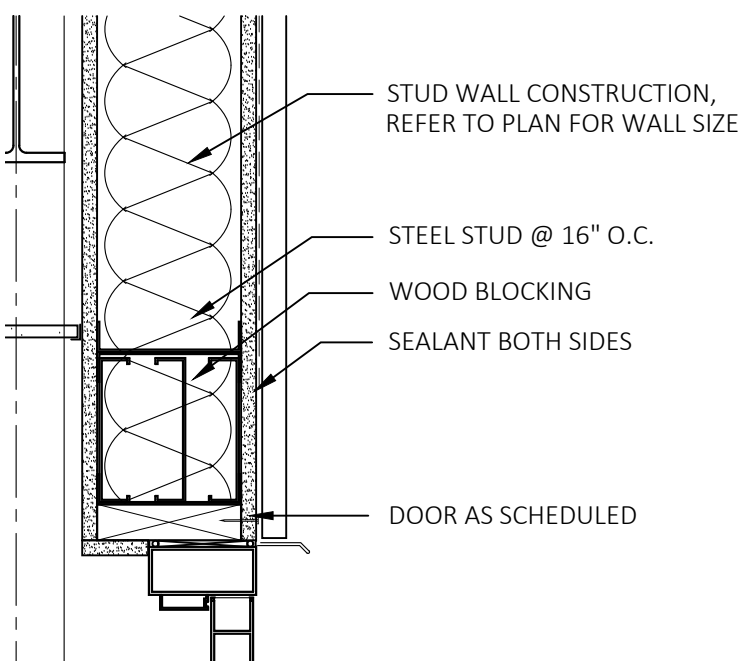
- GLAZING NOTES:
- SAFETY GLAZING SHALL BE PROVIDED IN HAZARDOUS LOCATIONS AND LABELED AS REQUIRED PER IBC SECTION 2406.
 - ALL EXTERIOR DOORS / FRAMES TO CONTAIN INSULATING TEMPERED GLAZING TYP.



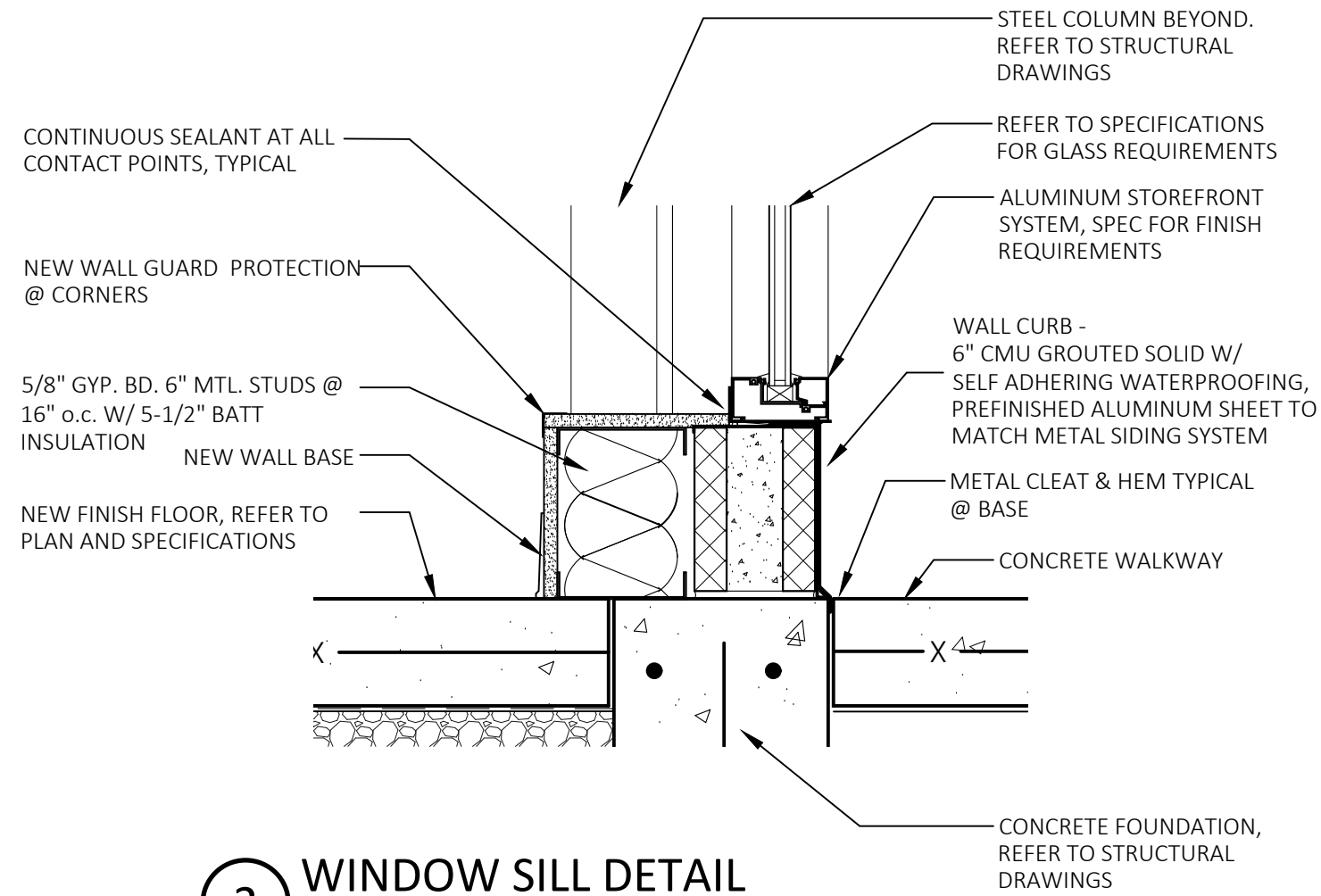
5 JAMB DETAIL
SCALE: 1 1/2" = 1'-0"



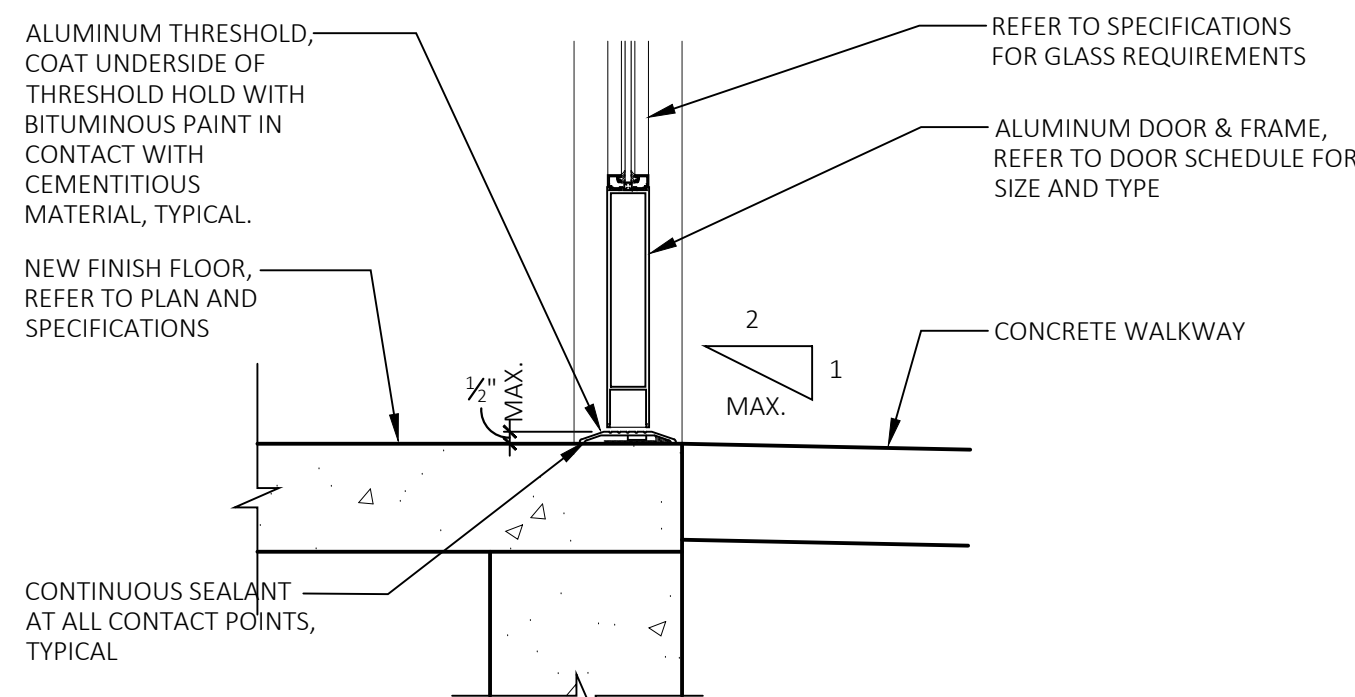
4 HEAD DETAIL
SCALE: 1 1/2" = 1'-0"



3 HEAD DETAIL
SCALE: 1 1/2" = 1'-0"



2 WINDOW SILL DETAIL
SCALE: 1 1/2" = 1'-0"



1 THRESHOLD DETAIL
SCALE: 1 1/2" = 1'-0"

DATE: 9/1/2022
DRAWN BY: JIM
NOTED
REVIEWED BY: JIM
PROJECT NO. 2022-043A
(A1.1) DEMO AND CONST

REVISIONS
NO. DATE DESCRIPTION
1 11/28/22 ISSUED FOR BID

DOOR & WINDOW

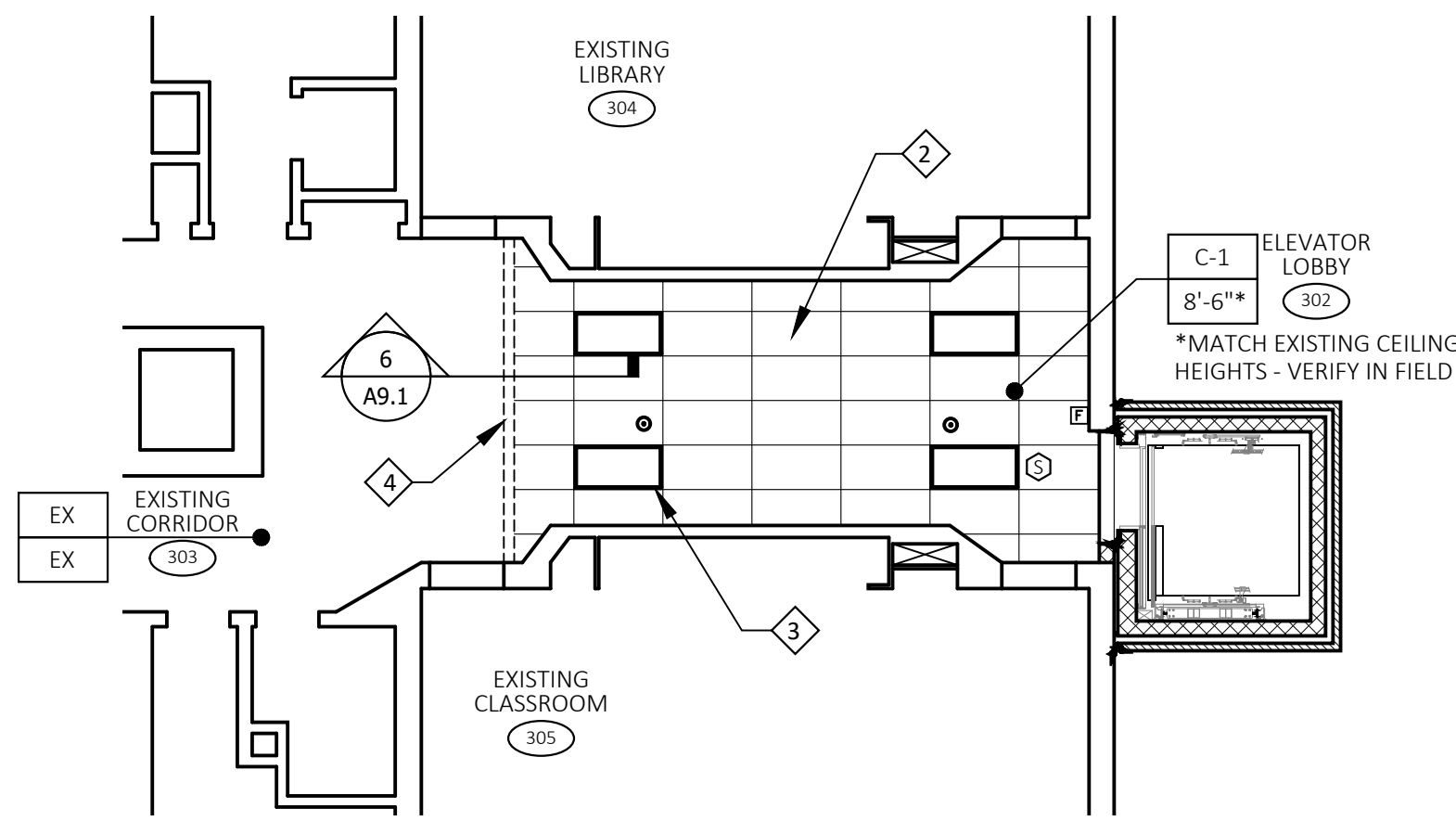
ELEVATIONS & DETAILS

STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

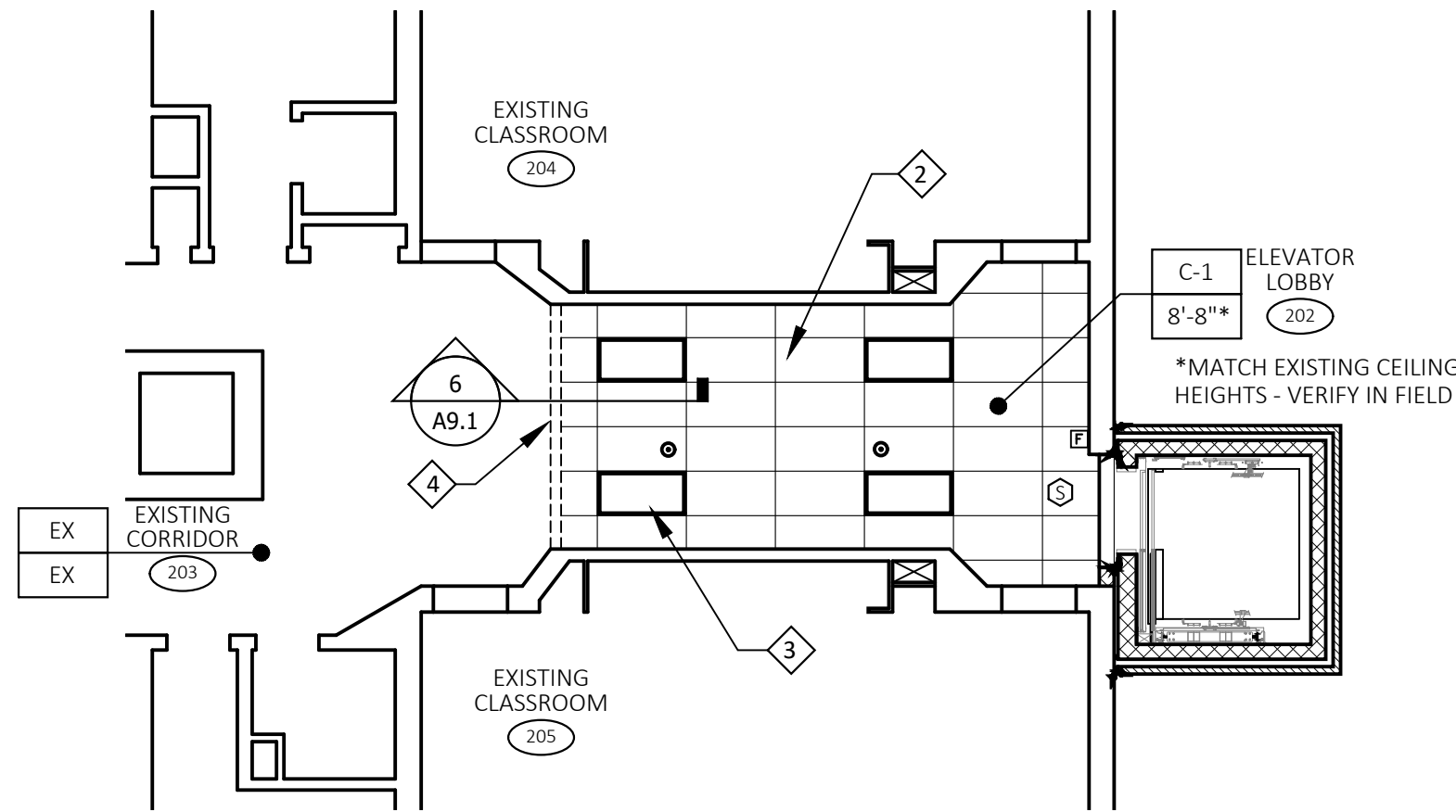
ARCHITECT'S SEAL

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

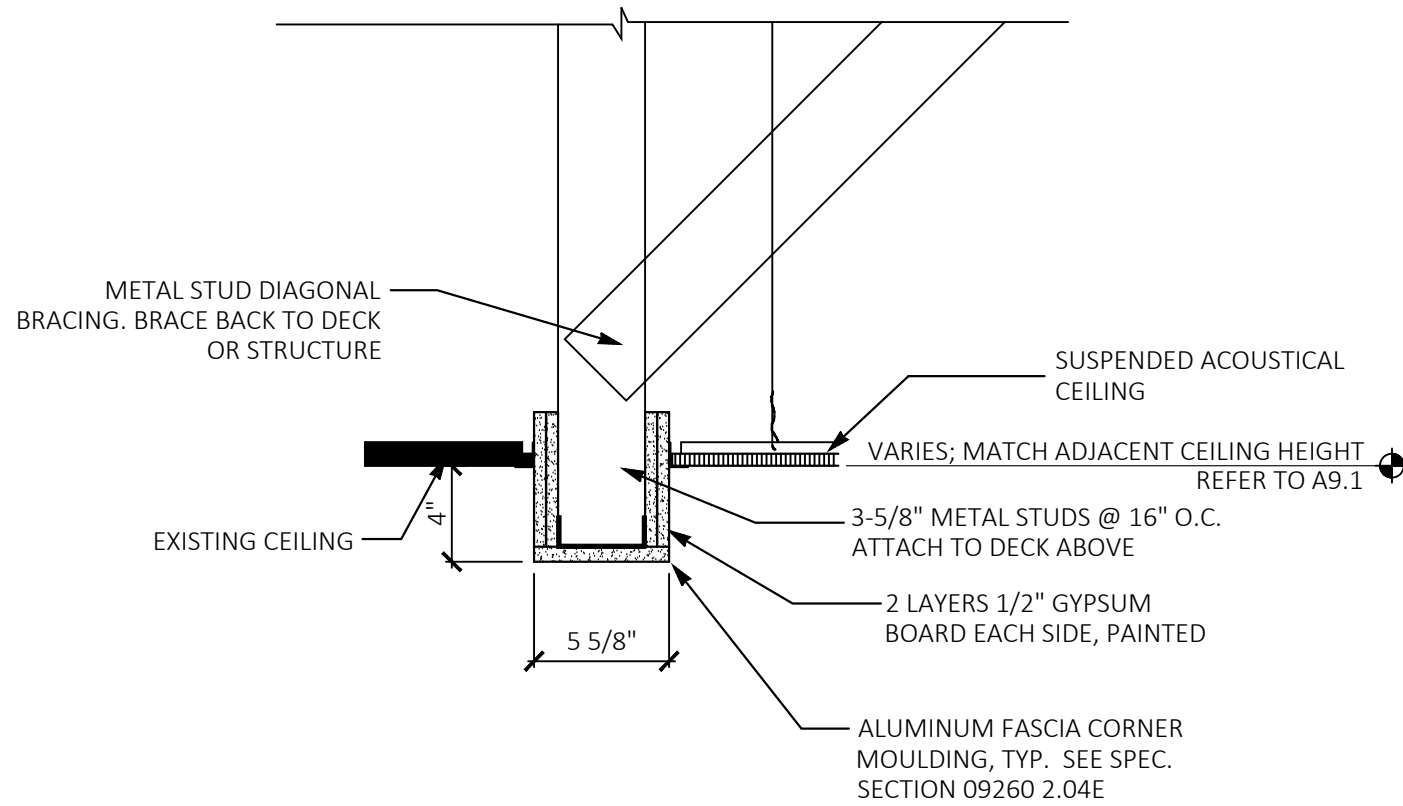
SHEET NO.
A8.1



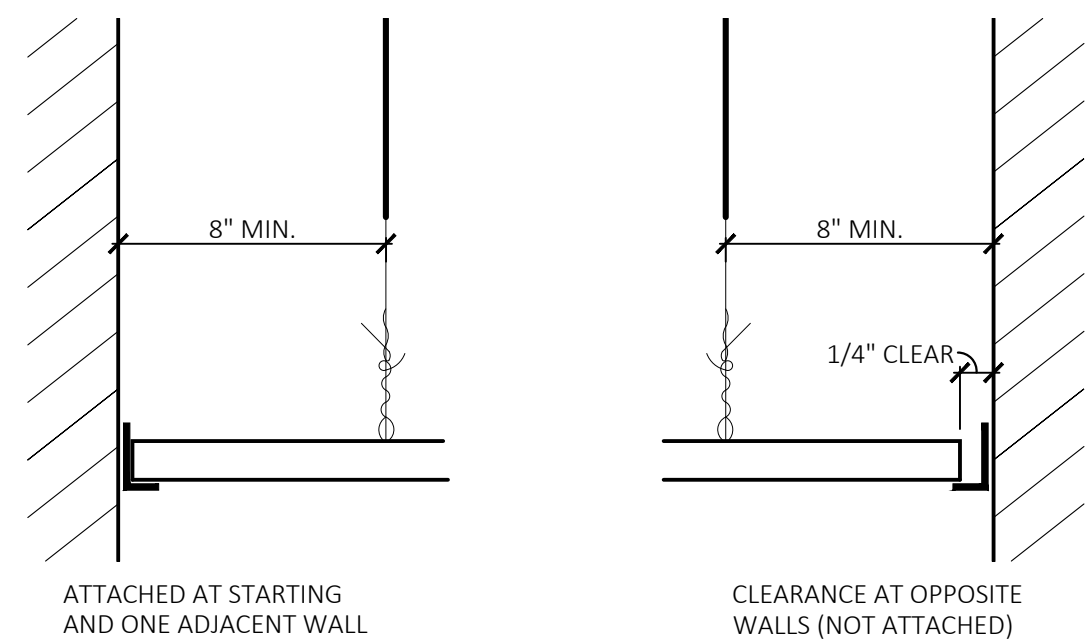
4 REFLECTED CEILING PLAN - THIRD FLOOR
SCALE: 1/8" = 1'-0"



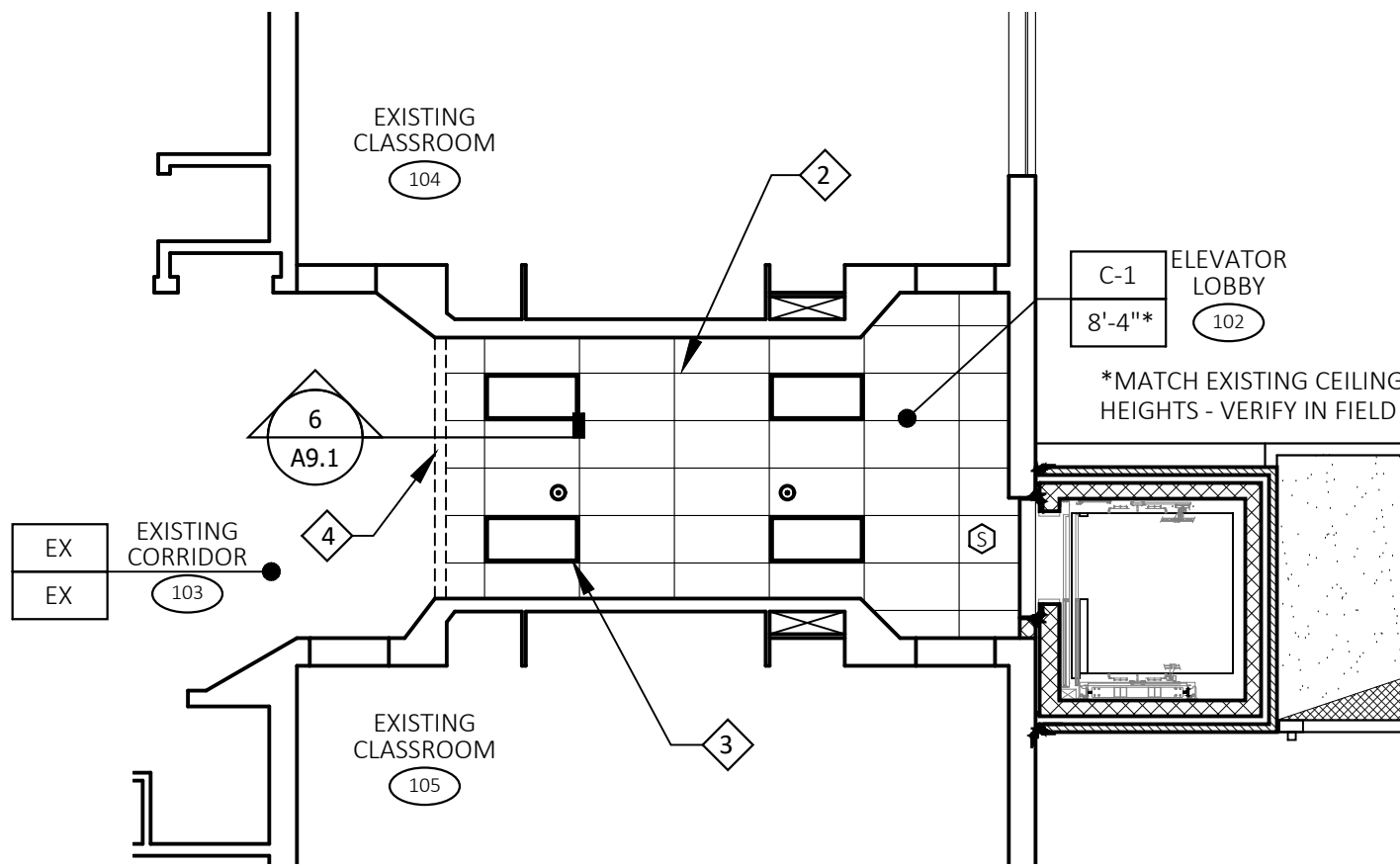
3 REFLECTED CEILING PLAN - SECOND FLOOR
SCALE: 1/8" = 1'-0"



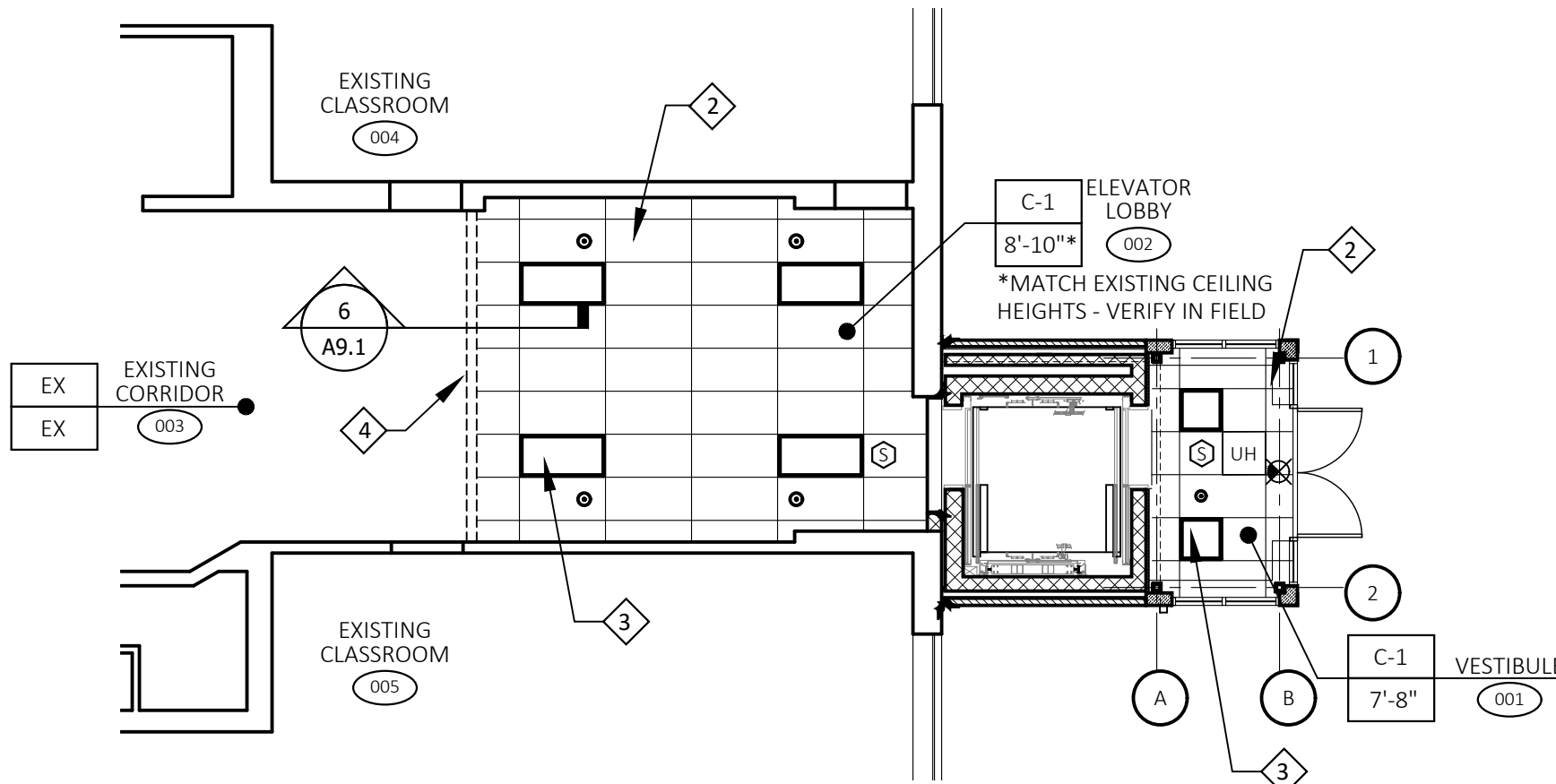
6 DETAIL AT NEW SOFFIT
SCALE: NOT TO SCALE



5 RUNNERS AT WALLS
SCALE: NOT TO SCALE



2 REFLECTED CEILING PLAN - FIRST FLOOR
SCALE: 1/8" = 1'-0"



1 REFLECTED CEILING PLAN - BASEMENT
SCALE: 1/8" = 1'-0"

REFLECTED CEILING LEGEND

C-X	CEILING TYPE AND HEIGHT SYMBOL -
X'-X"	CEILING TYPE
	CEILING HEIGHT
	NEW, EXISTING OR RELOCATED RECESSED 2 X 4 LIGHT FIXTURE. REFER TO ELEC. DWGS.
	NEW, EXISTING OR RELOCATED RECESSED 2 X 2 LIGHT FIXTURE. REFER TO ELEC. DWGS.
	NEW, EXISTING OR RELOCATED TRACK OR LIGHT FIXTURE. REFER TO ELEC. DWGS.
	NEW, EXISTING OR RELOCATED PENDANT SPECIALTY LIGHT FIXTURE. REFER TO ELEC. DWGS.
	SUPPLY DIFFUSER. REFER TO MECHANICAL DRAWINGS FOR TYPES AND SIZES.
	RETURN DIFFUSER. REFER TO MECHANICAL DRAWINGS FOR TYPES AND SIZES.
	UNIT HEATER. REFER TO MECHANICAL DRAWINGS FOR TYPES AND SIZES
	SPRINKLER HEAD
	SPEAKER
	SMOKE DETECTOR
	HEAT DETECTOR
	EXIT SIGN WITH DIRECTIONAL CHEVRON, AS REQ'D. SEE ELEC. DWGS. FOR SPECIFIC TYPES.
	SECURITY CAMERA

CEILING TYPE SCHEDULE

NOTE: NOT ALL CEILING TYPES ARE USED. SEE PLANS & SPECIFICATIONS.

C-1	2X4 SUSPENDED ACOUSTICAL CEILING SYSTEM AS SPECIFIED
EX	EXISTING CEILING TO REMAIN

GENERAL NOTES

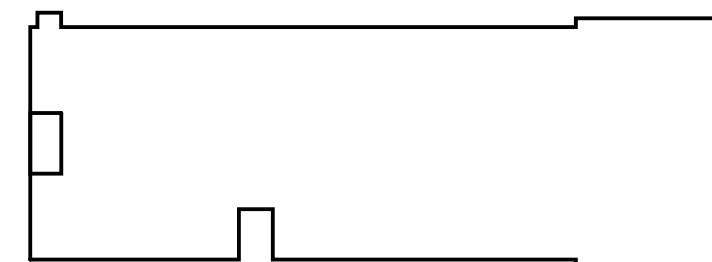
- THIS PLAN INDICATES DIRECTIONAL LAYOUT OF CEILING GRIDS. REFER TO CEILING TYPE SCHEDULE.
- IN ALL AREAS OF NEW & EXISTING SUSPENDED ACOUSTICAL CEILINGS, THE SPRINKLER LINES SHALL BE INSTALLED CONCEALED. REFER TO FIRE PROTECTION DRAWINGS FOR SPRINKLER HEAD LOCATIONS AND RELATED INFORMATION.
- REFER TO ELECTRICAL DRAWINGS FOR LIGHTING FIXTURE TYPES, REQUIRED WORK AND FOR OTHER CEILING MOUNTED EQUIPMENT NOT INDICATED ON THESE DRAWINGS.
- REFER TO MECHANICAL DRAWINGS FOR DIFFUSER TYPES, REQUIRED WORK AND FOR OTHER CEILING MOUNTED EQUIPMENT NOT INDICATED ON THESE DRAWINGS.
- REFER TO DETAIL X/A9.1 FOR SEISMIC BRACING DETAILS FOR NEW SUSPENDED CEILINGS.
- CUT NEW CEILING TILES AS REQUIRED FOR INSTALLATION AROUND NEW OR EXISTING VENT PIPING, EXHAUST DUCTS, SPRINKLER HEADS, CONDUIT, ETC.
- DASHED LINE INDICATES LOCATION OF EXISTING SOFFIT TO REMAIN. ALTERNATE # 4, REMOVE SOFFIT AND PROVIDE CEILING GRID AND TILE EXTENDING TO WALL.
- DEMO EXISTING CEILING SYSTEMS WHERE SHOWN AS NEW UNLESS OTHERWISE NOTED.

NOTE: FIELD VERIFY ALL CEILING HEIGHTS PRIOR TO INSTALLATION OF NEW GRIDS. COORDINATE WITH INSTALLATION OF NEW LIGHTING FIXTURES, SPRINKLER PIPING, DUCTWORK AND EXISTING STRUCTURE. NOTIFY ARCHITECT OF ANY CONFLICTS PRIOR TO INSTALLING NEW GRID.

WORK NOTES

(KEYED INTO PLANS)

- INFILL WITH NEW CMU WALL. PREP FOR FINISHES.
- PROVIDE AND INSTALL NEW SUSPENDED CEILING SYSTEM PER SPECIFICATIONS
- INSTALL NEW LED LIGHT FIXTURES. REFER TO MEP DRAWINGS & SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- PROVIDE AND INSTALL NEW SOFFIT.



KEY PLAN

DATE:	9/1/2022
DRAWN BY:	XXX
SCALE:	XXX
REVIEWED BY:	XXX
PROJECT NO.	2022-043A

NO.	DESCRIPTION
1	ISSUED FOR BID
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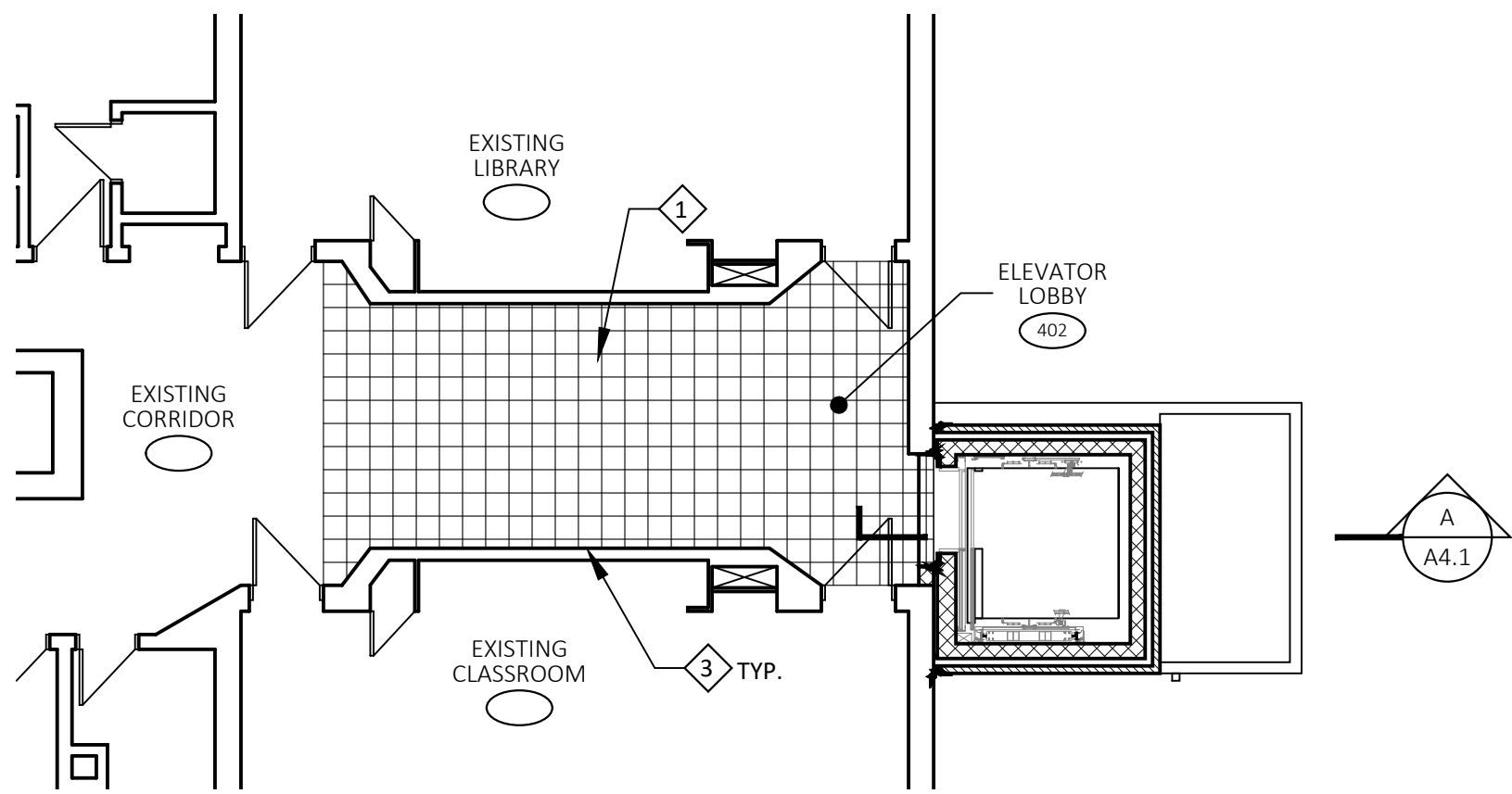
CEILING PLANS

STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

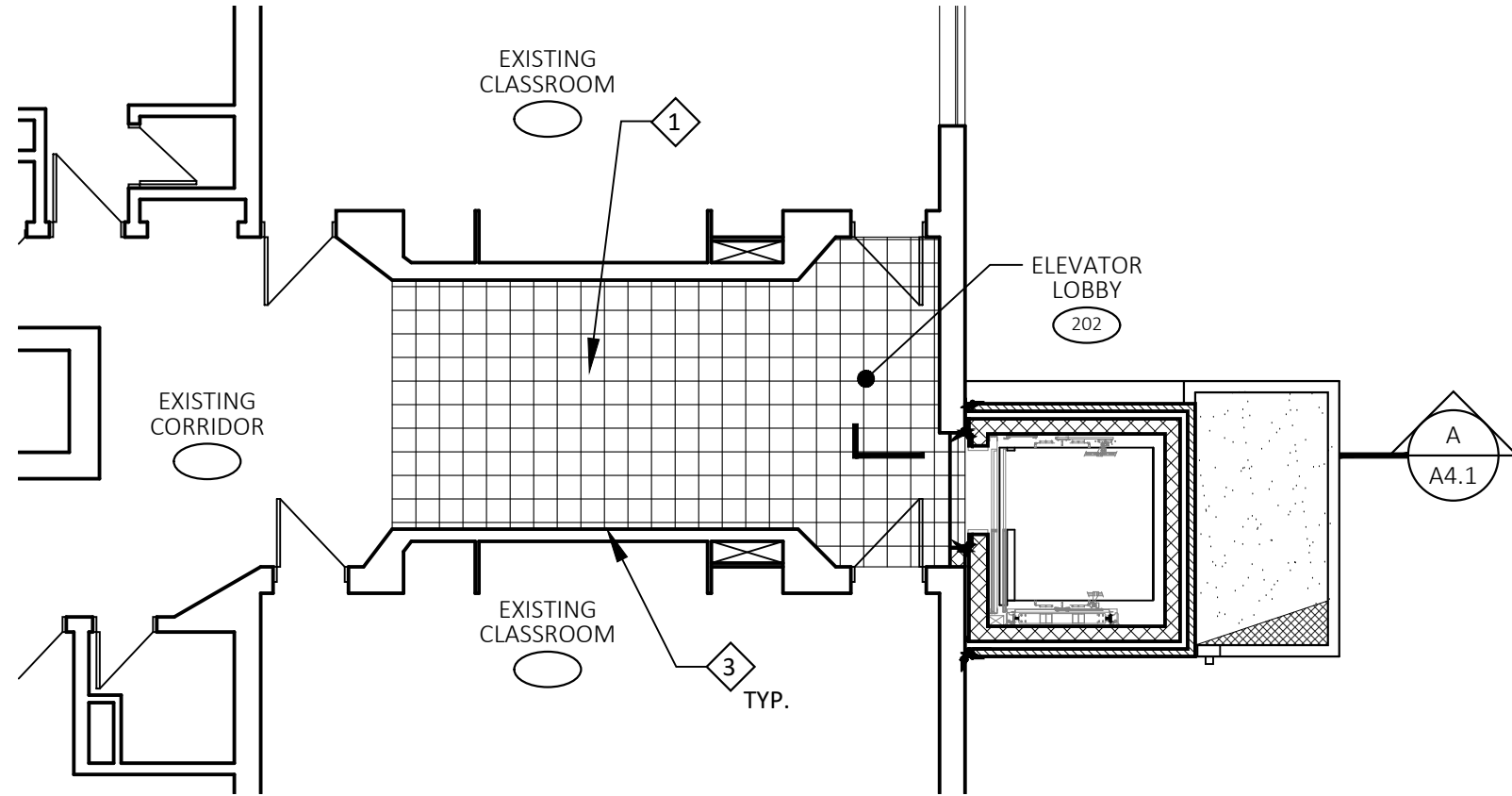
ARCHITECT'S SEAL

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

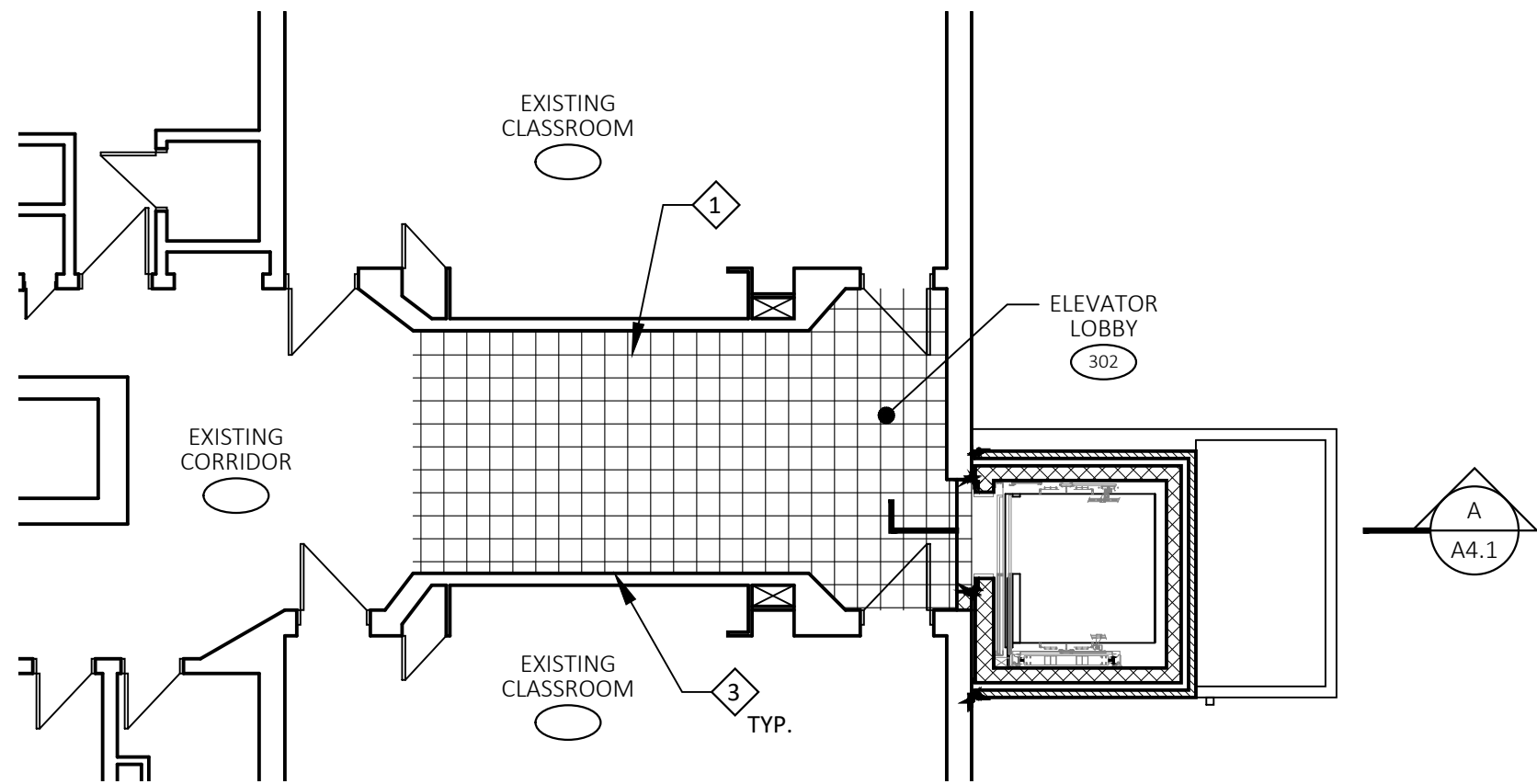
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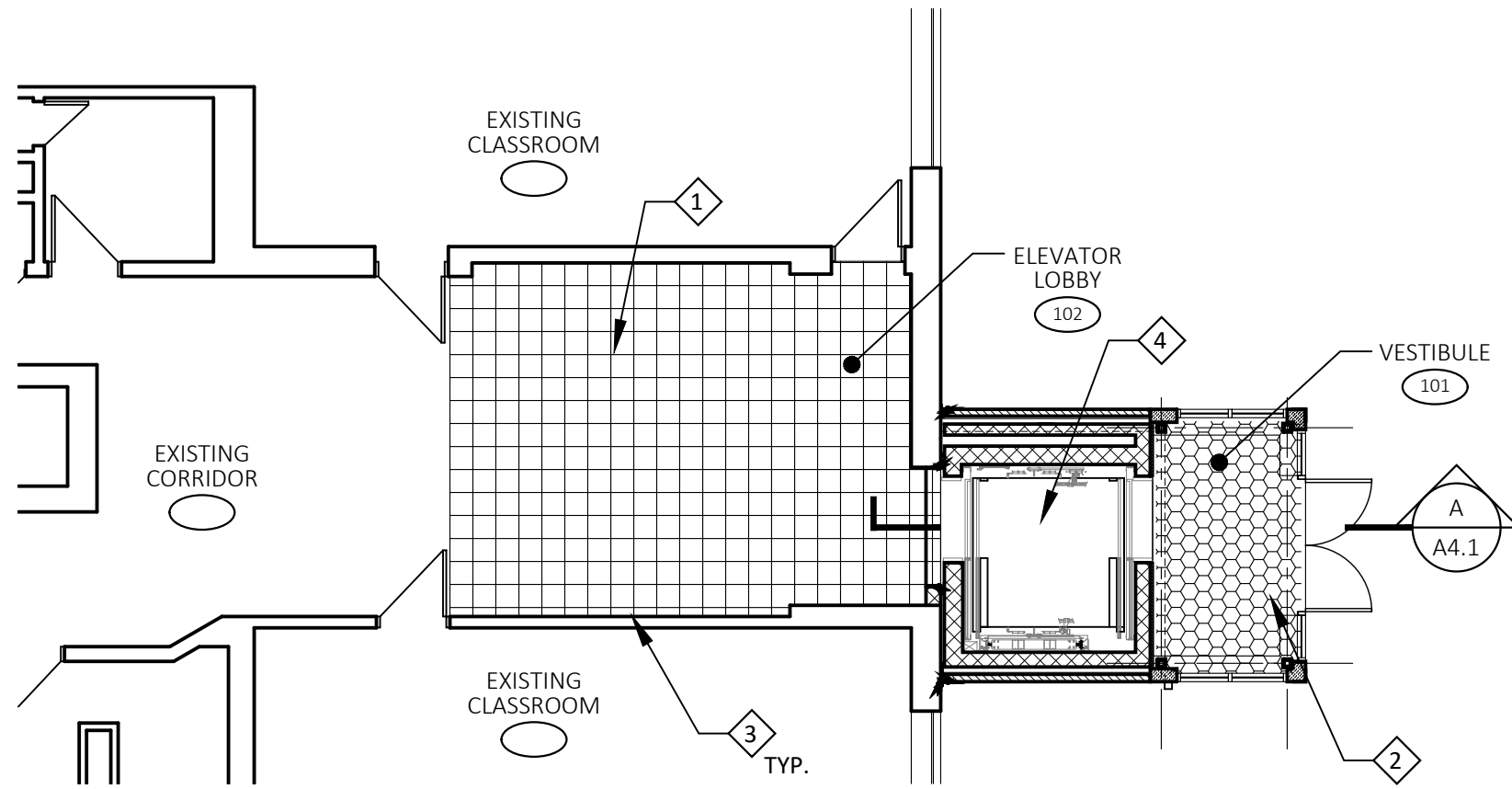
4 FINISH PLAN - THIRD FLOOR
SCALE: 1/8" = 1'-0"



2 FINISH PLAN - FIRST FLOOR
SCALE: 1/8" = 1'-0"



3 FINISH PLAN - SECOND FLOOR
SCALE: 1/8" = 1'-0"



1 FINISH PLAN - BASEMENT
SCALE: 1/8" = 1'-0"

ABBREVIATIONS

AWP	- ACOUSTICAL WALL PANEL	RF	- RESILIENT FLOORING
BB	- BULLETIN BOARD	RF	- RUBBER FLOORING
BC	- BASE CABINET	RT	- RESILIENT TILE
C	- CARPET (TILE AND/OR BROADLOOM)	RT	- RUBBER TILE
CBD	- CHAULK BOARD	SDT	- STATIC DISAPATIVE TILE
CT	- CERAMIC FLOOR TILE	SS	- SOLID SURFACE
CTB	- CERAMIC TILE BASE	SV	- SHEET VINYL FLOORING
CTR	- COUNTER	TB	- TACK BOARD
CWT	- CERAMIC WALL TILE	TBD	- TACK BOARD
DC	- DISPLAY CASE	TF	- TERRAZZO FLOORING
EM	- ENTRY MAT	TS	- TACK STRIP
EP	- EPOXY PAINT	UC	- UPPER (WALL) CABINET
ER	- EPOXY RESIN FLOORING	VB	- VERTICAL BLINDS
ET	- EPOXY TERRAZZO	VB	- VINYL BASE
GT	- GROUT	VCT	- VINYL COMPOSITION TILE
HB	- HORIZONTAL BLINDS	VF	- VINYL FLOORING
L	- LINOLEUM	VT	- VINYL TILE
LS	- LINOLEUM SHEET FLOORING	VWC	- VINYL WALL COVERING
LT	- LINOLEUM TILE	WB	- WALL BASE
MBD	- MARKER BOARD	WC	- WALK-OFF CARPET
MCIC	- MULTI-COLORED INTERIOR COATING	WC	- WALL COVERING
MP	- METAL PANEL	WD	- WOOD
MS	- MOTORISED SHADE	WM	- WALK-OFF MAT
P	- PAINT	WO	- WALK-OFF CARPET/MAT
PIS	- PROJECTION SCREEN	WP	- WALL PADDING/PROTECTION
PL	- PLASTIC LAMINATE	WS	- WINDOW SHADE
RB	- RESILIENT BASE		

LEGEND

FLOORING

ENTRANCE MAT
EM-1 MANUFACTURER: TANDUS CENTIVE
STYLE: ASSERTIVE ACTION
COLOR: STEELWORK 26202
SIZE: 24"x24" CARPET TILE

VINYL COMPOSITE TILE

VCT-1 MATCH EXISTING
ARCHITECT TO APPROVE

BASE

RUBBER BASE
RB-1 MANUFACTURER: JOHNSONITE
COLOR: TA4 GATEWAY WG
SIZE: 4" WALL BASE

PAINT

P-1 MANUFACTURER: SHERWIN WILLIAMS
COLOR: RESERVED WHITE SW7056
FINISH: EGG SHELL

WORK NOTES

(KEYED INTO PLANS)

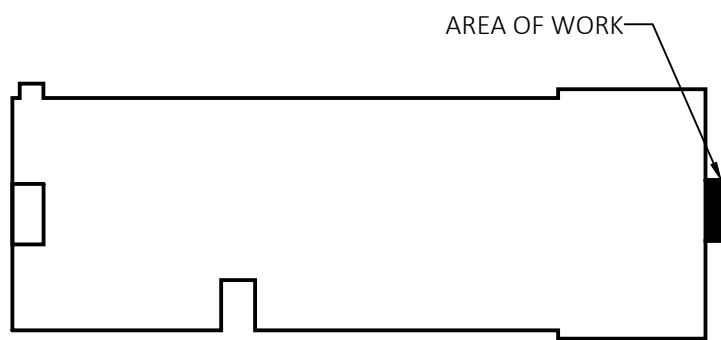
- 1 PROVIDE AND INSTALL NEW VCT FLOOR TO MATCH EXISTING FLOOR TILE.
- 2 PROVIDE AND INSTALL NEW WALK-OFF MAT.
- 3 PREP ALL WALLS FOR NEW PAINT. TYPICAL ALL WALLS.
- 4 ELEVATOR FLOOR FINISH - COMMERCIAL GRADE CARPET (COLOR TO BE SELECTED BY OWNER/ARCHITECT)

FLOOR FINISH LEGEND:

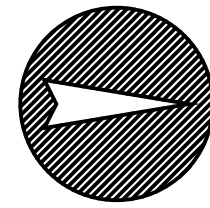
	ENTRANCE MAT
	VCT FLOORING

FLOOR FINISH NOTES:

1. REFER TO FINISH SCHEDULE SHEETS FOR COLOR DESIGNATIONS.
2. ALL FLOOR FINISHES TO EXTEND TO MEET WALL AND/OR BASE OF CASEWORK.
3. FINISH PLAN SHOULD BE USED IN CONJUNCTION WITH FINISH SCHEDULE. SHOULD THERE BE ANY DISCREPANCY BETWEEN INFORMATION GIVEN ON THE FINISH/COLOR SCHEDULE AND ANY OTHER DRAWINGS IN THE SET, THE HIGHER QUALITY FINISH SHALL BE PROVIDED.



KEY PLAN



VIEW FROM TABLE 803.9/ 2012 IBC
INTERIOR WALL AND CEILING FINISH REQUIREMENTS BY OCCUPANCY

GROUP	SPRINKLERED			NONSPRINKLERED		
	VERTICAL EXITS & EXIT PASSAGEWAYS	EXIT ACCESS CORRIDORS & OTHER EXITWAYS	ROOMS AND ENCLOSED SPACES	VERTICAL EXITS & EXIT PASSAGEWAYS	EXIT ACCESS CORRIDORS & OTHER EXITWAYS	ROOMS AND ENCLOSED SPACES
A-1 & A-2	B	B	C	A	A	B
A-3, A-4, A-5	B	B	C	A	A	C
B, E, M	B	C	C	A	B	C

INTERIOR WALLS AND CEILING FINISHES SHALL BE CLASSIFIED IN ACCORDANCE WITH ASTM E 84.

FINISH SCHEDULE

ROOM NUMBER AREA DESIGNATION	ROOM OR AREA NAME	FLOOR	BASE	WALL				MISCELLANEOUS							REMARKS
				NORTH	SOUTH	EAST	WEST	DOOR FRAMES							
-	ELEVATOR	-	-	-	-	-	-	-	-	-	-	-	-	-	
101	VESTIBULE	EM-1	RB-1	P-1	P-1	P-1	P-1	-	-	-	-	-	-	-	
102	ELEVATOR LOBBY	VCT-1	RB-1	P-1	-	P-1	P-1	-	-	-	-	-	-	-	
202	ELEVATOR LOBBY	VCT-1	RB-1	P-1	-	P-1	P-1	-	-	-	-	-	-	-	
302	ELEVATOR LOBBY	VCT-1	RB-1	P-1	-	P-1	P-1	-	-	-	-	-	-	-	
402	ELEVATOR LOBBY	VCT-1	RB-1	P-1	-	P-1	P-1	-	-	-	-	-	-	-	

DATE:	9/1/2022
DRAWN BY:	BH
SCALE:	AS NOTED
REVIEWED BY:	JMY
PROJECT NO.	2022-043A
	finish

REVISIONS

NO.	DATE	DESCRIPTION
1	11/28/22	ISSUED FOR BID

FINISH PLANS

STATE PROJECT NO. 151-0305 CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06706

ARCHITECT'S SEAL



SHEET NO.
A12.1

"STRUCTURAL GENERAL NOTES AND SPECIFICATIONS"

CODES AND STANDARDS:

1. THE FOLLOWING CODES AND STANDARDS, INCLUDING ALL SPECIFICATIONS WITHIN, SHALL APPLY TO THE DESIGN, CONSTRUCTION, QUALITY CONTROL AND SAFETY OF ALL WORK PERFORMED ON THE PROJECT. USE THE LATEST EDITIONS UNLESS NOTED OTHERWISE.
- a. 2022 STATE OF CONNECTICUT BUILDING CODE
(1) "2021 INTERNATIONAL BUILDING CODE"
(2) 2022 CONNECTICUT AMENDMENTS
- b. "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE, ACI 318", (LATEST EDITION) AMERICAN CONCRETE INSTITUTE.
- c. HOT WEATHER CONCRETING, ACI 305R AND COLD WEATHER CONCRETING ACI 306R (LATEST EDITION).

DESIGN DATA:

1. GRAVITY - FLOOR LIVE LOADS
- a. LOBBY 100 PSF
b. VESTIBULE 100 PSF
2. GRAVITY - SNOW LOADS
- a. GROUND SNOW LOAD (Pg) 35 PSF
b. SNOW EXPOSURE FACTOR (Ce) 1.0
c. THERMAL FACTOR (Ci) 1.0
d. SNOW LOAD IMPORTANCE FACTOR (I) 1.0
e. FLAT-ROOF SNOW LOAD (Pf) 30 PSF
(NON-REDUCIBLE ROOF LIVE LOAD)
f. NEW ROOF FRAMING HAS BEEN DESIGNED FOR UNBALANCED ROOF SNOW LOAD PER SECT. 7.6, ASCE 7-10 AND FOR SNOW DRIFT PER SECT. 7.7, ASCE 7-10.
3. LATERAL LOADS - WIND
- a. MAIN WIND-FORCE RESISTING SYSTEM:
- (1) NOMINAL DESIGN WIND SPEEDS (Vasd) = 101 MPH
(2) ULTIMATE DESIGN WIND SPEEDS (Vult.) = 130 MPH
(3) RISK CATEGORY OF BUILDING: III
(4) WIND EXPOSURE: C
(5) INTERNAL PRESSURE COEFFICIENT (GC pi)= ±0.18
- b. COMPONENTS & CLADDING - TO BE DESIGNED IN ACCORDANCE WITH IBC 2015, SECTION 1609, "BUILDING COMPONENTS AND CLADDING".
4. LATERAL LOADS - SEISMIC
- a. SITE CLASSIFICATION: D
b. BUILDING CATEGORY: III
c. SEISMIC IMPORTANCE FACTOR (Ie): 1.25
d. SEISMIC USE GROUP: I
e. SEISMIC DESIGN CATEGORY: B
f. MAPPED SPECTRAL ACCELERATION FOR SHORT PERIODS (Ss): 0.193
g. MAPPED SPECTRAL RESPONSE ACCELERATION AT 1 SECOND PERIOD (S1): 0.054
h. BASIC SEISMIC-RESISTING SYSTEM: BEARING WALL SYSTEM - ORDINARY REINFORCED MASONRY SHEAR WALLS
- (1) RESPONSE MODIFICATION FACTOR (R): 2.0
(2) SYSTEM OVERSTRENGTH FACTOR: 2.5
(3) DEFLECTION AMPLIFICATION FACTOR (Cd): 1.75
- ORDINARY STEEL MOMENT FRAME
- (1) RESPONSE MODIFICATION FACTOR (R): 2.5
(2) SYSTEM OVERSTRENGTH FACTOR: 3.0
(3) DEFLECTION AMPLIFICATION FACTOR (Cd): 3.0

FOUNDATIONS/GEOTECHNICAL REPORT:

1. ALLOWABLE SOIL BEARING PRESSURE = 4,000 PSF
2. FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE 08/22/2022 GEOTECHNICAL STUDY, BY WELTI GEOTECHNICAL P.C. SEE THAT REPORT FOR ADDITIONAL REQUIREMENTS.

MATERIALS:

1. THE FOLLOWING ASTM STANDARDS AND DESIGN STRESSES SHALL BE USED FOR THE APPROPRIATE MATERIALS USED IN CONSTRUCTION OF THIS PROJECT.
2. CEMENT: ASTM C150; TYPE I OR III [FOOTING & FOUNDATION WALLS]
CEMENT: ASTM C150; TYPE II [SLAB-ON-GRADE]
3. AGGREGATES: ASTM C33 (3/8" - 3/4" BLEND) (NORMAL WEIGHT)
AGGREGATES: ASTM C331 (LIGHT WEIGHT)
4. CONCRETE: ALL CONCRETE SUBJECT TO EXPOSURE SHALL BE AIR-ENTRAINED. AIR-ENTRAINING ADMIXTURE TO COMPLY WITH ASTM C-260

APPLICATION	F'c @ 28 DAYS	WT (PCF)
a. UNDERPINNING	3000	115
b. FOUNDATION WALLS/FOOTINGS	3000	145
c. CONCRETE SLAB-ON-GRADE	3500	145
d. EXTERIOR CONCRETE SLABS AND CURBS	4000	145

REINFORCEMENT:

- a. DEFORMED REINFORCING BARS ASTM A615, GRADE 60
b. WELDED WIRE FABRIC (WWF) ASTM A185

STEEL:

- a. WIDE FLANGE STRUCTURAL STEEL ASTM A992, Fy=50 KSI
b. STRUCTURAL TUBING ASTM A1085, GRADE 50 KSI
c. STRUCTURAL SHAPES & PLATES ASTM A36
d. HIGH STRENGTH BOLTS ASTM A325-N
e. ANCHOR RODS ASTM F1554, GRADE 36
f. WELDING ELECTRODES AWS A5.1 OR A5.5, E70XX

DIMENSIONS:

1. THE CONTRACTOR SHALL COORDINATE THE DIMENSIONS AND LOCATIONS OF THE ROOF AND WALL OPENINGS SO THE FRAMING PROPERLY FITS THE REQUIREMENTS OF ALL TRADES.
2. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS AND CONDITIONS SHOWN ON THE DRAWINGS PRIOR TO ANY FABRICATION AND INSTALLATION OF ANY NEW MATERIALS. IF AN DISCREPANCIES ARE FOUND BETWEEN ACTUAL CONDITIONS AND THESE DRAWINGS NOTIFY ARCHITECT AND/OR ENGINEER FOR FURTHER INSTRUCTIONS.

CONSTRUCTION:

GENERAL:

- a. REPRODUCTION OF ANY PORTION OF THE STRUCTURAL CONTRACT DRAWINGS FOR RESUBMITTAL AS SHOP DRAWINGS IS PROHIBITED. SHOP DRAWINGS PRODUCED IN SUCH A MANNER WILL BE REJECTED AND RETURNED.
- b. SUBMIT SHOP DRAWINGS AT LEAST 15 DAYS BEFORE DATE REVIEWED SUBMITTALS WILL BE NEEDED. SHOP DRAWINGS SHALL BEAR THE CONTRACTOR'S STAMP OF APPROVAL WHICH SHALL CONSTITUTE CERTIFICATION THAT THE CONTRACTOR HAS VERIFIED ALL FIELD MEASUREMENTS, CONSTRUCTION CRITERIA, MATERIALS AND SIMILAR DATA AND HAS CHECKED EACH DRAWING FOR COMPLETENESS, COORDINATION AND COMPLIANCE WITH THE CONTRACT
- c. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALLOWABLE CONSTRUCTION LOADS AND TO PROVIDE PROPERLY DESIGNED FORMWORK, STAGINGS, BRACING, SHEETING, SHORING, ETC.
- d. IMPLEMENTING JOB SAFETY, CONSTRUCTION PROCEDURES AND TEMPORARY SHORING ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- e. CONTRACTOR SHALL REFER TO ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS FOR SIZE AND LOCATIONS OF OPENINGS, SLEEVES, CONCRETE HOUSEKEEPING PADS, INSERTS, AND DEPRESSIONS.
- f. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR DETAILED INFORMATION REGARDING FINISHES, FIREPROOFING, ETC.
- g. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF MASONRY AND DRYWALL NON-LOAD BEARING PARTITIONS. PROVIDE SLIP CONNECTIONS THAT ALLOW VERTICAL MOVEMENT AT THE HEADS OF ALL SUCH PARTITIONS. CONNECTIONS ARE DESIGNED TO SUPPORT THE TOP OF THE WALLS Laterally FOR THE CODE-REQUIRED LATERAL LOAD. PROVIDE COMPRESSIBLE FIRESAFING AT TOP OF WALL AS REQUIRED BY ARCHITECTURAL DRAWINGS.
- h. IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES, DETAILS AND SPECIFICATIONS, THE MOST RIGID REQUIREMENTS SHALL GOVERN.
- i. CONTRACTOR SHALL FURNISH DIMENSIONED SHOP DRAWINGS AT ALL LEVELS LOCATING FLOOR AND ROOF EDGES FOR REVIEW BY THE ARCHITECT AND STRUCTURAL ENGINEER.
- j. CONTRACTOR SHALL FURNISH DIMENSIONED COORDINATED SHOP DRAWINGS AT ALL LEVELS SHOWING THE LOCATIONS OF ALL SLEEVES AND OPENINGS REQUIRED BY ALL TRADES.
2. INSPECTION AND TESTING:
- a. THE OWNER WILL ENGAGE A TESTING AGENCY AND A SPECIAL INSPECTOR TO PROVIDE SERVICES AS INDICATED ON STATEMENT OF SPECIAL INSPECTIONS.

FOUNDATIONS & STRUCTURAL EARTHWORK:

1. GENERAL:
- a. SEE THE GEOTECHNICAL STUDY BY WELTI GEOTECHNICAL P.C, DATED 08-22-2022 FOR REQUIREMENTS FOR EXCAVATION PREPARATION OF THE FOUNDATION INCLUDING COMPACTION PROCEDURES. REQUIREMENTS CONTAINED IN THE GEOTECHNICAL REPORT ARE PART OF THIS WORK.
- b. CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FOUNDATION SYSTEM AS SHOWN PRIOR TO STARTING WORK.
- c. EXISTING UTILITIES KNOWN TO BE IN THE CONSTRUCTION AREA HAVE BEEN INDICATED. THE SIZE, LOCATION AND DEPTH OF THE UTILITIES ARE NOT KNOWN EXACTLY AND MAY VARY SIGNIFICANTLY FROM THAT INDICATED. OTHER UNKNOWN UTILITIES NOT INDICATED MAY ALSO BE PRESENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES, WHETHER INDICATED OR NOT, WHICH MAY BE AFFECTED BY THE CONSTRUCTION PROCESS.
- d. ALL FOUNDATIONS SHALL BE PLACED ON UNDISTURBED SOIL, ON BEDROCK OR COMPACTED STRUCTURAL FILL. BEARING ELEVATIONS ARE ESTIMATED FROM SOIL BORING DATA INDICATED IN THE GEOTECHNICAL REPORT. DETERMINATION OF FINAL BEARING ELEVATIONS AND FIELD VERIFICATION OF ALLOWABLE BEARING PRESSURE SHALL BE MADE BY AN EXPERIENCED QUALIFIED GEOTECHNICAL ENGINEER PRIOR TO PLACING FOUNDATIONS.
- e. CONCRETE FOR FOUNDATIONS SHALL BE PLACED ON THE SAME DAY SUBGRADE APPROVAL IS GIVEN BY THE GEOTECHNICAL ENGINEER.
- f. ALL SHORING, SHEETING, AND DEWATERING SHALL BE THE TOTAL RESPONSIBILITY OF THE CONTRACTOR. SHEETING AND SHORING SHALL BE DESIGNED BY THE CONTRACTOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION. ALL SUBMITTALS SHALL BEAR CONTRACTOR'S /ENGINEERING SEAL AND SIGNATURE.
- g. IF BEDROCK IS ENCOUNTERED, COORDINATE EXCAVATION DEPTH AND BOTTOM OF FOOTING REQUIREMENTS WITH GEOTECHNICAL ENGINEER AND STRUCTURAL ENGINEER.
2. BACKFILL
- a. ALL BACKFILL SHALL BE PER THE GEOTECHNICAL STUDY BY WELTI GEOTECHNICAL P.C, DATED 08-22-2022 REPORT, WITH OPTIMUM MOISTURE CONTENT FOR COMPACTING.
- b. NO BACKFILL MATERIAL SHALL BE PLACED AGAINST FOUNDATION WALLS UNTIL THE CONCRETE HAS REACHED DESIGN STRENGTH OR ADEQUATE BRACING IS INSTALLED.
- c. WHERE THE FINAL GRADE ELEVATIONS ARE APPROXIMATELY EQUAL ON BOTH SIDES OF A WALL, BACKFILL IN LIFTS TO MAINTAIN LEVEL ELEVATIONS WITHIN 12" ON BOTH SIDES AT ANY TIME.
3. STRUCTURAL FILL
- a. REFER TO THE GEOTECHNICAL STUDY BY WELTI GEOTECHNICAL P.C, DATED 08-22-2022 REPORT REQUIREMENTS FOR COMPACTED STRUCTURAL FILL. REQUIREMENTS CONTAINED IN THE GEOTECHNICAL REPORT ARE PART OF THIS WORK. INSPECTION OF THE PLACEMENT OF COMPACTED STRUCTURAL FILL SHALL BE BY AN EXPERIENCED, QUALIFIED GEOTECHNICAL ENGINEER.

CONCRETE:

1. CAST-IN-PLACE
- a. REINFORCING STEEL CLEAR COVER SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE:
- NON-POST-TENSIONED CONCRETE:
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
CONCRETE EXPOSED TO EARTH OR WEATHER #6 BARS AND LARGER 2"
#5 AND SMALLER 1-1/2"
CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND SLABS, WALL, JOISTS: #11 BARS OR SMALLER 3/4"
- b. CONSTRUCTION JOINTS AND CONTROL JOINTS IN SLABS ON GRADE SHALL BE ARRANGED TO LIMIT MAXIMUM AREA BETWEEN JOINTS TO 900 S.F. APPROXIMATELY SQUARE ALLOW A MINIMUM OF 48 HOURS TIME BETWEEN PLACEMENT OF ADJACENT SECTIONS.

- c. ALL FORMWORK, SHORING AND RESHORING SHALL BE DESIGNED BY THE CONTRACTOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION. ALL SUBMISSIONS SHALL BEAR THE ENGINEER'S SEAL AND SIGNATURE.
- d. NO SLEEVE SHALL BE PLACED THROUGH ANY CONCRETE ELEMENT UNLESS SHOWN ON THE STRUCTURAL DRAWINGS, APPROVED SLEEVING SHOP DRAWINGS OR SPECIFICALLY AUTHORIZED IN WRITING BY THE STRUCTURAL ENGINEER.
- e. CORE DRILLING OF FOUNDATIONS, SLABS, SHALL NOT BE PERMITTED, UNLESS AUTHORIZED IN WRITING BY THE STRUCTURAL ENGINEER.
- f. NO SPLICES OF REINFORCEMENT SHALL BE PERMITTED EXCEPT AS DETAILED OR AUTHORIZED BY THE STRUCTURAL ENGINEER. MAKE BARS CONTINUOUS AROUND CORNERS.
- g. WHEN INSTALLING EXPANSION BOLTS OR ADHESIVE ANCHORS, THE CONTRACTOR SHALL TAKE MEASURES TO AVOID DRILLING OR CUTTING OF ANY EXISTING REINFORCING AND DESTRUCTION OF CONCRETE. HOLES SHALL BE BLOWN CLEAN PRIOR TO PLACING BOLTS OR ADHESIVE ANCHORS.
- h. CHAMFER ALL EXPOSED CONCRETE CORNERS, 3/4" x 3/4" MINIMUM, UNLESS NOTED OTHERWISE ON ARCHITECTURAL DRAWINGS.
- i. THE CONCRETE SLABS SHALL BE FINISHED FLAT AND LEVEL WITHIN TOLERANCE, TO THE ELEVATION INDICATED ON THE DRAWINGS.
- j. ANY STOP IN CONCRETE MUST BE MADE WITH VERTICAL BULKHEADS AND HORIZONTAL KEYS, UNLESS OTHERWISE SHOWN. ALL REINFORCING IS TO BE CONTINUOUS THROUGH JOINTS.
- k. SLAB SHALL NOT HAVE JOINTS IN A HORIZONTAL PLANE UNLESS SHOWN OTHERWISE.
- l. PROVIDE THICKENED SLAB ON GRADE WITH FLUSH TOP SURFACES WHERE REQUIRED TO ACCOMMODATE CONDUIT. MAINTAIN MINIMUM 1 1/2" THICKNESS OF CONCRETE BELOW CONDUIT AND FULL SLAB ON GRADE THICKNESS ABOVE CONDUIT.
- m. WELDED WIRE FABRIC REINFORCEMENT SHALL BE SUPPLIED IN SHEETS. LAP TWO FULL MESH LENGTHS AT SPLICES AND WIRE TOGETHER.
- n. CONCRETE SHALL BE PROPORTIONED AND PRODUCED TO HAVE A SLUMP NOT TO EXCEED 4-INCH IF CONSOLIDATION IS BY VIBRATION, OR 5-INCH IF CONSOLIDATION IS BY OTHER MEANS. SLUMP FOR CONCRETE FLATWORK SHALL BE 1-INCH LESS.
- o. MATERIALS AND OPERATIONS SHALL BE TESTED AND INSPECTED AS WORK PROGRESSES. FAILURE TO DETECT DEFECTIVE WORK SHALL NOT PREVENT REJECTION WHEN DEFECT IS DISCOVERED.
- p. PRODUCTS: 1) WATER SHALL BE FRESH, DRINKABLE
2) AIR-ENTTRAINING AGENT, CONFORMING TO ASTM C260
3) WATER-REDUCING, SET-CONTROLLING ADMIXTURE CONFORMING TO ASTM C494 MANUFACTURED BY MASTER BUILDERS, SONNEBORN, EUCLID, OR W.R. GRACE COMPANIES
- q. GROUT: NON-SHRINK "SETGROUT" AS MANUFACTURED BY MASTER BUILDERS.
- r. VAPOR RETARDER: SHALL BE INSTALLED UNDER CONCRETE SLABS ON GRADE WHERE INDICATED AND SHALL BE 15 MIL POLYETHYLENE. IT SHALL BE INSTALLED IN WIDEST PRACTICAL WIDTH. ALL JOINTS SHALL BE LAPPED A MINIMUM OF SIX (6) INCHES, AND ALL BREAKS OR HOLES SHALL BE PATCHED PRIOR TO POURING THE CONCRETE. WATER VAPOR RETARDER: ASTM E-1745 THAT MEETS OR EXCEEDS CLASS C.
- s. EXPANSION JOINT: CONFORMING TO ASTM D 1751 OR ASTM D 1752.
- t. MAXIMUM SIZE OF COARSE AGGREGATE SHALL NOT EXCEED ONE-THIRD THE THICKNESS OS SLABS, AND ONE-FIFTH THE NARROWER DIMENSION BETWEEN FORMS.
- u. CONCRETE SHALL BE ADJUSTED TO PRODUCE THE REQUIRED RATE OF HARDENING FOR VARIED CLIMATIC AND JOB-SITE CONDITIONS.
- v. CONCRETE SHALL BE HANDLED FROM MIXER TO FINAL PLACEMENT RAPIDLY BY METHODS WHICH WILL PREVENT SEGREGATION OR LOSS OF INGREDIENTS TO MAINTAIN REQUIRED QUALITY OF CONCRETE.
- x. USE OF VIBRATORS TO TRANSPORT CONCRETE SHALL NOT BE ALLOWED.
- y. IMMEDIATELY FOLLOWING PLACEMENT, CONCRETE SHALL BE PROTECTED FROM PREMATURE DRYING , HOT AND COLD TEMPERATURES, RAIN, FLOWING WATER AND MECHANICAL INJURY.
- z. FORMS FOR WALLS SHALL BE LEFT IN PLACE FOR A MINIMUM OF 3 DAYS. FINAL CURING SHALL CONTINUE FOR NOT LESS THAN 7 DAYS.
21. ALL INTERIOR CONCRETE FLOOR SLABS SHALL BE STEEL TROWELED TO A SMOOTH UNIFORM FINISH , FREE FROM DEFECTS AND BLEMISHES, NOTHING TO BE ADDED TO EITHER WET OR DRY FINISH. STEEL TOWELING SHALL NOT BE DONE UNTIL CONCRETE HAS HARDENED SUFFICIENTLY TO PREVENT FINE MATERIAL FROM WORKING TO THE SURFACE. ALL EXTERIOR CONCRETE FLOOR SLABS SHALL HAVE A BROOM FINISH.
22. IF A SUMP PIT IS REQUIRED IN THE ELEVATOR PIT, COORDINATE SIZE AND LOCATION WITH MECHANICAL ENGINEER. HAUNCH ELEVATOR PIT SLAB AND BEND/ADD ADDITIONAL REBAR AS REQUIRED.
23. CONCRETE SHALL BE PROTECTED FROM DAMAGE. DAMAGED CONCRETE SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF CONCRETE SLABS ON GRADE THROUGH WINTER WEATHER. IF THEY SHOULD HEAVE DUE TO COLD WEATHER, THEY SHALL BE REMOVED AND REPLACED. ALL FILL BELOW THE SLABS SHALL BE REMOVED AND REPLACED.
24. INTEGRALLY WATERPROOFED CONCRETE SHALL CONSIST OF TYPE I PORTLAND CEMENT, CLEAN, WELL GRADED, FINE AND COARSE AGGREGATES DESIGNED FOR MAXIMUM STRENGTH AND DENSENESS WITH A MINIMUM OF 3,000 psi COMPRESSIVE STRENGTH. EACH CUBIC YARD SHALL CONTAIN AT LEAST 5.6 BAGS OF TYPE I PORTLAND CEMENT, COMBINED WITH NOT MORE THAN 1 1/2 GALLONS OF "ANTI-HYDRO NCR" (FLEMINGTON, NJ) AND NOT MORE THAN 35 GALLONS OF TOTAL LIQUID. MAXIMUM SLUMP SHALL BE 4". THE "ANTI-HYDRO NCR" SHALL BE ADDED WITH THE MIXING WATER OR TO BE CONCRETE WHILE PARTIALLY MIXED AND MIXED FOR A MINIMUM 1 MINUTE PER CUBIC YARD. ADDITION OF "ANTI-HYDRO NCR" SHALL BE DONE AT THE PROJECT SITE PER THE MANUFACTURER RECOMMENDATIONS.

STRUCTURAL STEEL:

1. GENERAL:
- a. ALL SHOP AND FIELD CONNECTIONS SHALL BE MADE WITH HIGH STRENGTH BOLTS OR WELDS. ALL HIGH STRENGTH BOLTS AND NUTS SHALL BE CLEARLY MARKED AS REQUIRED BY AISC SPECIFICATIONS. CONNECTIONS MADE WITH UNMARKED BOLTS AND NUTS WILL BE REJECTED.
- b. PROVIDE ACCESS FOR INSPECTIONS OF ALL SHOP AND FIELD CONNECTIONS FOR PROPER MATERIALS AND WORKMANSHIP.
- c. ALL CONNECTIONS, SPLICES AND ERECTION PIECES SHALL BE DESIGNED BY THE FABRICATOR'S ENGINEER REGISTERED IN THE PROJECT'S JURISDICTION.
- d. ALL STRUCTURAL STEEL THAT IS LOCATED IN EXTERIOR UNHEATED SPACES, INCLUDING STEEL DIRECTLY EXPOSED TO WEATHER, SHALL BE HOT DIPPED GALVANIZED, OR COATED WITH AN PIN APPROVED HIGH PERFORMANCE COATING SYSTEM (COORDINATE WITH ARCHITECT).
- e. CERTIFIED COPIES OF MILL TEST REPORTS SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER.
- f. THE CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF ANY FABRICATION OR ERECTION ERRORS OR DEVIATIONS AND RECEIVE WRITTEN APPROVAL BEFORE ANY FIELD CORRECTIONS ARE MADE.
- g. SIMPLE SHEAR CONNECTIONS SHALL BE SELECTED AND DETAILED BY THE FABRICATOR IN ACCORDANCE WITH AISC. IF NO REACTION IS INDICATED, THEN CONNECTION IS TO BE DESIGNED USING A REACTION OF 10 KIPS. MINIMUM WELD 3/16" FILLET. MINIMUM NUMBER OF BOLTS PER CLIP ANGLE OR SINGLE PLATE CONNECTION:

- h. UNLESS OTHERWISE NOTED, ALL A325 BOLTS SHALL BE TIGHTENED TO THE "SNUG TIGHT" CONDITION DEFINED AS THE TIGHTNESS ATTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A PERSON USING AN ORDINARY SPUD WRENCH. THE SNUG TIGHT CONDITION MUST ENSURE THAT THE PLIES OF THE CONNECTED MATERIAL HAVE BEEN BROUGHT INTO SNUG CONTACT.
- i. THE FABRICATOR AND ERECTOR ARE RESPONSIBLE FOR THE DESIGN OF TEMPORARY BRACING AND RECOMMENDED ERECTION PROCEDURES.
- j. WHEN INSTALLING EXPANSION BOLTS OR ADHESIVE ANCHORS, THE CONTRACTOR SHALL TAKE MEASURES TO AVOID DRILLING OR CUTTING OF ANY EXISTING REINFORCING AND DESTRUCTION OF CONCRETE. HOLES SHALL BE BLOWN CLEAN PRIOR TO PLACING BOLTS OR ADHESIVE ANCHORS.
- k. WELDING ELECTRODES, WELDING PROCESS, MINIMUM PREHEAT AND INTERPASS TEMPERATURES SHALL BE IN ACCORDANCE WITH THE AISC AND AWS SPECIFICATIONS. ANY STRUCTURAL STEEL DAMAGED IN WELDING IS TO BE REPLACED OR REINFORCED AS ACCEPTABLE TO THE STRUCTURAL ENGINEER.
- l. WELDERS SHALL HAVE CURRENT EVIDENCE OF PASSING THE APPROPRIATE AWS QUALIFICATION TESTS.
- m. GAS CUTTING TORCHES SHALL NOT BE USED TO CORRECT FABRICATION ERRORS WITHOUT THE APPROVAL OF THE STRUCTURAL ENGINEER.
- n. STEEL FABRICATOR SHALL BE QUALIFIED FABRICATOR CERTIFIED IN THE AISC QUALITY CERTIFICATION PROGRAM AND IS A DESIGNATED AISC PLANT.
- o. STEEL FABRICATOR SHALL BE RESPONSIBLE FOR PROVIDING BRACING MEMBER END CONNECTIONS WITH A MINIMUM CAPACITY FOR FORCES PER ALLOWABLE STRESS DESIGN, GIVEN ON BRACED FRAME ELEVATIONS OR ON PLANS. WHEN PROVIDING CONNECTIONS, ALL AISC CODE REQUIREMENTS SHALL BE MET, AS APPLICABLE (I.E., NET SECTION, BLOCK SHEAR, ETC.) FOR THE MEMBERS AND GUSSET PLATES. CALCULATIONS AND SHOP DRAWINGS FOR BRACED FRAMES SHALL BE SUBMITTED BEARING THE ENGINEER'S SEAL AND SIGNATURE.

STEEL DECK:

1. DECK PROPERTIES ARE BASED ON PRODUCTS MANUFACTURED BY VULCRAFT. DECKS BY OTHER MANUFACTURERS MAY BE SUPPLIED PROVIDED SECTION PROPERTIES ARE WITHIN 5% OF THOSE SPECIFIED AND IF APPROVED BY THE ARCH. AND STRUCTURAL ENGINEER.
2. PROVIDE STEEL DECK WITH THE FOLLOWING MINIMUM SECTION PROPERTIES:
- a. 1-1/2" DEEP, 20 GAGE, TYPE 'B' ROOF DECK I = 0.201 in⁴
Sp = 0.234 in³
Sn = 0.247 in³
3. INSTALL IN ACCORDANCE WITH SDI SUGGESTED SPECIFICATIONS UNLESS NOTED OTHERWISE ON THE DRAWINGS. INDIVIDUAL SHEETS SHALL EXTEND OVER AT LEAST THREE SPANS, WITH LAPS TO BE PLACED OVER SUPPORTS.
4. DECK SUPPLIER SHALL PROVIDE ALL ADDITIONAL FRAMING TO SUPPORT DECK AT OPENINGS THRU DECK AND ALL CLOSURE ANGLES AND PLATES WHERE REQUIRED TO RESULT IN A COMPLETE INSTALLATION.
5. ROOF DECKS TO BE ATTACHED TO STEEL SUPPORTS WITH 3/4" DIA. PUDDLE WELDS AT EVERY FLUTE (FOR 36" WIDE PANEL, 4 FASTENERS AT A 36/4 PATTERN) AND A MINIMUM OF (2) - #10 TEK SCREW AT ALL SIDE LAPS.

CONCRETE MASONRY:

1. ALL MASONRY SHALL CONFORM TO AND BE ERECTED IN ACCORDANCE WITH THE AMERICAN STANDARD BUILDING CODE REQUIREMENTS FOR MASONRY AND THE NATIONAL CONCRETE MASONRY ASSOCIATION FOR THE DESIGN AND CONSTRUCTION OF LOAD BEARING MASONRY.
2. ALL MASONRY WALLS SHALL BE CONSTRUCTED OF CONCRETE MASONRY WITH MINIMUM COMPRESSIVE STRENGTH fm = 1900 PSI. THE GENERAL CONTRACTOR IS RESPONSIBLE TO ASSURE MASONRY STRENGTH AS SPECIFIED.
3. TYPE "S" MORTAR SHALL BE USED IN ALL CMU MASONRY, TYPE 'N' MORTAR FOR BRICK VENEER.
4. DUR-O-WALL TYPE JOINT REINFORCING SHALL BE INSTALLED IN ALTERNATE COURSES OF MASONRY.
5. PROVIDE REINFORCED BOND BEAMS AND VERTICAL REINFORCING AS CALLED FOR ON THE DRAWINGS.
6. GROUT FOR BOND BEAMS AND CORE FILL AT VERTICAL REINFORCING BARS SHALL DEVELOP A MIN. COMPRESSIVE STRENGTH OF 3000 psi AT 28 DAYS. CONDUCT FIELD TESTS IN ACCORDANCE WITH THE SCHEDULE OF INSPECTION.
7. ALL REINFORCING BARS USED IN MASONRY SHALL BE GRADE 60 CONFORMING TO ASTM A-615. ALL LAP SPLICES SHALL BE A MIN. 48 BAR DIAMETERS. LOW LIFT GROUT CONSTRUCTION (5'-0" MAX. HEIGHT PER LIFT).
8. MASONRY CONSTRUCTION AND MATERIALS SHALL CONFORM TO ALL REQUIREMENTS OF "SPECIFICATIONS FOR MASONRY STRUCTURES" (ACI 530.1/ASCE 6-95) PUBLISHED BY THE AMERICAN CONCRETE INSTITUTE, EXCEPT AS MODIFIED BY THE REQUIREMENTS OF THE CONTRACT DRAWINGS.
9. ALL REINFORCEMENT SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED. PROVIDE LONGEST PRACTICAL LENGTH TO MINIMIZE SPLICES.
10. ALL BLOCK CORES CONTAINING REINFORCEMENT SHALL BE GROUTED SOLID. ALL REINFORCEMENT, INCLUDING DOWELS SHALL BE ACCURATELY PLACED, SUPPORTED AND TIED. PLACE VERTICAL REINFORCEMENT IN MIDDLE OF CORES AND OFFSET TO CLEAR STRUCTURAL STEEL WHERE REQUIRED. MASONRY INSERTS, INSULATION INSERTS, IF USED, SHALL BE REMOVED FROM MASONRY CORES WHERE VERTICAL REINFORCING OCCURS.
11. AT CONTROL JOINTS, HORIZONTAL REINFORCING SHALL BE DISCONTINUOUS ACROSS JOINTS AT ALTERNATE REINFORCING COURSES. (HORIZONTAL REINFORCING SHALL BE CONTINUOUS ACROSS JOINTS AT 32" o/c VERTICAL).
12. WHERE VERTICAL REINFORCING IS TO PASS THROUGH MASONRY BOND BEAMS, PROVIDE MASONRY UNITS PREFABRICATED WITH SLOTTED BOTTOM SHELLS OR PRE-DRILL BOTTOM SHELL AS REQUIRED.
13. STEEL TRUSS-TYPE REINFORCEMENT FOR USE IN HORIZONTAL BED JOINTS OF ALL WALL UNITS SHALL BE PREFABRICATED FROM COLD DRAWN STEEL WIRE CONFORMING TO ASTM SPECIFICATION A-82 AND SHALL CONSIST OF TWO 3/16" DIAMETER DEFORMED LONGITUDINAL SIDE RODS WELDED AT 18" INTERVALS TO A CONTINUOUS DIAGONAL CROSS ROD FORMING A TRUSS DESIGN.
14. OUT TO OUT SPACING OF SIDE RODS SHALL BE APPROXIMATELY 2" LESS THAN THE NOMINAL THICKNESS OF THE WALL OR WYTHE.
15. CROSS RODS SHALL NOT BE LESS THAN No. 9 GAUGE.
16. PREFABRICATED OR JOB FABRICATED CORNER AND TEE SECTIONS SHALL BE USED TO FORM CONTINUOUS REINFORCEMENT AROUND CORNERS.
17. HORIZONTAL TRUSS-TYPE WALL REINFORCEMENT SHALL BE USED IN BED JOINTS 16" o/c VERT. IN ALL MASONRY WALLS STARTING AT FIRST BASE COURSE AND IN THE FIRST AND SECOND BED JOINTS ABOVE LINTELS AND BELOW SILLS IN WALL OPENINGS EXTENDING 2 FEET BEYOND JAMBS.
18. PROVIDE GALVANIZED WIRE POSITIONERS SPACED AT NOT MORE THAN 10 FEET. LOCATE THE FIRST POSITIONER WITHIN 40 INCHES OF THE TOP OF THE FOUNDATION.
19. GENERAL CONTRACTOR SHALL COORDINATE THE LOCATION OF VERTICAL REINFORCING FROM FOUNDATION, WITH VERTICAL REINFORCING OF MASONRY WALL.
20. AT EXPANSION JOINTS, HORIZONTAL REINFORCING SHALL BE DISCONTINUOUS ACROSS JOINTS AT EVERY REINFORCING COURSE.

TEMPORARILY SHORING:

- a. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A SHORING ENGINEER REGISTERED IN THE STATE WHERE PROJECT IS CONSTRUCTED TO PREPARE ALL SUBMITTALS REQUIRED AND TO BE FULLY RESPONSIBLE FOR DETAILED DESIGN AND CONSTRUCTION SPECIFICATIONS AND PROVIDE SUPERVISION DURING CONSTRUCTION OF THE TEMPORARY SHORING WORK REQUIRED.
- b. THE CONTRACTOR AND CONTRACTOR'S SHORING ENGINEER SHALL DESIGN, FURNISH, INSTALL AND PERFORM THE NECESSARY WORK REQUIRED TO SAFELY SUPPORT, PROTECT AND MAINTAIN EXISTING STRUCTURE, ANY MOVEMENT OR DAMAGE OF EXISTING BUILDING OR STRUCTURE SHALL BE CORRECTED TO THE SATISFACTION OF THE OWNER AND ENGINEER AT THE SOLE EXPENSE OF THE CONTRACTOR.
- c. THE CONTRACTOR'S SHORING ENGINEER SHALL PREPARE A REPORT OF THE STRUCTURAL PRECONDITION SURVEY OF THE EXISTING BUILDING. THIS ON-SITE SURVEY SHALL BE DONE IN THE PRESENCE OF A REPRESENTATIVE FOR THE OWNER OF THE EXISTING BUILDING. THIS PRECONDITION SURVEY REPORT SHALL INCLUDE A DETAILED ON-SITE INSPECTION OF THE INTERIOR AND THE EXTERIOR OF THE BUILDING WITH PHOTOGRAPHS DOCUMENTING THE EXISTING CONDITIONS OF THE BUILDING.
- d. THE CONTRACTOR'S ENGINEER SHALL SUBMIT A COMPLETE SEALED, DETAILED DESIGN SHOP DRAWINGS FOR REVIEW AND COMMENTS BY STRUCTURAL ENGINEER. THE SUBMITTAL SHALL INCLUDE ALL CONSTRUCTION SEQUENCES, METHODS, DETAILS, SPECIFICATIONS, DESIGN LOADS AND OPERATIONS NECESSARY FOR PROPER EXECUTION OF THE TEMPORARY SHORING WORK

STRUCTURAL NOTES & SPECIFICATIONS

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

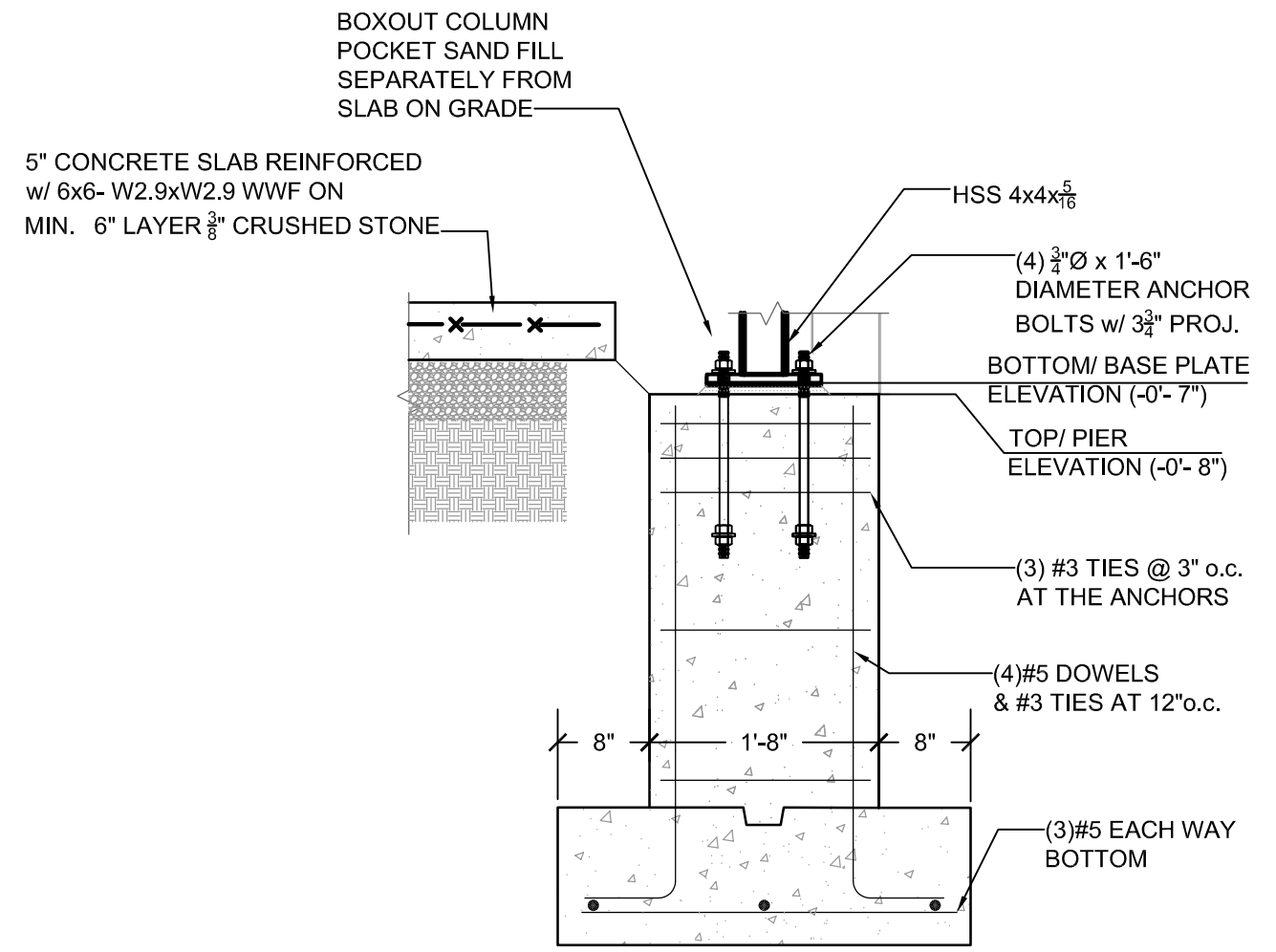
RZ Design Associates, Inc.
MECHANICAL, ELECTRICAL,
AND STRUCTURAL ENGINEERING
701 OLD BROAD STREET
SUITE 202
ROCKY HILL, CT 06067
P: (860) 438-4338
F: (860) 438-4460
www.rzdesignassociates.com

FRIAR
21 Talcott Notch Road
Farmington, CT 06032

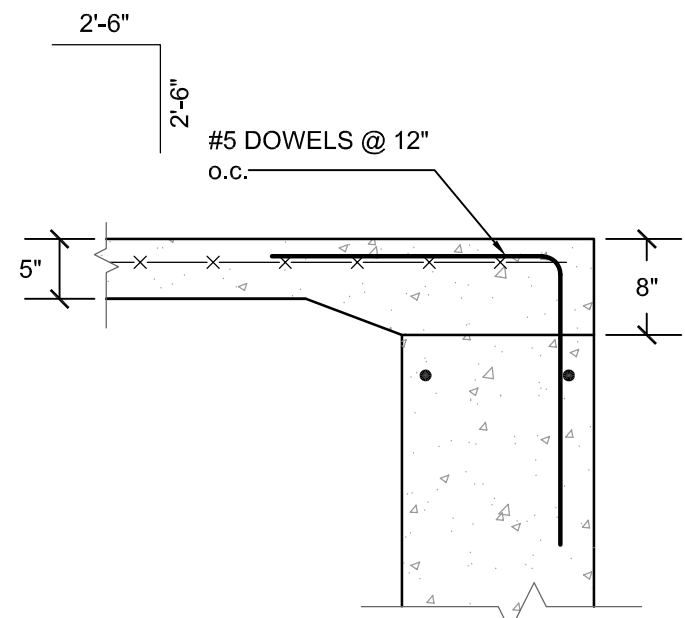
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S0.1

DATE: 9/01/2022
DRAWN BY: M.B.
SCALE: AS NOTED
REVIEWED BY: C.Z.
PROJECT NO. 151-0305CV
GENERAL NOTES

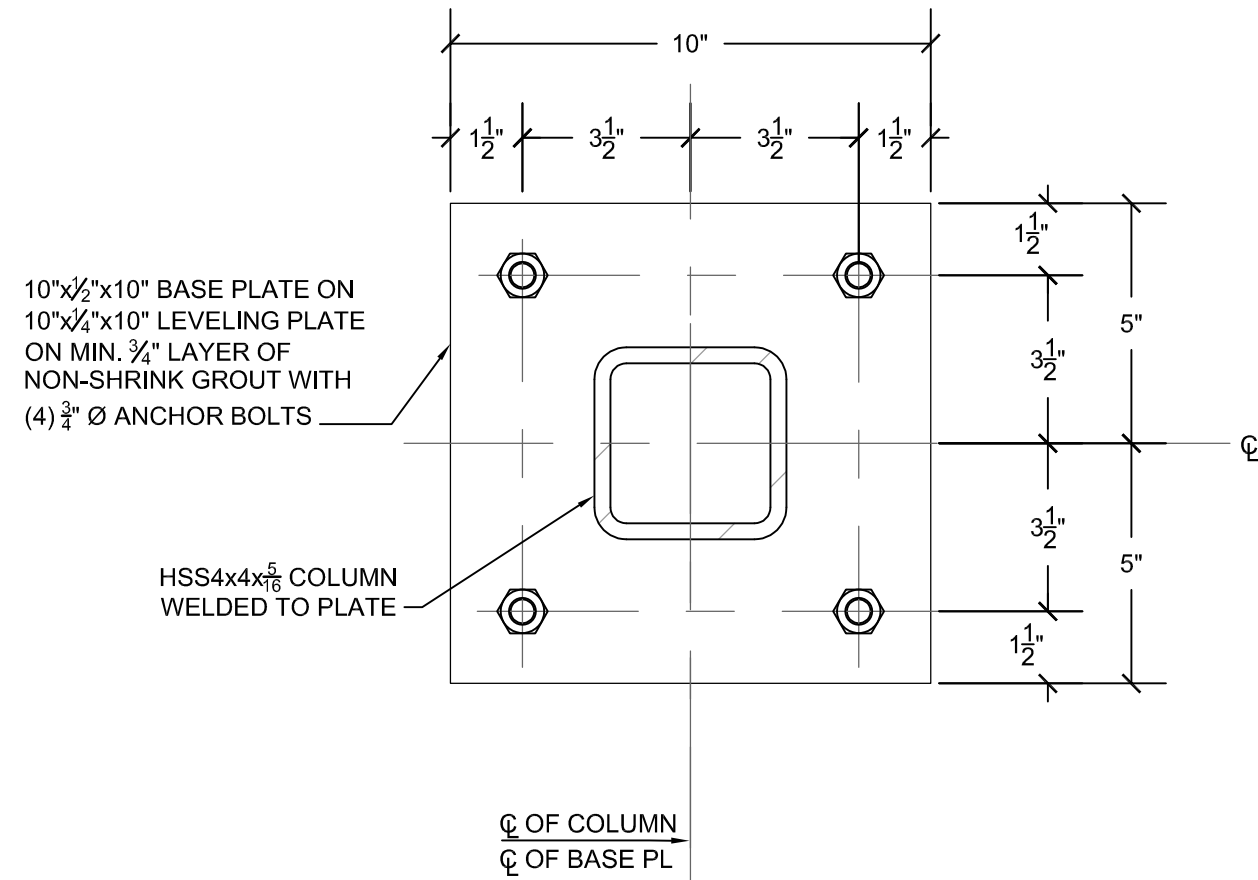
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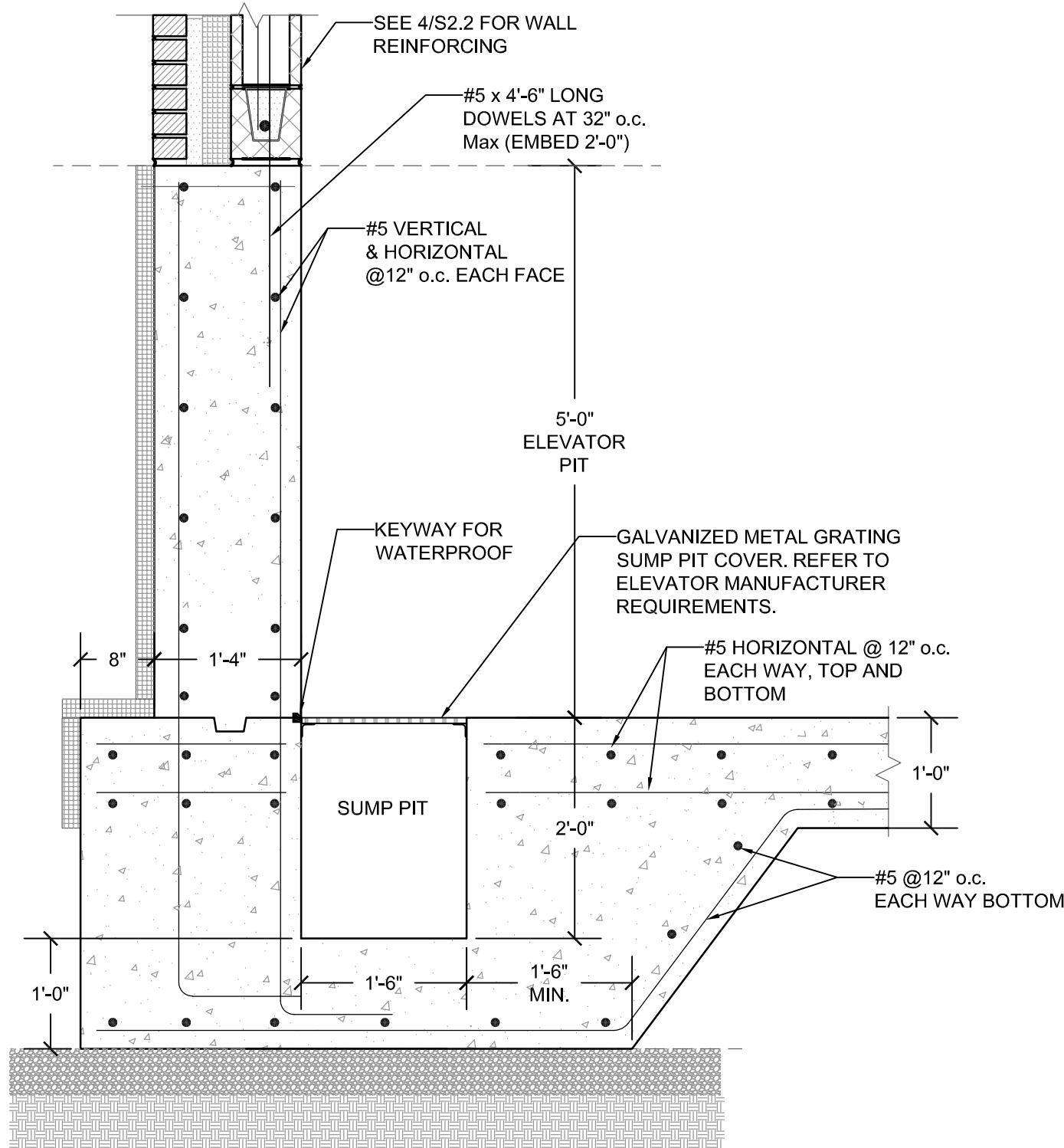
D
S1.0
TYPICAL PIER REINFORCING
SCALE: 3/4" = 1'-0"



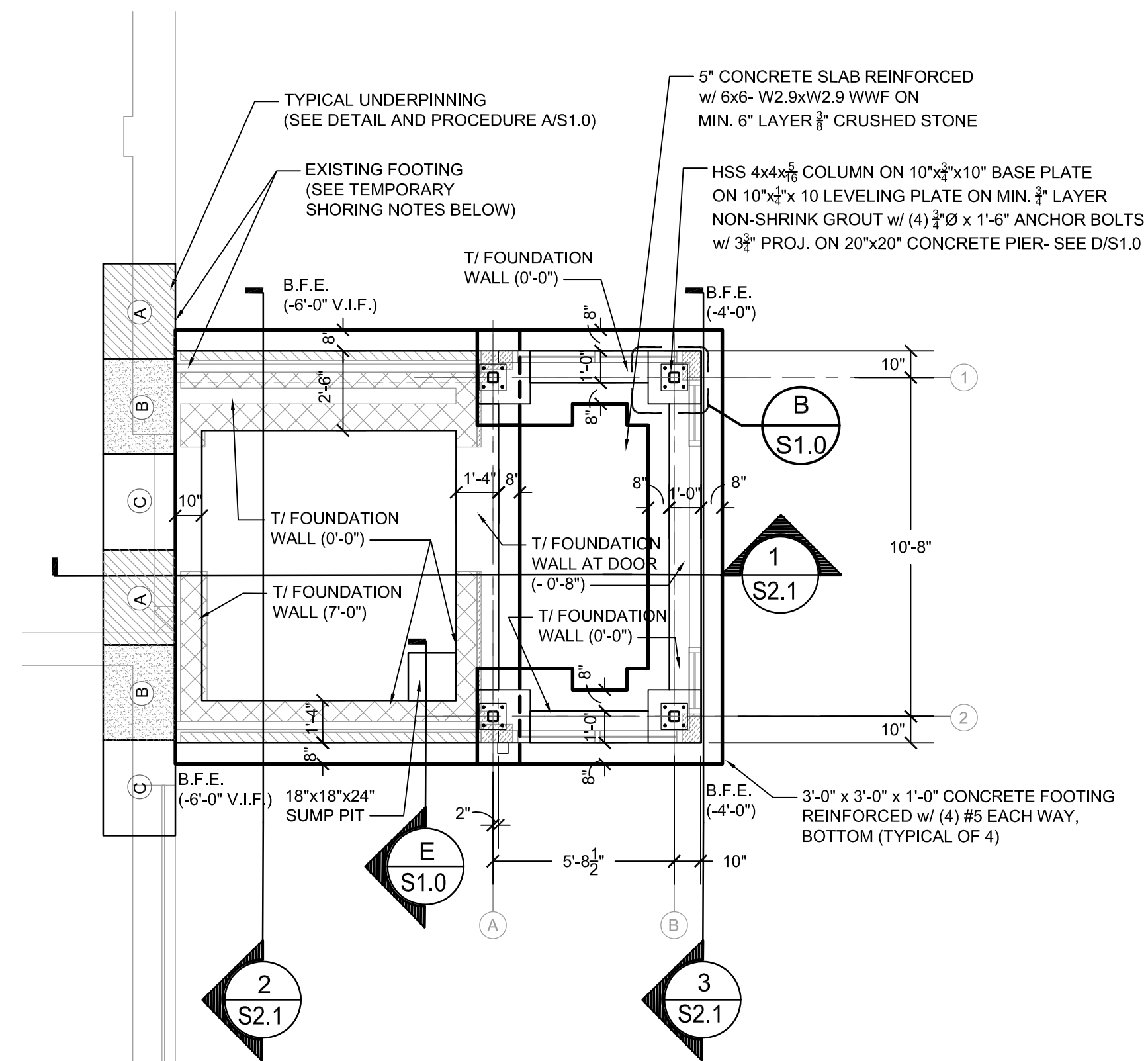
C
S1.0
TYPICAL FOUNDATION WALL @ DOOR
SCALE: 3/4" = 1'-0"



B
S1.0
TYPICAL BASE PLATE DETAIL
SCALE: 3" = 1'-0"



E
S1.0
SUMP PIT DETAIL
SCALE: 3/4" = 1'-0"



FOUNDATION PLAN NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS AND GEOMETRY, COORDINATE ALL NEW TOP OF WALL ELEVATIONS WITH ARCH. DRAWINGS.
2. RECESS BASE PLATE 7" BELOW TOP OF FOUNDATION WALL ELEVATION.
3. ELEVATOR PIT FOUNDATION WALLS AND FOOTING MAT SHALL BE INTEGRALLY WATERPROOFED CONCRETE - SEE S0.1

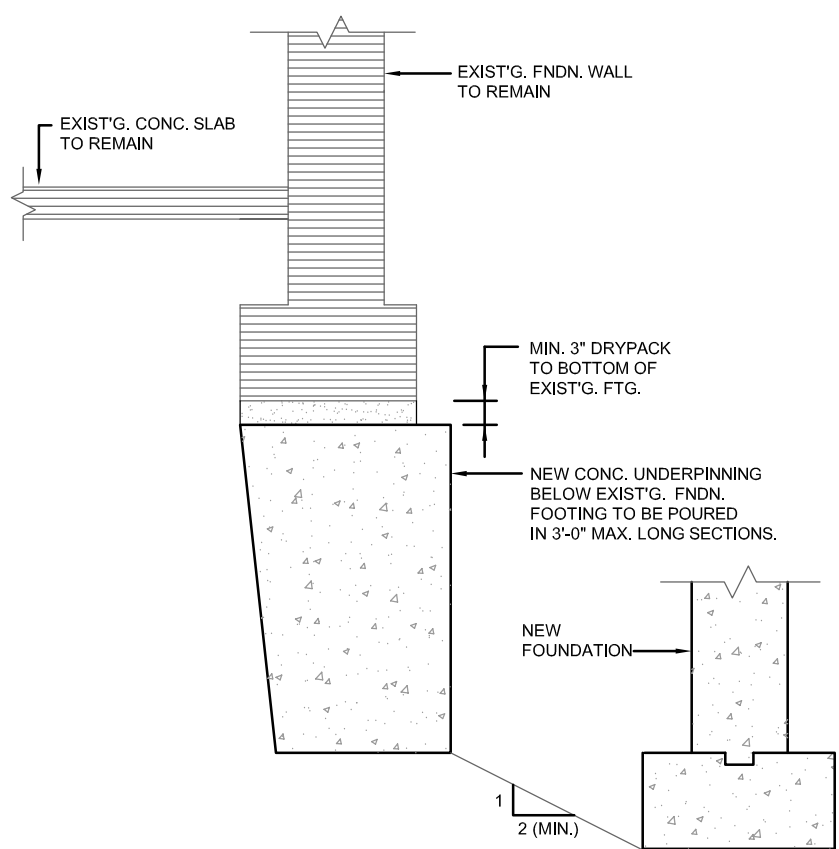
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S1.0
FOUNDATION PLAN
SCALE: 1/4" = 1'-0"

TEMPORARY SHORING NOTES:

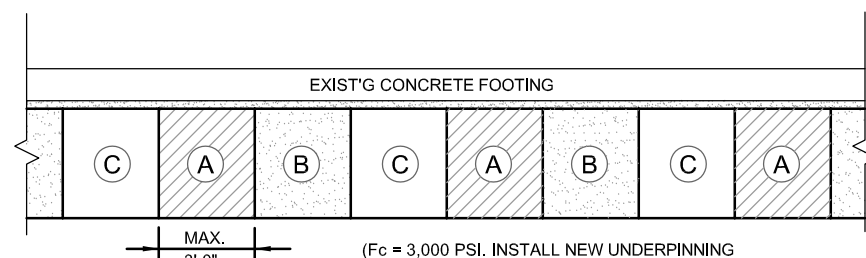
1. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A SHORING ENGINEER REGISTERED IN THE STATE WHERE PROJECT IS CONSTRUCTED TO PREPARE ALL SUBMITTALS REQUIRED AND TO BE FULLY RESPONSIBLE FOR DETAILED DESIGN AND CONSTRUCTION SPECIFICATIONS AND PROVIDE SUPERVISION DURING CONSTRUCTION OF THE TEMPORARY SHORING WORK REQUIRED.
2. THE CONTRACTOR AND CONTRACTOR'S SHORING ENGINEER SHALL DESIGN, FURNISH, INSTALL AND PERFORM THE NECESSARY WORK REQUIRED TO SAFELY SUPPORT, PROTECT AND MAINTAIN EXISTING STRUCTURE. ANY MOVEMENT OR DAMAGE OF EXISTING BUILDING OR STRUCTURE SHALL BE CORRECTED TO THE SATISFACTION OF THE OWNER AND ENGINEER AT THE SOLE EXPENSE OF THE CONTRACTOR.
3. THE CONTRACTOR'S SHORING ENGINEER SHALL PREPARE A REPORT OF THE STRUCTURAL PRECONDITION SURVEY OF THE EXISTING BUILDING. THIS ON-SITE SURVEY SHALL BE DONE IN THE PRESENCE OF A REPRESENTATIVE FOR THE OWNER OF THE EXISTING BUILDING. THIS PRECONDITION SURVEY REPORT SHALL INCLUDE A DETAILED ON-SITE INSPECTION OF THE INTERIOR AND THE EXTERIOR OF THE BUILDING WITH PHOTOGRAPHS DOCUMENTING THE EXISTING CONDITIONS OF THE BUILDING.
4. THE CONTRACTOR'S ENGINEER SHALL SUBMIT A COMPLETE SEALED, DETAILED DESIGN SHOP DRAWINGS FOR REVIEW AND COMMENTS BY STRUCTURAL ENGINEER. THE SUBMITTAL SHALL INCLUDE ALL CONSTRUCTION SEQUENCES, METHODS, DETAILS, SPECIFICATIONS, DESIGN LOADS AND OPERATIONS NECESSARY FOR PROPER EXECUTION OF THE TEMPORARY SHORING WORK

UNDERPINNING NOTES:

1. THE CONTRACTOR SHALL PREPARE A REPORT OF THE STRUCTURAL PRECONDITION SURVEY OF THE EXISTING BUILDING. THIS ON-SITE SURVEY SHALL BE DONE IN THE PRESENCE OF THE ARCHITECT AND A REPRESENTATIVE OF THE OWNER FOR THE EXISTING BUILDING. THE PRECONSTRUCTION SURVEY REPORT SHALL INCLUDE A DETAILED ON-SITE INSPECTION OF THE INTERIOR AND EXTERIOR OF THE BUILDING IN THE AREA OF THE NEW WORK, WITH PHOTOGRAPHS DOCUMENTING THE EXISTING CONDITIONS OF THE BUILDING.
2. A TESTING LAB SHALL ESTABLISH MEASUREMENT STATIONS TO MONITOR VERTICAL AND HORIZONTAL WALL MOVEMENT BEFORE, DURING AND AFTER UNDERPINNING IS COMPLETE. MEASUREMENTS SHALL BE RECORDED IN A LOG BOOK AND SUBMITTED FOR REVIEW.
3. THE CONTRACTOR IF FULLY RESPONSIBLE TO DESIGN, FURNISH, INSTALL AND PERFORM THE NECESSARY APPROACH EXCAVATION, PIT EXCAVATIONS, TIMBER LAGGING, JACKS, CONCRETING, WEDGING, SHIMMING DRY PACKING AND ALL OTHER WORK REQUIRED TO SAFELY SUPPORT, PROTECT AND MAINTAIN THE INTERIOR AND EXTERIOR OF THE BUILDING IN THEIR EXISTING CONDITION. ANY MOVEMENT OR DAMAGE TO THE BUILDING SHALL BE CORRECTED TO THE SATISFACTION OF THE OWNER, ARCHITECT AND STRUCTURAL ENGINEER AT THE SOLE EXPENSE OF THE CONTRACTOR.
4. THE UNDERPINNING DETAIL IS INTENDED TO BE USED WHEN SOIL CONDITIONS ARE CONDUCIVE TO UNDERPINNING, I.E. DENSE GRANULAR OR GRAVELLY SOILS OR STIFF COHESIVE SOILS. IF SOILS OTHER THAN THESE, SUCH AS LOOSE SANDS, SOFT CLAYS, OR FILL ARE ENCOUNTERED, CONTACT THE GEOTECHNICAL ENGINEER AND STRUCTURAL ENGINEER FOR ALTERNATE INSTRUCTIONS TO BE TAILORED TO THE SPECIFIC CONDITIONS ENCOUNTERED.
5. THE TECHNIQUE CONSISTS OF DIGGING SOIL FROM BENEATH THE EXISTING WALL/FOOTING AND REPLACING IT WITH CONCRETE IN SECTIONS OR COLUMNS, ONE AT A TIME, IN SEQUENCE "A", THEN "B" AND THEN "C" DOWN TO THE PROPOSED BOTTOM OF FOOTING ELEVATION.
6. INITIAL EXCAVATION IS DOWN TO BOTTOM OF EXISTING FOUNDATION. EXCAVATION FOR UNDERPINNING COLUMN "A" MAY THEN BEGIN, ONCE THE UNDERPINNING CONCRETE IS CAST, GROUT SOLID TO BOTTOM OF EXISTING FOOTING, AND CURED 48 HOURS, THEN EXCAVATION FOR COLUMN "B" MAY COMMENCE, ETC.
7. GROUT FOR SPACE BETWEEN EXISTING FOUNDATIONS AND NEW CONCRETE: APPLY SIKKA "SIKADUR 32 HI-MOD LPL" EPOXY BONDING AGENT TO BOTH THE BOTTOM OF THE EXISTING FOUNDATION AND THE TOP OF THE NEW UNDERPINNING CONCRETE. PACK SIKKA "SIKAGROUT 212" WHILE BONDING AGENT IS STILL TACKY.

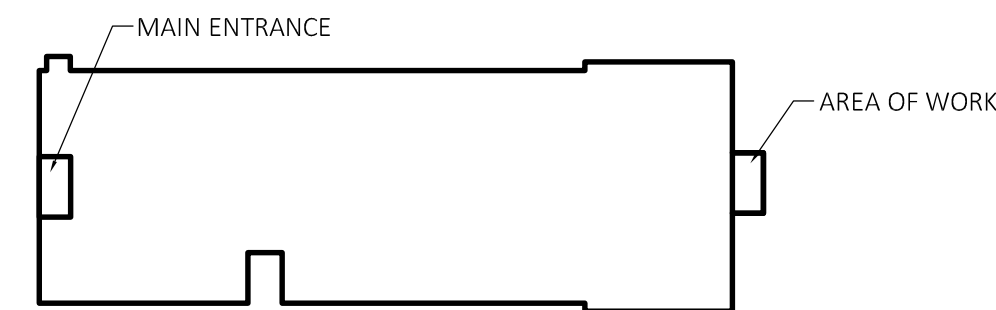


TYPICAL UNDERPINNING SECTION
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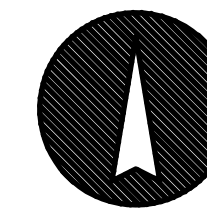


TYPICAL UNDERPINNING ELEVATION
SCALE: NONE

A
S1.0
UNDERPINNING TYPICAL DETAIL AND PROCEDURE
SCALE: 1/2" = 1'-0"



KEY PLAN



PROJECT NORTH

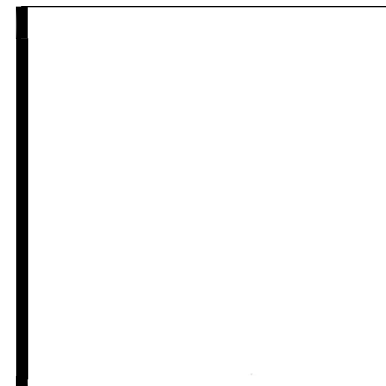
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SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0305CV
FOUNDATION PLAN	

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STRUCTURAL FOUNDATION PLAN

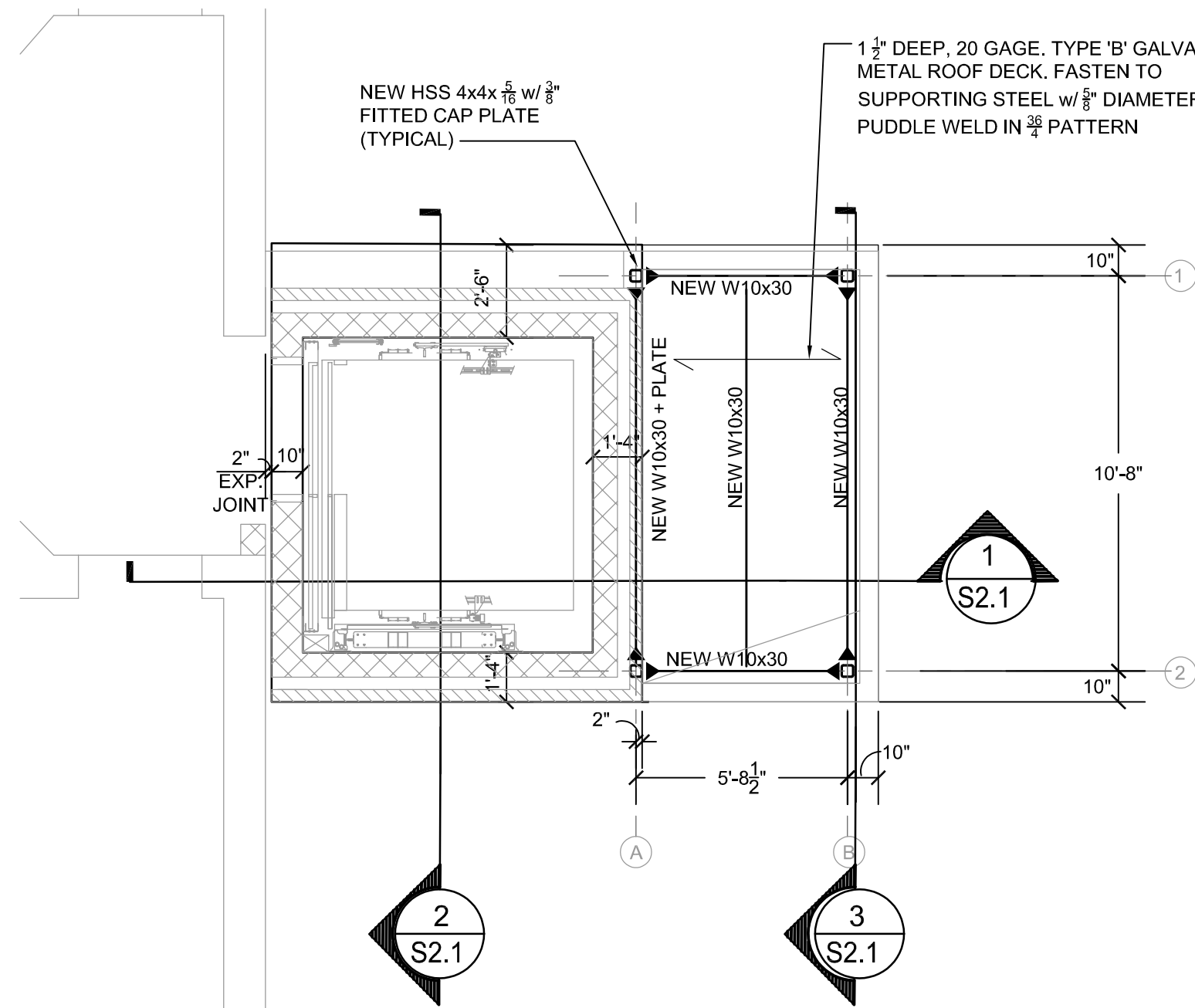
STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

RZ Design Associates, Inc.
**MECHANICAL, ELECTRICAL,
AND STRUCTURAL ENGINEERING**
700 OLD MAIN STREET
SUITE 202
ROCKY HILL, CT 06067
P: (860) 430-4336
F: (860) 430-4400
www.rzdesignassociates.com



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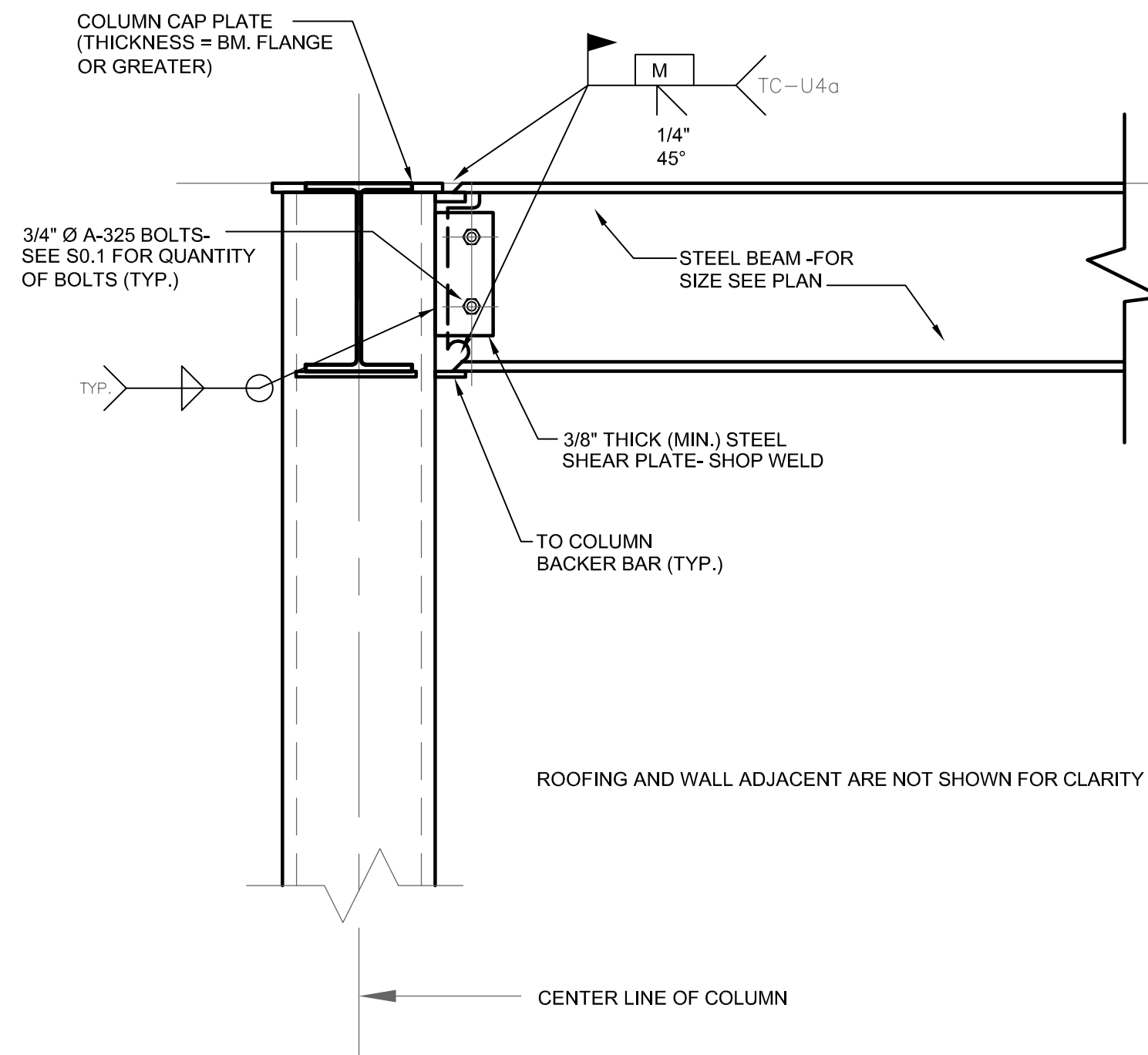
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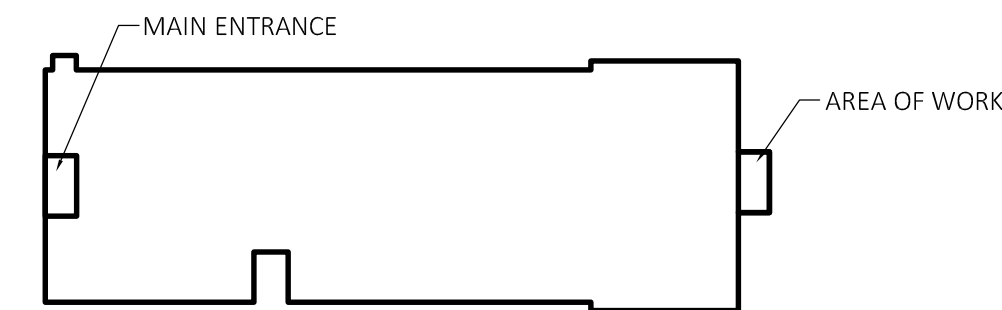
LOW ROOF FRAMING PLAN NOTES:

1. ROOF DECK TO BE 1 $\frac{1}{2}$ " DEEP, 20 GAGE, GALVANIZED, TYPE 'B', STEEL ROOF DECK. ROOF DECK TO BE ATTACHED TO STRUCTURAL STEEL SUPPORTS AT EVERY FLUTE (FOR 36" WIDE PANEL, 4 FASTENERS AT $\frac{3}{8}$ " PATTERN) AND MINIMUM OF (2)- #10 TEK SCREWS AT ALL SIDE LAPS.
2. TOP OF STEEL ELEVATION (LOW) TO BE AT ELEVATION (+9'-0"), REFERENCED FROM TOP OF BASEMENT FLOOR SLAB ELEVATION 0'-0", UNLESS NOTED THUS (+....) OR (-....) INDICATING DISTANCE ABOVE OR BELOW ELEVATION (+0'-0").
3. COORDINATE SIZE AND LOCATION OF ALL ROOF OPENINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS.
4. SOLID TRIANGLE SYMBOL AT ENDS OF BEAMS TO COLUMNS INDICATES BEAM TO COLUMN MOMENT CONNECTION. SEE TYPICAL DETAILS OF MOMENT CONNECTION ON DRAWING A/S1.1.
5. NO PERMANENT HANGING LOADS SHALL BE SUPPORTED BY ROOF DECK. THE CONTRACTOR SHALL PROVIDE A SECONDARY FRAMING SYSTEM CONSISTING OF UNISTRUT OR OTHER MEMBERS ATTACHED TO THE MAIN STRUCTURAL FRAMING MEMBERS TO SUPPORT ALL PERMANENT HANGING LOADS OCCURRING BELOW METAL ROOF DECK.

1 LOW ROOF FRAMING PLAN
S1.1 SCALE: 1/4" = 1'-0"

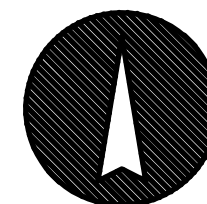


A TYPICAL MOMENT FRAME DETAIL
S1.1 SCALE: 1 1/2" = 1'-0"



KEY PLAN

PROJECT NORTH



DATE:	9/01/2022
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SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0305CV
LOW ROOF FRAMING PLAN	

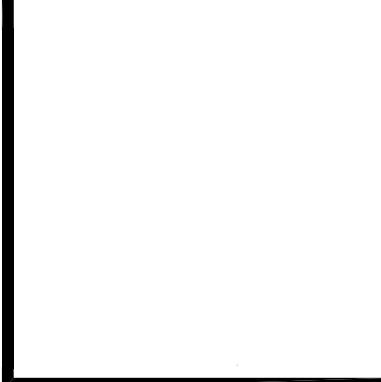
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NO.	DESCRIPTION ISSUED FOR BID
1	11/28/22

STRUCTURAL

LOW ROOF FRAMING

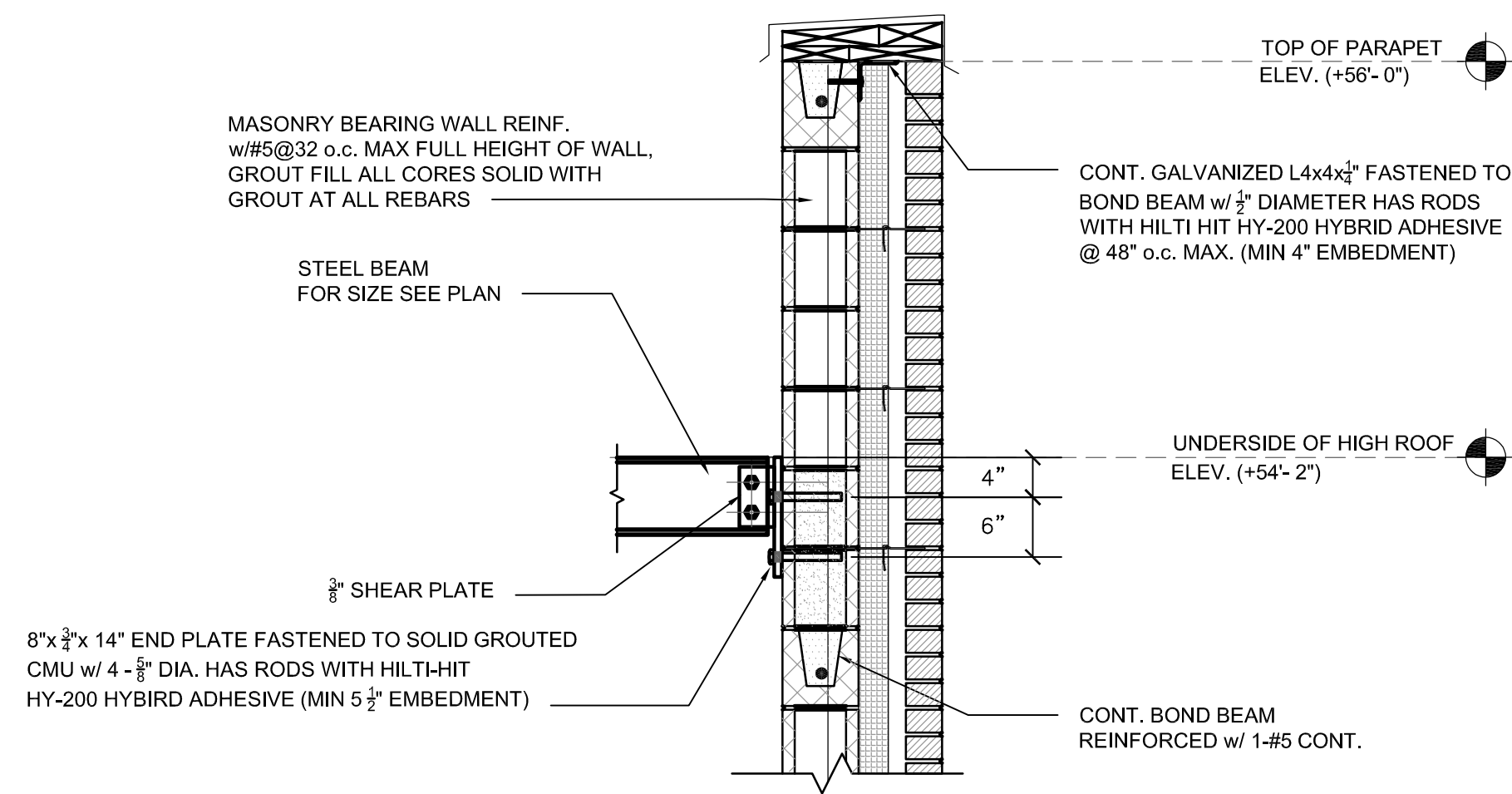
STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
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RZ Design Associates, Inc.
MECHANICAL, ELECTRICAL,
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710 OLD BRIDGE STREET
SUITE 202
ROCKY HILL, CT 06067
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F: (860) 430-4650
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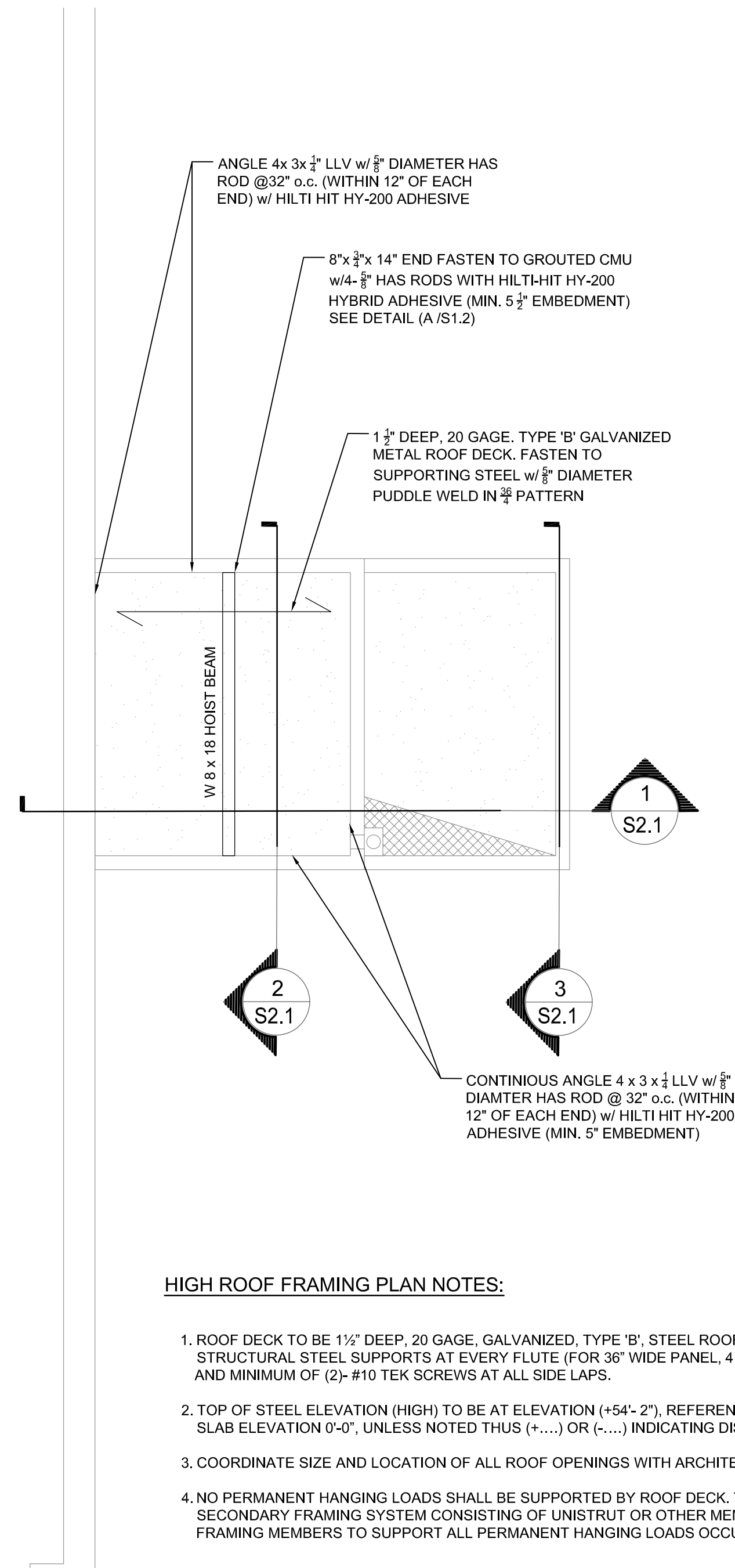


FRIAR
21 Talcott Notch Road
Farmington, CT 06032

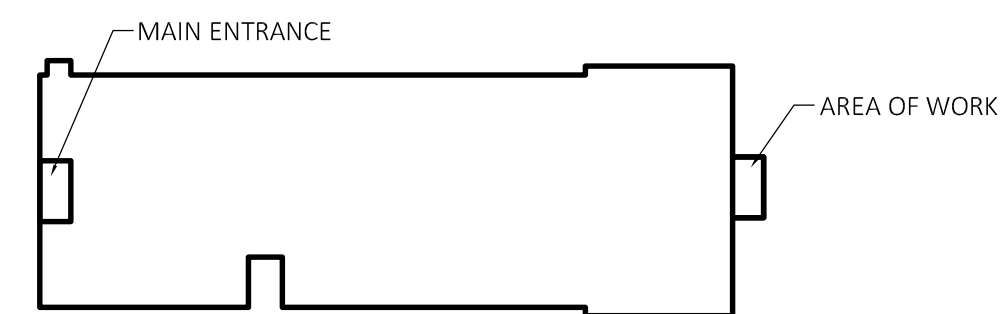
SHEET NO.
S1.1



A
SECTION
SCALE: 3/4" = 1'-0"

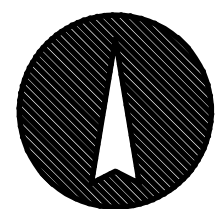


1
HIGH ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"



KEY PLAN

PROJECT NORTH



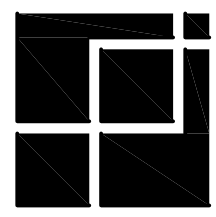
DATE:	9/01/2022
DRAWN BY:	M.B.
SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0305CV
HIGH ROOF FRAMING PLAN	

NO.	DATE	DESCRIPTION ISSUED FOR BID
1	11/28/22	

STRUCTURAL HIGH ROOF FRAMING

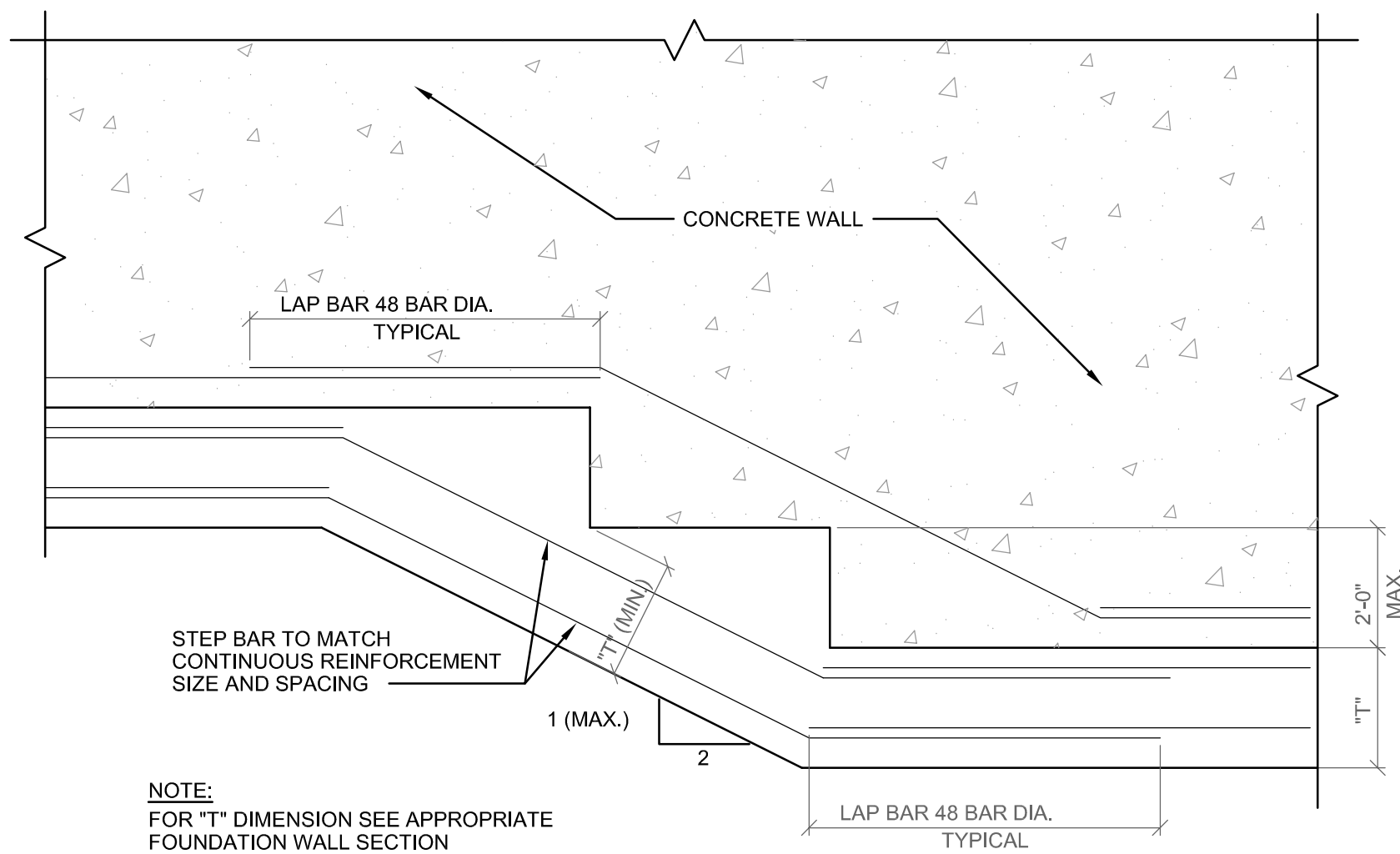
STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

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F: (860) 430-6650
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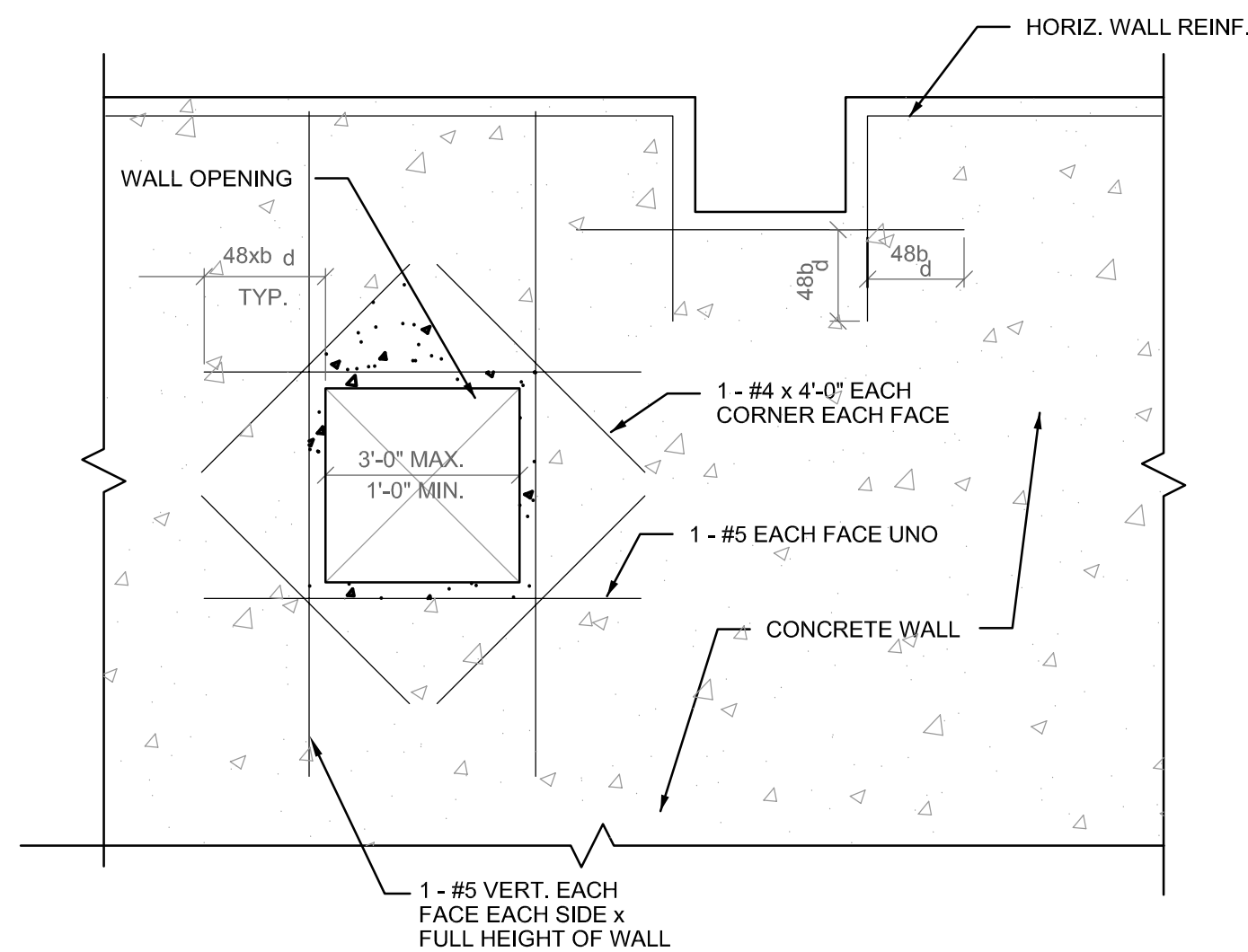
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S1.2

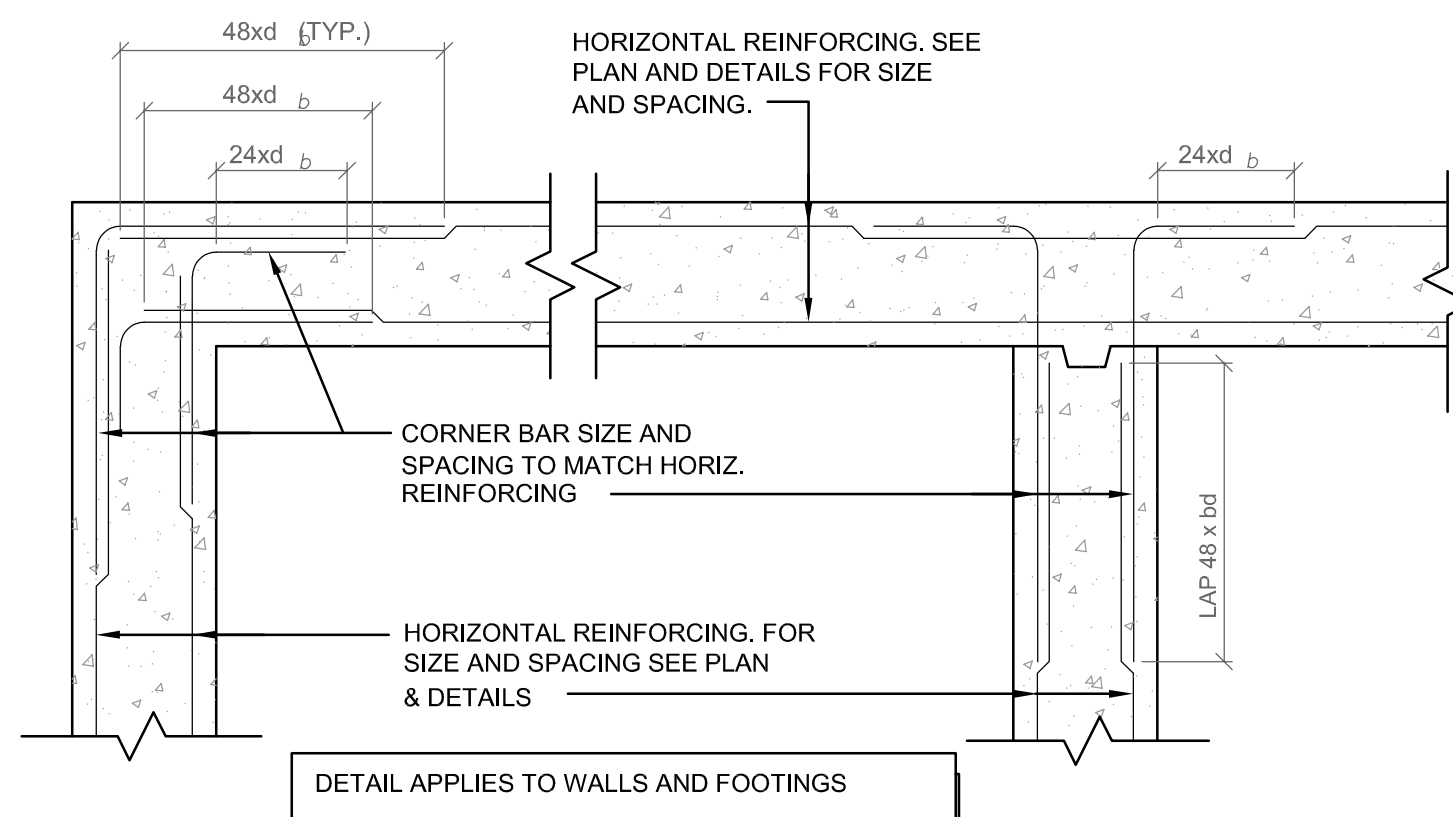


NOTE:
FOR "T" DIMENSION SEE APPROPRIATE
FOUNDATION WALL SECTION

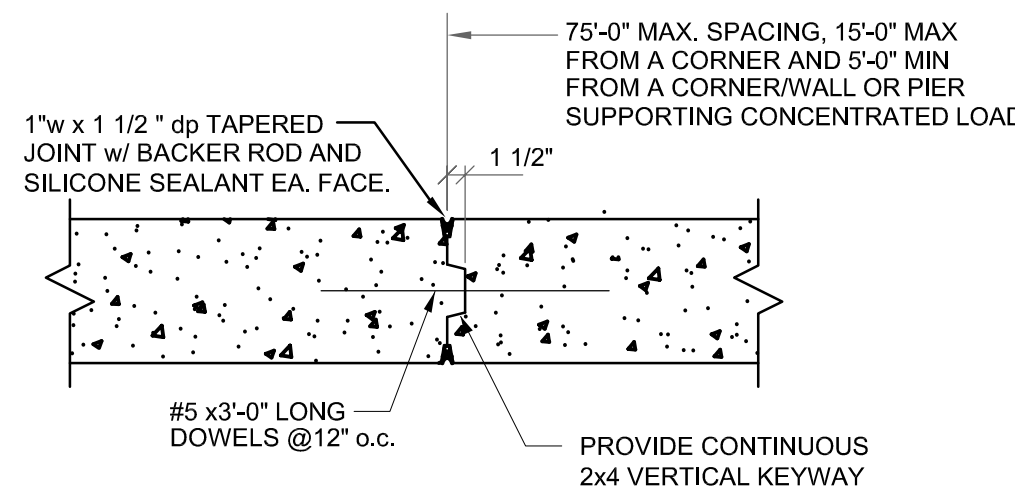
TYPICAL ELEVATION OF STEPPED FOOTING DETAIL
NOT TO SCALE



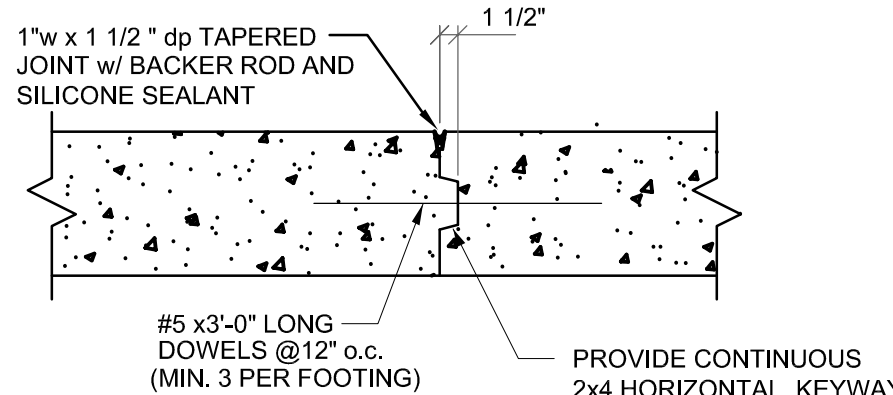
**TYPICAL WALL ELEVATION REINFORCING
DETAIL AT WALL OPENINGS AND POCKETS**
NOT TO SCALE



TYPICAL CONCRETE WALL CORNER BARS DETAIL
NOT TO SCALE



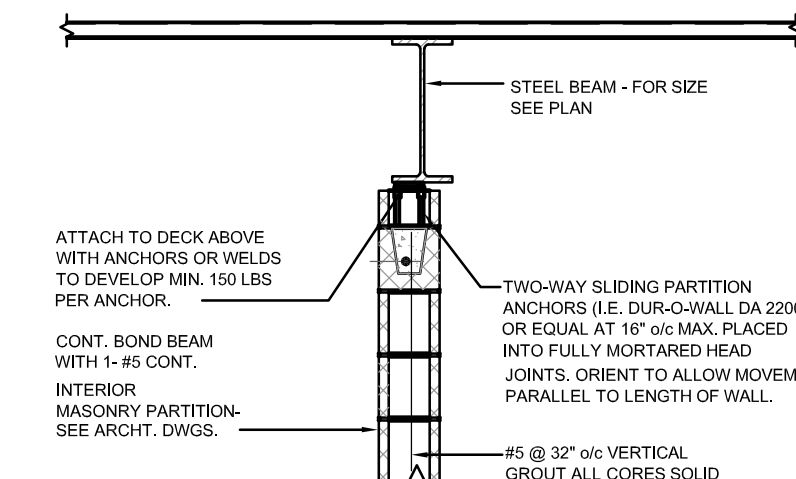
CONTINUOUS FOUNDATION WALL



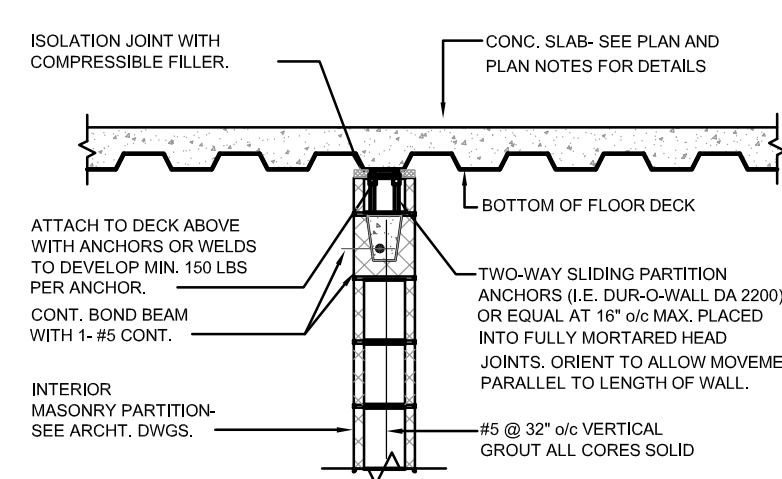
CONTINUOUS FOOTING

TYPICAL CONSTRUCTION JOINT DETAIL
NOT TO SCALE

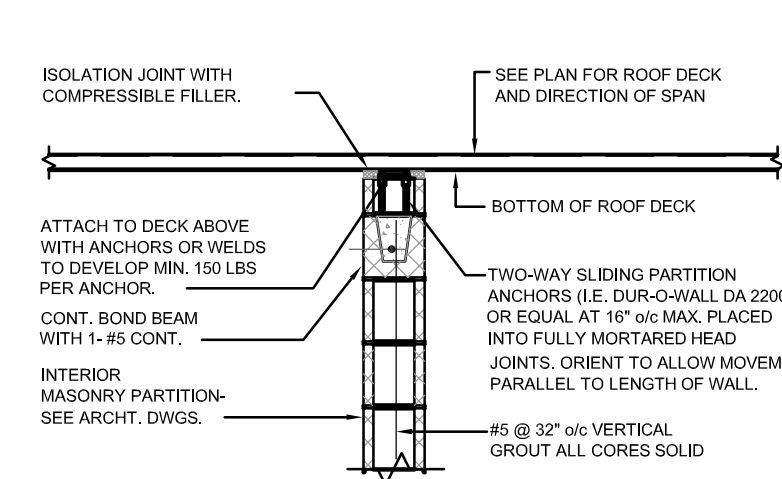
LINTEL SCHEDULE FOR MASONRY WALLS									
PROVIDE LINTELS WHETHER SHOWN OR NOT SHOWN ON STRUCTURAL DRAWINGS OVER ALL OPENINGS IN MASONRY WALLS AS REQUIRED BY ARCHITECTURAL, MECHANICAL AND ELECTRICAL DRAWINGS. ALL LINTELS TO HAVE 8" MINIMUM BEARING EACH END. COMBINE VARIOUS WYTHES OF MASONRY AS REQUIRED TO SUIT PROJECT. ALL CONDITIONS MAY NOT OCCUR.									
MASONRY OPENING	4"	6"	8"	10"	12"	14"	16"	18"	20"
UP TO 4'-8"	1 L - 3 1/2" x 3 1/2" x 5/16"	WT 4 x 9	2 L'S - 3 1/2" x 3 1/2" x 5/16"	2 L'S - 3 1/2" x 3 1/2" x 5/16" + 9 1/2" x 5/16" PLATE	3 L'S - 3 1/2" x 3 1/2" x 5/16" + 11 1/2" x 5/16" PLATE				
4'-8" TO 5'-8"	1 L - 4" x 3 1/2" x 5/16" (LLV)	WT 7 x 11	2 L'S - 4" x 3 1/2" x 5/16" (LLV)	2 L'S - 4" x 3 1/2" x 5/16" (LLV) + 9 1/2" x 5/16" PLATE	3 L'S - 4" x 3 1/2" x 5/16" (LLV) + 11 1/2" x 5/16" PLATE				
5'-8" TO 6'-8"	1 L - 5" x 3 1/2" x 5/16" (LLV)	WT 7 x 11	2 L'S - 5" x 3 1/2" x 5/16" (LLV)	2 L'S - 5" x 3 1/2" x 5/16" (LLV) + 9 1/2" x 5/16" PLATE	3 L'S - 5" x 3 1/2" x 5/16" (LLV) + 11 1/2" x 5/16" PLATE				
6'-8" TO 7'-8"	1 L - 6" x 3 1/2" x 5/16" (LLV)	WT 7 x 13	2 L'S - 6" x 3 1/2" x 5/16" (LLV)	2 L'S - 6" x 3 1/2" x 5/16" (LLV) + 9 1/2" x 5/16" PLATE	3 L'S - 6" x 3 1/2" x 5/16" (LLV) + 11 1/2" x 5/16" PLATE				
7'-8" TO 10'-4"		WT 8 x 13.5	W 8 x 10 CONT. + 7 1/2" x 5/16" PLATE	W 8 x 10 CONT. + 9 1/2" x 5/16" PLATE	W 8 x 10 CONT. + 11 1/2" x 5/16" PLATE				
10'-4" TO 14'-4"			W 8 x 15 CONT. + 7 1/2" x 5/16" PLATE	W 8 x 15 CONT. + 9 1/2" x 5/16" PLATE	W 8 x 15 CONT. + 11 1/2" x 5/16" PLATE				



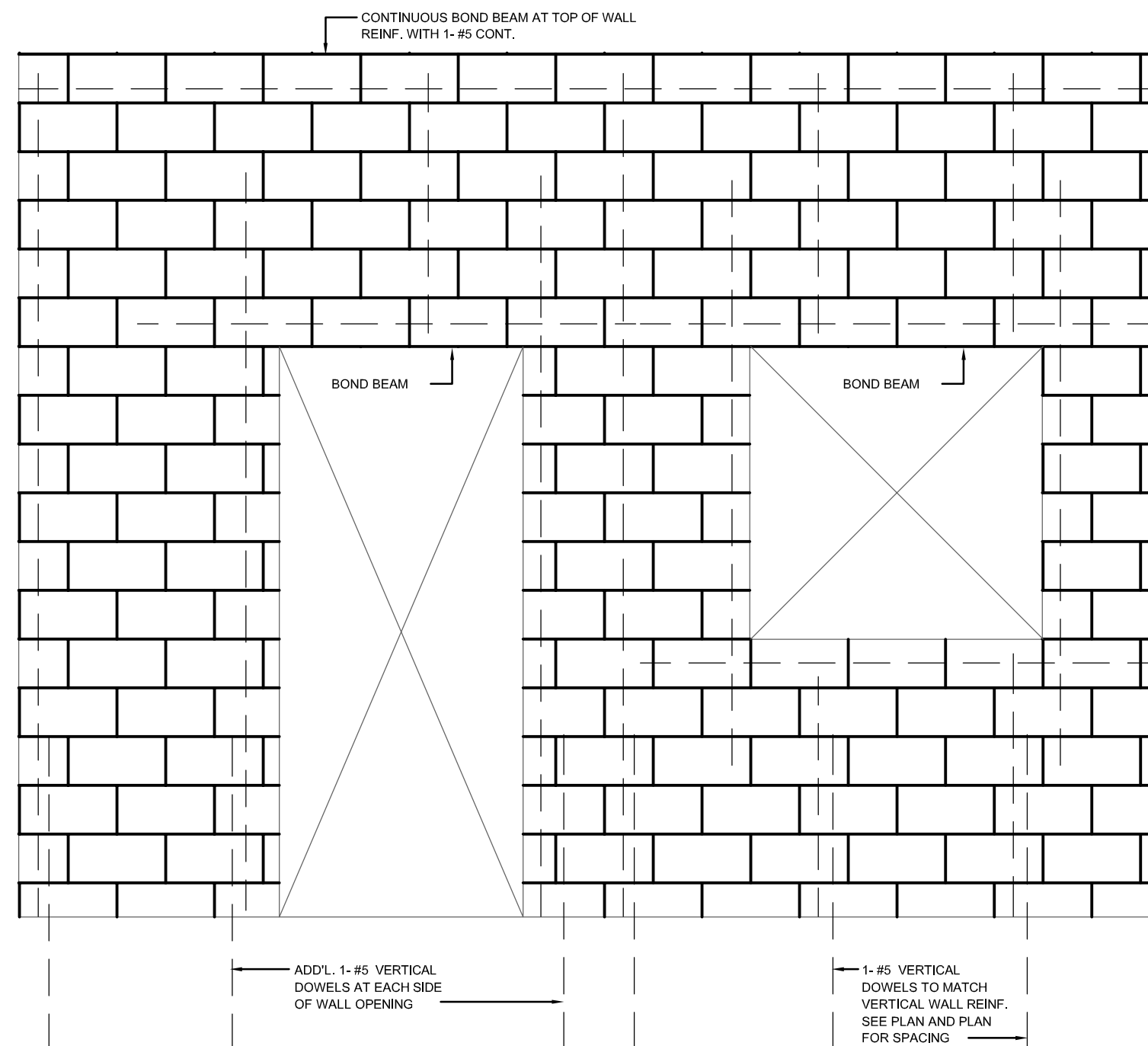
**TYPICAL INTERIOR MASONRY PARTITION
ANCHORAGE DETAIL AT STEEL BEAM**
NOT TO SCALE



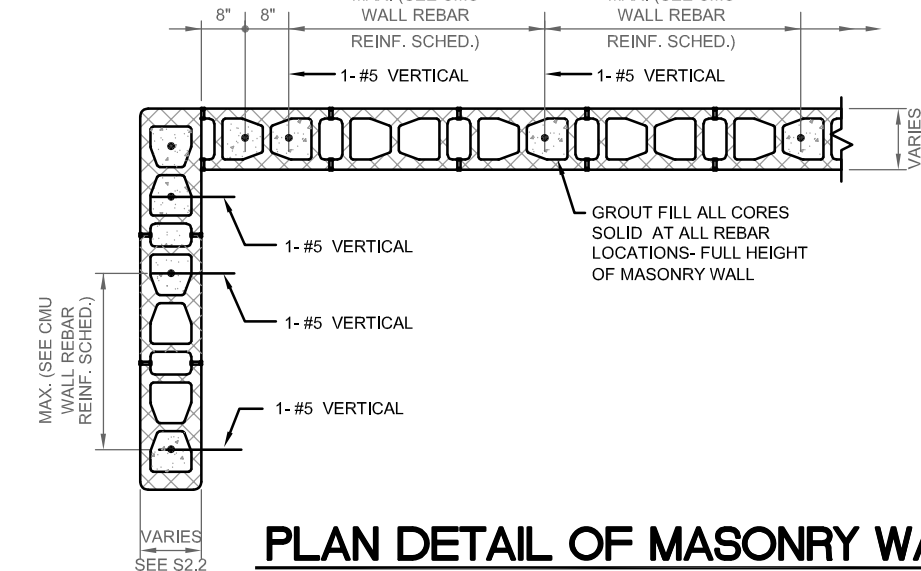
**TYPICAL INTERIOR MASONRY PARTITION
ANCHORAGE DETAIL AT FLOOR SLAB**
NOT TO SCALE



**TYPICAL INTERIOR MASONRY PARTITION
ANCHORAGE DETAIL AT METAL DECK**
NOT TO SCALE



**TYPICAL MASONRY WALL REINFORCING
ELEVATION AT WALL OPENINGS**
SCALE: 3/4" = 1'-0"

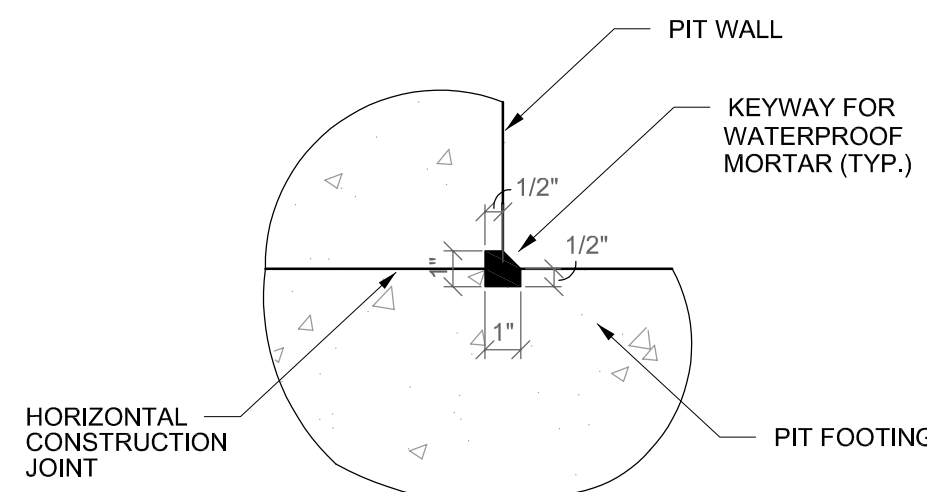


**PLAN DETAIL OF MASONRY WALL
VERTICAL REINFORCING**
SCALE: 3/4" = 1'-0"

SEE NOTES AND SECTIONS FOR ADDITIONAL HORIZONTAL
WALL REINFORCEMENT REQUIREMENTS.

CMU WALL REBAR REINFORCEMENT

1. PROVIDE #5@32" VERTICAL REINFORCEMENT IN ALL CMU UNITS. PROVIDE ADDITIONAL CONTINUOUS 1-#5 VERTICAL IN FIRST 3 CORNER CORES AND IN EACH JAMB OF EACH OPENING AND AT EACH END OF WALL. EXTEND BARS MINIMUM 24" BEYOND OPENINGS. DOWEL ALL VERTICAL REINFORCEMENT TO FOUNDATION WALL WITH 1'-0" MINIMUM EMBEDMENT INTO FOUNDATION WALL. LAP BARS 48 BAR DIAMETERS MINIMUM. FULLY GROUT ALL REINFORCED MASONRY CELLS.
2. PROVIDE CONTINUOUS BOND BEAM REINFORCED WITH CONTINUOUS 1-#5 AT TOP OF WALLS ABOVE EACH OPENING AND AT EACH STRUCTURALLY CONNECTED FLOOR AND ROOF LEVEL (UNLESS NOTED OTHERWISE). EXTEND BARS MINIMUM 24" BEYOND OPENINGS. FOR ELEVATOR WALLS UNBRACED VERTICALLY 16'-0" OR MORE, PROVIDE A CONTINUOUS BOND BEAM SPACED AT 4'-0" VERTICAL MAXIMUM FOR EXTERIOR WALLS (SPACED AT 10'-0" VERTICAL MAXIMUM FOR INTERIOR WALLS).



TYPICAL WATERPROOF MORTAR KEYWAY DETAIL
NOT TO SCALE

DATE: 9/01/2022
DRAWN BY: M.B.
SCALE: AS NOTED
REVIEWED BY: C.Z.
PROJECT NO. 151-0305CV
STRUCTURAL DETAILS

REVISIONS
NO. DATE DESCRIPTION
11/28/22 ISSUED FOR BID

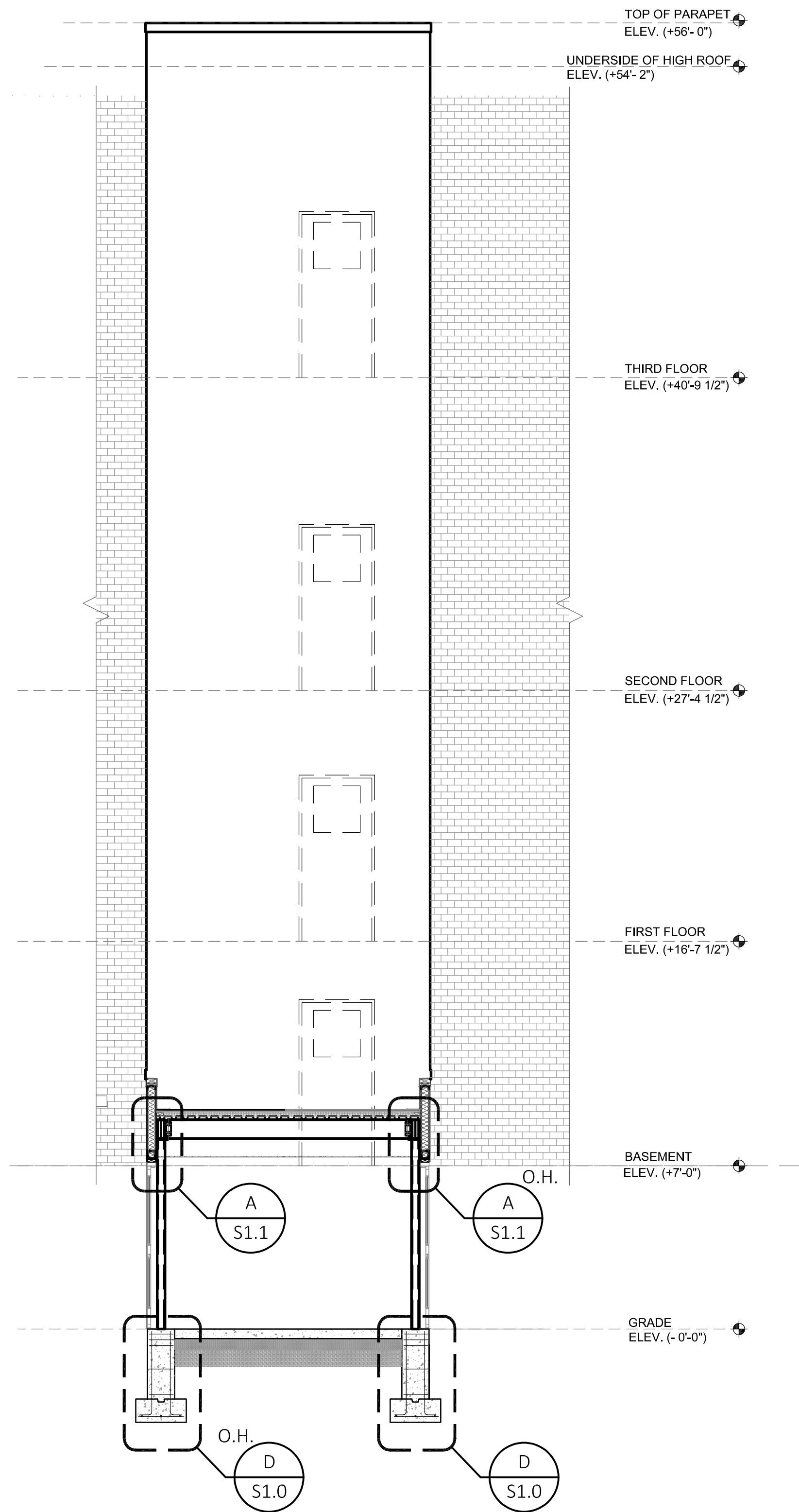
**STRUCTURAL
DETAILS**

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

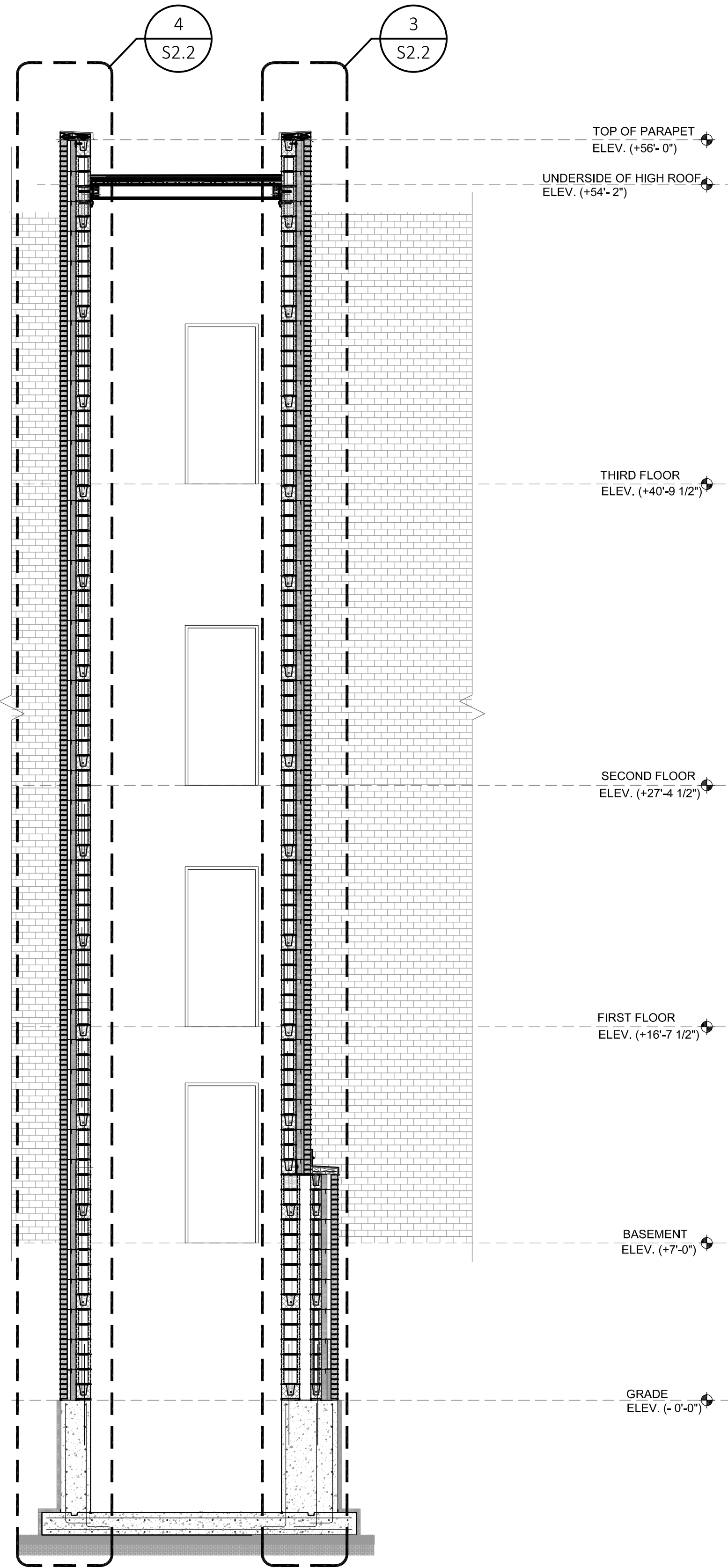
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760 OLD MAIN STREET
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ROCKY HILL, CT 06067
P: (860) 430-4336
F: (860) 430-6450
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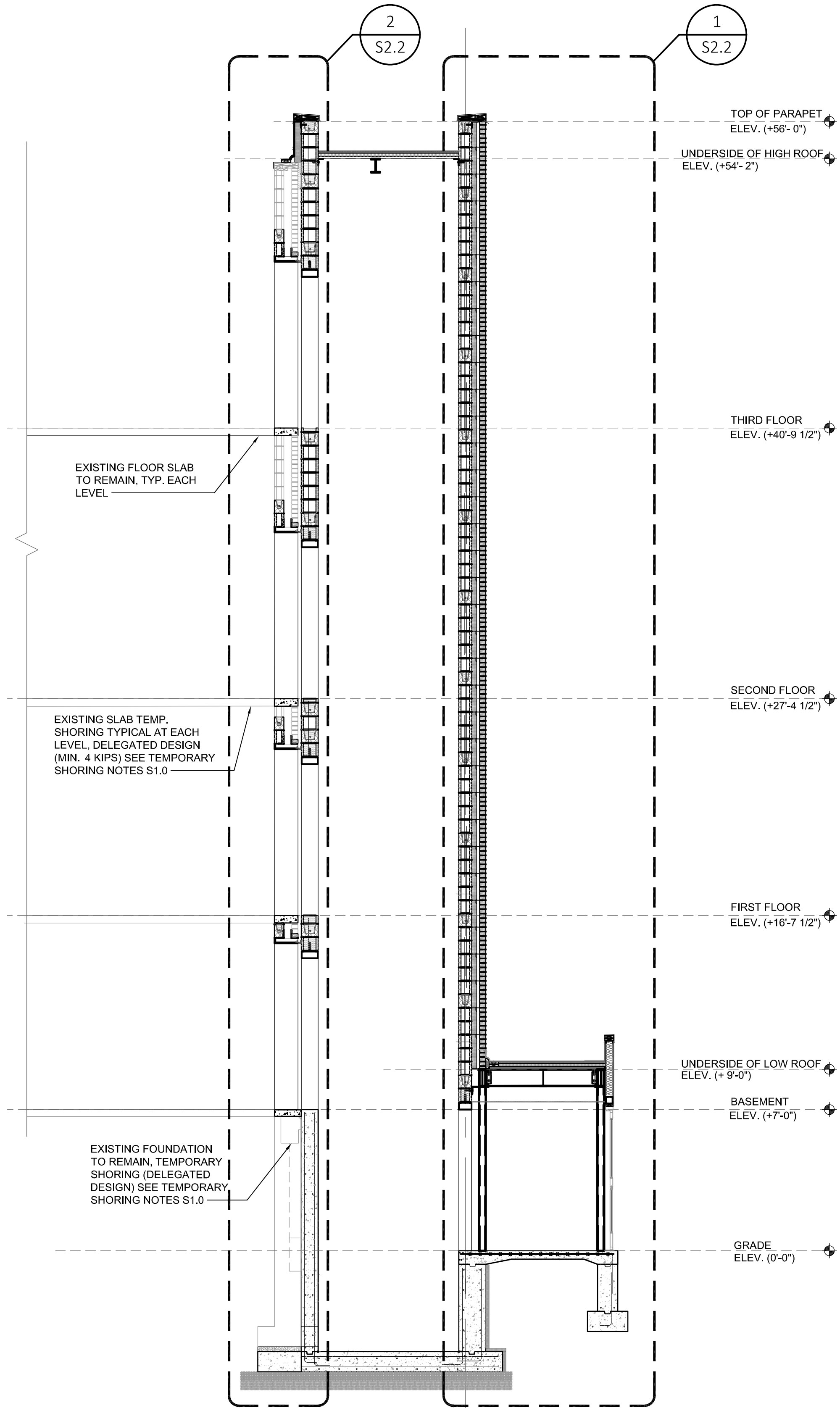
SHEET NO.
S2.0



3 BUILDING SECTION- WEST
S2.1 SCALE: 1/4" = 1'-0"



2 BUILDING SECTION- WEST
S2.1 SCALE: 1/4" = 1'-0"



1 BUILDING SECTION- NORTH
S2.1 SCALE: 1/4" = 1'-0"

DATE:	9/01/2022
DRAWN BY:	M.B.
SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0305CV
BUILDING SECTIONS	

REVISIONS	NO.	DATE	DESCRIPTION
	1	11/28/22	ISSUED FOR BID

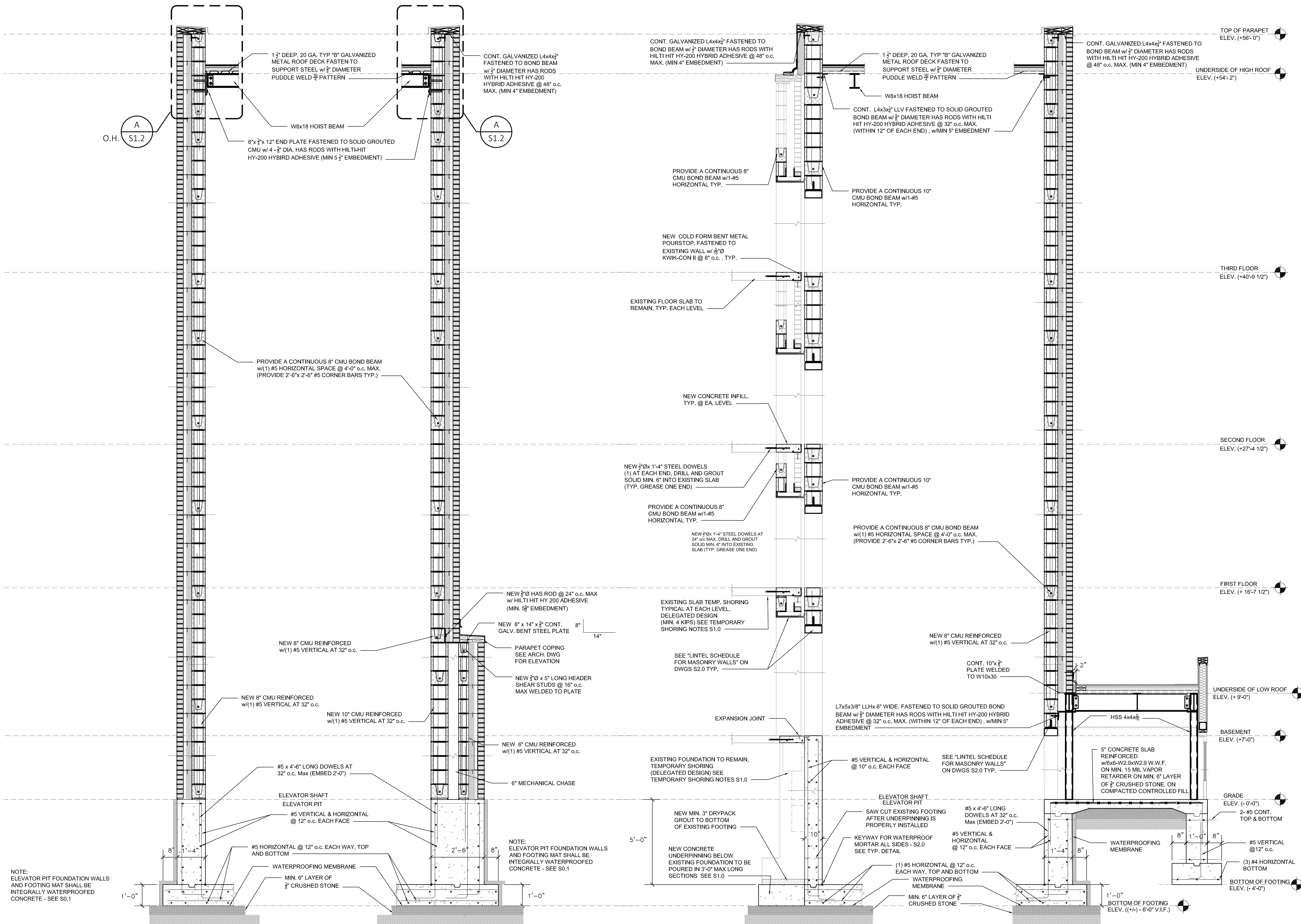
STRUCTURAL BUILDING SECTIONS

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
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WATERBURY, CT 06708

RZ Design Associates, Inc.
MECHANICAL, ELECTRICAL,
AND STRUCTURAL ENGINEERING
710 OLD MAIN STREET
SUITE 202
ROCKY HILL, CT 06067
P: (860) 430-4336
F: (860) 430-4400
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S2.1



DATE:	9/01/2022
DRAWN BY:	M.B.
SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0305CV
WALL SECTIONS	

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NO.	DATE	
1	11/28/22	

STRUCTURAL WALL SECTIONS

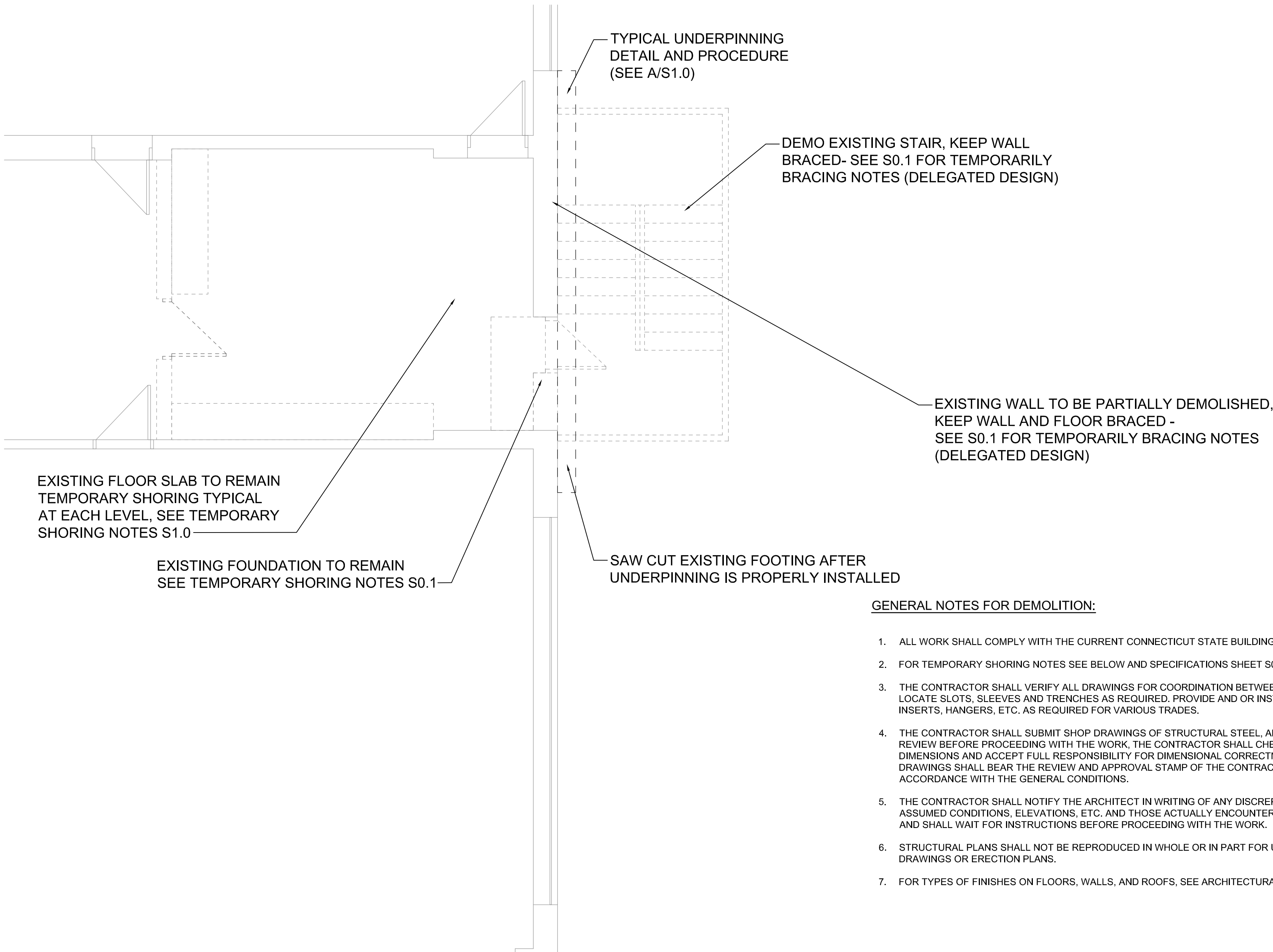
STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
BUNKER HILL ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

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700 OLD MAIN STREET
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SHEET NO.
S2.2



GENERAL NOTES FOR DEMOLITION:

1. ALL WORK SHALL COMPLY WITH THE CURRENT CONNECTICUT STATE BUILDING CODE.
2. FOR TEMPORARY SHORING NOTES SEE BELOW AND SPECIFICATIONS SHEET S0.1
3. THE CONTRACTOR SHALL VERIFY ALL DRAWINGS FOR COORDINATION BETWEEN TRADES, AND LOCATE SLOTS, SLEEVES AND TRENCHES AS REQUIRED. PROVIDE AND OR INSTALL ANCHORS, INSERTS, HANGERS, ETC. AS REQUIRED FOR VARIOUS TRADES.
4. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF STRUCTURAL STEEL, AND MASONRY FOR REVIEW BEFORE PROCEEDING WITH THE WORK, THE CONTRACTOR SHALL CHECK ALL DIMENSIONS AND ACCEPT FULL RESPONSIBILITY FOR DIMENSIONAL CORRECTNESS. SHOP DRAWINGS SHALL BEAR THE REVIEW AND APPROVAL STAMP OF THE CONTRACTOR, IN ACCORDANCE WITH THE GENERAL CONDITIONS.
5. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING OF ANY DISCREPANCIES BETWEEN ASSUMED CONDITIONS, ELEVATIONS, ETC. AND THOSE ACTUALLY ENCOUNTERED IN THE FIELD, AND SHALL WAIT FOR INSTRUCTIONS BEFORE PROCEEDING WITH THE WORK.
6. STRUCTURAL PLANS SHALL NOT BE REPRODUCED IN WHOLE OR IN PART FOR USE AS SHOP DRAWINGS OR ERECTION PLANS.
7. FOR TYPES OF FINISHES ON FLOORS, WALLS, AND ROOFS, SEE ARCHITECTURAL DRAWINGS.

1
SD1.0 **STRUCTURAL DEMOLITION PLAN**
SCALE: 1/4" = 1'-0"

DATE:	9/01/2022
DRAWN BY:	M.B.
SCALE:	AS NOTED
REVIEWED BY:	C.Z.
PROJECT NO.	151-0305CV
DEMOLITION PLAN	

REVISIONS		
NO.	DATE	DESCRIPTION ISSUED FOR BID
	11/28/22	

STRUCTURAL

DEMOLITION PLAN

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
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WATERBURY, CT 06708

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ROCKY HILL, CT 06067
P: (860) 430-4336
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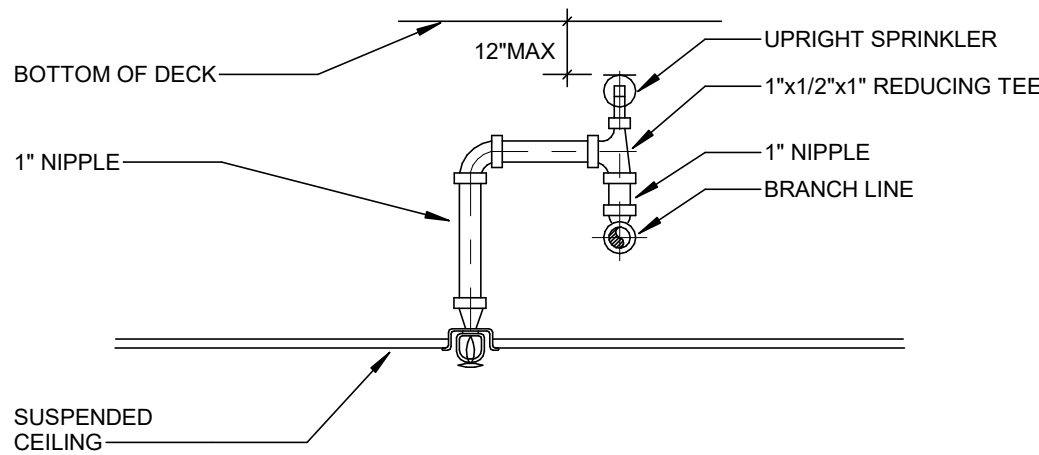


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SHEET NO.
SD1.0

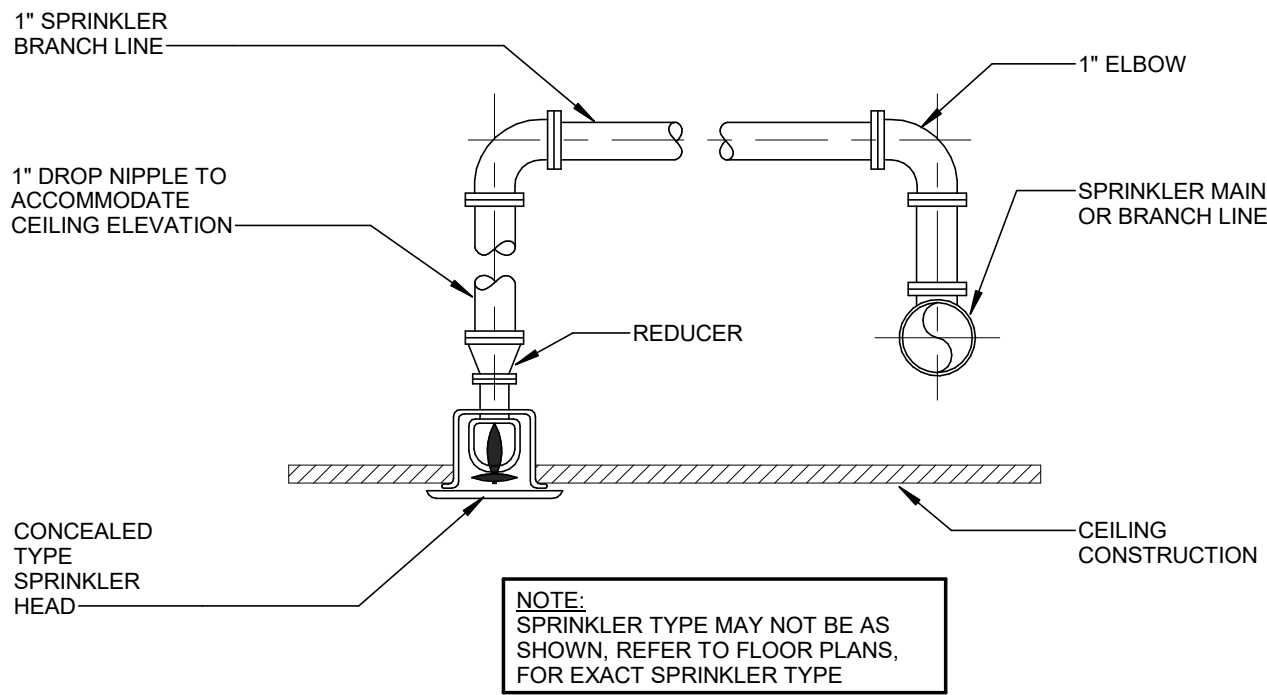
COMMERCIAL SPRINKLER HEAD SCHEDULE															
SYMBOL	K-FACTOR	STANDARD (SR) OR QUICK RESPONSE (QR)	UPRIGHT	PENDENT	RECESSED	CONCEALED PENDENT	HORIZONTAL SIDEWALL	WITH GUARD	ABOVE CEILING	DRY	INSTITUTIONAL	EXTENDED COVERAGE	UL-LISTED	FM-APPROVED	MANUFACTURER & MODEL
●	5.6	QR				◦							◦	◦	VIKING MODEL# VK462
															MAXIMUM LISTED COVERAGE AREA L x W (FT) 15 x 15
															MINIMUM REQUIRED PRESSURE (PSI) 7 PSI
															GENERAL LOCATION OF SPRINKLER HEADS (REFER TO DRAWINGS FOR ACTUAL LOCATIONS) SPACES & CORRIDORS WITH HUNG CEILINGS
															NOTE: *ALL FINISHES ARE SUBJECT TO APPROVAL BY ARCHITECT. FINISH* COVER PLATE FACTORY-PAINTED WHITE.
															CLASSIFICATION LIGHT & ORDINARY HAZARD
NOTES: 1. ALL TYPES OF SPRINKLER HEADS SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS. 2. PROVIDED SPRINKLER GUARDS IN MECHANICAL ROOMS, ELECTRICAL & TELECOM (I.T.) CLOSETS, UPS ROOMS AND ALL ROOMS WHERE SPRINKLERS MAY BE SUBJECT TO ACCIDENTAL DAMAGE. 3. ALL SPRINKLER HEADS THROUGHOUT SHALL BE OF ORDINARY TEMPERATURE RATING (135 - 170 DEG. F), WITH THE FOLLOWING EXCEPTIONS: A. SPECIFIED IN TABLE BELOW AS INTERMEDIATE OR HIGH TEMPERATURE RATING. B. SPRINKLER HEADS LOCATED CLOSE TO KITCHEN EQUIPMENT, HEATERS, STEAM PIPE OR LOW-PRESSURE BLOW-OFF VALVE SHALL BE OF THE TEMPERATURE RATING AS REQUIRED BY APPLICABLE EDITION OF NFPA - 13. DRAWINGS, PREPARED BY THE FIRE PROTECTION CONTRACTOR SHALL BE COORDINATED WITH THE HVAC CONTRACTOR AND ALL HVAC EQUIPMENT WHICH CAN AFFECT THE RATING OF THE SPRINKLER HEADS. SPRINKLER HEADS SHALL BE CLEARLY IDENTIFIED ON THE SHOP DRAWINGS PRIOR TO SUBMISSION FOR APPROVAL. 4. ALL SPRINKLER HEAD SYMBOLS NOT SHOWN ON PLANS, REFER TO "GENERAL LOCATION" COLUMN FOR ESTIMATING. 5. SPRINKLER SELECTIONS ARE BASED ON PRODUCTS MANUFACTURED BY VIKING, RELIABLE AND/OR TYCO PRODUCTS SHALL BE CONSIDERED APPROVED EQUAL PRODUCTS AND ARE SUBJECT TO THE APPROVAL OF THE ENGINEER AND ARCHITECT. 6. SPRINKLER CONTRACTOR SHALL COORDINATE THE LOCATIONS OF SPRINKLER HEADS WITH STRUCTURAL ELEMENTS AND HVAC DUCTWORK.															

SPRINKLER PIPE SIZE SCHEDULE	
NO. OF SPRINKLER HEADS	PIPE SIZE
1 - 2	1"
3	1 1/4"
4 - 5	1 1/2"
6 - 10	2"
SPRINKLER LOOP	REFER TO NOTE BELOW
NOTE: PIPES SIZES SHOWN ARE BASED ON DESIGN PIPING LAYOUTS ONLY. ACTUAL PIPE SIZES SHALL BE DETERMINED BY CONTRACTORS HYDRAULIC CALCULATIONS BASED ON THE CONTRACTORS INSTALLATION DRAWINGS. CONTRACTOR SHALL ALLOW FOR THIS AND INCLUDE THIS IN THE CONTRACT PRICE.	



NOTE:
1. SPRINKLER TYPE MAY NOT BE AS INDICATED, REFER TO FLOOR PLANS FOR EXACT SPRINKLER TYPE
2. DETAIL IS APPLICABLE FOR ALL CLOUD CEILING APPLICATIONS. COORDINATE CLOUD CEILING LOCATIONS WITH ARCHITECTURAL DRAWINGS.

1 SPRINKLER ABOVE AND BELOW SUSPENDED CEILING
NTS



2 ARMOVER DETAIL
NTS

- ### GENERAL NOTES
- THESE GENERAL NOTES ARE APPLICABLE TO ALL FIRE PROTECTION DRAWINGS.
 - DRAWINGS ARE DIAGRAMMATIC AND SHOW THE GENERAL INTENT OF WORK. SEE DETAILS, RISERS, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
 - THE DRAWINGS INDICATE A SUGGESTED SPRINKLER HEAD LAYOUT AND THAT EACH AREA IS COVERED BY SPRINKLER PROTECTION AS REQUIRED BY ALL APPLICABLE CONNECTICUT BUILDING AND FIRE CODES. THE SPRINKLER QUANTITIES SHALL NOT BE COUNTED AS A TAKE OFF OR AS EXACT LOCATIONS. EXACT SPACING, DENSITY, AND LOCATION REQUIREMENTS SHALL BE AS DICTATED BY NFPA 13. FINAL LOCATIONS OF SPRINKLER HEADS SHALL BE COORDINATED WITH THE ARCHITECT.
 - FIRE PROTECTION CONTRACTOR SHALL PROVIDE HYDRAULIC CALCULATIONS. HYDRAULIC CALCULATIONS SHALL INCLUDE A SAFETY FACTOR OF (10 %). COMBINED INSIDE AND OUTSIDE HOSE STREAM ALLOWANCE FOR HYDRAULIC CALCULATIONS SHALL BE [100] [250] GPM.
 - THE CONTENT OF THESE DRAWINGS IS INTENDED TO SATISFY THE BUILDING CODE REQUIREMENTS FOR CONSTRUCTION DOCUMENTS. WHEN STAMPED AND SEALED BY THE ENGINEER OF RECORD, THEY ARE INTENDED TO BE USED AS PART OF THE BUILDING PERMIT APPLICATION ONLY.
 - FIRE SUPPRESSION SYSTEM SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW AND APPROVED PRIOR TO CONSTRUCTION. PROVIDE A COMPLETE SHOP DRAWING SUBMITTAL INCLUSIVE OF ALL INFORMATION REQUIRED BY STATE BUILDING CODE, NFPA 13 AND THE CONSTRUCTION DOCUMENTS.
 - PREPARE A COMPLETE RECORD SUBMITTAL INCLUSIVE OF ALL FIELD CHANGES AND ALL INFORMATION REQUIRED BY THE STATE BUILDING CODE AND CONSTRUCTION DOCUMENTS.
 - SHOP DRAWINGS AND RECORD DRAWING SUBMITTALS SHALL BE PREPARED BY THE CONTRACTORS QUALIFIED DESIGNER AND SHALL INDICATE THE DESIGNER'S NICET CERTIFICATION NUMBER OR PROFESSIONAL ENGINEERING SEAL AND SIGNATURE.
 - THE ENGINEER OF RECORD WILL NOT SIGN AND SEAL SHOP DRAWINGS OR RECORD DRAWINGS PREPARED BY THE CONTRACTOR. WHERE THE AUTHORITY HAVING JURISDICTION REQUIRES SHOP DRAWING OR RECORD DRAWING SUBMITTALS TO BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER, THE SUBMITTALS SHALL BE PREPARED BY A QUALIFIED PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR.
 - THE SHOP DRAWINGS, SUPPLEMENTAL CALCULATIONS AND MATERIAL SUBMITTALS SHALL BE REVIEWED AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO SUBMITTAL TO THE STATE DIVISION OF ENGINEERING AND BUILDINGS.
 - INSTALLATION OF SPRINKLERS SHALL BE BASED ON THE DESIGN CRITERIA BELOW

SPRINKLER SYSTEM DESIGN CRITERIA - NFPA 13				
AREA	OCCUPANCY CLASSIFICATION	DENSITY (GPM/SF)	AREA OF APPLICATION (SF)	MAX. AREA PER SPRINKLER (SF)
OFFICE	LIGHT HAZARD	0.10	1500	225
LOBBY	LIGHT HAZARD	0.10	1500	225
COMMON AREA	LIGHT HAZARD	0.10	1500	225
CONFERENCE ROOM	LIGHT HAZARD	0.10	1500	225
MECH/ELEC ROOM	ORDINARY HAZARD I	0.15	1500	130

- ### FIRE PROTECTION DEMOLITION NOTES
- THE FIRE PROTECTION CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH THE EXISTING SYSTEM AND CONDITIONS IN AREAS OF RENOVATION.
 - ALL EXISTING PIPING AND EQUIPMENT SHOWN HAS BEEN TAKEN FROM THE BEST AVAILABLE EXISTING INFORMATION. THE DRAWINGS ARE DIAGRAMMATIC AND ALL PIPING AND DEVICES MAY NOT BE SHOWN.
 - ALL PIPING TO BE REMOVED SHALL BE REMOVED COMPLETELY OR CAPPED AS SHOWN WITHOUT LEAVING ANY DEAD ENDED PIPING OR ABANDONED PIPING.
 - NO FIRE PROTECTION EQUIPMENT OR DEVICES THAT HAVE BEEN DISCONNECTED OR ABANDONED SHALL REMAIN.
 - ANY SYSTEM OR EQUIPMENT TO REMAIN ACTIVE DURING RENOVATION SHALL BE KEPT IN OPERATION BY PROVIDING TEMPORARY CONNECTIONS AS REQUIRED UNTIL NEW SYSTEMS ARE INSTALLED AND OPERATIONAL.
 - ALL SERVICE INTERRUPTIONS SHALL BE COORDINATED WITH THE BUILDING MANAGEMENT IN ADVANCE. THE FIRE MARSHALL MUST BE CONTACTED IN ADVANCE PRIOR TO COMMENCEMENT OF ANY WORK.
 - THE FIRE MARSHALL AND OR THE INSURANCE UNDERWRITER SHALL BE CONTACTED TO REVIEW AND APPROVE THE EXTENT OR PHASING OF THE FIRE PROTECTION DEMOLITION IN ORDER TO PROTECT THE OCCUPANTS AND PROPERTY. THESE DOCUMENTS DO NOT ADDRESS THE PHASING OF THE SYSTEM REMOVAL. ONLY THE EXTENT.
 - THE FIRE PROTECTION CONTRACTOR SHALL ALSO REVIEW THE ARCHITECTURAL DEMOLITION DRAWINGS AS PART OF THIS CONTRACT FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
 - CONTRACTOR TO VERIFY IN FIELD THE SIZE AND LOCATION OF FIRE PROTECTION PIPING AND TO REPORT ANY VARIANCES TO THE ARCH/ENGINEER FOR INCLUSION IN THE DRAWINGS.

PIPING LEGEND	
SYMBOL	DESCRIPTION
FP-WET	SPRINKLER MAIN (WET)
FP-DRY	SPRINKLER MAIN (DRY)
○	PIPE RISE
○	PIPE DROP
○	PIPE TEE TOWARDS (UP IN PLAN)
○	PIPE TEE AWAY (DOWN IN PLAN)
○	PIPE DROP AND RUN
→	DIRECTION OF FLOW
	BLIND FLANGE
]	END CAP
→	REDUCER (ECCENTRIC)
←	REDUCER (CONCENTRIC)
~	FLEXIBLE CONNECTION

DATE:	08/01/2022
DRAWN BY:	CLB
SCALE:	As indicated
REVIEWED BY:	DSL
PROJECT NO.	2021-091A

REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR BID
2	DATE: 11/28/22

FIRE PROTECTION ABBREVIATIONS, NOTES AND SYMBOLS

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06708



FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
FP0.0

21.00.00 - GENERAL

- A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 1 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
- B. THESE SPECIFICATIONS ARE APPLICABLE TO ALL PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS UNLESS NOTED OTHERWISE. REVIEW THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING DRAWINGS FOR NOTES, DIMENSIONS, ETC., AND COORDINATE WITH OTHER TRADES INVOLVED.
- C. DESCRIPTION
- THIS PROJECT COMPRISES ALTERATIONS AND RENOVATIONS TO THE EXISTING BUILDING. THE EXISTING BUILDING IS CURRENTLY OCCUPIED AND THE PROJECT SHALL PROCEED IN A MANNER THAT MINIMIZES ANY INCONVENIENCE TO THE BUILDING OCCUPANTS.
 - SCOPE OF WORK CONSISTS OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS AND WITHOUT LIMITING GENERALITY THEREOF CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTING, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL WORK AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN.
- D. DEFINITIONS: THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT
- FURNISH: THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS"
 - INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL "UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."
 - PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."
 - REMOVE: THE TERM "REMOVE" MEANS TO DISCONNECT FROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."
 - SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND/OR METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT."
- E. DRAWINGS
- DRAWINGS ARE DIAGRAMMATIC. THE FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. THOUGH SOME OFFSETS & TRANSITIONS MAY BE SHOWN IN PIPING & SHEET METAL, TO HELP INDICATE THE PHYSICAL RELATIONSHIP BETWEEN THEM, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL PIPING & SHEET METAL OFFSETS & TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE WORK AND PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.
- F. CODES AND STANDARDS: WORK SHALL CONFORM TO THE CURRENT EDITIONS OF THE FOLLOWING:
- NFPA 13 - INSTALLATION OF SPRINKLER SYSTEMS.
 - NFPA 13R - STANDARD FOR INSTALLATION OF SPRINKLER SYSTEMS IN RESIDENTIAL OCCUPANCIES UP TO AND INCLUDING FOUR STORIES IN HEIGHT.
 - NFPA STANDARD 14 - STANDARD FOR THE INSTALLATION OF STANDPIPE AND HOSE SYSTEMS.
 - NFPA 24 - INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES.
 - STATE BUILDING AND FIRE CODES.
 - LOCAL AUTHORITIES HAVING JURISDICTION.
- G. PERMITS AND FEES:
- THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL GOVERNMENT AND STATE SALES TAXES AND FEES WHERE APPLICABLE, AND OTHER COSTS, INCLUDING UTILITY CONNECTIONS OR EXTENSIONS IN CONNECTION WITH THE WORK, FILE ALL NECESSARY DRAWINGS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AND STATE DEPARTMENTS HAVING JURISDICTION, OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER A COPY TO THE OWNER AND ENGINEER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.
- H. EXISTING SYSTEMS AND EQUIPMENT
- EXISTING TO BE REUSED/RELOCATED EQUIPMENT: REPORT ANY EXISTING EQUIPMENT DEFICIENCIES TO THE OWNER AND THE ARCHITECT AND/OR ENGINEER.
 - CONNECT WORK TO VARIOUS EXISTING SYSTEMS AS INDICATED ON THE DRAWINGS. WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM CONDITIONS. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED AS WELL AS WITH EXISTING SYSTEMS, THE STRUCTURE, AND OTHER OBSTRUCTIONS.
- I. SURVEY AND MEASUREMENTS
- THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, SHALL BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITION OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS.
 - DO NOT SCALE DRAWINGS. SCALE INDICATED ON DRAWINGS IS FOR ESTABLISHING REFERENCE POINTS ONLY. ACTUAL FIELD CONDITIONS SHALL GOVERN ALL DIMENSIONS.
 - PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCES AND ACCESS IS ALLOWED TO INSTALL THE COMPONENT. IF ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER RIGGING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE.
 - CONTRACTORS SHALL VERIFY, LAYOUT AND BE RESPONSIBLE FOR ALL MEASUREMENTS OF ALL EXISTING CONDITIONS BEFORE COMMENCING WORK AND SHALL NOTIFY ARCHITECT AND/OR ENGINEER, IF A CONDITION EXISTS THAT PREVENTS THE CONTRACTOR FROM ACCOMPLISHING THE INTENT OF THE DRAWINGS.
- J. SUBMITTALS AND SHOP DRAWINGS
- SUBMIT FOR REVIEW, ELECTRONIC SHOP DRAWINGS IN SEARCHABLE PDF FORMAT FOR THE FOLLOWING.
 - SUBMITTAL DATA FOR ALL MATERIAL AND EQUIPMENT. CLEARLY IDENTIFY DEVIATIONS OF THE SUBMITTED PRODUCTS FROM THE DESIGN.
 - SHOP DRAWINGS: DRAWN TO ACCURATE SCALE OF 1/4"=1'-0". HIGHLIGHT, ENCIRCLE, OR OTHERWISE INDICATE DEVIATIONS FROM THE CONTRACT DOCUMENTS. DO NOT REPRODUCE CONTRACT DOCUMENTS OR COPY STANDARD INFORMATION AS THE BASIS OF SHOP DRAWINGS. STANDARD INFORMATION PREPARED WITHOUT SPECIFIC REFERENCE TO THE PROJECT IS NOT CONSIDERED SHOP DRAWINGS.
 - HYDRAULIC CALCULATIONS PREPARED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13.
 - DO NOT USE SHOP DRAWINGS WITHOUT AN APPROPRIATE FINAL STAMP INDICATING ACTION TAKEN IN CONNECTION WITH CONSTRUCTION.
 - DO NOT ORDER ANY MATERIALS OR EQUIPMENT PRIOR TO RECEIVING FINAL APPROVED SUBMITTALS.
 - SCHEDULE AT LEAST TEN WORKING DAYS EXCLUSIVE OF TRANSMITTAL TIME, FOR SUBMITTAL REVIEW.
- K. AS-BUILT DRAWINGS
- A. MAINTAIN ONE SET OF PRINTS ON THE SITE AND NOTE ALL CHANGES OR DEVIATIONS FROM THE ORIGINAL DESIGN THEREON. AT THE COMPLETION OF THE PROJECT, INCORPORATE ALL CHANGES INTO RECORD AS-BUILT DRAWINGS IN ELECTRONIC FORMAT AND SUBMIT FOR APPROVAL.
- L. OPERATION AND MAINTENANCE
- UPON COMPLETION OF ALL WORK AND TESTS, THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE OPERATION, ADJUSTMENT AND MAINTENANCE OF ALL EQUIPMENT FURNISHED. THE CONTRACTOR SHALL GIVE AT LEAST SEVEN (7) DAYS NOTICE TO THE OWNER AND THE ENGINEER IN ADVANCE OF THIS PERIOD.
 - THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A COMPLETE OPERATION AND MAINTENANCE MANUAL, BOUND IN BOOKLET FORM, ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL HEAVY-DUTY 5-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION AND DESIGNATION PARTITIONS WITH IDENTIFICATION TABS. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER.
 - MAINTENANCE AND INSTRUCTION MANUALS SHALL BE SUBMITTED TO THE OWNER AT THE SAME TIME AS THE SEVEN (7) DAY NOTICE IS GIVEN PRIOR TO THE INSTRUCTION PERIOD.

M. CLEANING

- EQUIPMENT: AFTER COMPLETION OF PROJECT, CLEAN THE EXTERIOR SURFACE OF EQUIPMENT INCLUDED IN THIS SECTION, INCLUDING REMOVAL OF CONCRETE RESIDUE.
 - WORK AREA: AFTER COMPLETION OF PROJECT, REMOVE ALL CONSTRUCTION DEBRIS, TEMPORARY FACILITIES AND EQUIPMENT FROM WORK AREA. CLEAN WORK AREA TO PERMIT OCCUPATION.
- N. GUARANTEE
- GUARANTEE WORK OF THESE CONTRACT DOCUMENTS IN WRITING FOR NOT LESS THAN ONE (1) YEAR FROM DATE OF FINAL NOTICE OF ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPT AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.
- O. MEANS AND METHODS ALL TRADES
- INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SKIDS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.
 - MATERIALS AND EQUIPMENT SHALL BE UL LISTED WHERE STANDARD HAS BEEN ESTABLISHED.
 - CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILINGS. PATCH AND PAINT SURFACES DISTURBED BY WORK UNDER THIS CONTRACT AS REQUIRED TO RESTORE THEM TO THEIR ORIGINAL CONDITION.
 - SCAFFOLDING, RIGGING, HOISTING: THE CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES AND INSTALLATION OF APPARATUS FURNISHED UNDER THIS DIVISION. REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.
 - EXCAVATION AND BACKFILLING: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE SIZES, DEPTHS, FILL AND BEDDING REQUIREMENTS AND ANY OTHER EXCAVATION WORK REQUIRED UNDER THESE SPECIFICATIONS
 - WATERPROOFING: WHERE ANY WORK PIERCES WATERPROOFING, INCLUDING WATERPROOF CONCRETE, ROOFS, EXTERIOR WALL AND FLOORS IN WET AREAS, THE METHOD OF INSTALLATION SHALL BE REVIEWED BY THE ENGINEER BEFORE WORK IS DONE. THE CONTRACTOR SHALL FURNISH ALL NECESSARY SLEEVES, CAULKING AND FLASHING REQUIRED TO MAKE OPENINGS ABSOLUTELY WATERTIGHT.
 - PROVIDE FIRESTOPPING AROUND ALL FIRE PROTECTION, PLUMBING, MECHANICAL AND ELECTRICAL PENETRATIONS THROUGH FIRE RATED PARTITIONS. PROVIDE ASBESTOS FREE FIRESTOPPING SYSTEM CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME AND GASES. SYSTEM SHALL BE UL LISTED AND COMPLY WITH ASTM E 814.
 - PROVIDE ACCESS PANELS IN WALLS, FLOORS AND GYPSUM WALL BOARD CEILINGS TO ALLOW ACCESS TO: VALVES AND OTHER APPARATUS AND EQUIPMENT REQUIRING PERIODIC SERVICE AND INSPECTION. NOT ALL ACCESS PANELS ARE INDICATED ON THE PLANS. REVIEW ARCHITECTURAL AND MECHANICAL PLANS TO DETERMINE THE LOCATION AND QUANTITY OF ACCESS PANELS REQUIRED. COORDINATE TYPE AND LOCATION WITH ARCHITECTURAL PLANS.

21.05.00 - COMMON WORK RESULTS FOR FIRE SUPPRESSION SYSTEMS

- A. WORKMANSHIP AND QUALIFICATIONS: MATERIALS AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH NFPA AND APPLICABLE LOCAL CODES AND ORDINANCES. THE SPRINKLER CONTRACTOR SHALL BE STATE LICENSED TO INSTALL SPRINKLER SYSTEMS, FIRE PROTECTION DEVICES USED SHALL BE LISTED AND APPROVED BY UNDERWRITERS LABORATORIES (UL) AND/OR FACTORY MUTUAL (FM).
- B. GROOVED JOINT COUPLINGS, FITTINGS, VALVES, AND SPECIALTIES SHALL BE THE PRODUCTS OF A SINGLE MANUFACTURER. GROOVING TOOLS SHALL BE OF THE SAME MANUFACTURER AS THE GROOVED COMPONENTS.
- C. VALVES: SHALL BEAR UL AND/OR FM LABEL OR MARKING. PROVIDE MANUFACTURER'S NAME AND PRESSURE RATING MARKED ON VALVE BODY. ITEMS OF SIMILAR CLASS SHALL BE THE PRODUCTS OF THE SAME MANUFACTURER. MANUFACTURERS: KENNEDY VALVE MFG. CO., VICTAULIC, STOCKHAM, NIBCO, WATTS, HAMMOND, MILWAUKEE.
- D. PIPE & FITTINGS (ABOVE GRADE)
- STEEL PIPING: ASTM A53, SCHEDULE 40 SEAMLESS CARBON STEEL. SCHEDULE 10 PIPE SHALL BE ALLOWED FOR PIPE SIZES LARGER THAN 1-1/4" DIAMETER WHEN ROLL GROOVED MECHANICAL COUPLINGS ARE USED.
 - CAST IRON FITTINGS: ANSI/ASME B16.1, FLANGES AND FLANGED FITTINGS, ANSI/ASME B16.4, SCREWED FITTINGS.
 - MALLEABLE IRON FITTINGS: ANSI/ASME B16.3, SCREWED CLASS 300 TYPE. THREADS SHALL CONFORM TO ANSI/ASTM A47.
 - GROOVED MECHANICAL FITTINGS: ANSI A21.10/AWWA C-110 DUCTILE IRON, ASTM A536 GRADE 65-45-12 DUCTILE IRON, ASTM A234 GRADE WPB, OR FACTORY FABRICATED FROM CARBON STEEL PIPE CONFORMING TO ASTM A53, WITH GROOVES OR SHOULDERS DESIGNED TO ACCEPT GROOVED END COUPLINGS. FITTINGS SHALL BE OF THE SAME MANUFACTURER AS THE ADJOINING COUPLINGS.
 - GROOVED MECHANICAL COUPLINGS: ASTM A536 GRADE 65-45-12, DUCTILE IRON HOUSING, ELASTOMER GASKET WITH NUTS AND BOLTS TO SECURE ROLL GROOVED PIPE AND FITTINGS.
 - RIGID TYPE COUPLINGS: HOUSINGS CAST WITH OFFSETTING, ANGLE-PATTERN BOLT PADS TO PROVIDE RIGIDITY AND SYSTEM SUPPORT AND HANGING IN ACCORDANCE WITH NFPA-13.
 - 1-1/4" THROUGH 4": FACTORY ASSEMBLED FOR INSTALLATION WITHOUT FIELD DISASSEMBLY. VICTAULIC STYLE 009 EZ.
 - 5" THROUGH 8": VICTAULIC FIRELOOK STYLE 005.
 - 10" AND LARGER: VICTAULIC ZERO-FLEX STYLE 07.
 - FLEXIBLE TYPE COUPLINGS: USE IN LOCATIONS WHERE VIBRATION ATTENUATION AND STRESS RELIEF ARE REQUIRED, AND FOR SEISMIC CONSIDERATIONS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. VICTAULIC STYLE 75.
- E. GASKETS
- WET SYSTEMS: C-SHAPE OR EZ STYLE 009.
- F. JOINTS
- GROOVED MECHANICAL COUPLINGS: ASTM A536 GRADE 65-45-12, DUCTILE IRON HOUSING, FLUSH/SEAL OR QUICKVIC ELASTOMER GASKET WITH NUTS AND BOLTS TO SECURE ROLL GROOVED PIPE AND FITTINGS. HOUSINGS CAST WITH OFFSETTING, ANGLE-PATTERN BOLT PADS TO PROVIDE RIGIDITY, AND MANUFACTURED TO CONNECT COPPER TUBING AND FITTINGS WITHOUT FLARING. VICTAULIC STYLE 606 OR STYLE 607 QUICKVIC STAB-ON COUPLINGS.
 - ASTM B32, SOLDER, GRADE 95TA OR ANSI/AWS A5.8 BCUP SILVER BRAZE.
 - CAST IRON: AWWA C151 PIPING WITH AWWA C110 STANDARD THICKNESS FITTINGS AND AWWA C111 RUBBER GASKET JOINTS OR MECHANICAL GROOVED COUPLINGS WITH DUCTILE IRON HOUSING CLAMPS TO END SHAPED LOCK, "C" SHAPED COMPOSITION SEALING GASKET, STEEL BOLTS, NUTS, AND WASHERS, GALVANIZED FOR GALVANIZED PIPE.
- G. DRAIN VALVES: COMPRESSION STOP: BRONZE WITH HOSE THREAD NIPPLE AND CAP.
- H. UNIONS & DIELECTRIC CONNECTIONS
- UNIONS FOR PIPE 2" AND UNDER:
 - FERROUS PIPING: 150 PSIG (1034 KPA) MALLEABLE IRON, THREADED.
 - COPPER PIPE: BRONZE, SOLDERED JOINTS.
 - DIELECTRIC CONNECTIONS: WATERWAY FITTING WITH WATER IMPERVIOUS ISOLATION BARRIER, VICTAULIC STYLE 47 OR APPROVED EQUAL.
- I. PIPE HANGERS AND SUPPORTS
- CONFORM TO NFPA 13 AND NFPA 14.
 - HANGERS: MALLEABLE IRON, CARBON STEEL, ADJUSTABLE SWIVEL, SPLIT RING, CARBON STEEL, ADJUSTABLE, CLEVIS.
 - MULTIPLE OR TRAPEZE HANGERS: STEEL CHANNELS WITH WELDED SPACERS AND HANGER RODS.
 - WALL SUPPORT FOR PIPE SIZES TO 3": CAST IRON HOOK.
 - WALL SUPPORT FOR PIPE SIZES 4" AND OVER: WELDED STEEL BRACKET AND WROUGHT STEEL CLAMP.
 - VERTICAL SUPPORT: STEEL RISER CLAMP [ANGLE RING].
 - FLOOR SUPPORT: CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT.

R. GENERAL INSTALLATION REQUIREMENTS FOR PIPE AND FITTINGS

- INSTALL PIPING IN ACCORDANCE WITH NFPA 13 FOR SPRINKLER SYSTEMS, NFPA 14 FOR STANDPIPE AND HOSE SYSTEMS, AND NFPA 24 FOR SERVICE MAINS.
 - PLACE PIPING IN CONCEALED SPACES ABOVE FINISHED CEILINGS UNLESS NOTED OTHERWISE.
 - ROUTE PIPING IN ORDERLY MANNER, PLUMB AND PARALLEL TO BUILDING STRUCTURE. MAINTAIN GRADIENT.
 - INSTALL PIPING TO CONSERVE BUILDING SPACE, TO NOT INTERFERE WITH USE OF SPACE AND OTHER WORK.
 - GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS.
 - INSTALL PIPE SLEEVE AT PIPING PENETRATIONS THROUGH FOOTINGS, PARTITIONS, WALLS, AND FLOORS. SEAL PIPE AND SLEEVE PENETRATIONS TO MAINTAIN FIRE RESISTANCE EQUIVALENT TO FIRE SEPARATION.
 - INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT. USE VICTAULIC STYLE 77 OR 75 COUPLINGS IN ACCORDANCE WITH VICTAULIC INSTRUCTIONS FOR EXPANSION AND CONTRACTION OF PIPE.
 - GROOVED JOINT COUPLINGS AND FITTINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. GROOVED ENDS SHALL BE CLEAN AND FREE FROM INDENTATIONS, PROJECTIONS, AND ROLL MARKS IN THE AREA FROM PIPE END TO GROOVE. GASKETS SHALL BE VERIFIED AS SUITABLE FOR THE INTENDED SERVICE PRIOR TO INSTALLATION. GASKETS SHALL BE MOLDED AND PRODUCED BY THE COUPLING MANUFACTURER. THE GROOVED COUPLING MANUFACTURER'S FACTORY TRAINED REPRESENTATIVE SHALL PROVIDE ON-SITE TRAINING FOR CONTRACTOR'S FIELD PERSONNEL IN THE USE OF GROOVING TOOLS, APPLICATION OF GROOVE, AND INSTALLATION OF GROOVED JOINT PRODUCTS. THE MANUFACTURER'S REPRESENTATIVE SHALL PERIODICALLY VISIT THE JOBSITE AND REVIEW INSTALLATION. CONTRACTOR SHALL REMOVE AND REPLACE ANY JOINTS DEEMED IMPROPERLY INSTALLED.
 - PITCH PIPING AND ARRANGE SYSTEMS TO DRAIN AT LOW POINTS. USE ECCENTRIC REDUCERS TO MAINTAIN TOP OF PIPE LEVEL.
 - PREPARE PIPE, FITTINGS, SUPPORTS, AND ACCESSORIES FOR FINISH PAINTING. WHERE PIPE SUPPORT MEMBERS ARE WELDED TO STRUCTURAL BUILDING FRAMING, SCRAPE, BRUSH CLEAN, AND APPLY ONE COAT OF ZINC RICH PRIMER TO WELDING.
 - DO NOT PENETRATE BUILDING STRUCTURAL MEMBERS UNLESS INDICATED.
 - WHERE MORE THAN ONE PIPING SYSTEM MATERIAL IS SPECIFIED, INSTALL COMPATIBLE SYSTEM COMPONENTS AND JOINTS. INSTALL FLANGES, UNION, AND COUPLINGS AT LOCATIONS REQUIRING SERVICING.
 - DIE CUT THREADED JOINTS WITH FULL CUT STANDARD TAPER PIPE THREADS WITH RED LEAD AND LINED OIL OR OTHER NON-TOXIC JOINT COMPOUND APPLIED TO MALE THREADS ONLY.
 - PROVIDE DIELECTRIC FITTINGS WHENEVER JOINING TWO DISSIMILAR METALS.
 - PROVIDE SURGE RESTRAINTERS ON ALL END OF BRANCHES AND ARM OVERS IN EXCESS OF 12'.
- S. GENERAL INSTALLATION REQUIREMENTS FOR PIPE HANGERS AND SUPPORTS
- INSTALL IN ACCORDANCE WITH NFPA 13 AND NFPA 14.
 - INSTALL HANGERS TO WITH MINIMUM 1/2" SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK.
 - PLACE HANGERS WITHIN 12" OF EACH HORIZONTAL ELBOW.
 - USE HANGERS WITH 1-1/2" MINIMUM VERTICAL ADJUSTMENT. DESIGN HANGERS FOR PIPE MOVEMENT WITHOUT DISENGAGEMENT OF SUPPORTED PIPE.
 - SUPPORT VERTICAL PIPING AT EVERY FLOOR. SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.
 - WHERE INSTALLING SEVERAL PIPES IN PARALLEL AND AT SAME ELEVATION, PROVIDE MULTIPLE OR TRAPEZE HANGERS.
 - INSTALL COPPER PLATED HANGERS AND SUPPORTS FOR COPPER PIPING.
 - PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS. HANGERS AND SUPPORTS LOCATED IN CRAWL SPACES, PIPE SHAFTS, AND SUSPENDED CEILING SPACES ARE NOT CONSIDERED EXPOSED.
 - TESTING: PRESSURE TEST THE ABOVE GROUND SYSTEM IN ACCORDANCE TO NFPA 13. TESTING SHALL BE COMPLETED PRIOR TO PERMANENT SEALING OF WALLS AND PARTITIONS. PRESSURE TEST BELOW GRADE PIPING IN ACCORDANCE WITH NFPA 24.

21.13.10 - FIRE-SUPPRESSION SPRINKLER SYSTEMS

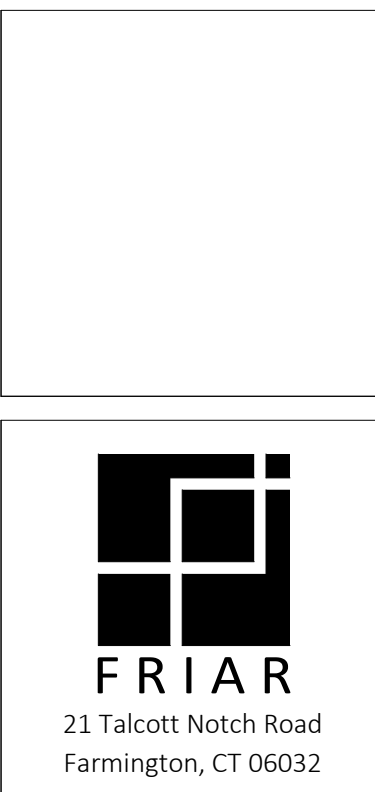
- A. SYSTEM DESCRIPTION (EXISTING BUILDING)
- PROVIDE A WET PIPE SYSTEM HYDRAULICALLY DESIGNED IN ACCORDANCE WITH NFPA 13 AND ALL REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION, TO PROVIDE COVERAGE FOR SPACES INDICATED ON THE DRAWINGS.
 - PROVIDE ALTERATIONS AND RENOVATIONS TO THE EXISTING SPRINKLER SYSTEM. FIELD VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING SHOP DRAWINGS INCLUDING BUT NOT LIMITED TO, LOCATION OF THE EXISTING SPRINKLER HEADS, LOCATIONS AND SIZES OF EXISTING SPRINKLER PIPING, AVAILABLE STATIC PRESSURE, RESIDUAL PRESSURE, AND FLOW AT THE BASE OF THE RISER. MODIFY SPRINKLER PIPING AS REQUIRED FOR THE LAYOUT OF NEW SPRINKLER HEADS, INCLUDING MODIFICATIONS TO EXISTING PIPING.
 - HYDRAULIC DATA AND WATER SUPPLY INFORMATION PROVIDED ON THE PLANS FOR REFERENCE ONLY. CONTRACTOR SHALL PERFORM A WATER FLOW TEST. RESULTS OF THE CONTRACTORS WATER FLOW TEST SHALL BE USED FOR PREPARING HYDRAULIC CALCULATIONS.
 - INTERFACE SYSTEM WITH BUILDING FIRE ALARM SYSTEM.
 - THE SPRINKLER LOCATIONS AND PIPING ARRANGEMENTS INDICATED ON THE CONTRACT DOCUMENTS ARE DIAGRAMMATIC.
 - SPRINKLER LOCATIONS INDICATED ARE FOR STANDARD COVERAGE SPRINKLERS, MAXIMUM 225 SQUARE FEET PER SPRINKLER FOR LIGHT HAZARD AND 130 SQUARE FEET PER SPRINKLER FOR ORDINARY HAZARD. EXTENDED COVERAGE SPRINKLERS SHALL NOT BE INSTALLED IN ANY LOCATIONS UNLESS SPECIFICALLY INDICATED.
- B. SUBMITTALS
- SUBMIT FIRE PROTECTIONS SHOP DRAWINGS DRAWN TO A MINIMUM SCALE OF 1/4"=1'-0". DRAWINGS SHALL INCLUDE DETAILED PIPE LAYOUT, PIPE MATERIALS USED, JOINING METHODS, HANGERS AND SUPPORTS, FLOOR AND WALL PENETRATION SEALS, CONTROLS, AND COMPONENTS AND ACCESSORIES.
 - SUBMIT HYDRAULIC CALCULATIONS PREPARED IN ACCORDANCE WITH NFPA 13.
 - SHOP DRAWINGS AND HYDRAULIC CALCULATIONS SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED.
 - PRODUCT DATA: SUBMIT DATA ON SPRINKLERS, VALVES, AND SPECIALTIES.
 - AFTER REVIEW BY THE OWNER'S REPRESENTATIVE, SUBMIT SPRINKLER LAYOUT SHOP DRAWINGS, PRODUCT DATA, AND HYDRAULIC CALCULATIONS TO THE AUTHORITY HAVING JURISDICTION, FIRE MARSHALL, AND OWNER'S INSURANCE UNDERWRITER FOR APPROVAL. SUBMIT PROOF OF APPROVAL FROM SUCH AUTHORITIES/ORGANIZATIONS.
- C. SPRINKLERS
- MANUFACTURERS: VIKING, TYCO, VICTAULIC, GRINNELL CORP., RELIABLE SPRINKLER CORP.
 - SPRINKLERS SHALL BE ADJUSTABLE, GLASS BULB, AUTOMATIC SPRINKLERS WITH 1/2" ORIFICE AND 5.6 K-FACTOR UNLESS OTHERWISE INDICATED. TYPE OF SPRINKLER HEAD SHALL BE AS INDICATED ON THE PLANS AND IN ACCORDANCE WITH THE FOLLOWING.
 - SPRINKLER BODIES SHALL BE DIE CAST BRASS, WITH HEX SHAPED WRENCH BOSS INTEGRALLY CAST INTO THE SPRINKLER BODY TO REDUCE THE RISK OF DAMAGE DURING INSTALLATION.
 - UNLESS OTHERWISE INDICATED, ORDINARY TEMPERATURE RATED SPRINKLER HEADS SHALL BE PROVIDED.
 - WHERE SPRINKLERS WILL BE INSTALLED IN CLOSE PROXIMITY TO HEAT SOURCES AND SPECIAL LOCATIONS, AS IDENTIFIED IN NFPA 13, TEMPERATURE RATINGS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13
 - WHERE PLANS CALL FOR EXTENDED COVERAGE SPRINKLER HEADS, COORDINATE COVERAGE REQUIREMENTS WITH REQUIRED PRESSURE AND K-FACTOR.
 - SPARE SPRINKLERS: FURNISH SPARE AUTOMATIC SPRINKLERS IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13 FOR STOCK OF EXTRA SPRINKLERS. THE SPRINKLERS SHALL BE REPRESENTATIVE OF, AND IN PROPORTION TO, THE NUMBER OF EACH TYPE AND TEMPERATURE RATING OF THE SPRINKLERS INSTALLED. PROVIDE TWO SPECIAL SPRINKLER WRENCHES, OR MINIMUM ONE WRENCH FOR EACH CONTAINER OR SPRINKLER BOX, WHICHEVER IS GREATER.
 - IN AREAS WHERE SPRINKLERS ARE SUBJECT TO PHYSICAL DAMAGE, PROVIDE SPRINKLER GUARD ASSEMBLY OVER HEAD, FINISH TO MATCH SPRINKLER FINISH. THIS SHALL INCLUDE BUT NOT BE LIMITED TO SPRINKLERS IN ELEVATOR SHAFTS, UNDER LOWER RAKES OF STAIRWAYS, IN ELECTRICAL ROOMS, BOILER ROOMS AND OTHER MECHANICAL ROOMS, 7'-0" OR LESS ABOVE FINISHED FLOORS, AND IN GYMNASIUM/FITNESS CENTER AREAS.
- D. GENERAL INSTALLATION REQUIREMENTS FOR SPRINKLER SYSTEMS
- INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - INSTALL FIRE PROTECTION SYSTEMS IN ACCORDANCE WITH NFPA 13, NFPA 13D, NFPA 13R, AND NFPA 24 FOR SERVICE MAINS.
 - MINIMIZE SHUT-DOWNS OF EXISTING WATER SUPPLIES. WORK SHALL BE COMPLETE BEFORE MAKING THE FINAL CONNECTIONS TO THE EXISTING WATER SUPPLIES. NOTIFY THE OWNER'S REPRESENTATIVE BEFORE AFFECTING THE OPERATION OF ANY EXISTING FIRE PROTECTION EQUIPMENT.
 - LOCATE FIRE DEPARTMENT CONNECTION WITH SUFFICIENT CLEARANCE FROM WALLS, OBSTRUCTIONS, ETC., TO ALLOW FULL SWING OF FIRE DEPARTMENT WRENCH HANDLE. COORDINATE THE LOCATION OF THE FIRE DEPARTMENT CONNECTION WITH THE LOCAL FIRE OFFICIALS.
 - SPRINKLERS LOCATED IN FULL SIZE CEILING TILES SHALL BE CENTERED IN THE TILE. PROVIDE PIPING OFFSETS AS REQUIRED.
 - SPRINKLER BULB PROTECTOR SHALL REMAIN IN PLACE UNTIL THE SPRINKLER IS COMPLETELY INSTALLED. REMOVE THE BULB PROTECTOR BY HAND AFTER INSTALLATION AND BEFORE THE SYSTEM IS PLACED IN SERVICE.
 - COORDINATE FLOW SWITCHES, TAMPER SWITCHES, AND ALL OTHER SPRINKLER DEVICES WITH THE FIRE ALARM SYSTEM.
 - PROVIDE AND APPLY SIGNS TO CONTROL, DRAIN, TEST AND ALARM VALVES TO IDENTIFY THEIR PURPOSE AND FUNCTION.

DATE: 08/01/2022
CLB
DRAWN BY:
SCALE: 1/2" = 1'-0"
REVIEWED BY: DSL
PROJECT NO. 2021-091A

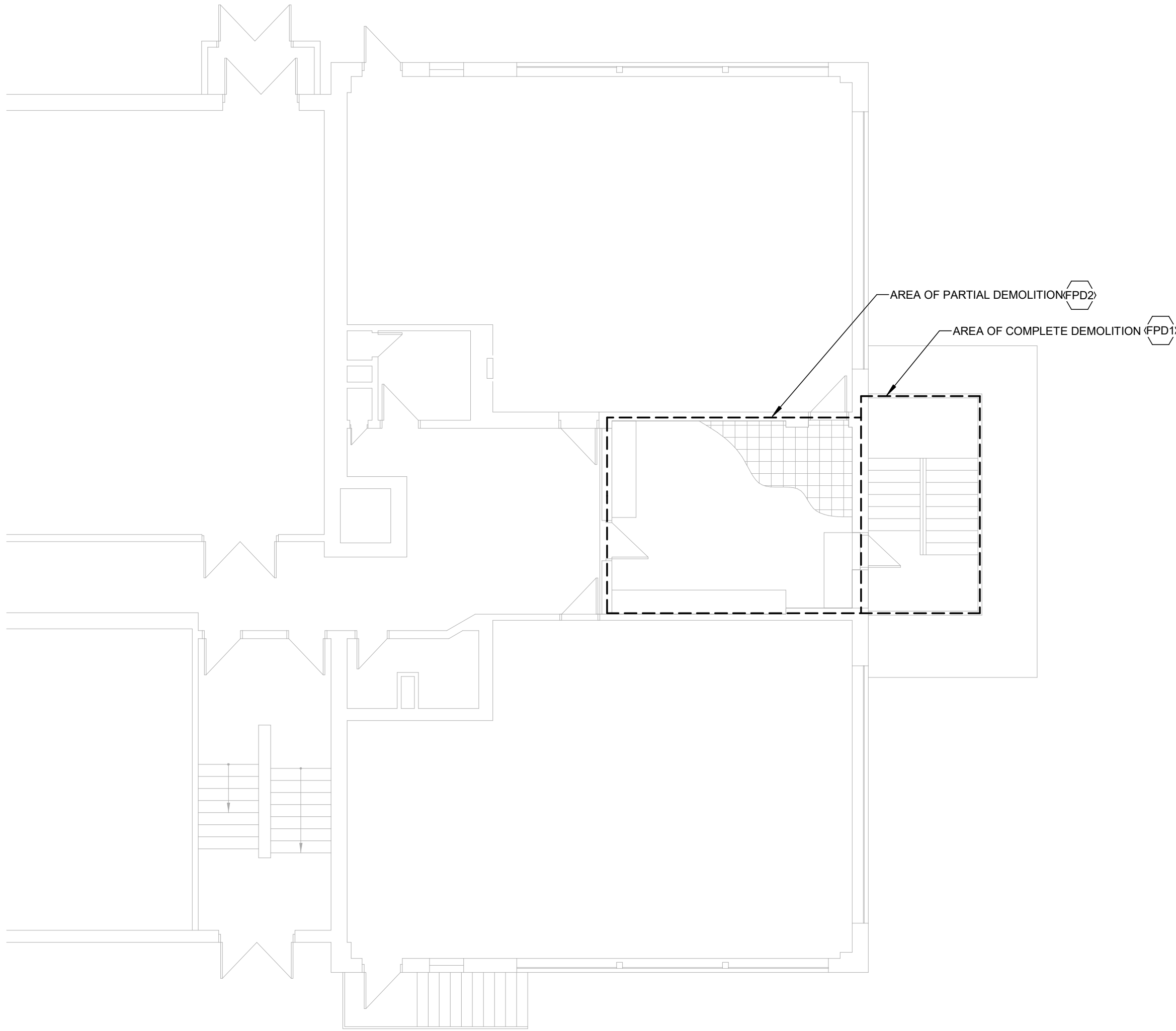
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NO.	DATE	DESCRIPTION ISSUED FOR BID
	11/28/22	

FIRE PROTECTION
SPECIFICATIONS

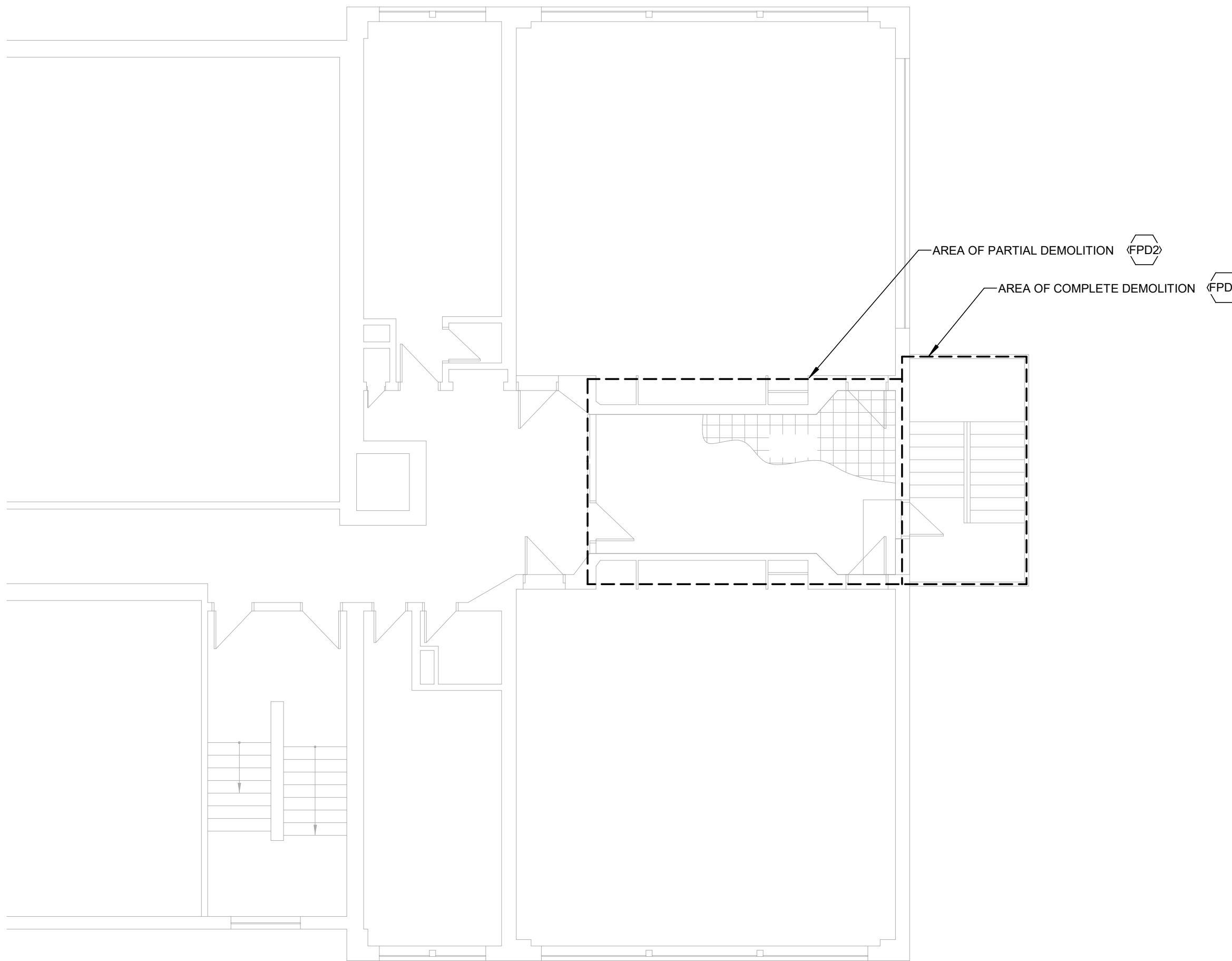
STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06708



SHEET NO.
FP0.1



1 FIRE PROTECTION BASEMENT FLOOR DEMOLITION PLAN
1/8" = 1'-0"



2 FIRE PROTECTION FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0"

KEYNOTES - FIRE PROTECTION DEMOLITION	
Key Value	Keynote Text
FPD1	WITHIN AREA SHOWN REMOVE EXISTING FIRE PROTECTION SYSTEM IN ITS ENTIRETY, INCLUDING BUT NOT LIMITED TO HANGERS, SUPPORTS, FLOOR ASSEMBLIES, STANDPIPES, VALVES AND SPRINKLERS. REMOVE ALL FIRE PROTECTION PIPING UNLESS NOTED.
FPD2	WITHIN AREA SHOWN REMOVE EXISTING SPRINKLER HEADS AND BRANCH PIPING BACK TO NEAREST MAIN. SPRINKLER PIPING MAIN TO REMAIN FOR FUTURE USE.

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REVISIONS	
NO.	DESCRIPTION
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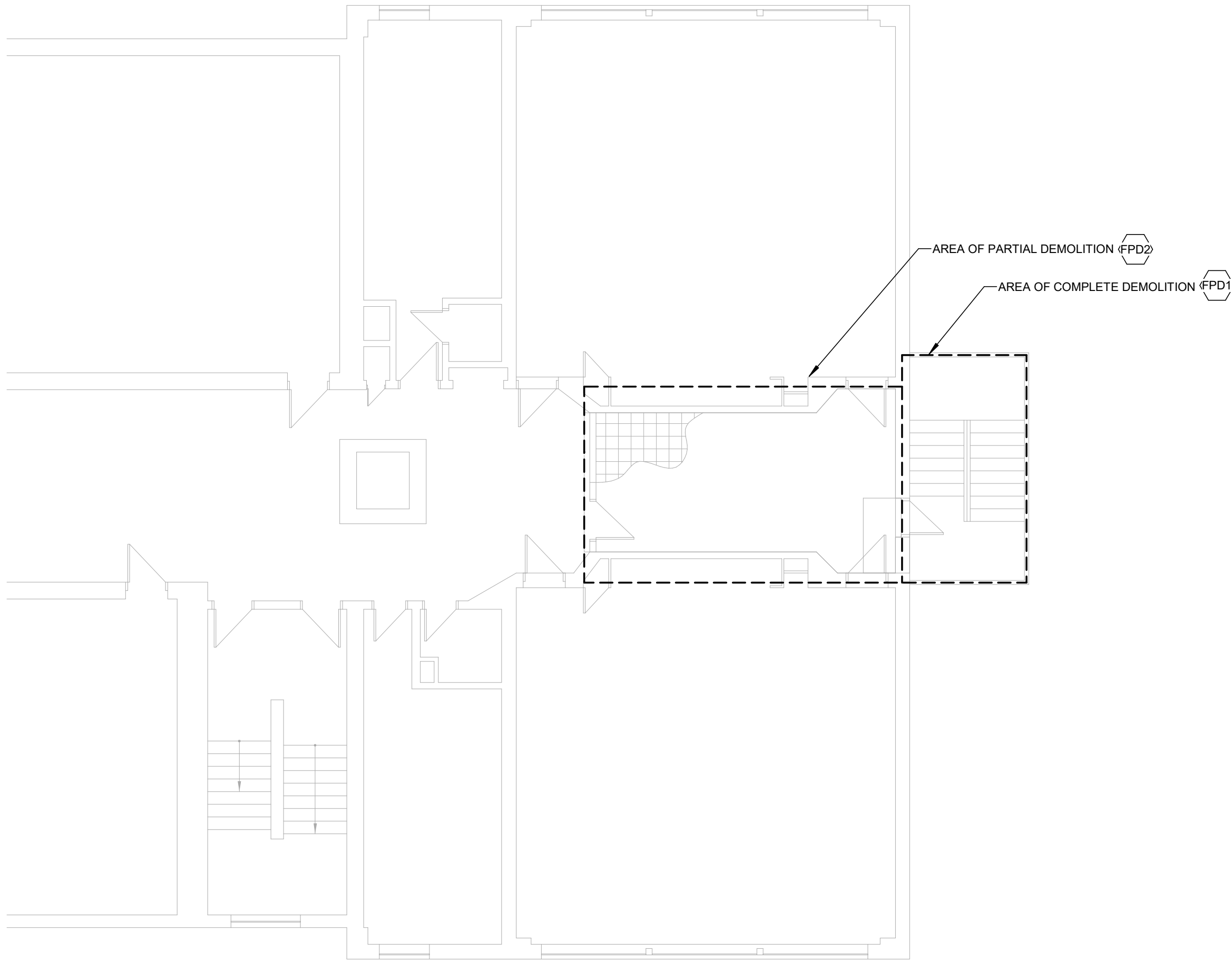
FIRE PROTECTION BASEMENT AND
FIRST FLOOR DEMOLITION PLANS

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

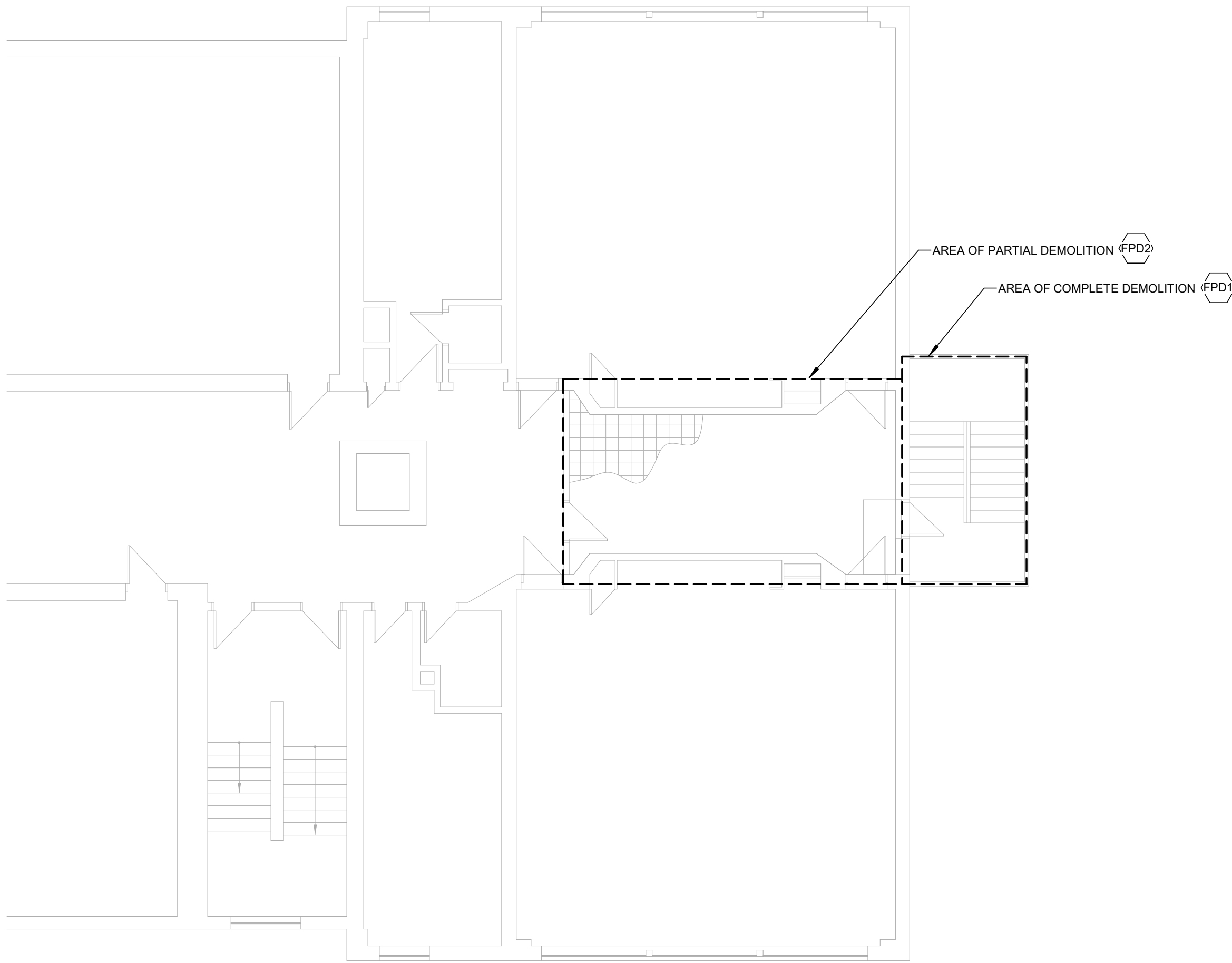


FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
FPD1.0



1 FIRE PROTECTION SECOND FLOOR DEMOLITION PLAN
1/8" = 1'-0"



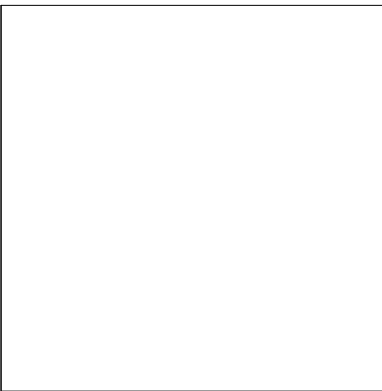
2 FIRE PROTECTION THIRD FLOOR DEMOLITION PLAN
1/8" = 1'-0"

KEYNOTES - FIRE PROTECTION DEMOLITION	
Key Value	Keynote Text
FPD1	WITHIN AREA SHOWN REMOVE EXISTING FIRE PROTECTION SYSTEM IN ITS ENTIRETY, INCLUDING BUT NOT LIMITED TO HANGERS, SUPPORTS, FLOOR ASSEMBLIES, STANDPIPES, VALVES AND SPRINKLERS. REMOVE ALL FIRE PROTECTION PIPING UNLESS NOTED.
FPD2	WITHIN AREA SHOWN REMOVE EXISTING SPRINKLER HEADS AND BRANCH PIPING BACK TO NEAREST MAIN. SPRINKLER PIPING MAIN TO REMAIN FOR FUTURE USE.

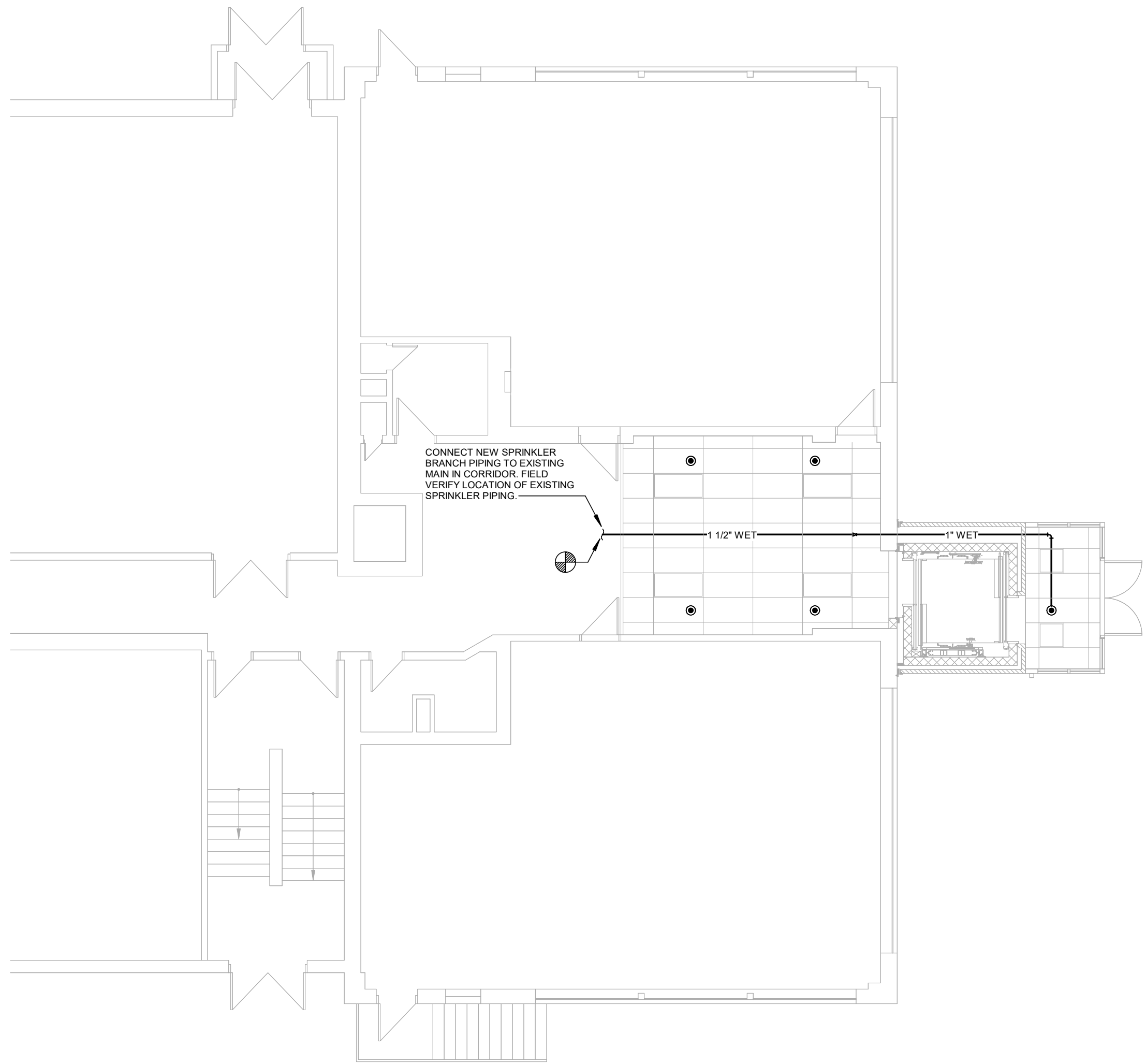
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FIRE PROTECTION SECOND AND
THIRD FLOOR DEMOLITION PLANS

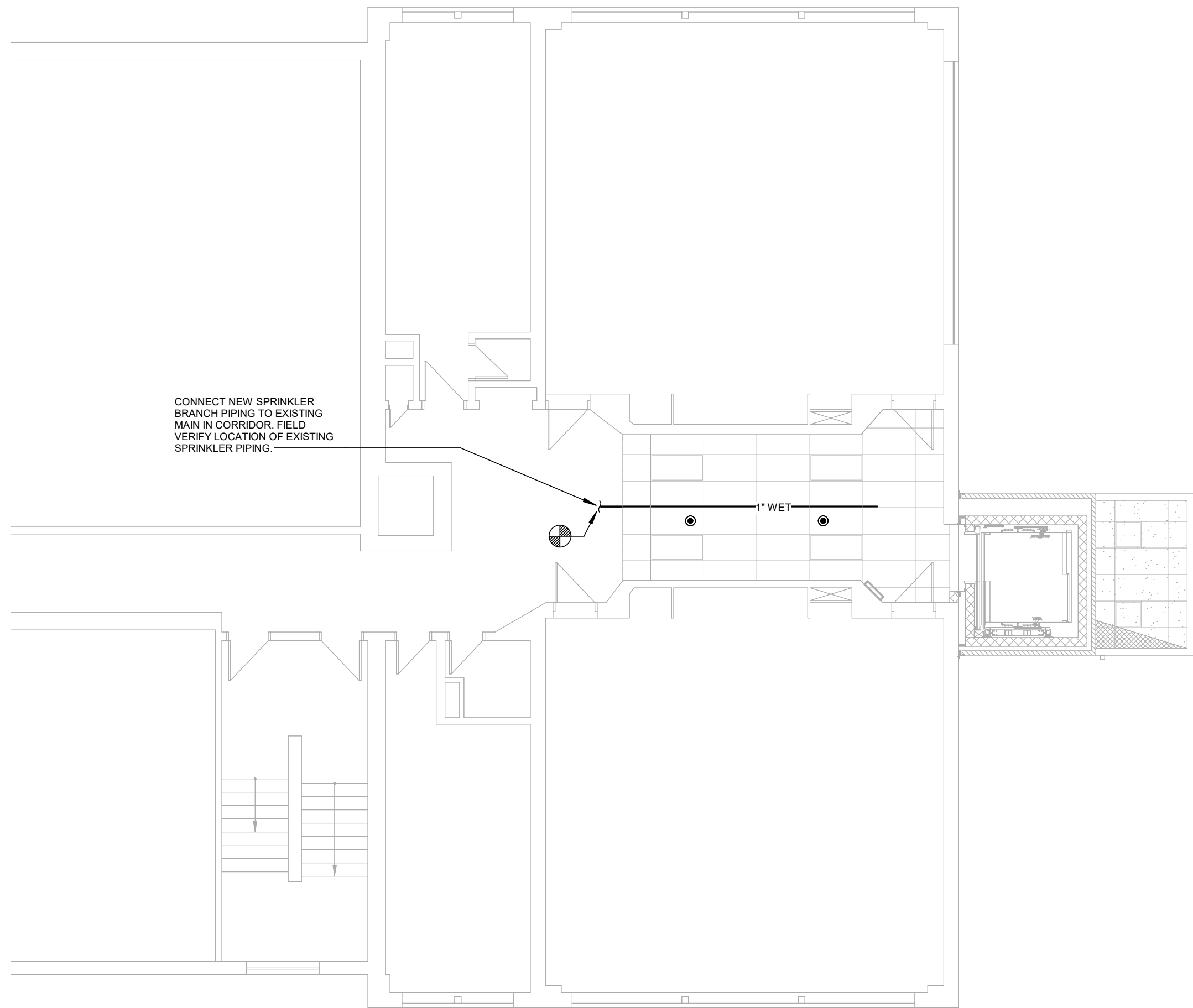
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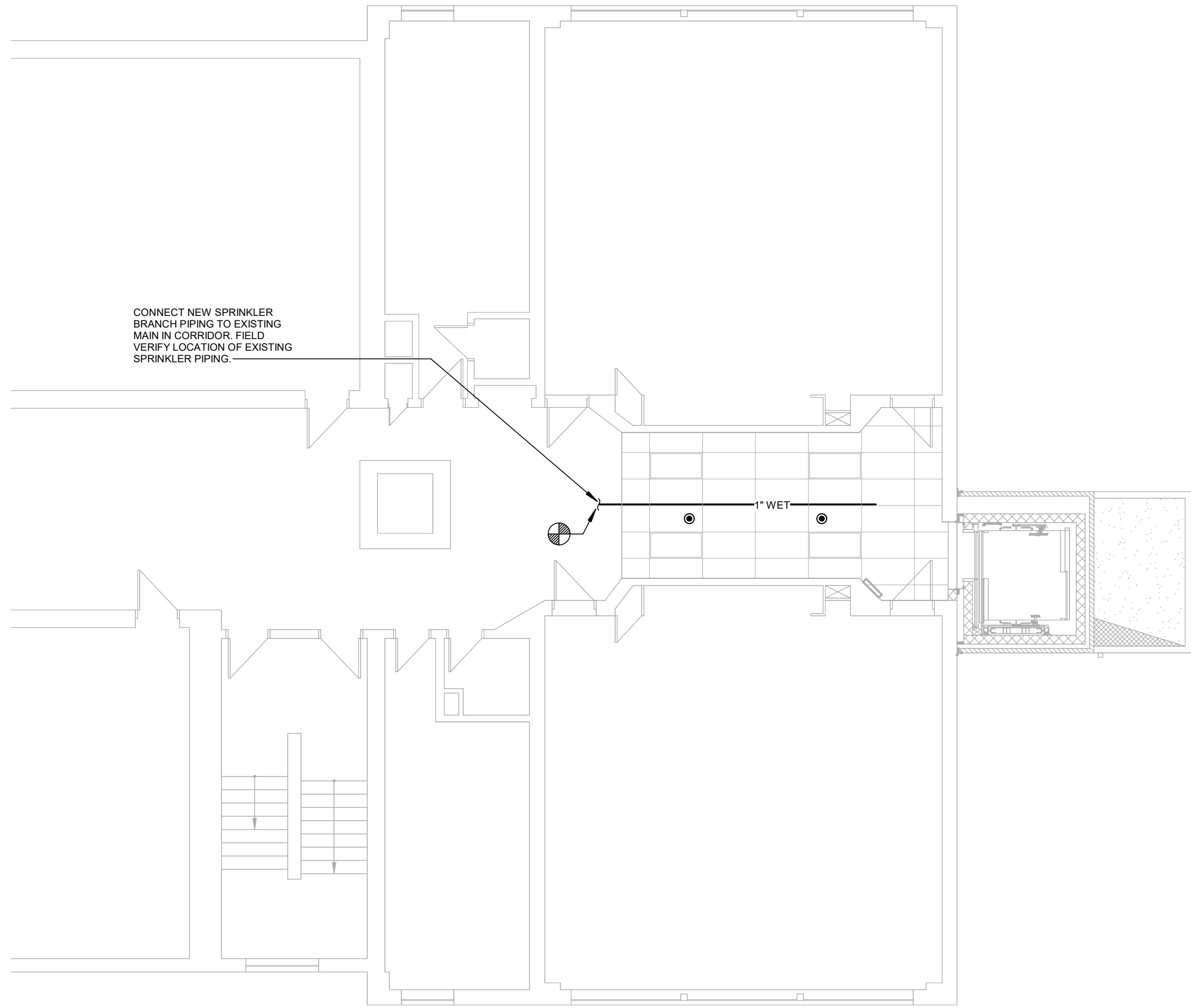
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FIRE PROTECTION BASEMENT AND
FIRST FLOOR PLANS

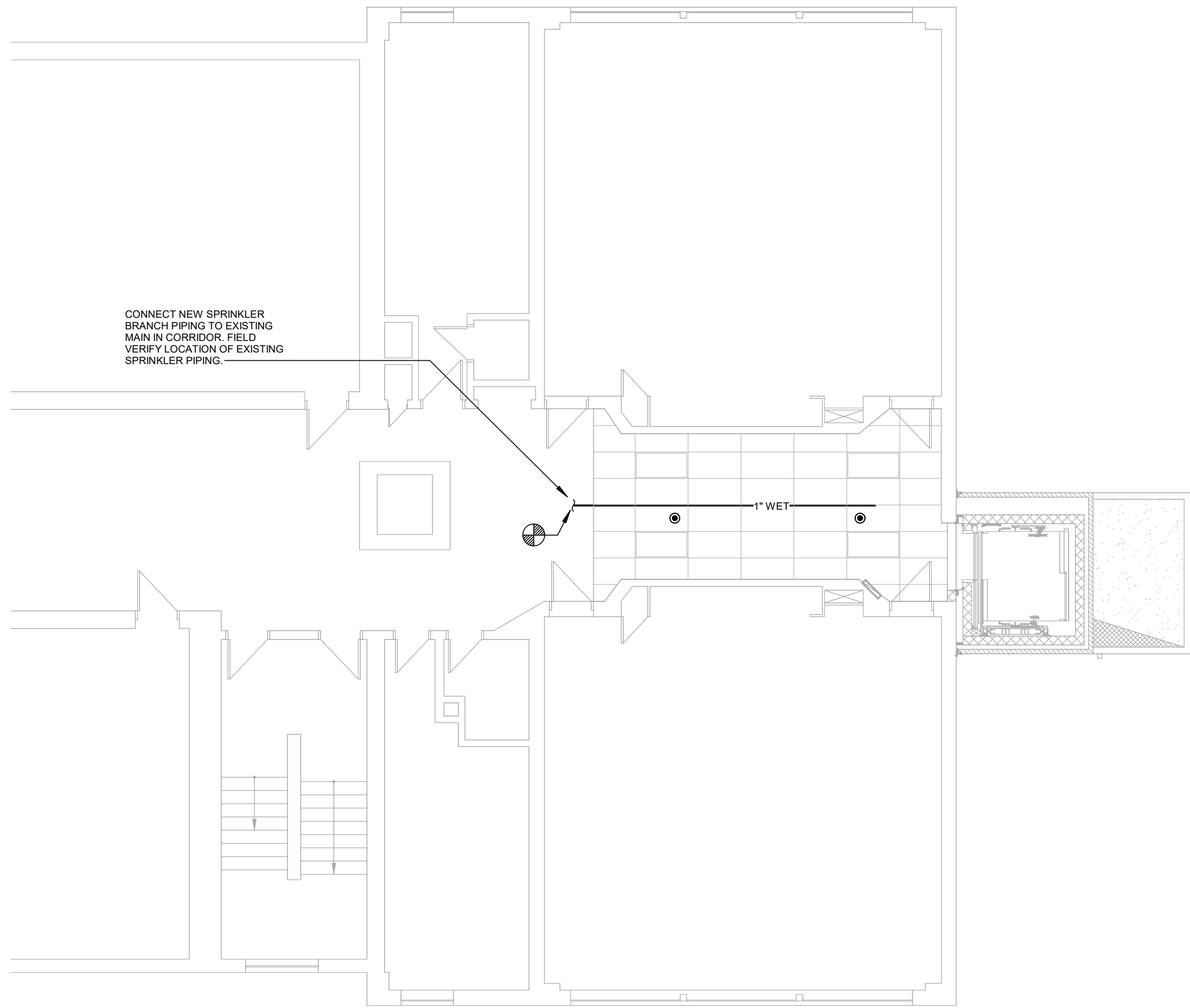
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ELEVATOR ADDITION
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FIRE PROTECTION SECOND AND
THIRD FLOOR PLANS

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DEMOLITION NOTES
<div>DEMOLITION NOTES</div> <div><div><div>1. SITE VISIT: THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. BEFORE SUBMITTING BID, VISIT AND CAREFULLY EXAMINE SITE TO IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK OF THIS SECTION. NO EXTRA PAYMENT WILL BE ALLOWED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY CONSTRUED BY EXPERIENCED OBSERVER.</div><div>2. PREPARATORY WORK: BEFORE STARTING WORK IN A PARTICULAR AREA OF THE PROJECT, VISIT SITE AND EXAMINE CONDITIONS UNDER WHICH WORK MUST BE PERFORMED INCLUDING PREPARATORY WORK DONE UNDER OTHER SECTIONS OR CONTRACTS BY OWNER. REPORT CONDITIONS THAT MIGHT AFFECT WORK ADVERSELY IN WRITING TO ARCHITECT AND OWNER. DO NOT PROCEED WITH WORK UNTIL DEFECTS HAVE BEEN CORRECTED AND CONDITIONS ARE SATISFACTORY. COMMENCEMENT OF WORK SHALL BE CONSTRUED AS COMPLETE ACCEPTANCE OF EXISTING CONDITIONS AND PREPARATORY WORK.</div><div>3. PHASING: DEMOLITION WORK SHALL COMPLY WITH THE PHASING REQUIREMENTS OF THE PROJECT AND BE COORDINATED WITH THE OWNER, ARCHITECT, CM AND ENGINEER. NO REMOVALS SHALL BE IMPLEMENTED WITHOUT A THOROUGH UNDERSTANDING OF THE PHASING REQUIREMENTS.</div><div>4. ABANDONING OF DUCTWORK, PIPING OR EQUIPMENT IN PLACE WITHIN SCOPE AREA IS PROHIBITED.</div><div>5. PROVIDE 2 WEEKS NOTICE TO OWNER FOR SHUT DOWN OF ANY SERVICES AND/OR SYSTEMS.</div><div>6. COORDINATE EXISTING EQUIPMENT AND MATERIALS THAT SHALL REMAIN THE PROPERTY OF THE OWNER. ITEMS OF VALUE WHICH ARE NOT DIRECTED TO BE RETURNED TO THE OWNER, SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM SITE AND LEGALLY DISPOSED OF. STORAGE OR SALE OF ITEMS ON THE PROJECT SITE IS PROHIBITED.</div><div>7. PROTECTION: ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACINGS TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGED PROPERTY TO THE CONDITION BEFORE BEING DAMAGED. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.</div><div>8. UTILITIES: MAINTAIN ALL UTILITIES EXCEPT THOSE REQUIRING REMOVAL OR RELOCATION. KEEP UTILITIES IN SERVICE AND PROTECT FROM DAMAGE. DO NOT INTERRUPT UTILITIES SERVING OCCUPIED AREAS WITHOUT FIRST OBTAINING PERMISSION FROM THE OWNER IN WRITING. PROVIDE TEMPORARY SERVICES AS REQUIRED.</div><div>9. INFORMATION CONTAINED ON THESE DRAWINGS WAS OBTAINED FROM ARCHIVED DRAWINGS AND SITE VISITS. DRAWINGS ARE DIAGRAMMATIC ONLY AND REFLECT OVERALL SYSTEM REMOVAL. NOT EVERY ITEM OR COMPONENT OF A SYSTEM IS SHOWN. PROVIDE COMPLETE REMOVAL OF ASSOCIATED ANCILLARY PIPES, HANGERS, VALVES AND ACCESSORIES SERVING SYSTEM SHOWN.</div><div>10. DEMOLITION WORK SHALL COMPLY WITH OSHA, EPA AND APPLICABLE STATE AND LOCAL CODES. COMPLY WITH HAULING AND DISPOSAL REGULATIONS.</div><div>11. REFER TO SPECIFICATIONS FOR ADDITIONAL DEMOLITION REQUIREMENTS AND PROCEDURES.</div></div><div>PRE-DEMO TESTING, ADJUSTING AND BALANCING (TAB)</div><div><div><div>1. CONFIRM SUPPLY, RETURN AND EXHAUST SYSTEM AIRFLOW CAPACITY THROUGH PRE-CONSTRUCTION TESTING AND BALANCING OF SYSTEMS AFFECTED BY THE WORK. REPORTS SHALL INCLUDE COMPLETE FAN INFORMATION, CFM, ESP, TSP, RPM, VOLTS, AMPS AND VFD SPEEDS.</div><div>2. CONFIRM HYDRONIC SYSTEM CAPACITY THROUGH PRE-CONSTRUCTION TESTING AND BALANCING REPORTS OF SYSTEMS AFFECTED BY THE WORK. REPORTS SHALL INCLUDE PIPE SIZE, FLOW RATE, SUPPLY PRESSURE AND RETURN PRESSURE.</div><div>3. CONFIRM STEAM PIPING CAPACITY THROUGH PRE-CONSTRUCTION TESTING AND BALANCING REPORTS OF SYSTEMS AFFECTED BT THE WORK. REPORTS SHALL INCLUDE PIPE SIZE AND STEAM PRESSURE (PSIG).</div></div></div></div>

GENERAL NOTES
<div>GENERAL</div> <div><div><div>1. GENERAL NOTES, SYMBOLS AND DETAILS ARE APPLICABLE TO ALL DRAWINGS WITHIN DIVISION 23.</div><div>2. DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO INDICATE CAPACITY, SIZE, APPROXIMATE LOCATION AND GENERAL ARRANGEMENT. DETERMINE EXACT LOCATIONS OF SYSTEMS AND COMPONENTS IN FIELD.</div><div>3. COORDINATE ROOF AND WALL PENETRATIONS WITH WORK OF OTHER SECTIONS AND WITH FLASHING REQUIREMENTS. COORDINATE SLAB PENETRATIONS WITH WORK OF OTHER SECTIONS.</div><div>4. RUN DUCTS AND PIPING CONCEALED, UNLESS SPECIFIED OTHERWISE OR AS APPROVED BY THE ARCHITECT.</div><div>5. INSTALL SENSORS (TEMPERATURE, HUMIDITY, CO2, THERMOSTATS) AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY ARCHITECT. MOUNTING HEIGHT AFF SHALL COMPLY WITH ADA AND SHALL BE MOUNTED LEVEL WITH ADJACENT SWITCHES (IE LIGHT SWITCHES).</div><div>6. COORDINATE WORK OF THIS SECTION WITH THAT OF OTHER SECTIONS AND WITH ALL TRADES INVOLVED. PROVIDE OFFSETS IN PIPING AND DUCTS (INCLUDING DIVIDED DUCTS) AND TRANSITIONS AROUND OBSTRUCTIONS.</div><div>7. NOT ALL ACCESS DOORS HAVE BEEN SHOWN ON THE PLANS FOR CLARITY. PROVIDE ACCESS PANELS THROUGH BUILDING ASSEMBLIES TO SERVICE AND MAINTAIN EQUIPMENT UNLESS SUCH EQUIPMENT IS INSTALLED IN EXPOSED LOCATIONS OR ABOVE LAY-IN CEILINGS. COORDINATE THE LOCATION OF ACCESS DOORS AND PANELS AND VERIFY THE EXACT QUANTITY, SIZE, AND LOCATIONS AFTER THE SYSTEMS AND EQUIPMENT REQUIRING ACCESS HAVE BEEN INSTALLED AND PRIOR TO THE CLOSURE OF THE AFFECTED CEILINGS AND BUILDING ASSEMBLIES. OBTAIN APPROVAL FOR ALL PANEL LOCATIONS FROM ARCHITECT.</div><div>8. AT SUBSTANTIAL COMPLETION, THE FOLLOWING ITEMS, NEW OR EXISTING, SHALL BE FULLY AND REASONABLY ACCESSIBLE: HVAC CONTROL BOXES, JUNCTION BOXES, DDC CONTROL BOXES, ELECTRICAL PANELS, FILTERS, BELTS, DISCONNECT SWITCHES AND ELEMENTS OF EQUIPMENT REQUIRING MAINTENANCE. "FULLY AND REASONABLY ACCESSIBLE" SHALL BE DEFINED AS NATIONAL ELECTRIC CODE REQUIRED CLEARANCE FOR POWERED EQUIPMENT AND CAPABLE OF BEING ACCESSED OR SERVICED WITHOUT REMOVING, MODIFYING OR DISTORTING OTHER COMPONENTS OF THE WORK. PROVIDE MANUFACTURERS' RECOMMENDED CLEARANCE FOR ALL EQUIPMENT.</div><div>9. SUPPORT EQUIPMENT, PIPING AND DUCTWORK FROM BUILDING STRUCTURE OR WITH STEEL SUPPORTS AND PLATFORMS AS REQUIRED. PROVIDE VIBRATION ISOLATION FOR ROTATING EQUIPMENT, DUCTWORK AND PIPING IN ACCORDANCE WITH THE SPECIFICATIONS.</div><div>10. CONTROL WIRING METHODS SHALL COMPLY WITH NEC, AND DIVISION 26 SPECIFICATIONS.</div><div>11. VERIFY ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S DRAWINGS. VERIFY AND PROVIDE FITTINGS TO TRANSITION TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DIMENSIONS BEFORE FABRICATION.</div></div></div>

CONTROLS GENERAL NOTES
<div>1. GENERAL</div> <div><div><div>A. SEQUENCES OUTLINED SHALL BE PERFORMED BY DIRECT DIGITAL CONTROL FIELD PANELS (DDCFPS) AND LOCALLY MOUNTED DIRECT DIGITAL UNIT CONTROLLERS CONNECTED TO A CENTRAL BUILDING AUTOMATION SYSTEM. UNLESS OTHERWISE SPECIFIED, SYSTEM ARCHITECTURE SHALL BE BASED ON A PEER-TO-PEER DISTRIBUTED CONTROL SYSTEM NETWORK. SYSTEM SHALL INTEGRATE OPEN COMMUNICATION PROTOCOL CONTROLLERS. ALL DDCFP AND LOCAL CONTROLLERS SHALL BE CAPABLE OF INDEPENDENT OPERATION REGARDLESS OF THE STATUS OF THE BAS WORKSTATION.</div><div>B. BMS (BUILDING MANAGEMENT SYSTEM), BAS (BUILDING AUTOMATION SYSTEM) AND DDC (DIRECT DIGITAL CONTROLS) MAY BE USED INTERCHANGEABLY AND SHARE THE SAME MEANING.</div><div>C. ADDRESS IDENTIFIERS FOR ALL POINTS AND VARIABLES SHALL BE COORDINATED WITH OWNER AND EXISTING CONTROLS AND SHALL BE APPROVED BY THE FACILITY OWNER.</div><div>D. COORDINATE SENSOR LOCATIONS WITH DUCTWORK AND PIPING SHOP DRAWINGS AND INDICATE PROPOSED LOCATIONS ON SUBMITTALS. PROVIDE MANUFACTURER'S RECOMMENDED UPSTREAM AND DOWNSTREAM PIPE OR DUCT DIAMETERS FOR FLOW SENSING ELEMENTS.</div><div>E. FAIL SAFE POSITIONS INDICATED ARE POSITIONS THAT DEVICES WILL GO TO WHEN THE ASSOCIATED EQUIPMENT IS DE-ENERGIZED.</div><div>F. PROVIDE ADEQUATE DAMPING OF ALL MODULATING CONTROL LOOPS TO PREVENT HUNTING. MAXIMUM RESPONSE TIME SHALL BE 30 SECONDS. ALL CONTROL LOOPS SHALL BE TUNED TO PROVIDE FOR STABLE OPERATION OF THE CONTROL DEVICE. LOOP TUNING MAY BE REQUIRED TO BE PERFORMED MULTIPLE TIMES DURING MULTIPLE CONTROL SCENARIOS.</div><div>G. ALL INSTALLED CONTROL DEVICES SHALL BE INSTALLED IN SUCH A WAY TO BE ACCESSIBLE FOR MAINTENANCE AND REPAIR.</div></div><div>2. WIRING</div><div><div><div>A. PROVIDE ALL CONTROLS, LOW VOLTAGE CONTROL WIRING, HARDWARE POINTS (ANALOG IN, ANALOG OUT, BINARY IN, BINARY OUT) AND ACCESSORIES AS REQUIRED TO PERFORM THE CONTROL SEQUENCES INDICATED. ADDITIONALLY, PROVIDE HARDWARE POINTS INDICATED REGARDLESS THAT SUCH POINTS MAY NOT BE REQUIRED TO PERFORM THE CONTROL SEQUENCES INDICATED.</div><div>B. POWER WIRING SHALL COMPLY WITH REQUIREMENTS OF DIVISION 26 SECTIONS.</div><div>C. PROVIDE NORMAL WIRING TO ALL CONTROL DEVICES, INCLUDING CONTROL PANELS, WORKSTATION AND HOST COMPUTERS.</div><div>D. ELECTRICAL CIRCUITS FOR ALL CONTROLS SHALL BE DEDICATED ONLY TO THE BUILDING AUTOMATION CONTROL SYSTEM AND COMPONENTS. ALL WIRING FROM AND INCLUDING DEDICATED CIRCUIT BREAKERS TO THE POINT OF USE SHALL BE PROVIDED.</div></div><div>3. SAFETIES:</div><div><div><div>A. SAFETY DEVICES SUCH AS FREEZESTATS, SMOKE DETECTION, AND HIGH STATIC PRESSURE SWITCHES SHALL BE MANUAL RESET AND SHALL PERFORM ALL ASSOCIATED SHUTDOWN/FAILSAFE ACTIONS VIA HARDWIRING. SOFTWARE SHALL NOT BE USED TO EXCLUSIVELY PERFORM ANY SHUTDOWN/FAILSAFE ACTIONS FROM SAFETY DEVICES. FOR EXAMPLE, FREEZESTATS SHALL SHUT OFF FAN, FULLY OPEN COIL VALVE, AND CLOSE OUTSIDE AIRDAMPER VIA HARDWIRING WITHOUT RELYING ON ANY SOFTWARE FUNCTIONS. SOFTWARE SHUTDOWN/FAILSAFE SHALL BE PROVIDED AS A REDUNDANT BACKUP TO THE REQUIRED HARDWIRED SHUTDOWNS.</div><div>B. DEVICES SUCH AS CUH AND UH SHALL OPERATE ON A SOFT PERMISSIVE, ONLY ALLOWING FANS TO START AND CONTROL VALVES TO OPEN WHEN SYSTEM IS IN HEATING MODE, USE OF AQUASTATS IS NOT ACCEPTABLE.</div><div>C. SAFETY DEVICES SHALL FUNCTION AND SHUT DOWN THE ASSOCIATED EQUIPMENT WHEN THE MANUAL SWITCHES ARE IN BOTH THE HAND AND AUTO POSITIONS.</div></div><div>4. ROOM SENSORS</div><div><div><div>A. FOR CORRIDORS, RESTROOMS, VESTIBULES, STORAGE ROOMS, JANITOR CLOSETS, ELECTRICAL CLOSETS, DATA CLOSETS/ROOMS, AND MECHANICAL ROOMS, PROVIDE WALL MOUNTED, BRUSHED CHROME, WALL PLATE TYPE SENSORS.</div></div></div><div>5. SETPOINTS:</div><div><div><div>A. UNLESS OTHERWISE NOTED, ROOM TEMPERATURE SETPOINTS SHALL BE ADJUSTABLE AT THE LOCAL ROOM THERMOSTAT.</div><div>B. INITIAL SPACE TEMPERATURE SETPOINTS SHALL BE AS FOLLOWS:<div><div><div>a. OFFICES, CIRCULATION SPACES & TOILET ROOMS:<div><div>UNOCCUPIED HEATING</div><div>65 DEGREES F</div></div></div></div><div><div>b. UTILITY ROOMS (ELECTRICAL ROOMS, MECH. ROOMS & PENTHOUSES):<div><div>COOLING OR VENTILATION</div><div>85 DEGREES F (24 HOURS)</div></div><div><div>HEATING</div><div>60 DEGREES F MIN (24 HOURS)</div></div></div></div></div></div></div></div></div></div></div>

DATE:	09/01/2022
DRAWN BY:	CLB
SCALE:	12" = 1'-0"
REVIEWED BY:	DSL
PROJECT NO.	2021-091A

REVISIONS		
NO.	DATE	DESCRIPTION
	11/28/22	ISSUED FOR BID

MECHANICAL ABBREVIATIONS, NOTES AND SYMBOLS
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STATE PROJECT NO. 151-L-0305CV ELEVATOR ADDITION BUNKER HILL ELEMENTARY SCHOOL 170 BUNKER HILL AVENUE WATERBURY, CT 06708
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<div><div><div><div><div></div><div>CL</div><div>S</div></div><div>Consulting Engineering Services, Inc. 811 Middle Street Middletown CT 06457 860-432-1462 ceseng.com CES #2022177.00</div></div></div></div>
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<div><div><div><div></div><div>FRIAR</div><div>21 Talcott Notch Road Farmington, CT 06032</div></div></div></div>

SHEET NO. M0.0

23.00.00 - GENERAL

- A. THESE SPECIFICATIONS ARE APPLICABLE TO ALL PLUMBING, MECHANICAL AND ELECTRICAL DRAWINGS UNLESS NOTED OTHERWISE. REVIEW THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS FOR NOTES, DIMENSIONS, ETC., AND COORDINATE WITH OTHER TRADES INVOLVED. THE WORK REQUIREMENTS DESCRIBED WITHIN DIVISION 20 SPECIFICATION SECTION "COMMON MECHANICAL / ELECTRICAL REQUIREMENTS" FORM COMPLEMENTARY REQUIREMENTS TO THE SCOPE OF WORK CONTAINED WITHIN DIVISION 23.
- B. DESCRIPTION
- THIS PROJECT COMPRISES ALTERATIONS AND RENOVATIONS TO THE EXISTING BUILDING. THE EXISTING BUILDING IS CURRENTLY OCCUPIED AND THE PROJECT SHALL PROCEED IN A MANNER THAT MINIMIZES ANY INCONVENIENCE TO THE BUILDING OCCUPANTS.
 - SCOPE OF WORK CONSISTS OF INSTALLATION OF MATERIALS TO BE FURNISHED UNDER THE CONTRACT DOCUMENTS AND WITHOUT LIMITING GENERALITY THEREOF CONSISTS OF FURNISHING LABOR, MATERIALS, EQUIPMENT, HOISTING, TRANSPORTATION, RIGGING, STAGING, APPURTENANCES, AND SERVICES NECESSARY AND/OR INCIDENTAL TO PROPERLY COMPLETE ALL WORK AS SHOWN ON THE DRAWINGS AND DESCRIBED HEREIN.
- C. DEFINITIONS: THE FOLLOWING DEFINITIONS APPLY TO THIS CONTRACT
- FURNISH: THE TERM "FURNISH" MEANS TO "SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS"
 - INSTALL: THE TERM "INSTALL" IS USED TO DESCRIBE OPERATIONS AT PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTION, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS."
 - PROVIDE: THE TERM "PROVIDE" MEANS "TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE."
 - REMOVE: THE TERM "REMOVE" MEANS TO DISCONNECT FROM ITS PRESENT POSITION, REMOVE FROM THE PREMISES AND TO DISPOSE OF IN A LEGAL MANNER."
 - SUBSTITUTIONS: "SUBSTITUTIONS" ARE REQUESTS FOR CHANGES IN PRODUCTS, MATERIALS AND/OR METHODS OF CONSTRUCTION AS PROPOSED BY THE CONTRACTOR AFTER AWARD OF THE CONTRACT."
- D. DRAWINGS
- DRAWINGS ARE DIAGRAMMATIC. THE FINAL PLACEMENT OF EQUIPMENT OR DEVICES IN THE FIELD MAY NOT DIRECTLY CORRESPOND TO THAT WHICH IS SHOWN ON THE DRAWINGS. THOUGH SOME OFFSETS & TRANSITIONS MAY BE SHOWN IN PIPING & SHEET METAL TO HELP INDICATE THE PHYSICAL RELATIONSHIP BETWEEN THEM, IT IS NOT THE INTENT OF THE DRAWINGS TO SHOW ALL PIPING & SHEET METAL OFFSETS & TRANSITIONS REQUIRED. THE CONTRACTOR SHALL FULLY COORDINATE THE WORK AND PROVIDE ALL MATERIALS, EQUIPMENT AND LABOR NECESSARY TO COMPLETE THE WORK OUTLINED ON THESE CONTRACT DOCUMENTS. IF A CONFLICT IN POSITIONING OCCURS THE CONTRACTOR IS TO NOTIFY THE ENGINEER IMMEDIATELY TO ASCERTAIN WHAT THE INTENT WAS BY THE DESIGN PROFESSIONAL.
- E. CODES AND STANDARDS: WORK SHALL CONFORM TO THE CURRENT EDITIONS OF THE FOLLOWING:
- SHEET METAL SMACNA STANDARDS
 - INTERNATIONAL MECHANICAL CODE
 - INTERNATIONAL ENERGY CONSERVATION CODE
 - INTERNATIONAL EXISTING BUILDING CODE
 - ALL OTHER APPLICABLE STATE AND LOCAL CODES AND ORDINANCES/OWNER STANDARDS AND BASE BUILDING SPECIFICATIONS AND STANDARDS.
- F. PERMITS AND FEES:
- THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS, AND PAY ALL GOVERNMENT AND STATE SALES TAXES AND FEES WHERE APPLICABLE, AND OTHER COSTS, INCLUDING UTILITY CONNECTIONS OR EXTENSIONS IN CONNECTION WITH THE WORK, FILE ALL NECESSARY DRAWINGS, PREPARE ALL DOCUMENTS AND OBTAIN ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL AND STATE DEPARTMENTS HAVING JURISDICTION, OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER A COPY TO THE OWNER AND ENGINEER BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.
- G. EXISTING SYSTEMS AND EQUIPMENT
- EXISTING TO BE REUSED/RELOCATED EQUIPMENT: REPORT ANY EXISTING EQUIPMENT DEFICIENCIES TO THE OWNER AND THE ARCHITECT AND/OR ENGINEER.
 - CONNECT WORK TO VARIOUS EXISTING SYSTEMS AS INDICATED ON THE DRAWINGS. WORK SHALL BE COMPATIBLE WITH THE EXISTING SYSTEM CONDITIONS. ALL WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED AS WELL AS WITH EXISTING SYSTEMS, THE STRUCTURE, AND OTHER OBSTRUCTIONS.
 - PROVIDE THE FOLLOWING SERVICES ON ALL EXISTING HVAC EQUIPMENT INDICATED TO REMAIN:
 - CLEAN CONDENSATE PAN AND TRAP
 - CALIBRATE CONTROLS
 - FILTER CHANGES
 - VERIFY FAN ROTATION AND OPERATION
 - BALANCING
 - VERIFY PITCH OF CONDENSATE DRAIN PIPES AND DRAIN PAN
 - VERIFY EQUIPMENT CONTROL OPERATION
 - LUBRICATION OF FANS, MOTORS, ETC.
 - CLEAN HEATING/COOLING COILS
- H. SURVEY AND MEASUREMENTS
- THIS PROJECT INVOLVES CONSTRUCTION INSIDE AN EXISTING STRUCTURE. CONTRACTORS, BY SUBMITTING A BID, SHALL BE COMPLETELY FAMILIAR WITH THE EXISTING CONDITION OF THE BUILDING AS IT INFLUENCES THE WORK DESCRIBED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS.
 - DO NOT SCALE DRAWINGS. SCALE INDICATED ON DRAWINGS IS FOR ESTABLISHING REFERENCE POINTS ONLY. ACTUAL FIELD CONDITIONS SHALL GIVERN ALL DIMENSIONS.
 - PRIOR TO ORDERING ANY MATERIALS AND EQUIPMENT, THOROUGHLY REVIEW THE SITE CONDITIONS TO DETERMINE IF ADEQUATE CLEARANCES AND ACCESS IS ALLOWED TO INSTALL THE COMPONENTS. ORDER EQUIPMENT BROKEN DOWN AS NECESSARY TO ALLOW FOR PROPER RIGGING THROUGH THE PROJECT AREA. PROVIDE ALL NECESSARY ALTERATIONS TO THE STRUCTURE OF THE BUILDING AS NECESSARY TO RIG THE EQUIPMENT IN PLACE.
 - CONTRACTORS SHALL VERIFY, LAYOUT AND BE RESPONSIBLE FOR ALL MEASUREMENTS OF ALL EXISTING CONDITIONS BEFORE COMMENCING WORK AND SHALL NOTIFY ARCHITECT AND/OR ENGINEER IF A CONDITION EXISTS THAT PREVENTS THE CONTRACTOR FROM ACCOMPLISHING THE INTENT OF THE DRAWINGS.
- I. SUBMITTALS AND SHOP DRAWINGS
- SUBMIT FOR REVIEW, ELECTRONIC SHOP DRAWINGS IN SEARCHABLE PDF FORMAT FOR THE FOLLOWING.
 - SUBMITTAL DATA FOR ALL MATERIAL AND EQUIPMENT. CLEARLY IDENTIFY DEVIATIONS OF THE SUBMITTED PRODUCTS FROM THE DESIGN.
 - CONTROLS SHOP DRAWINGS: INCLUDE EQUIPMENT AND SYSTEM CONTROL SCHEMATICS, SEQUENCES OF OPERATIONS, LOGIC DIAGRAMS AND SYSTEM COMPONENTS INCLUDING DETAILS OF TIE-IN TO EXISTING BUILDING CONTROL MANAGEMENT SYSTEM.
 - DO NOT USE SHOP DRAWINGS WITHOUT AN APPROPRIATE FINAL STAMP INDICATING ACTION TAKEN IN CONNECTION WITH CONSTRUCTION.
 - DO NOT ORDER ANY MATERIALS OR EQUIPMENT PRIOR TO RECEIVING FINAL APPROVED SUBMITTALS.
 - SCHEDULE AT LEAST TEN WORKING DAYS EXCLUSIVE OF TRANSMITTAL TIME, FOR SUBMITTAL REVIEW.
- J. AS-BUILT DRAWINGS
- MAINTAIN ONE SET OF PRINTS ON THE SITE AND NOTE ALL CHANGES OR DEVIATIONS FROM THE ORIGINAL DESIGN THEREON. AT THE COMPLETION OF THE PROJECT, INCORPORATE ALL CHANGES INTO RECORD AS-BUILT DRAWINGS IN ELECTRONIC FORMAT AND SUBMIT FOR APPROVAL.

11. OPERATION AND MAINTENANCE

- UPON COMPLETION OF ALL WORK AND TESTS, THE CONTRACTOR SHALL INSTRUCT THE OWNER OR THE OWNER'S REPRESENTATIVE IN THE OPERATION, ADJUSTMENT AND MAINTENANCE OF ALL EQUIPMENT FURNISHED. THE CONTRACTOR SHALL GIVE AT LEAST SEVEN (7) DAYS NOTICE TO THE OWNER AND THE ENGINEER IN ADVANCE OF THIS PERIOD.
 - THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A COMPLETE OPERATION AND MAINTENANCE MANUAL, BOUND IN BOOKLET FORM. ORGANIZE OPERATING AND MAINTENANCE DATA INTO SUITABLE SETS OF MANAGEABLE SIZE. BIND PROPERLY INDEXED DATA IN INDIVIDUAL HEAVY-DUTY 3-RING VINYL-COVERED BINDERS, WITH POCKET FOLDERS FOR FOLDED SHEET INFORMATION AND DESIGNATION PARTITIONS WITH IDENTIFICATION TABS. MARK APPROPRIATE IDENTIFICATION ON FRONT AND SPINE OF EACH BINDER.
 - OPERATION AND MAINTENANCE MANUAL SHALL INCLUDE THE FOLLOWING:
 - MANUFACTURER'S PRINTED OPERATING AND MAINTENANCE PROCEDURES.
 - MAINTENANCE PROCEDURES FOR ROUTINE PREVENTATIVE MAINTENANCE AND TROUBLESHOOTING.
 - COPIES OF WARRANTIES.
 - APPROVED SHOP DRAWINGS AND PRODUCT DATA.
 - INCLUDE IN THE MANUAL, A TABULATED EQUIPMENT SCHEDULE FOR ALL EQUIPMENT. SCHEDULE SHALL INCLUDE PERTINENT DATA SUCH AS: MAKE, MODEL NUMBER, SERIAL NUMBER, VOLTAGE, NORMAL OPERATING CURRENT, BELT SIZE, FILTER QUANTITIES AND SIZES, BEARING NUMBER, ETC. SCHEDULE SHALL INCLUDE MAINTENANCE TO BE DONE AND FREQUENCY.
 - MAINTENANCE AND INSTRUCTION MANUALS SHALL BE SUBMITTED TO THE OWNER AT THE SAME TIME AS THE SEVEN (7) DAY NOTICE IS GIVEN PRIOR TO THE INSTRUCTION PERIOD.
12. CLEANING
- ALL WORK AREAS SHALL BE LEFT AS CLEAN AS NEW. CLEAN INTERNALS OF ALL DUCTWORK AND AIR HANDLING UNITS AND REPLACE FILTERS AFTERWARDS.
 - PIPING: AFTER CONDENSATE PIPING HAS BEEN PRESSURE TESTED AND APPROVED FOR TIGHTNESS, CLEAN AND FLUSH PIPING.
 - EQUIPMENT: AFTER COMPLETION OF PROJECT, CLEAN THE EXTERIOR SURFACE OF EQUIPMENT INCLUDED IN THIS SECTION, INCLUDING REMOVAL OF CONCRETE RESIDUE.
 - WORK AREA: AFTER COMPLETION OF PROJECT, REMOVE ALL CONSTRUCTION DEBRIS. TEMPORARY FACILITIES AND EQUIPMENT FROM WORK AREA. CLEAN WORK AREA TO PERMIT OCCUPATION.
13. GUARANTEE
- GUARANTEE WORK OF THESE CONTRACT DOCUMENTS IN WRITING FOR NOT LESS THAN ONE (1) YEAR FROM DATE OF FINAL NOTICE OF ACCEPTANCE. REPAIR OR REPLACE DEFECTIVE MATERIALS, EQUIPMENT, WORKMANSHIP AND INSTALLATION THAT DEVELOP WITHIN THIS PERIOD, PROMPT AND TO OWNER'S SATISFACTION AND CORRECT DAMAGE CAUSED IN MAKING NECESSARY REPAIRS AND REPLACEMENTS UNDER GUARANTEE WITHIN CONTRACT PRICE.
14. MEANS AND METHODS ALL TRADES
- INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
 - DO NOT BURN WASTE MATERIALS. DO NOT BURY DEBRIS OR EXCESS MATERIALS ON THE OWNER'S PROPERTY. DO NOT DISCHARGE VOLATILE, HARMFUL OR DANGEROUS MATERIALS INTO DRAINAGE SYSTEMS. REMOVE AND DISPOSE OF ALL WASTE MATERIALS, PACKAGING MATERIAL, SKIDS ETC. FROM THE SITE AND DISPOSE OF IN A LAWFUL MANNER IN ACCORDANCE WITH MUNICIPAL, STATE AND FEDERAL REGULATIONS.
 - MATERIALS AND EQUIPMENT SHALL BE UL LISTED WHERE STANDARD HAS BEEN ESTABLISHED.
 - CAREFULLY INSPECT ALL BUILDING ELEMENTS PRIOR TO CUTTING OR DRILLING INTO WALL, FLOORS OR CEILINGS. PATCH AND PAINT SURFACES DISTURBED BY WORK UNDER THIS CONTRACT AS REQUIRED TO RESTORE THEM TO THEIR ORIGINAL CONDITION.
 - SCAFFOLDING, RIGGING, HOISTING: THE CONTRACTOR SHALL FURNISH ALL SCAFFOLDING, RIGGING, HOISTING AND SERVICES NECESSARY FOR ERECTION AND DELIVERY INTO THE PREMISES ANY EQUIPMENT AND APPARATUS FURNISHED UNDER THIS DIVISION. REMOVE SAME FROM PREMISES WHEN NO LONGER REQUIRED.
 - EXCAVATION AND BACKFILLING: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE SIGNS, DRAFTS, FILL AND BEDDING REQUIREMENTS AND ANY OTHER EXCAVATION WORK REQUIRED UNDER THESE SPECIFICATIONS.
 - WATERPROOFING: WHERE ANY WORK PIERCES WATERPROOFING, INCLUDING WATERPROOF CONCRETE, ROOFS, EXTERIOR WALL AND FLOORS IN WET AREAS, THE METHOD OF INSTALLATION SHALL BE REVIEWED BY THE ENGINEER BEFORE WORK IS DONE. THE CONTRACTOR SHALL FURNISH ALL NECESSARY SLEEVES, CAULKING AND FLASHING REQUIRED TO MAKE OPENINGS ABSOLUTELY WATERTIGHT.
 - PROVIDE FIRESTOPPING AROUND ALL FIRE PROTECTION, PLUMBING, MECHANICAL AND ELECTRICAL PENETRATIONS THROUGH FIRE-RATED PARTITIONS. PROVIDE ASBESTOS FREE FIRESTOPPING SYSTEM CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME AND GASES. SYSTEM SHALL BE UL LISTED AND COMPLY WITH ASTM E 814.
 - PROVIDE ACCESS PANELS IN WALLS, FLOORS AND GYPSUM WALL BOARD CEILINGS TO ALLOW ACCESS TO: HEATERS, FAN BOXES AND OTHER APPARATUS AND EQUIPMENT REQUIRING PERIODIC SERVICE AND INSPECTION. NOT ALL ACCESS PANELS ARE INDICATED ON THE PLANS. REVIEW ARCHITECTURAL AND MECHANICAL PLANS TO DETERMINE THE LOCATION AND QUANTITY OF ACCESS PANELS REQUIRED. COORDINATE TYPE AND LOCATION WITH ARCHITECTURAL PLANS.

23.05.05 - DEMOLITION

- REFER TO DRAWINGS FOR GENERAL DESCRIPTION OF AREAS REQUIRING DEMOLITION.
- ANY DEMOLITION SHALL BE COORDINATED WITH OWNER, ARCHITECT, G.C., AND ENGINEER
- REFER TO GENERAL CONTRACTOR'S/CONSTRUCTION MANAGER'S INSTRUCTIONS FOR EXISTING EQUIPMENT AND MATERIALS THAT SHALL REMAIN THE PROPERTY OF THE OWNER.
- WHERE IT IS NOTED THAT ITEMS OF VALUE ARE NOT TO BE RETURNED TO THE OWNER, THE ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR. STORAGE OR SALE OF ITEMS ON THE PROJECT SITE IS PROHIBITED. ITEMS SHALL BE REMOVED FROM SITE AND LEGALLY DISPOSED OF.
- PROTECTION: ENSURE THE SAFE PASSAGE OF PERSONS IN AND AROUND THE BUILDING/SITE DURING DEMOLITION. PREVENT INJURY TO PERSONS AND DAMAGE TO PROPERTY. PROVIDE ADEQUATE SHORING AND BRACING TO PREVENT COLLAPSE. IMMEDIATELY REPAIR DAMAGE TO THE CONDITION BEFORE BEING DAMAGED TO THE SATISFACTION OF THE ARCHITECT AND OWNER. TAKE EFFECTIVE MEASURES TO PREVENT WINDBLOWN DUST.
- UTILITIES:
 - MAINTAIN UTILITIES EXCEPT THOSE REQUIRING REMOVAL OR RELOCATION. KEEP UTILITIES IN SERVICE AND PROTECT FROM DAMAGE. DO NOT INTERRUPT UTILITIES SERVING IN-USE AREAS WITHOUT FIRST OBTAINING PERMISSION FROM THE UTILITY COMPANY AND THE OWNER.
 - COORDINATE ALL INTERRUPTIONS OF SERVICES AND LIMITATIONS OF ACCESS WITH THE OWNER NO LESS THAN 5 DAYS PRIOR TO THE INTERRUPTION.
 - PROVIDE TEMPORARY SERVICES AS REQUIRED. SHUTDOWN OF EXISTING SYSTEMS FOR CONNECTION OF NEW WORK SHALL BE COORDINATED IN ADVANCE WITH THE CONSTRUCTION MANAGER AND BUILDING OWNER.
- DISCONNECT, DEMOLISH, AND REMOVE HVAC SYSTEMS, EQUIPMENT, AND COMPONENTS INDICATED TO BE REMOVED, PIPING TO BE REMOVED. REMOVE PORTION OF PIPING INDICATED TO BE REMOVED AND CAP REMAINING PIPING WITH SAME OR COMPATIBLE PIPING MATERIAL.
 - PIPING TO BE ABANDONED IN PLACE: DRAIN PIPING AND CAP PIPING WITH SAME OR COMPATIBLE PIPING MATERIAL.
 - DUCTS TO BE ABANDONED IN PLACE: CAP DUCTS WITH SAME OR COMPATIBLE DUCTWORK MATERIAL.
 - EQUIPMENT TO BE REMOVED: DISCONNECT AND CAP SERVICES AND REMOVE EQUIPMENT.
 - EQUIPMENT TO BE REMOVED AND REINSTALLED: DISCONNECT AND CAP SERVICES AND REMOVE, CLEAN, AND STORE EQUIPMENT; WHEN APPROPRIATE, REINSTALL, RECONNECT, AND MAKE EQUIPMENT OPERATIONAL.
- IF PIPE, INSULATION, OR EQUIPMENT TO REMAIN IS DAMAGED IN APPEARANCE OR IS UNSERVICEABLE, REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF EQUAL CAPACITY AND QUALITY.

23.05.29 - HANGERS AND SUPPORTS

- PROVIDE PIPE STANDS, SUPPORTS, HANGERS AND OTHER SUPPORTING APPLIANCES AS NECESSARY TO SUPPORT WORK REQUIRED BY CONTRACT DOCUMENTS. SPACING OF HANGERS SHALL BE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF MECHANICAL CODES, STRUCTURAL STEEL SUPPORTS, HANGERS, ETC. SHALL BE ANGLE IRON, STEEL CHANNEL OR STEEL ROD USED WITH APPROVED CLAMPS, INSERTS, ETC. ALL SUPPORTS, HANGERS, BRACKETS, ETC., SHALL BE AS APPROVED BY THE ENGINEER.
- ALL HANGERS SHALL BE GALVANIZED.
- ATTACH HANGERS AND SUPPORTS DIRECTLY ONTO THE STRUCTURE BY FIRST REMOVING EXISTING FIRE PROOFING AND AFTER SECURING THE ATTACHMENT, REPAIRING THE FIRE PROOFING TO ITS ORIGINAL CONDITION, CONTINUOUSLY OVER THE ATTACHMENT.
- FOR EXPANSION BOLTS/SHIELDS USE RED HEAD, HILTI OR WE-I-T SELF DRILLING OR STEEL SHIELD, LOAD RATED. DO NOT USE DRILLED ANCHORS IN POST TENSION SLABS WITHOUT APPROVAL OF OWNER. DO NOT CUT REINFORCING STEEL WITH DRILLED INSERTS.

23.05.48 - VIBRATION AND SEISMIC CONTROLS FOR HVAC

- PROVIDE VIBRATION ISOLATION FOR EACH PIECE OF ROTATING OR RECIPROCATING HVAC EQUIPMENT SHOWN ON THE DRAWINGS. ALL ISOLATION COMPONENTS SHALL BE SUPPLIED BY A SINGLE MANUFACTURER - MASON INDUSTRIES, KINETICS OR AMBER BOOTH. TYPES OF ISOLATORS, REQUIRED DEFLECTIONS, AND INSTALLATION PRACTICES SHALL BE IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE VIBRATION ISOLATION MANUFACTURER.
- PROVIDE SEISMIC RESTRAINTS AS REQUIRED BY CODE. FOR EACH SEISMIC RESTRAINT, PROVIDE CERTIFIED CALCULATIONS TO VERIFY ADEQUACY TO MEET THE FOLLOWING DESIGN REQUIREMENTS: ABILITY TO ACCOMMODATE RELATIVE SEISMIC DISPLACEMENTS OF SUPPORTED ITEM BETWEEN POINTS OF SUPPORT. ABILITY TO ACCOMMODATE THE REQUIRED SEISMIC FORCES. FOR EACH RESPECTIVE SET OF ANCHOR BOLTS PROVIDE CALCULATIONS TO VERIFY ADEQUACY TO MEET COMBINED SEISMIC-INDUCED SHEAR AND TENSION FORCES. FOR EACH WELDMENT BETWEEN STRUCTURE AND ITEM SUBJECT TO SEISMIC FORCE, PROVIDE CALCULATIONS TO VERIFY ADEQUACY. CALCULATIONS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER WHO IS REGISTERED IN THE STATE WHERE THE WORK IS BEING PERFORMED AND HAS SPECIFIC EXPERIENCE IN SEISMIC CALCULATIONS. RESTRAINTS SHALL MAINTAIN THE RESTRAINED ITEM IN A CAPTIVE POSITION WITHOUT SHORT CIRCUITING THE VIBRATION ISOLATION.

23.05.53 - PIPE AND DUCT IDENTIFICATION

- MACHINERY SUCH AS RTUs, FANS, ETC., SHALL BE LABELED WITH PLASTIC LABELS WITH ENGRAVED EQUIPMENT NUMBER CORRESPONDING TO DRAWING SCHEDULE NUMBERS.

23.05.93 - TESTING ADJUSTING AND BALANCING

- PROVIDE QUALIFIED PERSONNEL, EQUIPMENT, APPARATUS AND SERVICES FOR START-UP, TESTING AND BALANCING OF MECHANICAL SYSTEMS, TO PERFORMANCE DATA SHOWN IN SCHEDULES, AS SPECIFIED, AND AS REQUIRED BY CODES, STANDARDS, REGULATIONS AND AUTHORITIES HAVING JURISDICTION INCLUDING CITY INSPECTORS, OWNERS AND ARCHITECT
- PROVIDE THE SERVICES OF AN INDEPENDENT TESTING, ADJUSTING, AND BALANCING (TAB) AGENCY TO PROVIDE TAB SERVICES FOR THE MECHANICAL SYSTEMS. THE TAB AGENCY SHALL BE CERTIFIED BY NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB) OR THE ASSOCIATED AIR BALANCE COUNCIL (AABC) IN THOSE TESTING AND BALANCING DISCIPLINES REQUIRED FOR THIS PROJECT. THE TAB AGENCY SHALL HAVE AT LEAST ONE PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE SERVICES ARE TO BE PERFORMED AND CERTIFIED BY NEBB OR AABC AS A TEST AND BALANCE ENGINEER.
- PRIOR TO TESTING, ADJUSTING, AND BALANCING, THE MECHANICAL CONTRACTOR SHALL VERIFY THAT THE SYSTEMS HAVE BEEN INSTALLED AND ARE OPERATING AS SPECIFIED. APPROVED SHOP DRAWINGS, AS BUILT DRAWINGS, AND ALL OTHER DATA REQUIRED FOR EACH SYSTEM AND/OR COMPONENT TO BE TESTED SHALL BE MADE AVAILABLE AT THE JOB SITE DURING THE ENTIRE TAB EFFORT. THE OWNER SHALL BE NOTIFIED IN WRITING OF ALL EQUIPMENT COMPONENTS, OR BALANCING DEVICES THAT ARE DAMAGED, INCORRECTLY INSTALLED, OR MISSING, AS WELL AS ANY DESIGN DEFICIENCIES THAT WILL PREVENT PROPER TESTING, ADJUSTING, AND BALANCING. TESTING, ADJUSTING, AND BALANCING SHALL NOT COMMENCE UNTIL APPROVED BY THE OWNER.
- PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM IDENTIFIED, IN ACCORDANCE WITH THE DETAILED PROCEDURES OUTLINED IN EITHER NEBB, "PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS" OR AABC, "NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE." THE TAB AGENCY SHALL TEST, ADJUST, AND BALANCE THE FOLLOWING MECHANICAL SYSTEMS:
 - VERIFY OPERATION OF ALL TEMPERATURE CONTROL SYSTEMS
 - TEST SYSTEMS FOR PROPER SOUND AND VIBRATION LEVELS
- SUBMIT TESTING, ADJUSTING, AND BALANCING REPORTS BEARING THE SEAL AND SIGNATURE OF THE TAB PROFESSIONAL ENGINEER. PREPARE A REPORT OF RECOMMENDATIONS FOR CORRECTING UNSATISFACTORY MECHANICAL PERFORMANCES WHEN A SYSTEM CANNOT BE SUCCESSFULLY BALANCED.
- START UP ALL SYSTEMS, PRESSURE TEST DUCTWORK AND PIPING, AND BALANCE SYSTEMS INCLUDING, BUT NOT LIMITED TO, ALL NEW AND EXISTING REGISTERS, GRILLES, DIFFUSERS, TERMINAL UNITS, FANS, ETC. WITHIN THE AREA OF WORK TO PERFORMANCE DATA SHOWN ON PLANS, SCHEDULES, AND AS SPECIFIED.
- DO NOT COVER OR CONCEAL WORK BEFORE TESTING AND INSPECTION AND OBTAINING APPROVAL.
- LEAKS, DAMAGE AND DEFECTS DISCOVERED OR RESULTING FROM STARTUP, TESTING, AND BALANCING SHALL BE REPAIRED OR REPLACED TO LIKE-NEW CONDITION WITH ACCEPTABLE MATERIALS. TEST SHALL BE CONTINUED UNTIL SYSTEM OPERATES WITHOUT ADJUSTMENT OR REPAIR.
- REPORT ON REPORTING FORMS, SUBMITTED TO ARCHITECT FOR APPROVAL IN ADVANCE.
- SUBMIT PROCEDURES, RECORDING FORMS, AND TEST EQUIPMENT FOR REVIEW PRIOR TO BALANCING, AS DESCRIBED IN SPECIFICATIONS. SUBMIT ELECTRONIC COPY OF TESTING AND BALANCING REPORTS TO ARCHITECT FOR APPROVAL.
- FURNISH ALL TEST MEDIUMS AND DISPOSE OF ALL TEST MEDIUMS AT AN APPROVED OFF-SITE LOCATION AFTER TESTING IS COMPLETE.
- NOTE REQUIREMENT ABOVE FOR CFM AND STATIC PRESSURE READINGS PRIOR TO DEMOLITION.

- THE BALANCING CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL DIRECTIONAL ADJUSTMENT OF ALL LINEAR DIFFUSERS AS INDICATED ON PLANS. IF NO DIRECTIONAL FLOW IS INDICATED INTERIOR LINEAR DIFFUSERS SHALL BE DIRECTED HORIZONTALLY AND PERIMETER LINEAR DIFFUSER SHALL BE DIRECTED VERTICALLY. IF PERIMETER LINEAR DIFFUSERS HAVE MULTIPLE SLOTS THE PERIMETER SLOT DIRECTED VERTICALLY, AND THE INTERIOR SLOT DIRECTED HORIZONTALLY TOWARDS THE INTERIOR SPACE.

23.08.00 - COMMISSIONING OF HVAC

- SCOPE OF HVAC TESTING SHALL INCLUDE HEAT GENERATION THROUGH DISTRIBUTION SYSTEMS TO EACH NEW CONDITIONED SPACE. TESTING SHALL INCLUDE MEASURING CAPACITIES AND EFFECTIVENESS OF OPERATIONAL AND CONTROL FUNCTIONS.
- TEST ALL OPERATING MODES, INTERLOCKS, CONTROL RESPONSES, AND RESPONSES TO ABNORMAL OR EMERGENCY CONDITIONS.
- THE CXA ALONG WITH THE HVAC CONTRACTOR, TESTING AND BALANCING CONTRACTOR, AND CONTROLS CONTRACTOR SHALL PREPARE DETAILED TESTING PLANS, PROCEDURES, AND CHECKLISTS FOR HVAC SYSTEMS, SUBSYSTEMS, AND EQUIPMENT.
- PERFORM COMMISSIONING TESTS AT THE DIRECTION OF THE CXA. PROVIDE TECHNICIANS, INSTRUMENTATION, AND TOOLS REQUIRED TO PERFORM COMMISSIONING TESTS. PROVIDE INFORMATION REQUESTED BY THE CXA FOR FINAL COMMISSIONING DOCUMENTATION.

23.09.00 - INSTRUMENTATION AND CONTROLS

- PROVIDE COMPLETE SYSTEM OF AUTOMATIC TEMPERATURE CONTROLS (ATC). CONTROL SYSTEM SHALL BE CAPABLE OF PERFORMING ALL SEQUENCES OF OPERATION SHOWN ON THE DRAWINGS OR DESCRIBED IN THESE SPECIFICATIONS. INDIVIDUAL CONTROL COMPONENTS MAY NOT BE SHOWN ON CONTRACT DOCUMENTS, BUT THE CONTRACTOR SHALL SUPPLY ALL COMPONENTS, AND CONTROL WIRING NECESSARY FOR A COMPLETE OPERABLE SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SYSTEM COMPONENTS, WHETHER THE ELECTRICAL OR OTHER WORK IS SUBCONTRACTED OR NOT.
- INSTALL THERMOSTATS AT MOUNTING HEIGHTS ABOVE FINISHED FLOOR IN ACCORDANCE WITH "ADA" REQUIREMENTS, OR AS DIRECTED OTHERWISE BY ARCHITECT.
- ALL SAFETY SWITCHES AND CUT OUTS SHALL BE FIELD CALIBRATED AND SET PRIOR TO START-UP EQUIPMENT.
- ALL CONTROL WIRING SHALL COMPLY WITH THE REQUIREMENTS OF THE ELECTRICAL SPECIFICATIONS.
- SUBMIT TO ARCHITECT A POINT-TO-POINT WIRING DIAGRAM LAYOUT SHOWING MANUFACTURERS AND MODEL NUMBERS OF ALL CONTROL COMPONENTS. INCLUDE WRITTEN DESCRIPTION OF SYSTEM OPERATION.
- WIRING BETWEEN FIRE ALARM SYSTEM AND TEMPERATURE CONTROL SYSTEM, EXCEPT FOR DUCT MOUNTED SMOKE DETECTORS, SHALL BE BY MECHANICAL CONTRACTOR.
- ROOM THERMOSTAT SENSORS AND TRANSMITTERS IN PUBLIC AREAS SHALL HAVE METAL COVER WITH TAMPER PROOF SCREWS AND CONCEALED ADJUSTMENT. HEATING/COOLING THERMOSTATS SHALL HAVE AN ADJUSTABLE DEADBAND.
- LOCAL CONTROLLERS, RELAYS, SWITCHES, AND OTHER CONTROL COMPONENTS SHALL BE MOUNTED ON ENCLOSED CONTROL PANELS WITH HINGE-LOCK DOOR MOUNTED NEXT TO SYSTEM CONTROLLED. TEMPERATURE SETTINGS, ADJUSTMENTS AND CALIBRATIONS SHALL BE MADE AT SYSTEM CONTROL PANEL. PANEL SHALL HAVE CANOPY LIGHT AND ON-OFF SWITCH.

23.82.00 - HEATING AND COOLING UNITS

- UNIT HEATERS

 - PROVIDE UNIT HEATERS OF TYPE AND CAPACITIES AS INDICATED ON SCHEDULES. PROVIDE THERMOSTATS AND MANUFACTURER'S STANDARD SAFETY CONTROLS. ACCEPTABLE MANUFACTURERS: TRANE, MCQUAY, AAF, Q-MARK, INDEECO OR STERLING.

DATE:	08/01/2022
CLB	
DRAWN BY:	12" = 1'-0"
SCALE:	
REVIEWED BY:	DSL
PROJECT NO.	2021-091A

REVISIONS		
NO.	DATE	DESCRIPTION
	11/28/22	ISSUED FOR BID

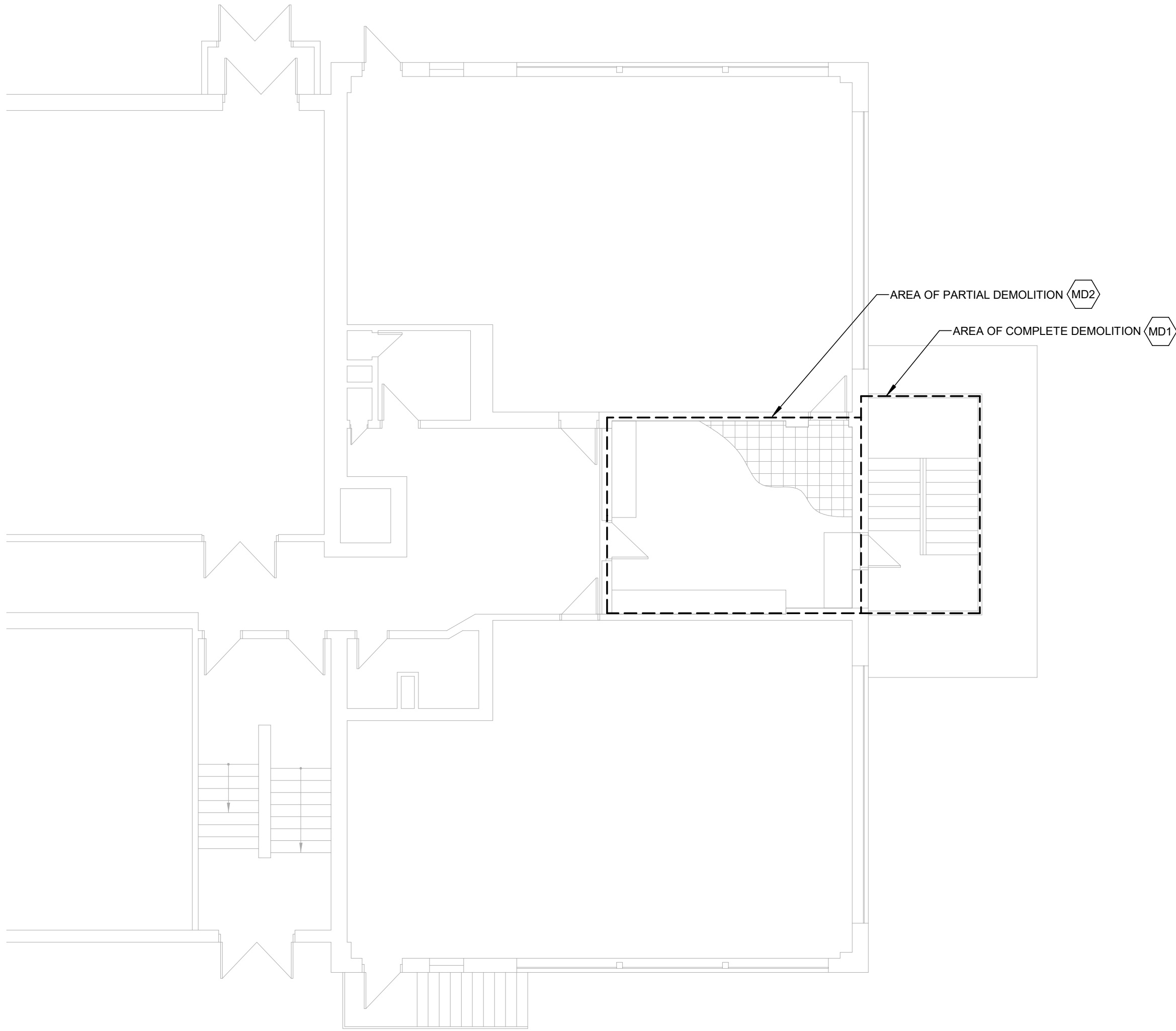
MECHANICAL SPECIFICATIONS	
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STATE PROJECT NO. 151-0305CV

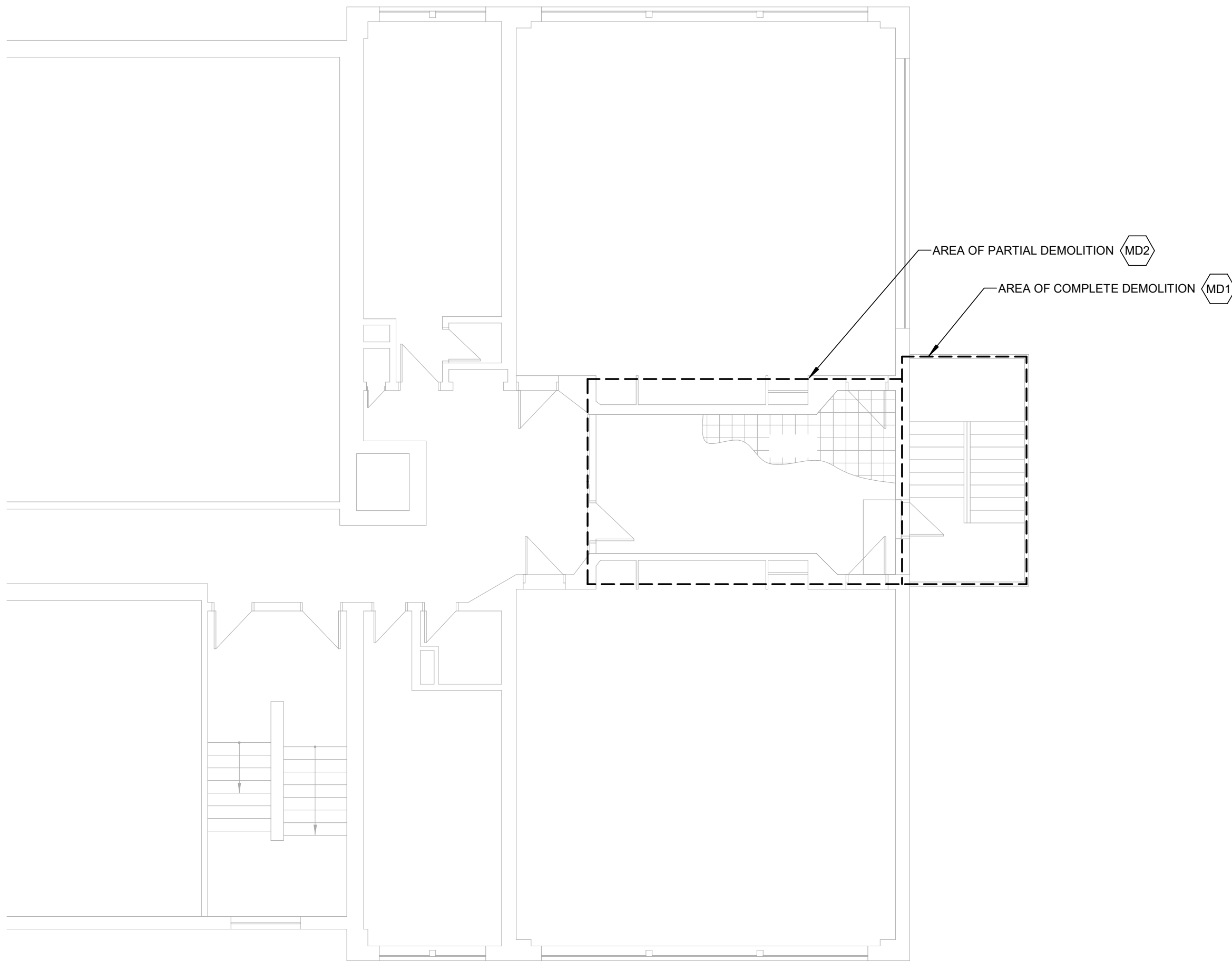
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06708



SHEET NO.
M0.1



1 MECHANICAL BASEMENT FLOOR DEMOLITION PLAN
1/8" = 1'-0"



2 MECHANICAL FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0"

KEYNOTES - MECHANICAL DEMOLITION	
Key Value	Keynote Text
MD1	UNLESS OTHERWISE NOTED, COMPLETELY REMOVE EXISTING MECHANICAL SYSTEMS WITHIN THIS REGION IN ITS ENTIRETY. REFER TO GENERAL MECHANICAL DEMOLITION NOTES FOR ADDITIONAL INFORMATION.
MD2	EXISTING MECHANICAL SYSTEMS WITHIN THIS AREA TO REMAIN. COORDINATE DEMOLITION ITEMS WITHIN OTHER TRADES IN ORDER TO MAINTAIN EXISTING MECHANICAL SYSTEMS.

REVISONS	
NO.	DATE
	11/28/22
DESCRIPTION	
ISSUED FOR BID	

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

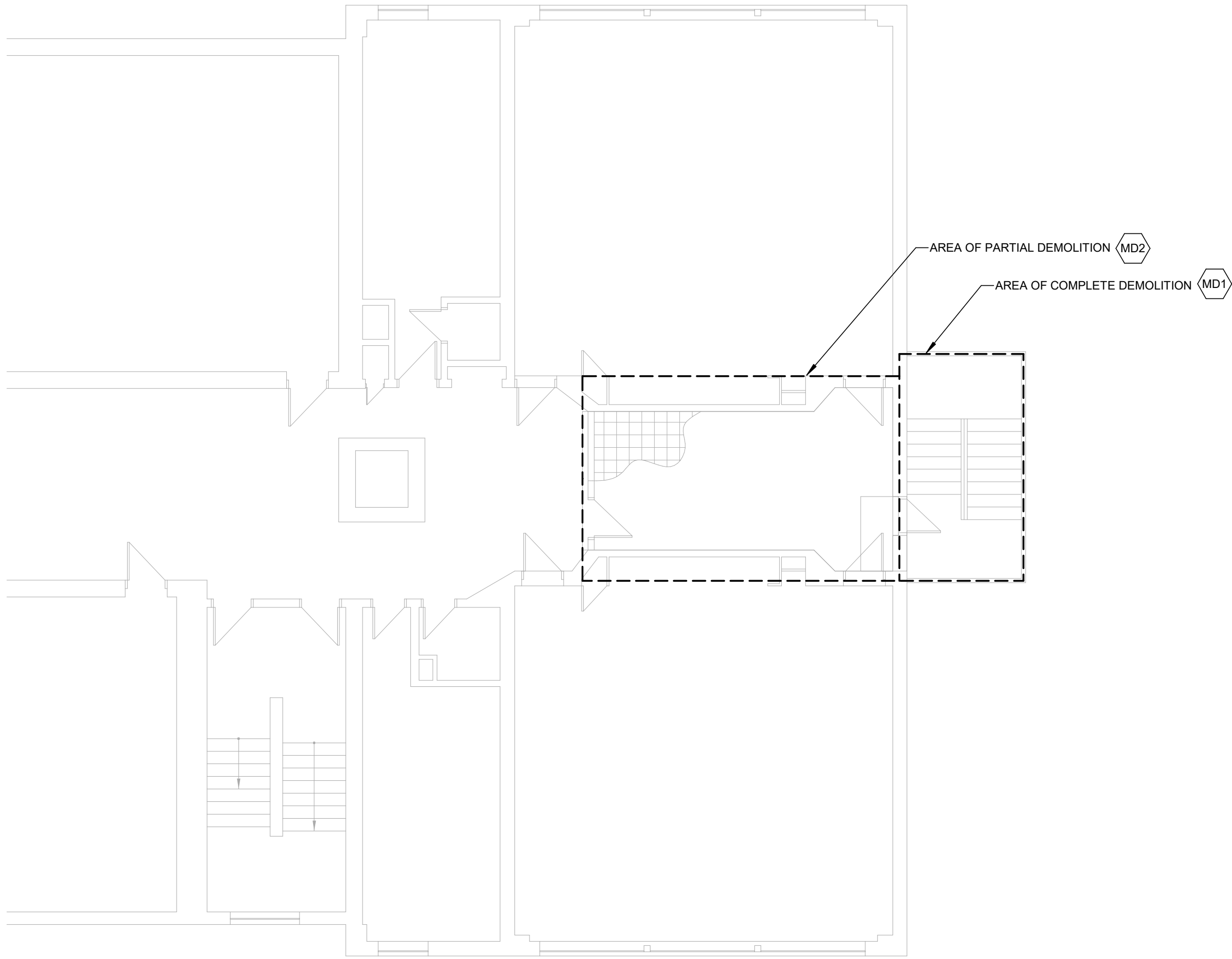
**MECHANICAL BASEMENT AND
FIRST FLOOR DEMOLITION PLANS**

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

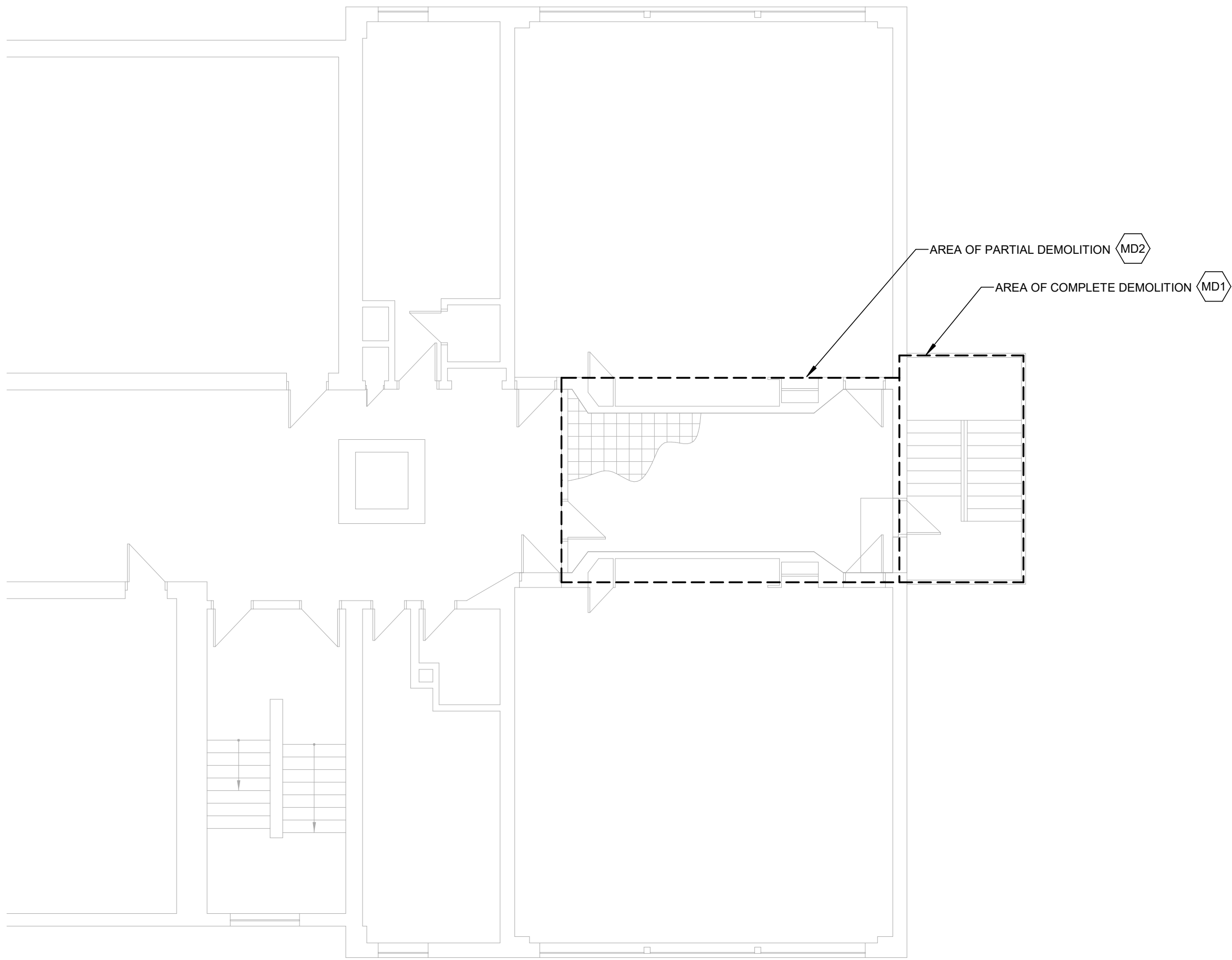

Consulting Engineering
Services, Inc.
811 Middle Street
Middletown CT 06457
860.432.1662
ceseng.com
CES #2022177.00


FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
MD1.0



1 MECHANICAL SECOND FLOOR DEMOLITION PLAN
1/8" = 1'-0"



2 MECHANICAL THIRD FLOOR DEMOLITION PLAN
1/8" = 1'-0"

KEYNOTES - MECHANICAL DEMOLITION	
Key Value	Keynote Text
MD1	UNLESS OTHERWISE NOTED, COMPLETELY REMOVE EXISTING MECHANICAL SYSTEMS WITHIN THIS REGION IN ITS ENTIRETY. REFER TO GENERAL MECHANICAL DEMOLITION NOTES FOR ADDITIONAL INFORMATION.
MD2	EXISTING MECHANICAL SYSTEMS WITHIN THIS AREA TO REMAIN. COORDINATE DEMOLITION ITEMS WITHIN OTHER TRADES IN ORDER TO MAINTAIN EXISTING MECHANICAL SYSTEMS.

REVISIONS	
NO.	DATE
	11/28/22
DESCRIPTION	
ISSUED FOR BID	

MECHANICAL SECOND AND THIRD FLOOR DEMOLITION PLANS

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
BUNKER HILL ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

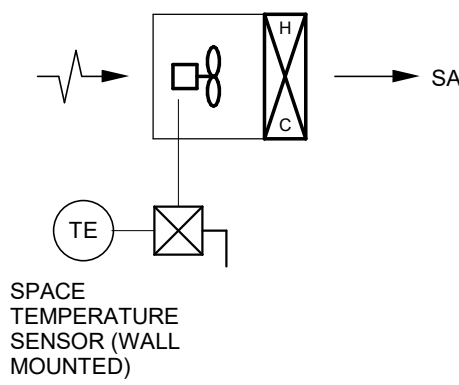
CES
Consulting Engineering Services, Inc.
811 Middle Street
Middletown CT 06457
860.632.1662
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CES #2022177.00



FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
MD1.1

ELECTRIC UNIT HEATER SCHEDULE																
GENERAL				PERFORMANCE					ELECTRICAL			REMARKS				
TAG	MANUFACTURER	MODEL	LOCATION	KW	STAGES	MBH	CFM	FAN MOTOR RPM	LAT (°F)	AMPS	VOLTAGE	PHASE	TYPE	RATINGS	FEATURES	INSTALL
UH-01	QMARK	CDF-548-T	ELEVATOR VESTIBULE	3	1	10.2	300	1400	92	14.4	208	3	1	1	ALL	ALL
REMARKS - TYPE			REMARKS - RATINGS				REMARKS - FEATURES				REMARKS - INSTALL					
1. RECESS CEILING MOUNTED			1. LAT AT 60°F INLET AIR TEMPERATURE				1. DISCONNECT SWITCH 2. INTEGRAL SINGLE STAGE THERMOSTAT 3. 120 VOLT CONTROL 4. BUILT-IN FAN AUTO-ON SWITCH 5. MANUAL RESET OVERTEMPERATURE CUT-OUT				1. CEILING MOUNTED, COORDINATE LOCATION WITH ARCHITECTURAL CEILING GRID. 2. 120 VOLT SINGLE STAGE WALL MOUNTED THERMOSTAT					



SEQUENCE OF OPERATION

GENERAL

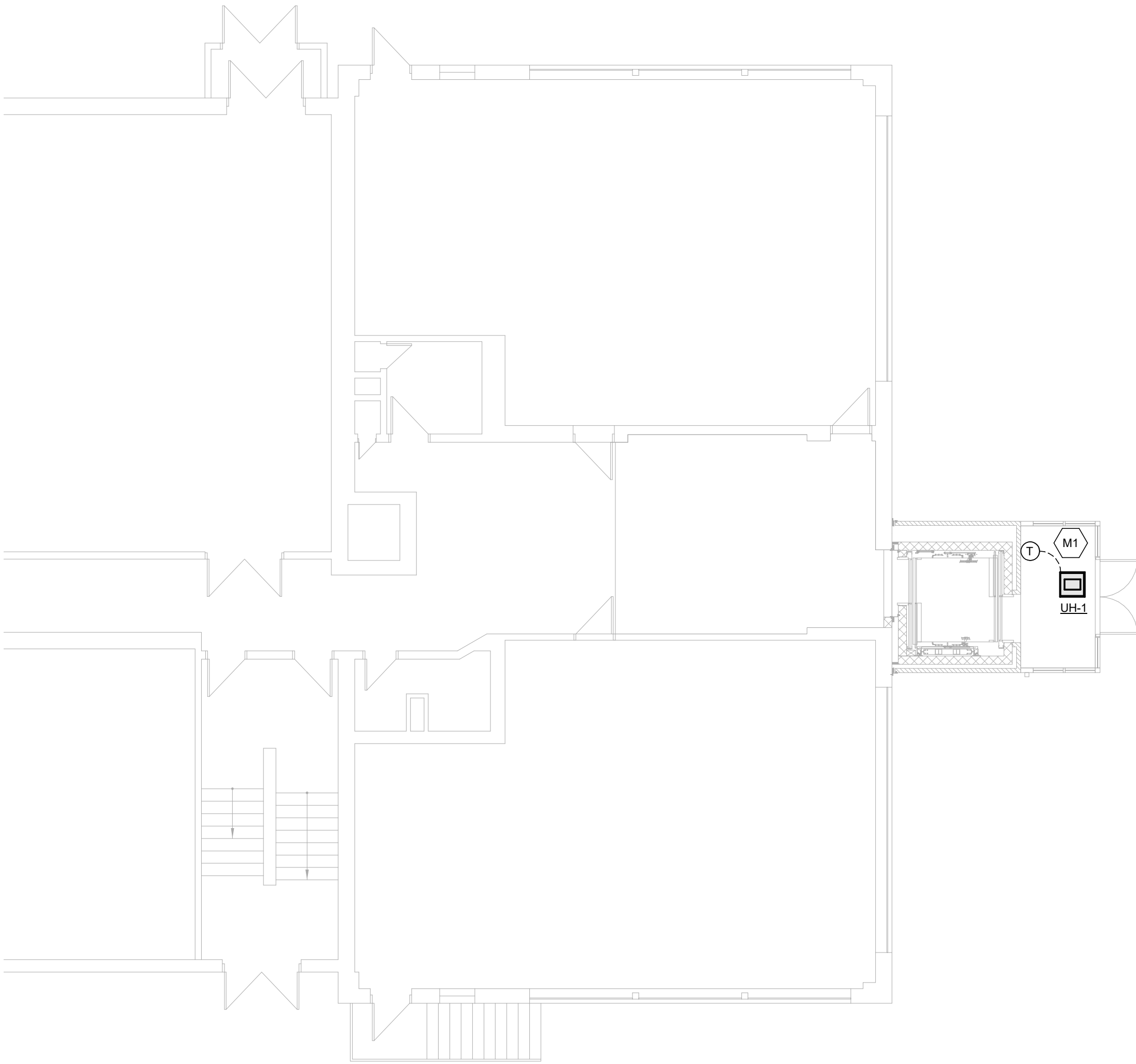
1. PROVIDE STAND-ALONE CONTROLS. PROVIDE LINE-VOLTAGE THERMOSTAT CONTROLS. REFER TO ELECTRICAL DRAWINGS.

OPERATION

1. IF THE SPACE TEMPERATURE DROPS BELOW SETPOINT THE UNIT SHALL ACTIVATE. IF THE SPACE TEMPERATURE SETPOINT IS SATISFIED, THE UNIT SHALL DEACTIVATE.
2. UNIT'S BUILT-IN TEMPERATURE HIGH-LIMIT CUT-OFF AUTOMATICALLY SHUTS OFF CURRENT IN THE EVENT OF OVERHEATING AND REACTIVATES UNIT WHEN TEMPERATURE RETURNS TO NORMAL.

2 UNIT HEATER - ELECTRIC
NTS

KEYNOTES - MECHANICAL	
Key Value	Keynote Text
M1	THERMOSTAT SERVING UH-1 TO BE WALL MOUNTED. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE MOUNTING HEIGHTS AND COORDINATE EXACT MOUNTING LOCATION WITH OTHER TRADES.



1 MECHANICAL BASEMENT FLOOR PLAN
1/8" = 1'-0"

DATE:	08/01/2022
DRAWN BY:	CLB
SCALE:	As indicated
REVIEWED BY:	DSL
PROJECT NO.	2021-091A

REVISONS	DESCRIPTION	
	NO.	DATE
		11/28/22

MECHANICAL BASEMENT PLAN	
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STATE PROJECT NO. 151-0305CV ELEVATOR ADDITION BUNKER HILL ELEMENTARY SCHOOL 170 BUNKER HILL AVENUE WATERBURY, CT 06708
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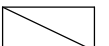







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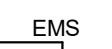
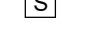
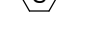
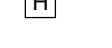
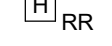
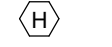
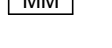
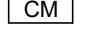
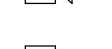
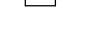
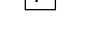
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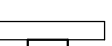
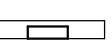
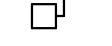







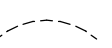
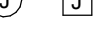

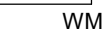
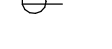


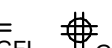

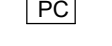

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SHEET NO. M1.0

ELECTRICAL ABBREVIATIONS	
A/AMP	AMPERE
AC	ALTERNATING CURRENT
AFCI	ARC FAULT CIRCUIT INTERRUPTER
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLING UNIT
AIC	AMPS INTERRUPTING CURRENT
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BSMT	BASEMENT
C	CONDUIT
CATV	CABLE TELEVISION
C/B	CIRCUIT BREAKER
CKT	CIRCUIT
COMP	COMPRESSOR
CP	CONDENSATE PUMP
CT	CURRENT TRANSFORMER
CU	CONDENSING UNIT OR COPPER
CUH	CABINET UNIT HEATER
D	DRYER
DEG.	DEGREE
DIA	DIAMETER
DN	DOWN
DWG	DRAWING
ETR	EXISTING TO REMAIN
EF	EXHAUST FAN
ELEC	ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
EMT	ELECTRIC METALLIC TUBING
EP	EMERGENCY PANEL
EUH	ELECTRIC UNIT HEATER
EWC	ELECTRIC WATER COOLER
EWB	ELECTRIC WATER HEATER
F	FAHRENHEIT
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FC	FOOT CANDLE
FCU	FAN COIL UNIT
G	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HP	HORSE POWER
HPS	HIGH PRESSURE SODIUM
HR	HOUR
HZ	HERTZ
IG	ISOLATED GROUND
IN	INCHES
JB	JUNCTION BOX
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERE
KW	KILOWATT
MAX	MAXIMUM
MAU	MAKE-UP AIR UNIT
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCCB	MOLDED CASE CIRCUIT BREAKER
MH	METAL HALIDE OR MANHOLE
MIN	MINIMUM
MLO	MAIN LUGS ONLY
NA	NOT APPLICABLE
NE	NEW DEVICE INSTALLED IN SAME LOCATION AS EXISTING REMOVED DEVICE
NEC	NATIONAL ELECTRIC CODE
NIC	NOT IN CONTRACT
NL	NEW LOCATION OF RELOCATED DEVICE
NR	NEW TO REPLACE EXISTING
NTS	NOT TO SCALE
P	POLE
PE	PRIMARY ELECTRIC SERVICE
PF	POWER FACTOR
PH	PHASE
PNL	PANEL
PVC	POLYVINYL CHLORIDE CONDUIT
RE	EXISTING TO BE REMOVED
REF	REFRIGERATOR
RGS	RIGID GALVANIZED STEEL CONDUIT
RL	EXISTING TO BE RELOCATED
RM	ROOM
RN	EXISTING TO BE REMOVED AND REPLACED WITH NEW (EXISTING BACKBOXES, CONDUIT AND WIRING TO REMAIN)
RR	EXISTING TO BE RELOCATED IN SAME LOCATION ON NEW SURFACE
RTU	ROOFTOP UNIT
SE	SECONDARY ELECTRICAL SERVICE
SPEC	SPECIFICATION
SWBD	SWITCHBOARD
SPD	SURGE PROTECTION DEVICE
TELE	TELECOMMUNICATIONS/TELEPHONE
TV	TELEVISION
TTX	TRANSFORMER
TYP	TYPICAL
UH	UNIT HEATER
UN	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT AMPERE
VAC	VOLTS ALTERNATING CURRENT
VIF	VERIFY IN FIELD
W	WATT OR WIRE
WA	WASHER
WG	WIRE GUARD
WP	WEATHERPROOF

LIGHTING SYMBOLS	
SYMBOL	DESCRIPTION
	RECESSED LIGHTING FIXTURE
	INDUSTRIAL OR STRIP TYPE FIXTURE
	WALL MOUNTED EXIT SIGN, DOUBLE FACED
	WALL MOUNTED EXIT SIGN
	CEILING MOUNTED EXIT SIGN
	CEILING MOUNTED EXIT SIGN, DOUBLE FACED
	SELF CONTAINED EMERGENCY LIGHTING FIXTURE WITH BATTERY
	SELF CONTAINED EMERGENCY LIGHTING FIXTURE WITH REMOTE CAPABILITY

FIRE ALARM LEGEND	
SYMBOL	DESCRIPTION
EQUIPMENT	
	EMERGENCY 2-WAY COMMUNICATION SYSTEM AREA CALL STATION. REFER TO 2-WAY COMMUNICATION SYSTEM WIRING DIAGRAM FOR ADDITIONAL INFORMATION.
	EMERGENCY 2-WAY COMMUNICATION SYSTEM MASTER STATION. REFER TO 2-WAY COMMUNICATION SYSTEM WIRING DIAGRAM FOR ADDITIONAL INFORMATION.
INITIATING DEVICES	
	CEILING MOUNTED SMOKE DETECTOR
	CEILING MOUNTED SMOKE DETECTOR WIRED TO ELEVATOR RECALL SYSTEM
	CEILING MOUNTED HEAT DETECTOR WITH TEMPERATURE RATING OF 135 DEGREES UNLESS OTHERWISE NOTED
	CEILING MOUNTED COMBINATION FIXED TEMPERATURE / RATE-OF-RISE HEAT DETECTOR
	HEAT DETECTOR FOR ELEVATOR RECALL CONTROLS
INTERFACE MODULES	
	FIRE ALARM MONITOR MODULE
	FIRE ALARM CONTROL MODULE
NOTIFICATION DEVICES	
	WALL MOUNTED COMBINATION HORN / STROBE LIGHT WITH A MULTI-CANDELA STROBE. MOUNT AT 6'-8" AFF.
	WALL MOUNTED STROBE-ONLY UNIT WITH A MULTI-CANDELA STROBE. MOUNT AT 6'-8" AFF.
	MANUAL FIRE ALARM PULL STATION.

ELECTRICAL SYMBOLS	
SYMBOL	DESCRIPTION
	SURFACE MOUNTED PANELBOARD
	RECESSED PANELBOARD
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MOTOR (REFER TO MOTOR CIRCUIT SCHEDULE FOR POWER REQUIREMENTS)
	TRANSFORMER
	ELECTRICAL METER
	SURGE PROTECTIVE DEVICE
	BRANCH CIRCUIT WIRING, CONCEALED IN WALLS OR CEILINGS
	HOMERUN TO PANELBOARD
	SWITCHED BRANCH CIRCUIT WIRING
	JUNCTION BOX
	SURFACE MOUNTED RACEWAY RISER TO NEAREST ACCESSIBLE CEILING
	WIREMOLD, LOCATE DEVICES AS INDICATED ON DRAWINGS
	DUPLEX WALL MOUNTED RECEPTACLE, 18" AFF UNLESS OTHERWISE NOTED
	DOUBLE DUPLEX WALL MOUNTED RECEPTACLE, 18" AFF UNLESS OTHERWISE NOTED
	RECEPTACLE, MOUNT 6" ABOVE COUNTER OR CASEWORK
	RECEPTACLE WITH GROUND FAULT CIRCUIT INTERRUPTION
	RECEPTACLE WITH WEATHERPROOF COVER
	PHOTOCELL FOR LIGHTING CONTROL
	CARD READER- PROVIDE COMPATIBLE SINGLE-GANG BOX WITH MUD RING @ 42" AFF WITH 3/4"C AND NYLON PULLSTRING STUBBED ABOVE ACCESSIBLE CEILING. COORDINATE EXACT LOCATION OF BACKBOX WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN. ELECTRICAL CONTRACTOR SHALL PROVIDE A CONNECTION TO THE EXISTING SCHOOL SECURITY SYSTEM FOR KEY FOB CONTROL OF ACCESS TO ELEVATORS AND DOORS, WHERE SHOWN. EXTENSION OF THE SYSTEMS SHALL BE BY THE CITY OF WATERBURY'S SECURITY VENDORS. PROVISIONS OF ALL CONDUIT, WIRING, PROGRAMMING AND POWER FOR A COMPLETELY OPERATIONAL SYSTEM SHALL BE PROVIDED.

DATE:	08/01/2022
DRAWN BY:	ML/MC
SCALE:	N.T.S.
REVIEWED BY:	
PROJECT NO.	2021-091A

REVISIONS	
NO.	DATE
	11/28/22
DESCRIPTION	
ISSUED FOR BID	

ELECTRICAL ABBREVIATIONS, NOTES AND SYMBOLS	
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STATE PROJECT NO. 151-0305CV ELEVATOR ADDITION BUNKER HILL ELEMENTARY SCHOOL 170 BUNKER HILL AVENUE WATERBURY, CT 06708
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 FRIAR 21 Talcott Notch Road Farmington, CT 06032

SHEET NO. E0.0

[illegible]

DATE: 09/01/2022		M/J/M/C	
DRAWN BY:		12" = 1'-0"	
SCALE:		REVIEWED BY:	
PROJECT NO. 202-0091A			


REVISIONS	
NO.	DATE DESCRIPTION ISSUED FOR BID
	11/28/22

STATE PROJECT NO. 151-0305CV


ELEVATOR ADDITION

**BUNKER HILL
ELEMENTARY SCHOOL**

170 BUNKER HILL AVENUE
WATERBURY, CT 06708



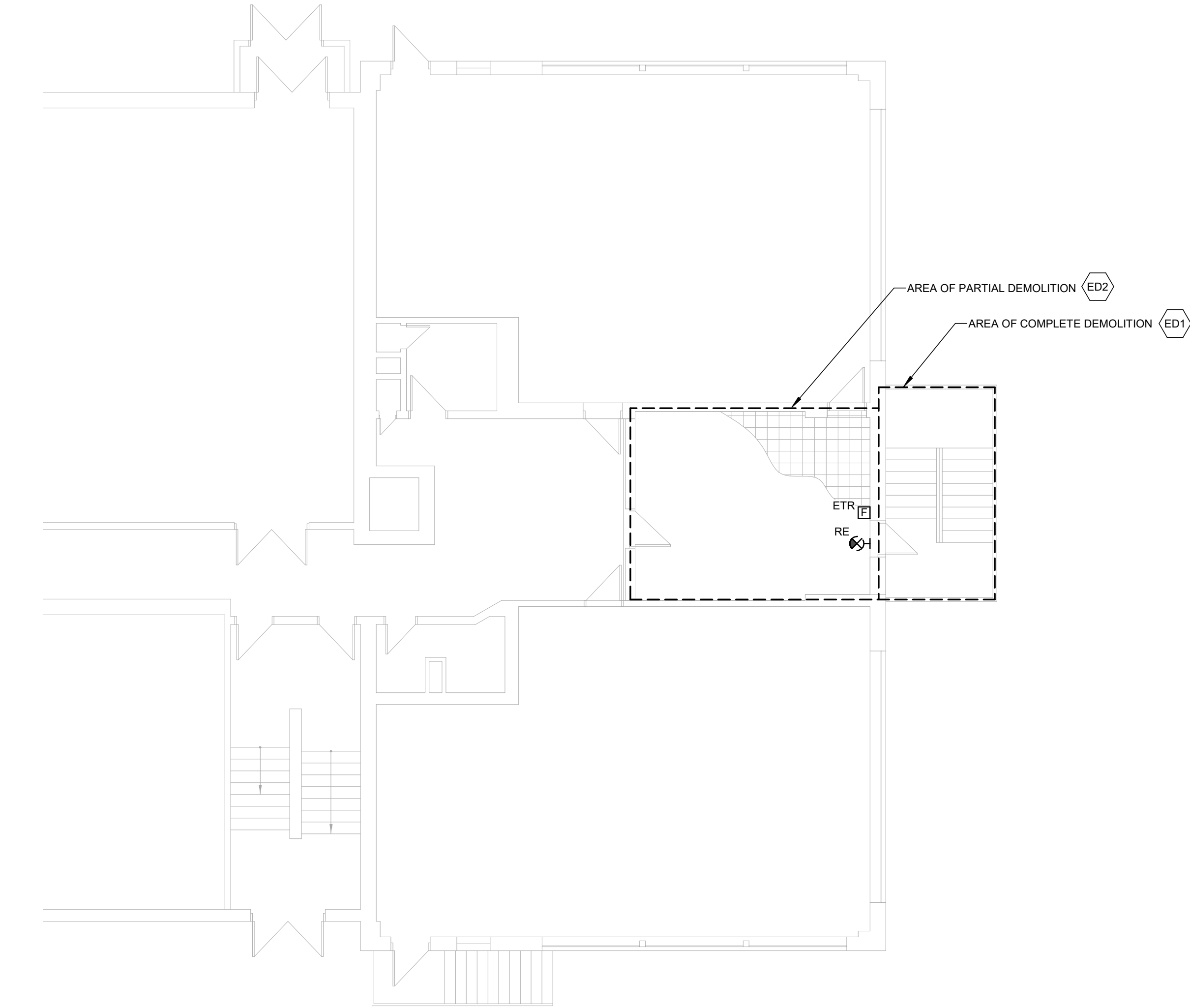
CES
Consulting Engineering
Services, Inc.
811 Middle Street
Middletown, CT 06457
860.632.1682
cesinc.com
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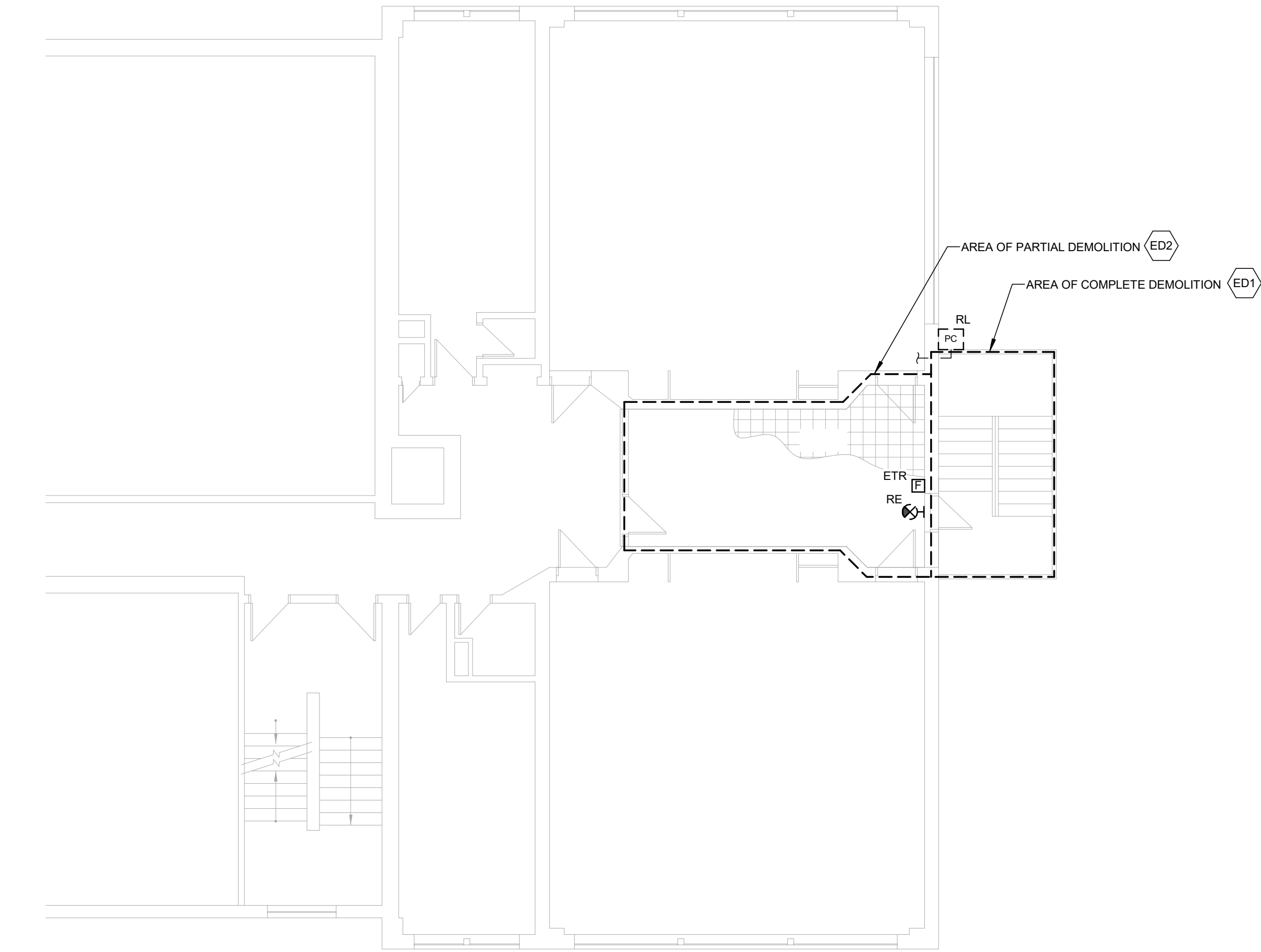
FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.

E0.1



1 ELECTRICAL BASEMENT FLOOR DEMOLITION PLAN
1/8" = 1'-0"



2 ELECTRICAL FIRST FLOOR DEMOLITION PLAN
1/8" = 1'-0"

ELECTRICAL DEMOLITION NOTES

- EXISTING ELECTRICAL DEVICES IN REGIONS OF DEMOLITION SHALL BE LIMITED TO BATTERY-OPERATED EMERGENCY LIGHT FIXTURES AND EXIT SIGNS UNLESS NOTED OTHERWISE. REMOVAL SHALL BE COMPLETE INCLUDING BOXES, BRACKETS, HANGERS AND BRANCH CIRCUIT WIRING BACK TO SOURCE PANELBOARD OR LAST ACTIVE DEVICE TO REMAIN.
- ELECTRICAL DEMOLITION PLANS ARE DIAGRAMMATIC AND NOT INTENDED TO DEPICT THE ENTIRE SCOPE OF ELECTRICAL DEMOLITION. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING DEVICES. ADDITIONAL DEMOLITION AND MODIFICATION WORK NOT SHOWN SHOULD BE ANTICIPATED.
- REFER TO DRAWING E00 FOR SYMBOL LIST AND OTHER ABBREVIATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ALL ITEMS TO BE REMOVED IN A SAFE, LEGAL AND RESPONSIBLE MANNER.
- CONTRACTOR SHALL MODIFY EXISTING CIRCUITS, WHEN EXISTING DEVICES ARE REMOVED, AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY.
- PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR STORAGE AND HANDLING OF EXISTING TO BE RELOCATED EQUIPMENT AND DEVICES.
- EXISTING FIRE ALARM SYSTEM SHALL BE MODIFIED IN AREA OF WORK AND BE MAINTAINED OUTSIDE OF AREA OF WORK. MAINTAIN OPERATION OF THE EXISTING FIRE ALARM SYSTEM DURING DEMOLITION. DEVICES ARE TO BE REMOVED BACK TO NEXT DEVICE OUTSIDE THE AREA OF WORK. EXTEND CIRCUITS WITH WIRING TO MATCH EXISTING CLASS AND STYLE TO MAINTAIN CONTINUITY OF CIRCUITS UPSTREAM AND DOWNSTREAM OF THE WORK AFFECTED BY DEMOLITION. PROTECT EXISTING DEVICES DURING CONSTRUCTION. TAKE DEVICES OFF-LINE IF NECESSARY. COORDINATE BYPASSING AND REACTIVATION OF THESE DEVICES WITH OWNER. PROVIDE TESTING AND REPROGRAMMING OF SYSTEM, AND COORDINATE ACCEPTANCE TESTING WITH THE LOCAL AHJ.
- PANELBOARDS THAT ARE EXISTING TO REMAIN SHALL HAVE THEIR DIRECTORY UPDATED TO INDICATE CIRCUITS THAT ARE EXISTING TO REMAIN. CIRCUITS THAT HAVE BEEN REMOVED AS PART OF DEMOLITION SHALL BE INDICATED IN THE REVISED DIRECTORY AS SPARES.
- WHERE EXISTING LIGHT FIXTURES ARE SCHEDULED FOR RELOCATION, RECONFIGURATION OR REINSTALLATION IN NEW CEILINGS, CLEAN, RE-LAMP (IF APPLICABLE) AND TEST THE FIXTURES. REPLACE DAMAGED LENSES AND DEFECTIVE BALLASTS OR DRIVERS AS NEEDED.
- REPLACE BATTERIES FOR EMERGENCY LIGHTING UNITS THAT ARE SCHEDULED TO BE RELOCATED AND REINSTALLED.

KEYNOTES - ELECTRICAL DEMOLITION

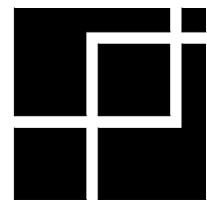
Key Value	Keynote Text
ED1	UNLESS OTHERWISE NOTED, COMPLETELY REMOVE EXISTING ELECTRICAL SYSTEMS WITHIN THIS REGION IN ITS ENTIRETY. ANY ELECTRICAL SYSTEMS THAT CROSS THROUGH THIS REGION THAT SERVE AREAS OTHER THAN THE AREA OF DEMOLITION SHALL BE MAINTAINED. REFER TO GENERAL ELECTRICAL DEMOLITION NOTES FOR ADDITIONAL INFORMATION.
ED2	REMOVE EXISTING LIGHT FIXTURES WITHIN ROOM. DISCONNECT EXISTING LIGHTING BRANCH CIRCUIT AND MAKE SAFE FOR FUTURE CONNECTION TO NEW LIGHTING FIXTURES. EXISTING LIGHTING CONTROLS/SWITCHES TO REMAIN. REFER TO NEW WORK LIGHTING PLANS FOR ADDITIONAL INFORMATION.

DATE:	08/01/2022
DRAWN BY:	ML/MC
SCALE:	As Indicated
REVIEWED BY:	
PROJECT NO.	2021-091A

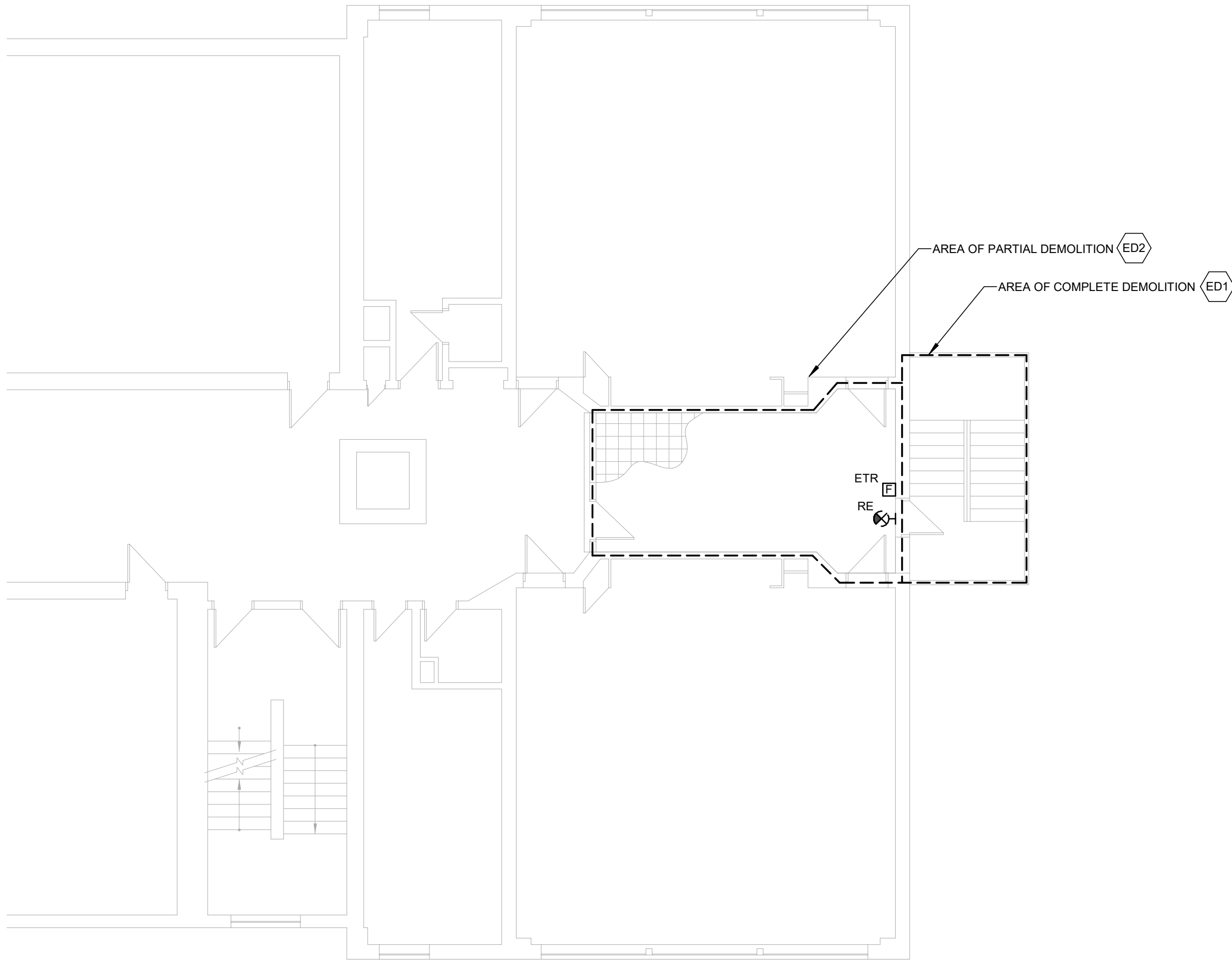
NO.	DATE	REVISIONS	
		DESCRIPTION	ISSUED FOR BID
	11/28/22		

ELECTRICAL BASEMENT AND
FIRST FLOOR DEMOLITION PLANS

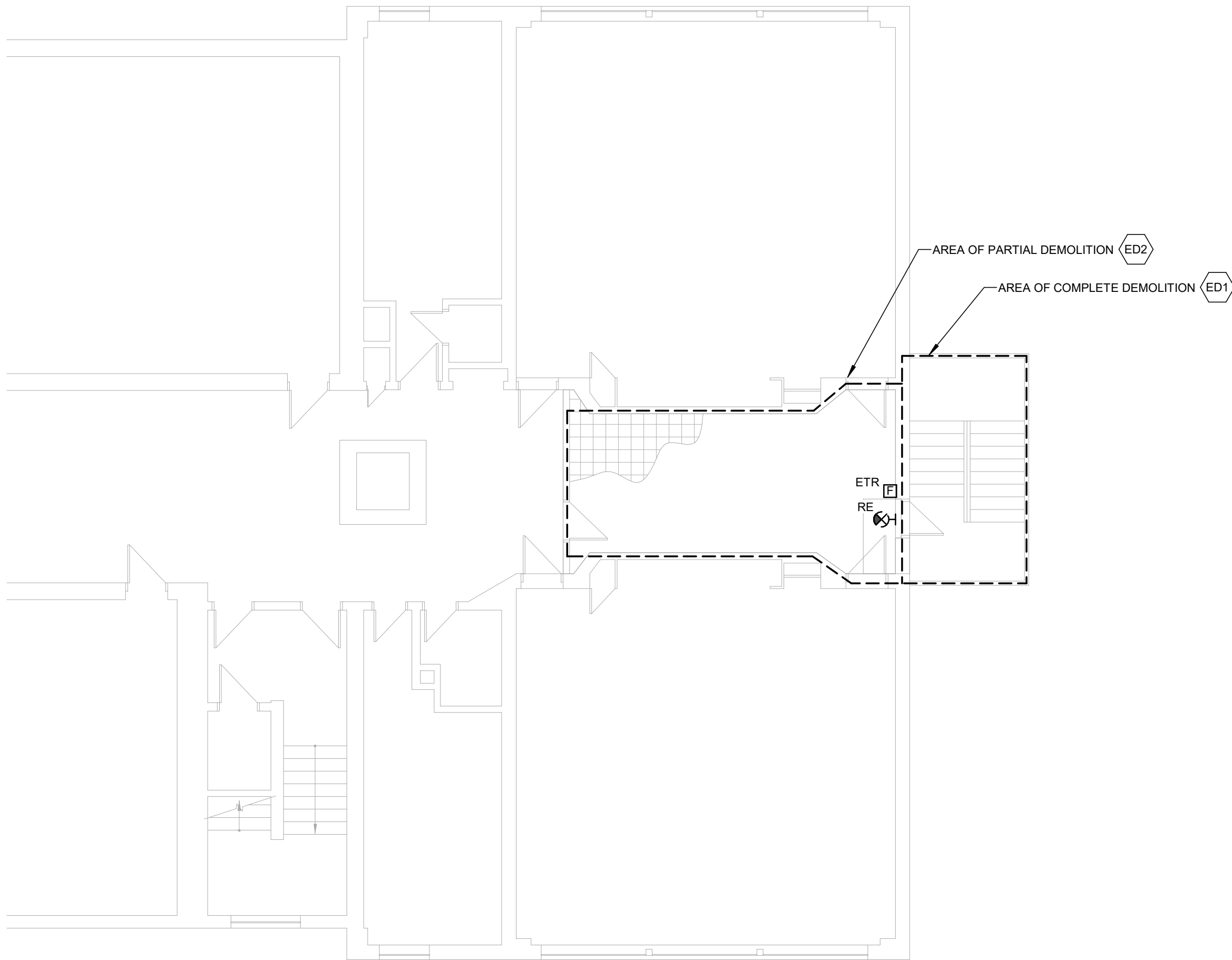
STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06708



SHEET NO.
ED1.0



1 ELECTRICAL SECOND FLOOR DEMOLITION PLAN
1/8" = 1'-0"



2 ELECTRICAL THIRD FLOOR DEMOLITION PLAN
1/8" = 1'-0"

ELECTRICAL DEMOLITION NOTES

- EXISTING ELECTRICAL DEVICES IN REGIONS OF DEMOLITION SHALL BE LIMITED TO BATTERY-OPERATED EMERGENCY LIGHT FIXTURES AND EXIT SIGNS UNLESS NOTED OTHERWISE. REMOVAL SHALL BE COMPLETE INCLUDING BOXES, BRACKETS, HANGERS AND BRANCH CIRCUIT WIRING BACK TO SOURCE PANELBOARD OR LAST ACTIVE DEVICE TO REMAIN.
- ELECTRICAL DEMOLITION PLANS ARE DIAGRAMMATIC AND NOT INTENDED TO DEPICT THE ENTIRE SCOPE OF ELECTRICAL DEMOLITION. CONTRACTOR SHALL FIELD VERIFY THE LOCATION OF EXISTING DEVICES. ADDITIONAL DEMOLITION AND MODIFICATION WORK NOT SHOWN SHOULD BE ANTICIPATED.
- REFER TO DRAWING ED-0 FOR SYMBOL LIST AND OTHER ABBREVIATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL OF ALL ITEMS TO BE REMOVED IN A SAFE, LEGAL AND RESPONSIBLE MANNER.
- CONTRACTOR SHALL MODIFY EXISTING CIRCUITS, WHEN EXISTING DEVICES ARE REMOVED, AS REQUIRED TO MAINTAIN CIRCUIT CONTINUITY.
- PRIOR TO SUBMITTING BID, VISIT SITE AND IDENTIFY EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT WORK TO BE PERFORMED. NO COMPENSATION WILL BE GRANTED FOR ADDITIONAL WORK CAUSED BY UNFAMILIARITY WITH SITE CONDITIONS THAT ARE VISIBLE OR READILY IDENTIFIED BY EXPERIENCED OBSERVERS. INCLUDE IN THE BID ALL DEMOLITION WORK REQUIRED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR STORAGE AND HANDLING OF EXISTING TO BE RELOCATED EQUIPMENT AND DEVICES.
- EXISTING FIRE ALARM SYSTEM SHALL BE MODIFIED IN AREA OF WORK AND BE MAINTAINED OUTSIDE OF AREA OF WORK. MAINTAIN OPERATION OF THE EXISTING FIRE ALARM SYSTEM DURING DEMOLITION. DEVICES ARE TO BE REMOVED BACK TO NEXT DEVICE OUTSIDE THE AREA OF WORK. EXTEND CIRCUITS WITH WIRING TO MATCH EXISTING CLASS AND STYLE TO MAINTAIN CONTINUITY OF CIRCUITS UPSTREAM AND DOWNSTREAM OF THE WORK AFFECTED BY DEMOLITION. PROTECT EXISTING DEVICES DURING CONSTRUCTION. TAKE DEVICES OFF-LINE IF NECESSARY. COORDINATE BYPASSING AND REACTIVATION OF THESE DEVICES WITH OWNER. PROVIDE TESTING AND REPROGRAMMING OF SYSTEM, AND COORDINATE ACCEPTANCE TESTING WITH THE LOCAL AHJ.
- PANELBOARDS THAT ARE EXISTING TO REMAIN SHALL HAVE THEIR DIRECTORY UPDATED TO INDICATE CIRCUITS THAT ARE EXISTING TO REMAIN. CIRCUITS THAT HAVE BEEN REMOVED AS PART OF DEMOLITION SHALL BE INDICATED IN THE REVISED DIRECTORY AS SPARES.
- WHERE EXISTING LIGHT FIXTURES ARE SCHEDULED FOR RELOCATION, RECONFIGURATION OR REINSTALLATION IN NEW CEILINGS, CLEAN, RE-LAMP (IF APPLICABLE) AND TEST THE FIXTURES. REPLACE DAMAGED LENSES AND DEFECTIVE BALLASTS OR DRIVERS AS NEEDED.
- REPLACE BATTERIES FOR EMERGENCY LIGHTING UNITS THAT ARE SCHEDULED TO BE RELOCATED AND REINSTALLED.

KEYNOTES - ELECTRICAL DEMOLITION

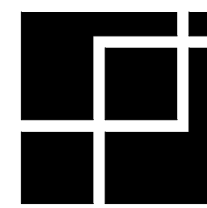
Key Value	Keynote Text
ED1	UNLESS OTHERWISE NOTED, COMPLETELY REMOVE EXISTING ELECTRICAL SYSTEMS WITHIN THIS REGION IN ITS ENTIRETY. ANY ELECTRICAL SYSTEMS THAT CROSS THROUGH THIS REGION THAT SERVE AREAS OTHER THAN THE AREA OF DEMOLITION SHALL BE MAINTAINED. REFER TO GENERAL ELECTRICAL DEMOLITION NOTES FOR ADDITIONAL INFORMATION.
ED2	REMOVE EXISTING LIGHT FIXTURES WITHIN ROOM. DISCONNECT EXISTING LIGHTING BRANCH CIRCUIT AND MAKE SAFE FOR FUTURE CONNECTION TO NEW LIGHTING FIXTURES. EXISTING LIGHTING CONTROLS/SWITCHES TO REMAIN. REFER TO NEW WORK LIGHTING PLANS FOR ADDITIONAL INFORMATION.

DATE:	08/01/2022
DRAWN BY:	ML/MC
SCALE:	As indicated
REVIEWED BY:	
PROJECT NO.	2021-091A

NO.	DATE	REVISIONS	
		DESCRIPTION	ISSUED FOR BID
	11/29/22		

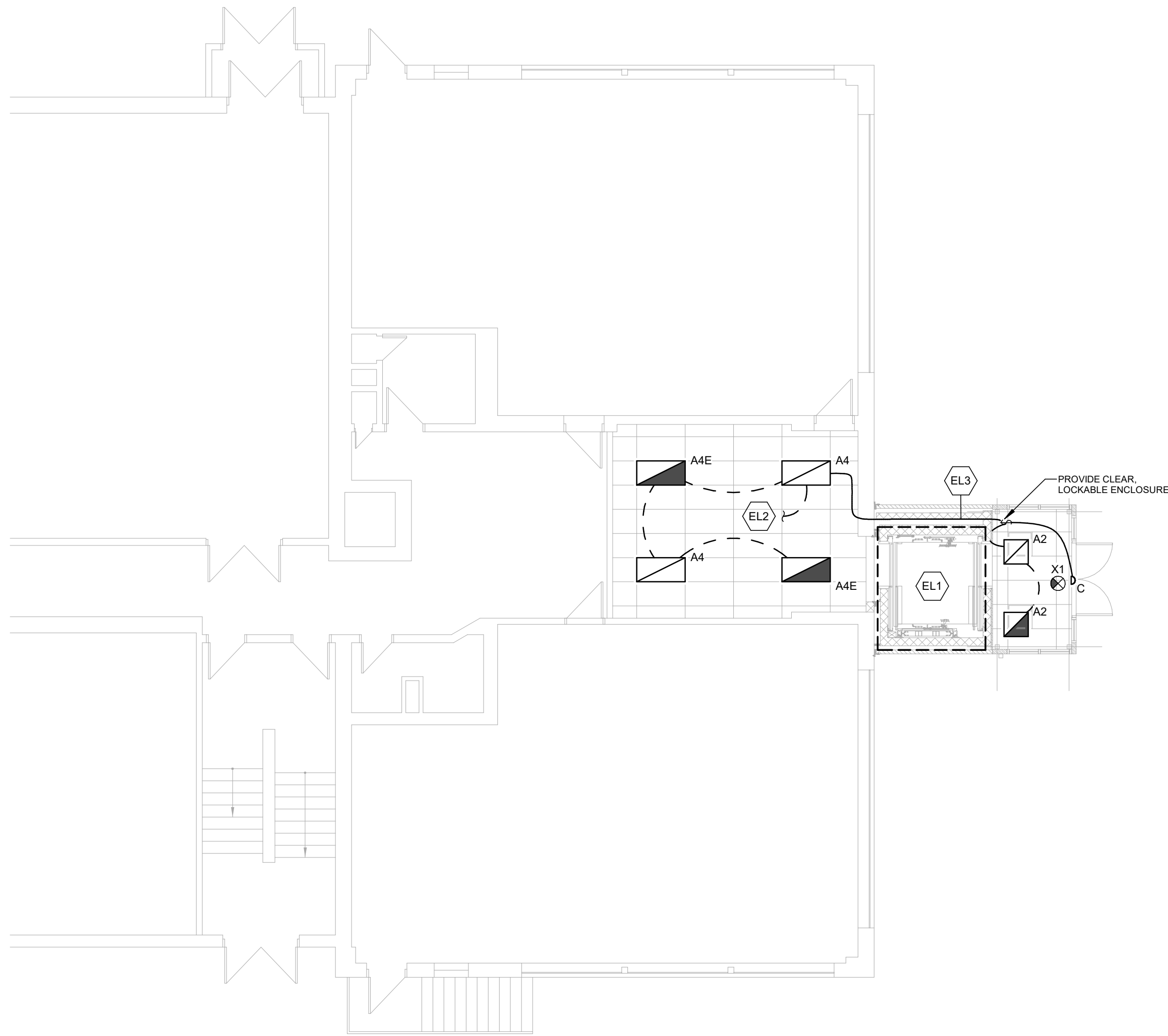
ELECTRICAL SECOND AND THIRD FLOOR DEMOLITION PLANS

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

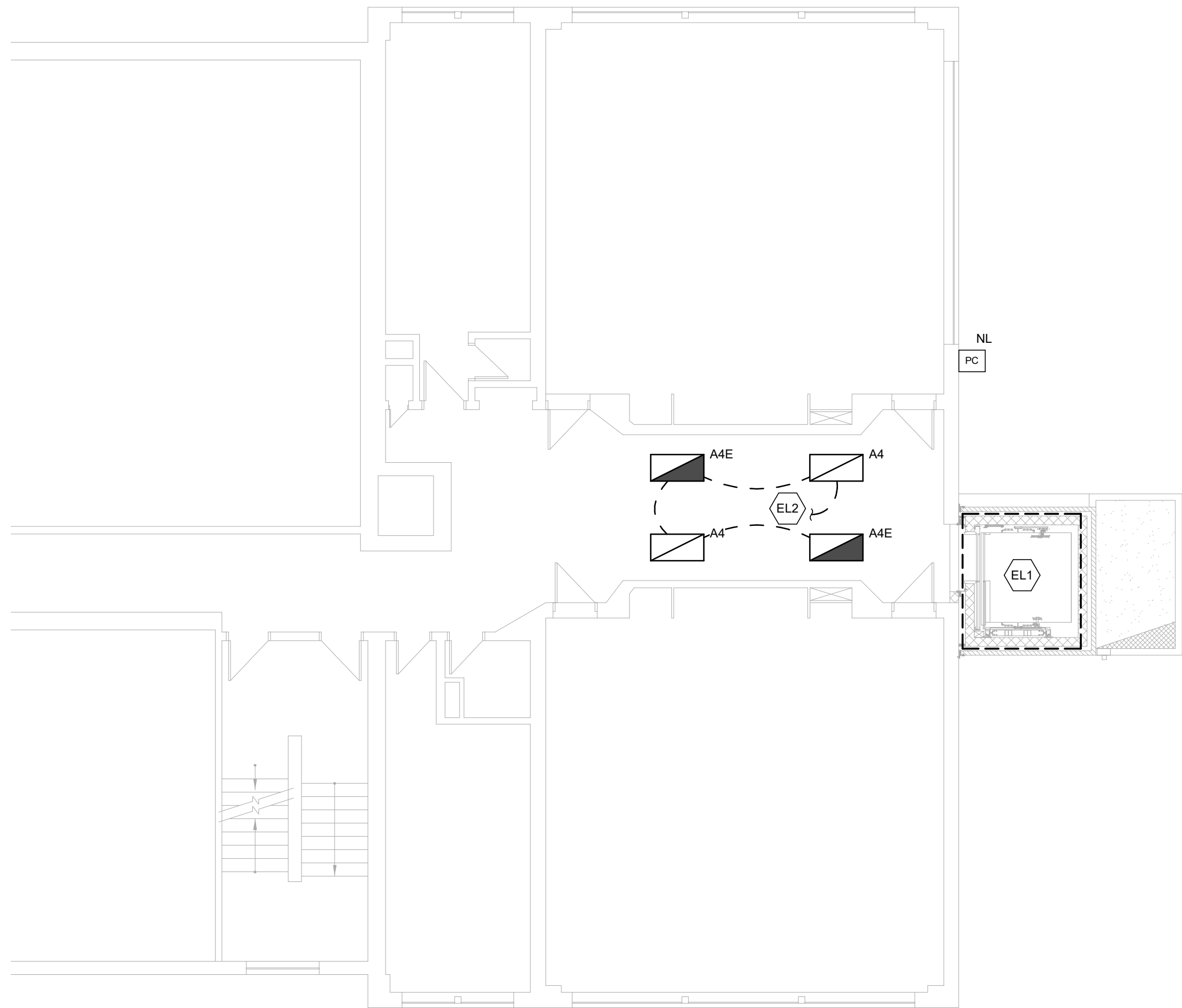


21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
ED1.1



1 ELECTRICAL LIGHTING BASEMENT PLAN
1/8" = 1'-0"



2 ELECTRICAL LIGHTING FIRST FLOOR PLAN
1/8" = 1'-0"

ELECTRICAL LIGHTING NOTES

1. REFER TO DRAWING E6.0 FOR LIGHTING FIXTURE SCHEDULE.
2. EXIT SIGNS AND EMERGENCY BATTERY UNITS SHALL BE WIRED TO LINE SIDE OF LOCAL LIGHTING BRANCH CIRCUIT, AHEAD OF ALL SWITCHING DEVICES.

KEYNOTES - ELECTRICAL LIGHTING

Key Value	Keynote Text
EL1	REFER TO ELEVATOR DETAILS ON DRAWING E5.0 FOR ADDITIONAL INFORMATION.
EL2	WIRE NEW LIGHT FIXTURES TO EXISTING BRANCH LIGHTING CIRCUIT AND CONTROLS WITHIN ROOM. REFER TO ELECTRICAL DEMOLITION PLANS FOR ADDITIONAL INFORMATION.
EL3	WIRE NEW LIGHT FIXTURES AND CONTROLS TO EXISTING BRANCH LIGHTING CIRCUIT WITHIN ADJACENT ROOM, AS SHOWN ON PLANS. USE 2#12, #12G, 3/4"C AS REQUIRED.

DATE:	09/01/2022
DRAWN BY:	ML/MC
SCALE:	As indicated
REVIEWED BY:	
PROJECT NO.	2021-091A

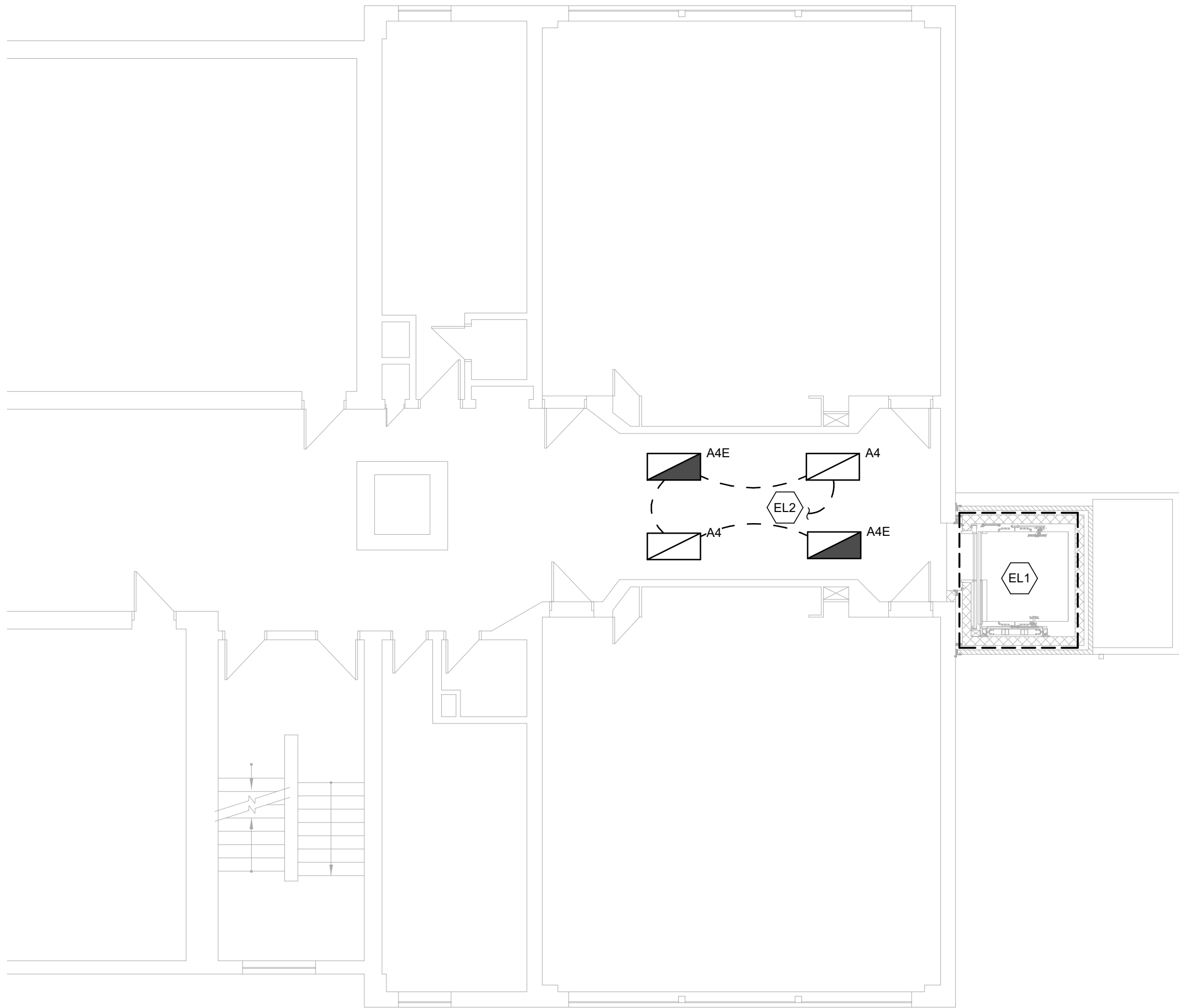
NO.	DATE	DESCRIPTION
		ISSUED FOR BID
	11/28/22	

ELECTRICAL LIGHTING BASEMENT
AND FIRST FLOOR PLANS

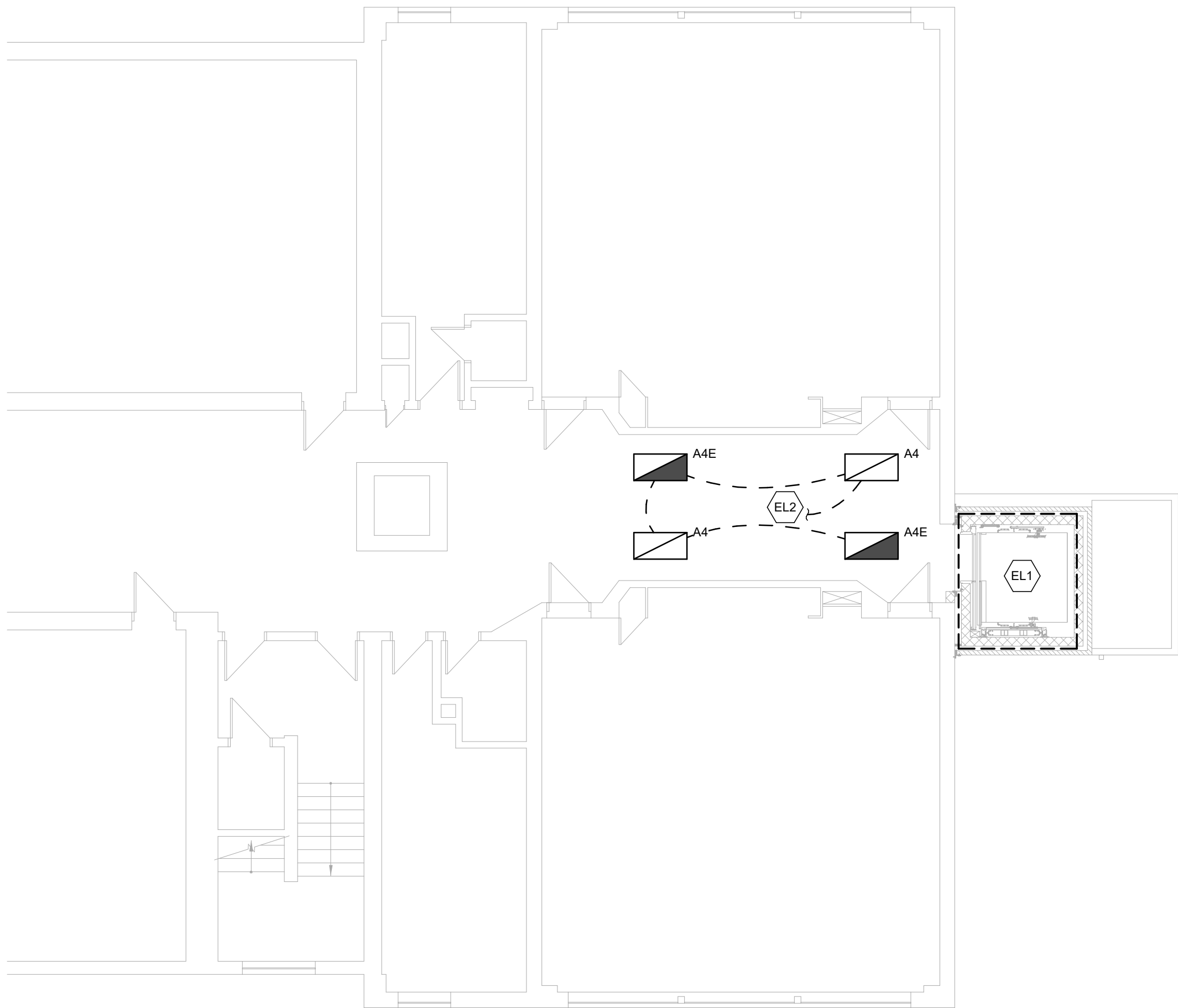
STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06708



SHEET NO.
EL1.0



1 ELECTRICAL LIGHTING SECOND FLOOR PLAN
1/8" = 1'-0"



2 ELECTRICAL LIGHTING THIRD FLOOR PLAN
1/8" = 1'-0"

ELECTRICAL LIGHTING NOTES	
1. REFER TO DRAWING E6.0 FOR LIGHTING FIXTURE SCHEDULE. 2. EXIT SIGNS AND EMERGENCY BATTERY UNITS SHALL BE WIRED TO LINE SIDE OF LOCAL LIGHTING BRANCH CIRCUIT, AHEAD OF ALL SWITCHING DEVICES.	

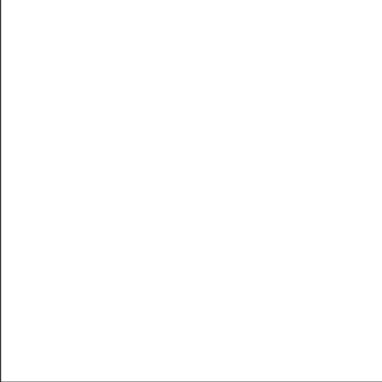
KEYNOTES - ELECTRICAL LIGHTING	
Key Value	Keynote Text
EL1	REFER TO ELEVATOR DETAILS ON DRAWING E5.0 FOR ADDITIONAL INFORMATION.
EL2	WIRE NEW LIGHT FIXTURES TO EXISTING BRANCH LIGHTING CIRCUIT AND CONTROLS WITHIN ROOM. REFER TO ELECTRICAL DEMOLITION PLANS FOR ADDITIONAL INFORMATION.

DATE:	09/01/2022
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PROJECT NO.	2021-091A

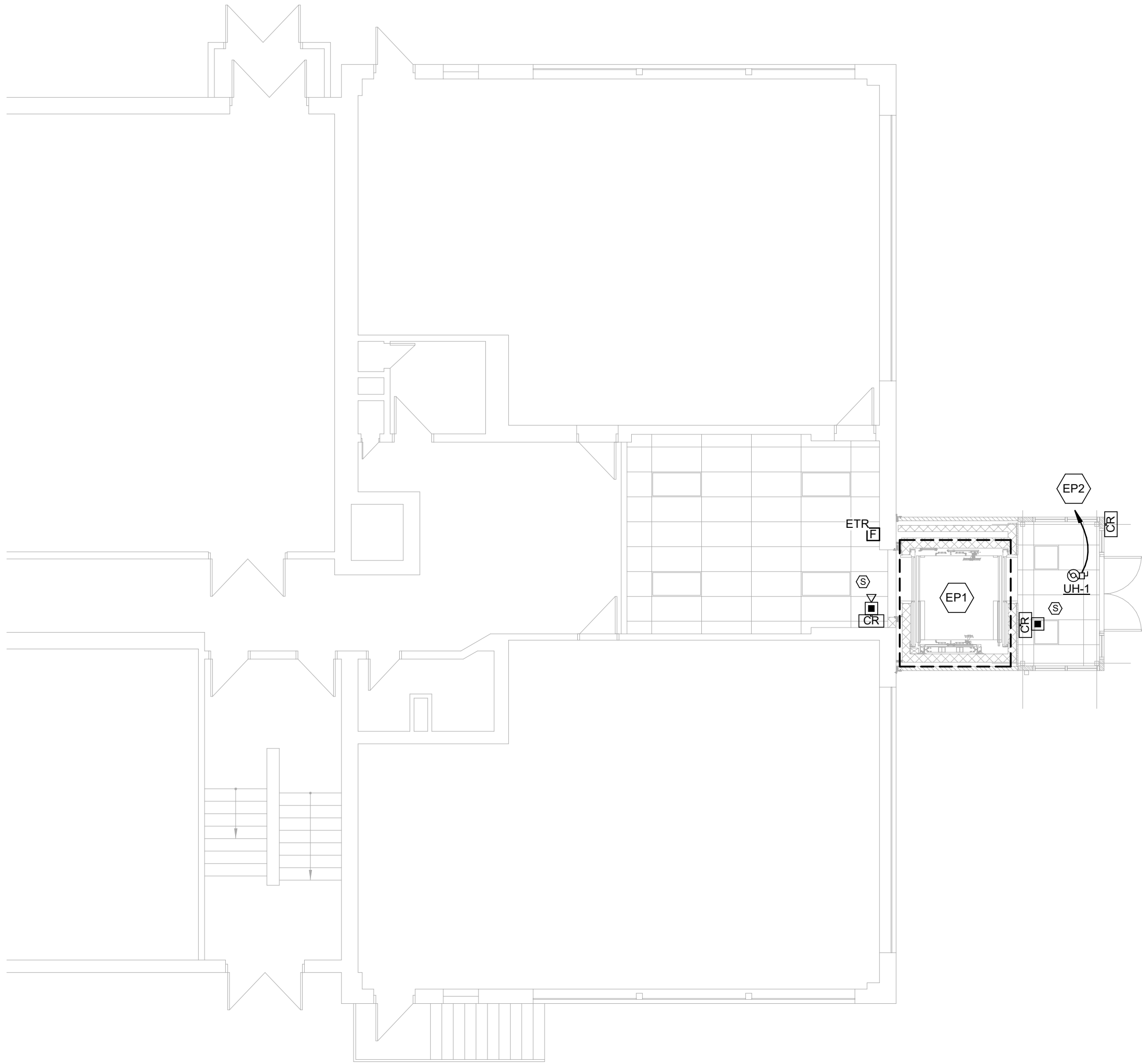
REVISIONS	
NO.	DESCRIPTION
1	ISSUED FOR BID

ELECTRICAL LIGHTING SECOND
AND THIRD FLOOR PLANS

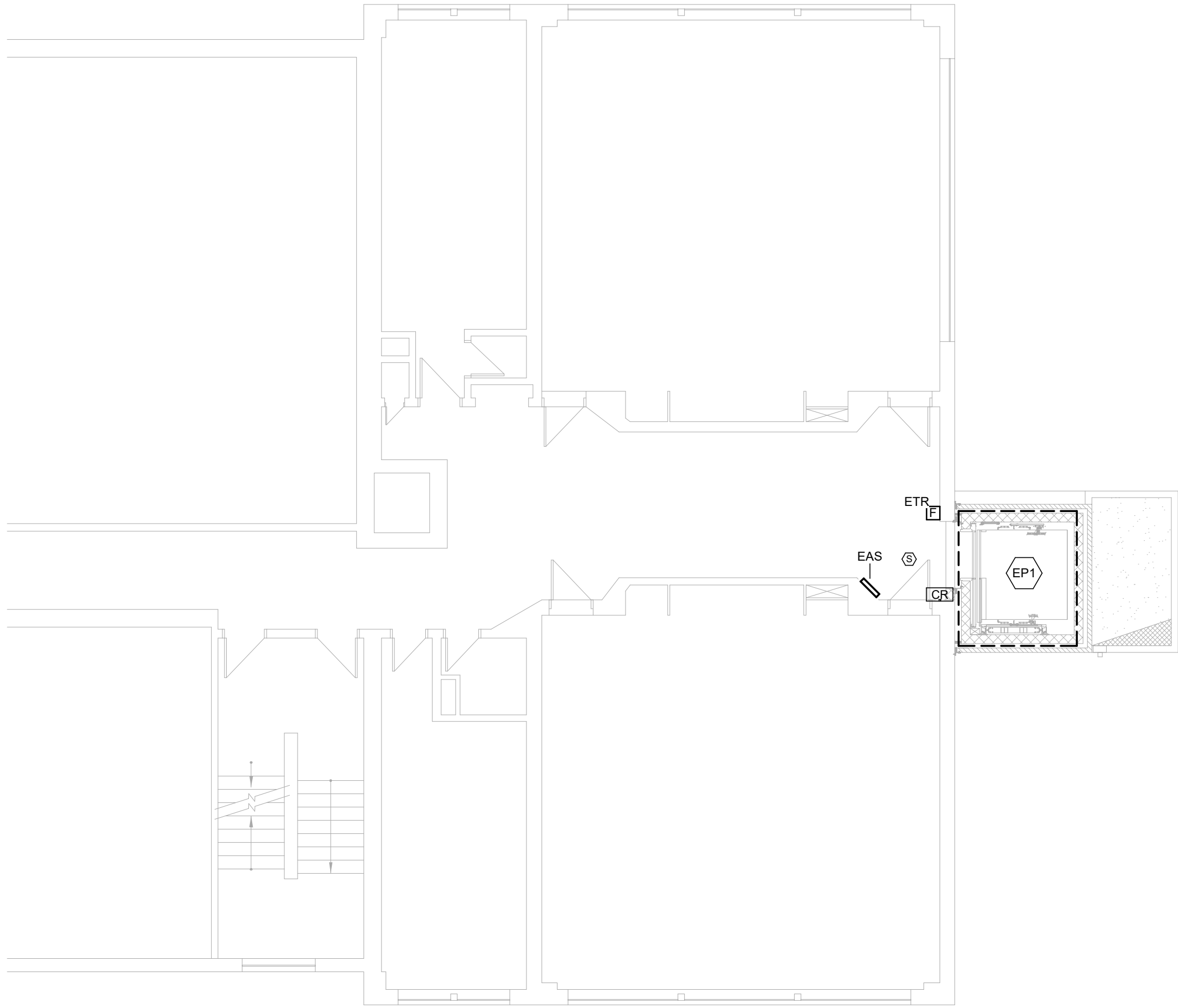
STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
BUNKER HILL
ELEMENTARY SCHOOL
170 BUNKER HILL AVENUE
WATERBURY, CT 06708



SHEET NO.
EL1.1



1 ELECTRICAL POWER BASEMENT FLOOR PLAN
1/8" = 1'-0"



2 ELECTRICAL POWER FIRST FLOOR PLAN
1/8" = 1'-0"

KEYNOTES - ELECTRICAL POWER	
Key Value	Keynote Text
EP1	REFER TO ELEVATOR DETAILS ON DRAWING ES-0 FOR ADDITIONAL INFORMATION.
EP2	PROVIDE 208V, 3-PHASE, 20A CIRCUIT FOR ELECTRIC CABINET UNIT HEATER VIA 20A-3P CIRCUIT BREAKER IN PANELBOARD "ELEVATOR". USE 3#10, #10G, 3/4"C. (UPSIZED FOR VOLTAGE DROP).

REVISIONS	
NO.	DATE
	11/28/22
DESCRIPTION	
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STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

**ELECTRICAL POWER BASEMENT
AND FIRST FLOOR PLANS**

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

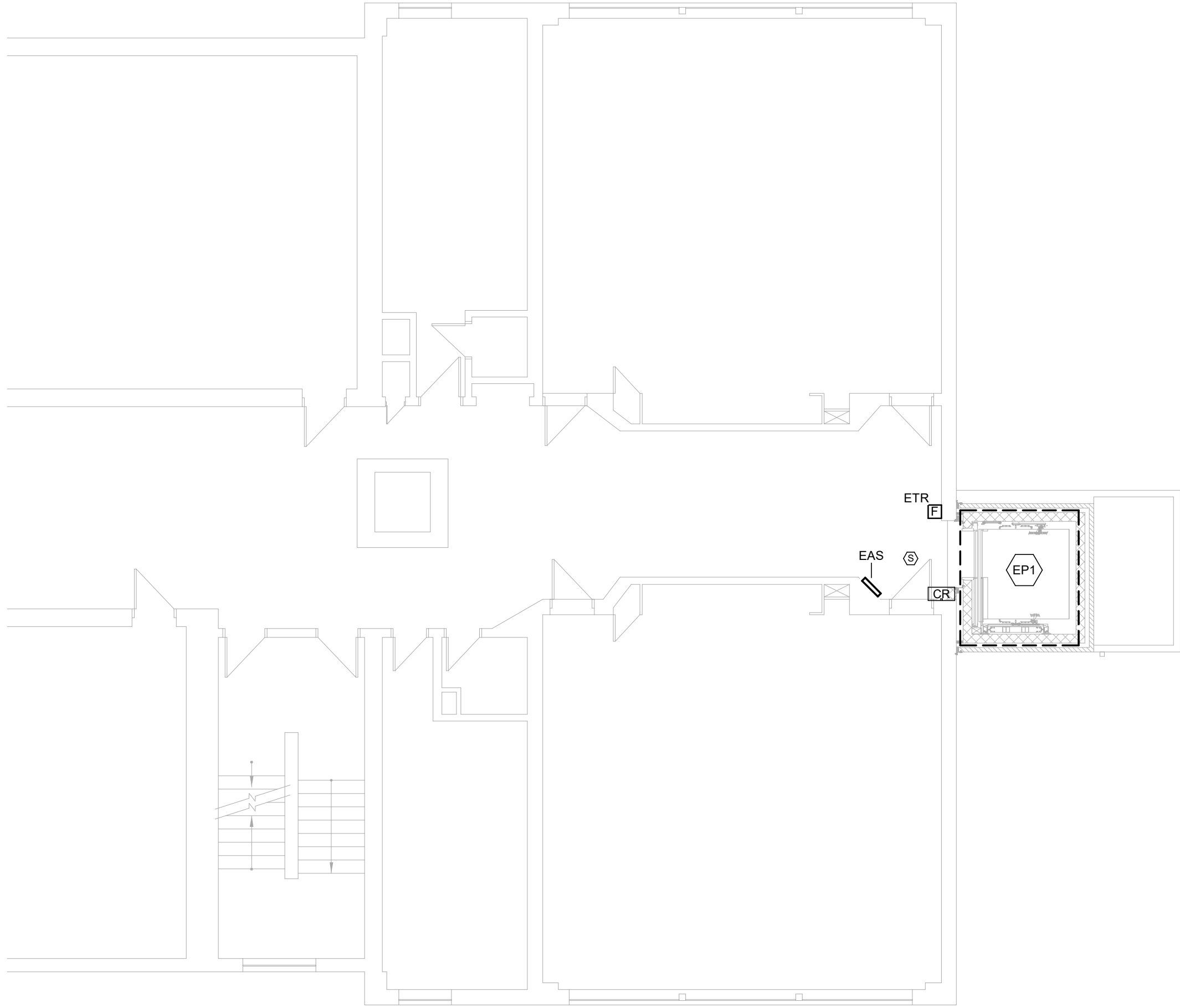
**ELECTRICAL POWER BASEMENT
AND FIRST FLOOR PLANS**


Consulting Engineering
Services, Inc.
811 Middle Street
Middletown CT 06457
860.632.1662
cesinc.com
CES #2022177.00

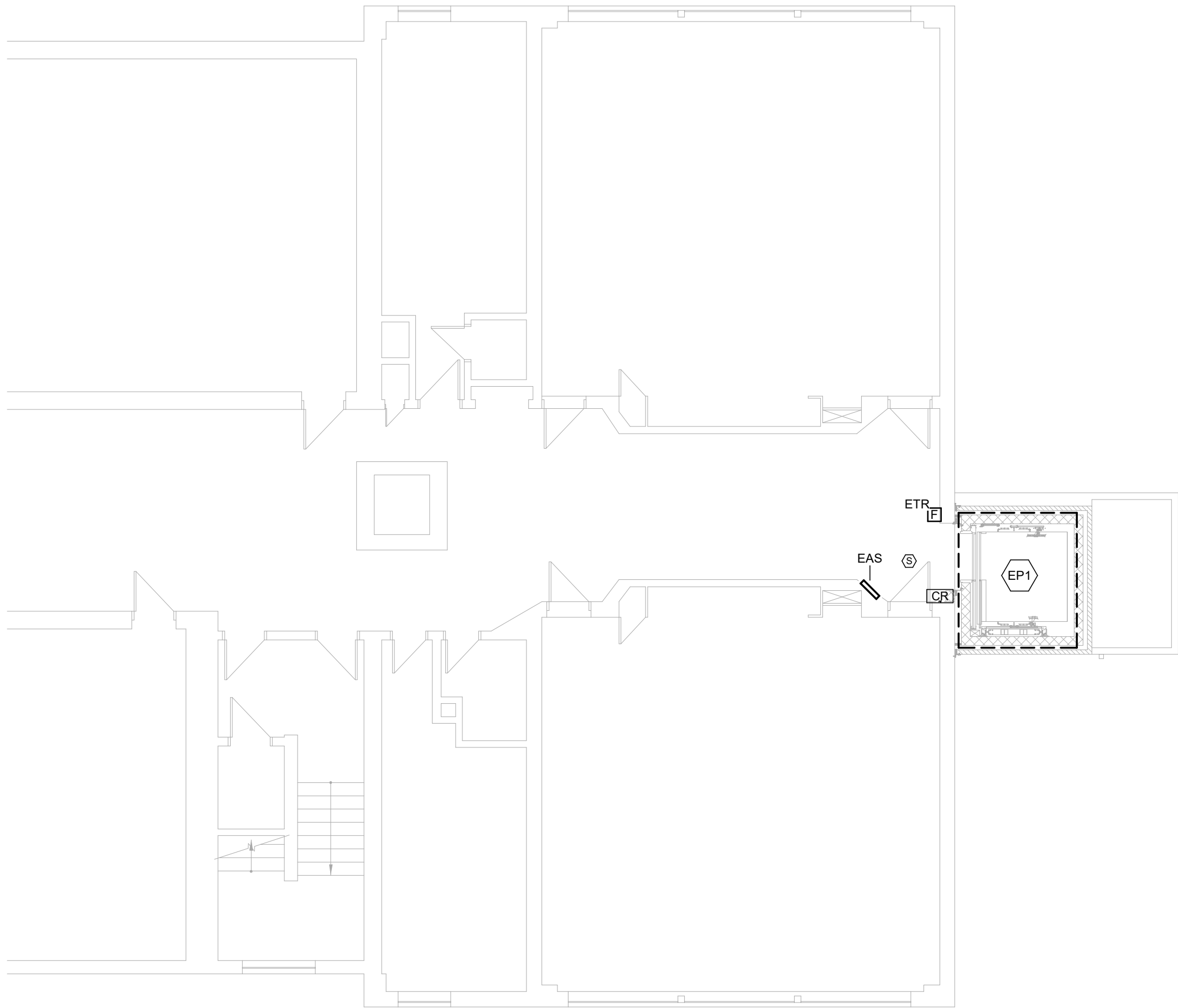

FRIAR
21 Talcott Notch Road
Farmington, CT 06032


FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
EP1.0



1 ELECTRICAL POWER SECOND FLOOR PLAN
1/8" = 1'-0"



2 ELECTRICAL POWER THIRD FLOOR PLAN
1/8" = 1'-0"

KEYNOTES - ELECTRICAL POWER	
Key Value	Keynote Text
EP1	REFER TO ELEVATOR DETAILS ON DRAWING E5.0 FOR ADDITIONAL INFORMATION.

REVISIONS	
NO.	DATE
	11/28/22
DESCRIPTION	
ISSUED FOR BID	

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708

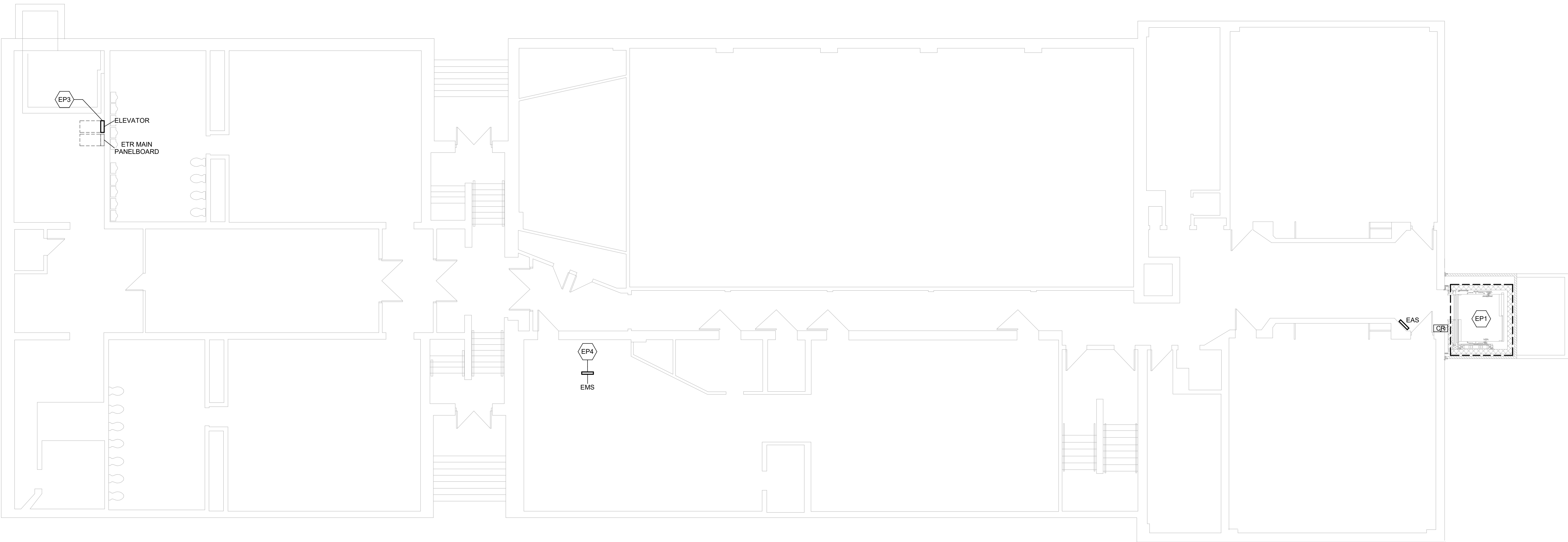
**ELECTRICAL POWER SECOND AND
THIRD FLOOR PLANS**


Consulting Engineering
Services, Inc.
811 Middle Street
Middletown CT 06457
860.432.1662
ceseng.com
CES #2022177.00


FRIAR
21 Talcott Notch Road
Farmington, CT 06032

SHEET NO.
EP1.1

DATE:	08/01/2022
DRAWN BY:	ML/MC
SCALE:	1/8" = 1'-0"
REVIEWED BY:	
PROJECT NO.	2021-091A



KEYNOTES - ELECTRICAL POWER	
Key Value	Keynote Text
EP1	REFER TO ELEVATOR DETAILS ON DRAWING E5.0 FOR ADDITIONAL INFORMATION.
EP3	PROVIDE 150A, 208/120V, 3-PHASE, 4-WIRE PANELBOARD "ELEVATOR". PROVIDE FEEDER TAP OF EXISTING MAIN PANELBOARD FEEDER, COMPLYING WITH REQUIREMENTS OF ARTICLE 240.21(B) OF THE NEC. PROVIDE 4#1/0, #6G, 2" C FROM TAP LOCATION OF EXISTING PANELBOARD TO NEW PANELBOARD MAIN CIRCUIT BREAKER. COORDINATE EXACT LOCATION OF PANELBOARD WITH EXISTING UTILITIES AND EQUIPMENT WITHIN ROOM. REFER TO PANELBOARD SCHEDULE AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.
EP4	EMERGENCY MASTER STATION (EMS) DEVICE SHALL BE LOCATED ON WITHIN SECRETARY ROOM ON 2ND FLOOR. REFER TO ARCHITECTURAL CODE SHEETS FOR ADDITIONAL INFORMATION. COORDINATE EXACT LOCATION WITHIN ROOM WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN.

REVISIONS	
NO.	DATE
	11/28/22
DESCRIPTION	
ISSUED FOR BID	

STATE PROJECT NO. 151-0305CV

ELEVATOR ADDITION

**BUNKER HILL
ELEMENTARY SCHOOL**

170 BUNKER HILL AVENUE
WATERBURY, CT 06708

**ELECTRICAL POWER FIRST FLOOR
OVERALL PLAN**

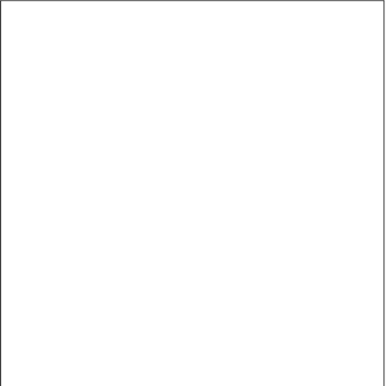
STATE PROJECT NO. 151-0305CV

ELEVATOR ADDITION

**BUNKER HILL
ELEMENTARY SCHOOL**

170 BUNKER HILL AVENUE
WATERBURY, CT 06708

**CES**
Consulting Engineering
Services, Inc.
811 Middle Street
Middletown CT 06457
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**FRIAR**
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Farmington, CT 06032

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Farmington, CT 06032

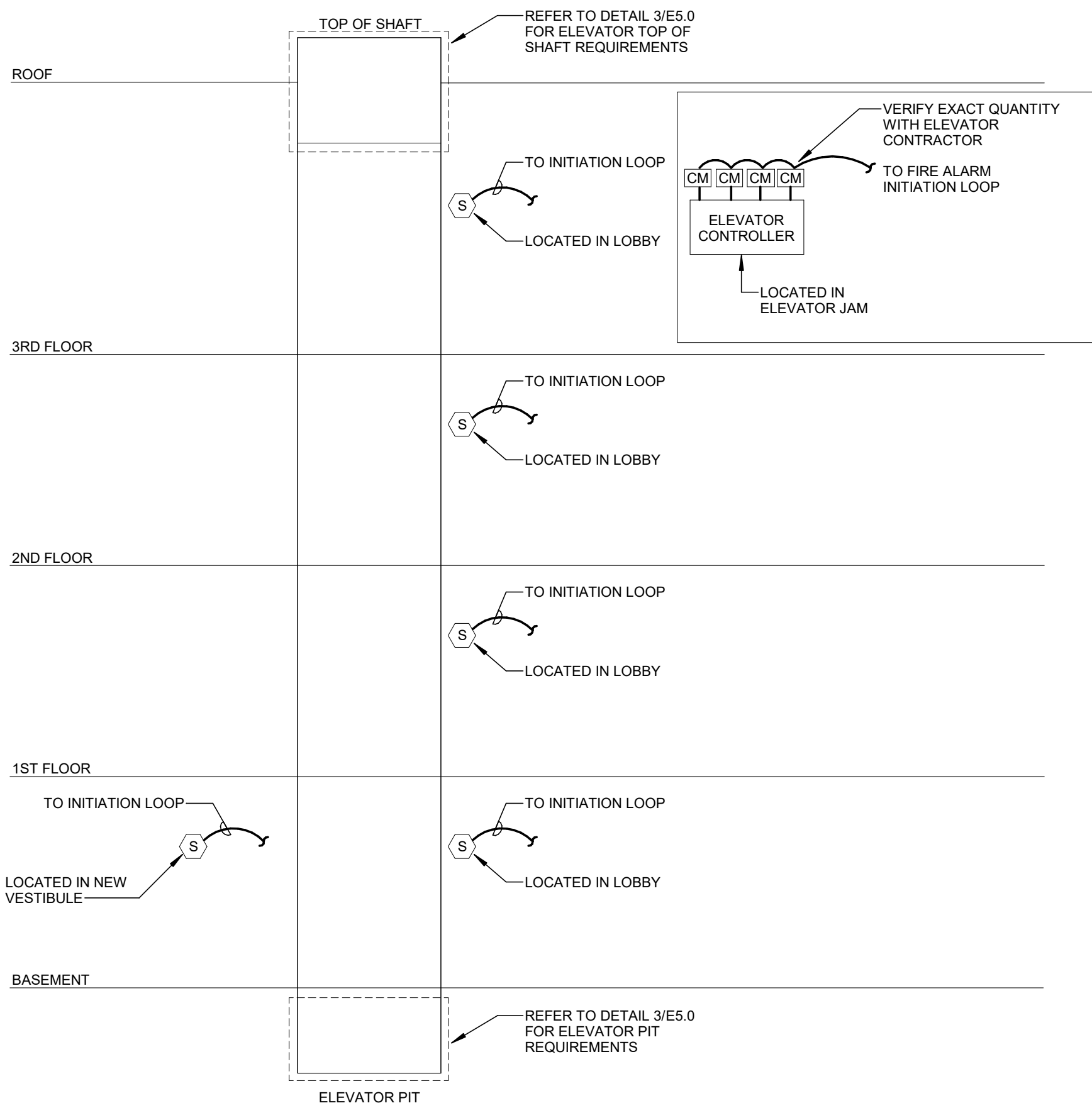
SHEET NO.

EP1.2

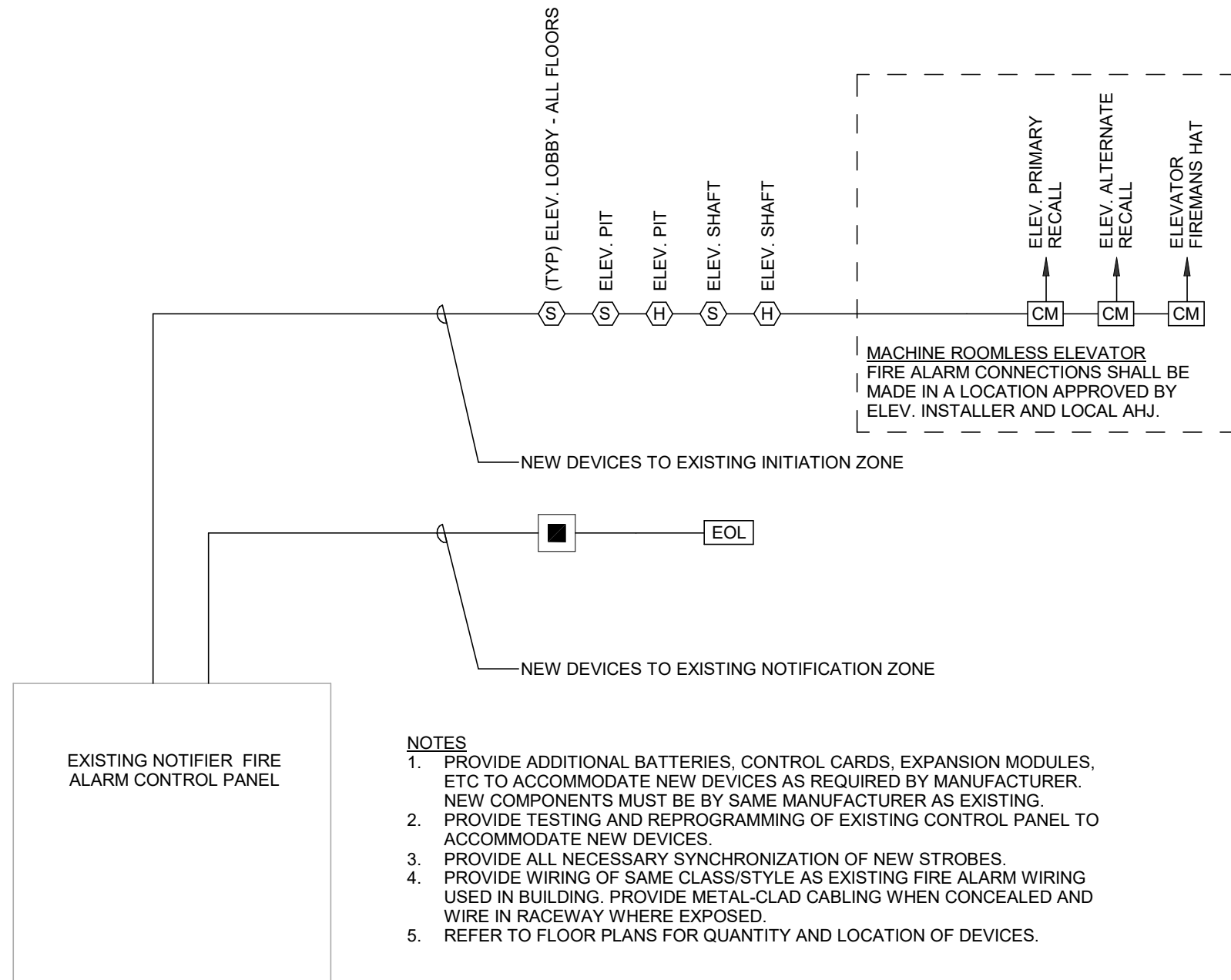
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ELECTRICAL POWER FIRST FLOOR OVERALL PLAN

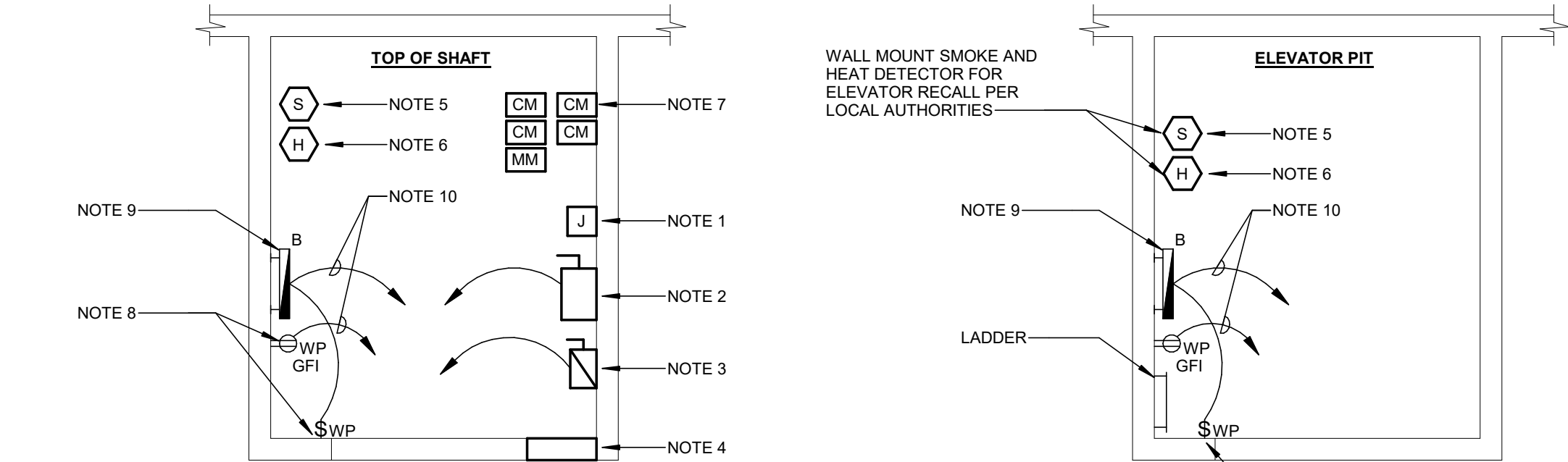
1/8" = 1'-0"



NOTES:
1. SEE DRAWINGS AND PARTIAL PLANS FOR ADDITIONAL INFORMATION.
2. COORDINATE LOCATION OF ALL DEVICES WITH ELEVATOR VENDOR.



- NOTES:
1. PROVIDE ADDITIONAL BATTERIES, CONTROL CARDS, EXPANSION MODULES, ETC TO ACCOMMODATE NEW DEVICES AS REQUIRED BY MANUFACTURER. NEW COMPONENTS MUST BE BY SAME MANUFACTURER AS EXISTING.
 2. PROVIDE TESTING AND REPROGRAMMING OF EXISTING CONTROL PANEL TO ACCOMMODATE NEW DEVICES.
 3. PROVIDE ALL NECESSARY SYNCHRONIZATION OF NEW STROBES.
 4. PROVIDE WIRING OF SAME CLASS/STYLE AS EXISTING FIRE ALARM WIRING USED IN BUILDING. PROVIDE METAL-CLAD CABLING WHEN CONCEALED AND WIRE IN RACEWAY WHERE EXPOSED.
 5. REFER TO FLOOR PLANS FOR QUANTITY AND LOCATION OF DEVICES.



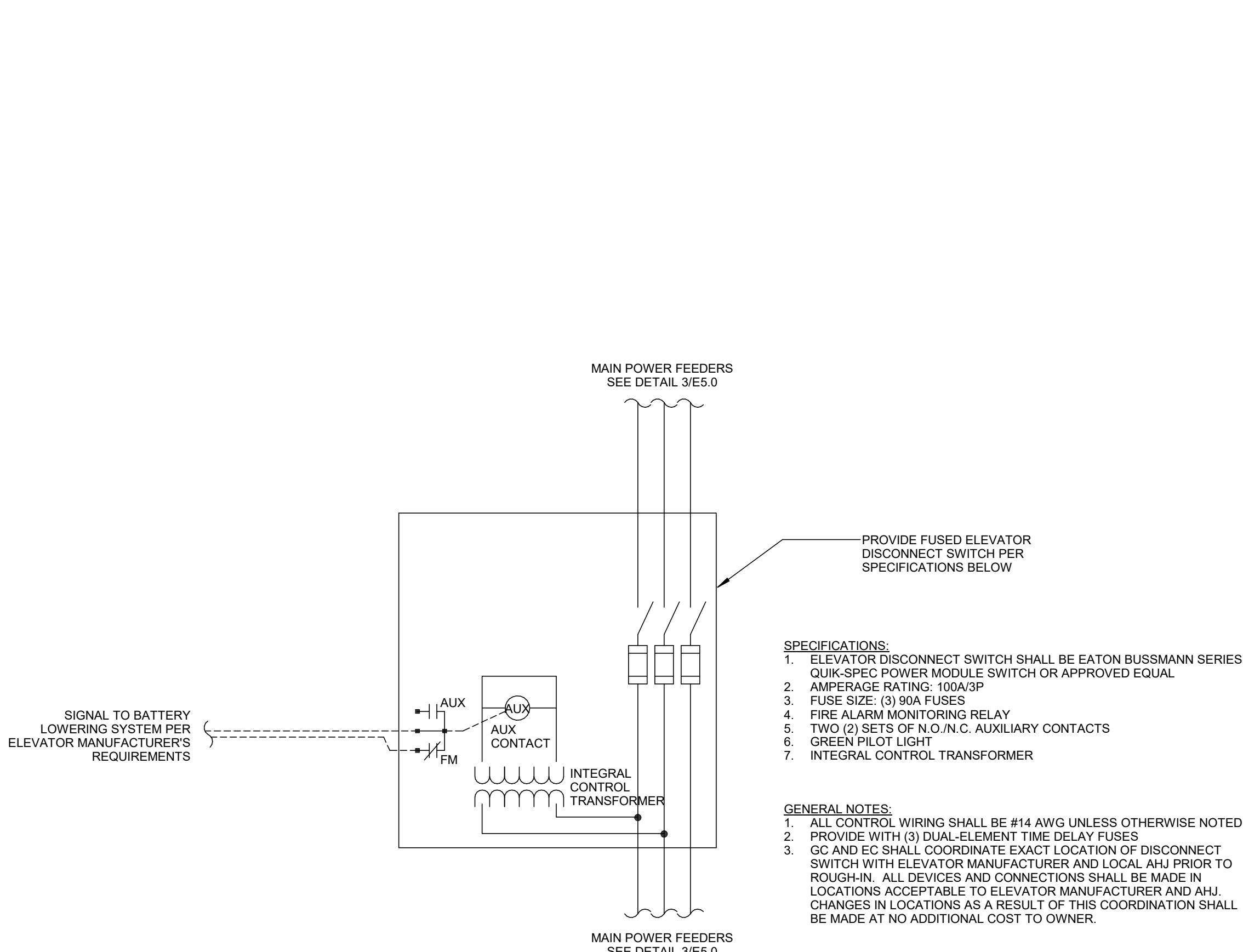
- MACHINE ROOMLESS ELEVATOR - REFERENCE NOTES:
1. PROVIDE 3/4"C WITH (2) POTS PHONE LINES TO LOCAL I.T. ROOM (ASSUME 250' FOR BIDDING) FOR ELEVATOR COMMUNICATIONS. PROVIDE FINAL CONNECTIONS TO ELEVATOR CONTROLLER. COORDINATE EXACT POINT OF CONNECTION WITH ELEVATOR CONTRACTOR.
 2. ELEVATOR MAIN POWER FEED: PROVIDE 3#2, #12G, 1-1/2" (UP-SIZED FOR VOLTAGE DROP) VIA 90A-3P CIRCUIT BREAKER IN PANELBOARD "ELEVATOR". PROVIDE WITH CIRCUIT BREAKER LOCK. PROVIDE ELEVATOR MAIN POWER FEED FROM PANELBOARD "ELEVATOR" TO SPECIALTY ELEVATOR DISCONNECT SWITCH IN LOCAL ELECTRICAL ROOM (PER PLANS). TO A SECOND DISCONNECT SWITCH LOCATED IN ELEVATOR SHAFT - IN A LOCATION APPROVED BY BOTH AHJ AND ELEVATOR INSTALLER. THE DISCONNECT SWITCH WITHIN SHAFT SHALL BE THE SAME AMPERAGE AS THE SPECIALTY ELEVATOR DISCONNECT SWITCH, AND NON-FUSED. PROVIDE FINAL CONNECTIONS FROM THE DISCONNECT SWITCH TO THE ELEVATOR CONTROLLER. EXACT LOCATION SHALL BE COORDINATED WITH ELEVATOR INSTALLER. PROVIDE LABEL ON ELEVATOR CONTROLLER INDICATING ROOM NUMBER AND NAME WHERE SPECIALTY ELEVATOR DISCONNECT SWITCH IS LOCATED.
 3. ELEVATOR CAB LIGHTING CIRCUIT: PROVIDE 2#12, #12G, 3/4"C VIA 20A-1P CIRCUIT BREAKER IN PANELBOARD "ELEVATOR". PROVIDE WITH CIRCUIT BREAKER LOCK. PROVIDE ELEVATOR CAB LIGHTING CIRCUIT FROM PANELBOARD "ELEVATOR" TO A 30A/2P DISCONNECT SWITCH, FUSED AT 20A LOCATED IN THE ELEVATOR SHAFT - IN A LOCATION APPROVED BY BOTH AHJ AND ELEVATOR INSTALLER. PROVIDE FINAL CONNECTIONS FROM THE DISCONNECT SWITCH TO THE ELEVATOR CONTROLLER. EXACT LOCATION SHALL BE COORDINATED WITH ELEVATOR INSTALLER.
 4. ELEVATOR CONTROLLER LOCATED AT TOP OF SHAFT: CONTROLLER PROVIDED WITH CONDUIT ENTRY PROVISIONS. COMMUNICATIONS AND CODE REQUIRED ELEVATOR CONTROLS. COORDINATE CONDUIT ENTRY, WIRING REQUIREMENTS AND ALL REQUIRED TERMINATIONS WITH ELEVATOR INSTALLER.
 5. SMOKE DETECTOR TO COMMUNICATE WITH ELEVATOR RECALL FUNCTIONALITY - PER FIRE ALARM RISER DIAGRAM. SMOKE DETECTORS ARE REQUIRED TO BE INSTALLED NEXT TO THE HEAT DETECTOR SO THE RECALL WILL TRIGGER BEFORE POWER TO THE ELEVATOR IS LOST.
 6. HEAT DETECTOR (COMBINATION FIXED TEMPERATURE/ RATE OF RISE STYLE), TO COMMUNICATE WITH THE SPECIALTY ELEVATOR DISCONNECT SWITCH - PER FIRE ALARM RISER DIAGRAM.
 7. FIRE ALARM CONTROL MODULES TO COMMUNICATE WITH ELEVATOR CONTROLLER. PROVIDE QUANTITY AS REQUIRED BY ELEVATOR MANUFACTURER. PROVIDE FINAL CONNECTIONS TO CONTROLLER.
 8. PROVIDE WEATHERPROOF, GFCI-TYPE DUPLEX RECEPTACLE AND WEATHERPROOF LIGHT SWITCH MOUNTED ADJACENT TO TOP LANDING IN ELEVATOR SHAFT.
 9. LIGHT FIXTURE TYPE "B": REFER TO LIGHTING FIXTURE SCHEDULE.
 10. PROVIDE 2#12, #12G, 3/4"C VIA 20A-1P CIRCUIT BREAKER IN PANELBOARD "ELEVATOR". PROVIDE WITH CIRCUIT BREAKER LOCK.

- MACHINE ROOMLESS ELEVATOR - GENERAL NOTES:
1. REFER TO FIRE ALARM RISER AND SPECS FOR HEAT AND SMOKE DETECTOR REQUIREMENTS.
 2. COORDINATE LOCATION OF ALL DEVICES WITH ELEVATOR VENDOR.
 3. REFER TO PANEL SCHEDULE FOR CIRCUITING INFORMATION.

1 ADDRESSABLE FIRE ALARM SYSTEM ELEVATOR RECALL RISER
NTS

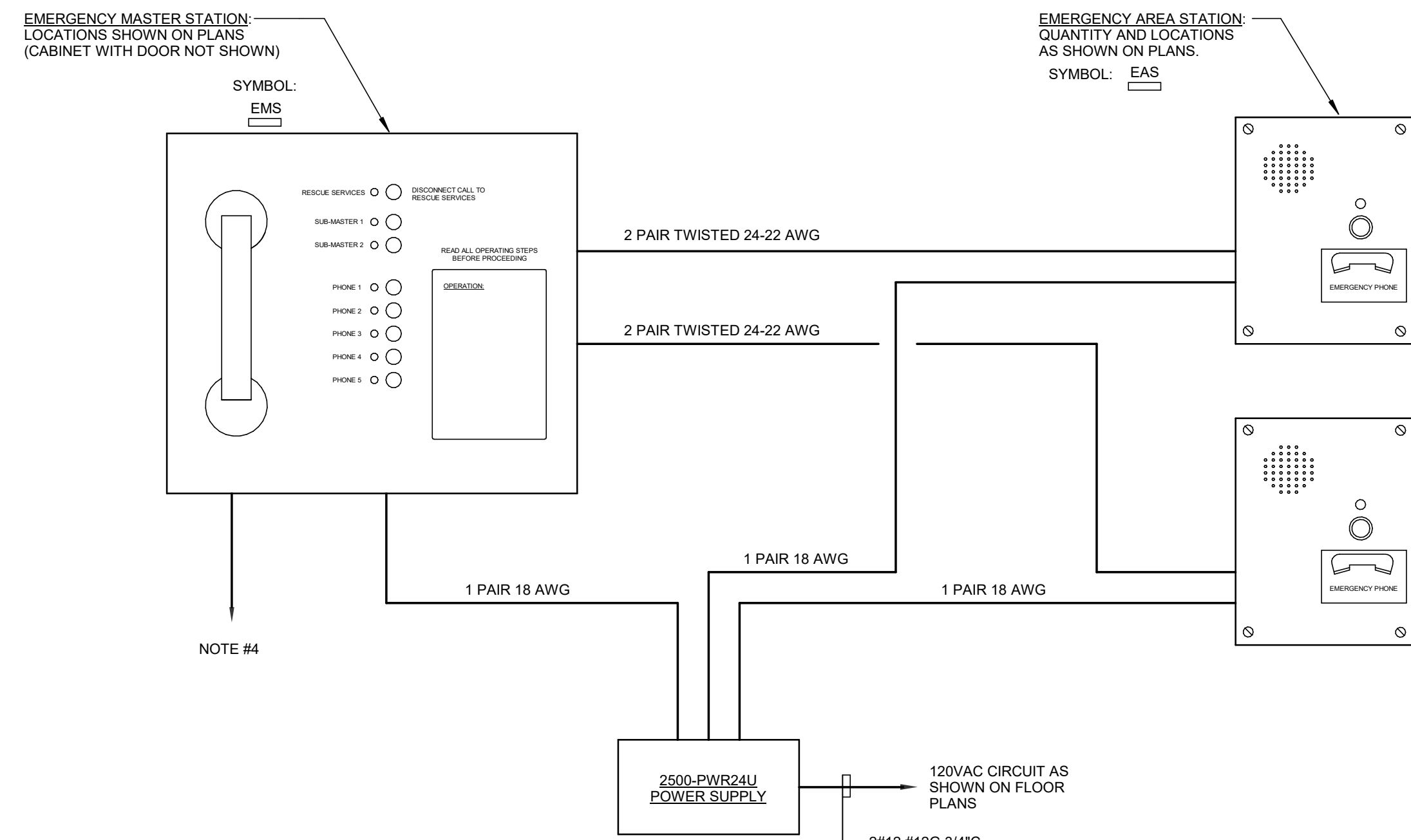
2 FIRE ALARM RISER - CONNECT TO EXISTING
NTS

3 ELEVATOR PIT AND TOP OF SHAFT DESIGN DETAIL
NTS



- SPECIFICATIONS:
1. ELEVATOR DISCONNECT SWITCH SHALL BE EATON BUSSMANN SERIES QUICK-SPEC POWER MODULE SWITCH OR APPROVED EQUAL.
 2. AMPERAGE RATING: 100A/3P.
 3. FUSE SIZE: (6) 90A FUSES.
 4. FIRE ALARM MONITORING RELAY.
 5. TWO (2) SETS OF N.O./N.C. AUXILIARY CONTACTS.
 6. GREEN PILOT LIGHT.
 7. INTEGRAL CONTROL TRANSFORMER.

- GENERAL NOTES:
1. ALL CONTROL WIRING SHALL BE #14 AWG UNLESS OTHERWISE NOTED.
 2. PROVIDE WITH (3) DUAL-ELEMENT TIME DELAY FUSES.
 3. GC AND EC SHALL COORDINATE EXACT LOCATION OF DISCONNECT SWITCH WITH ELEVATOR MANUFACTURER AND LOCAL AHJ PRIOR TO ROUGH-IN. ALL DEVICES AND CONNECTIONS SHALL BE MADE IN LOCATIONS ACCEPTABLE TO ELEVATOR MANUFACTURER AND AHJ. CHANGES IN LOCATIONS AS A RESULT OF THIS COORDINATION SHALL BE MADE AT NO ADDITIONAL COST TO OWNER.



- NOTES:
1. PROVIDE FLUSH MOUNTED JUNCTION BOXES AS REQUIRED FOR EQUIPMENT SHOWN ON FLOOR PLANS. MASTER STATION TO INCLUDE STEEL DOOR WITH VIEWING WINDOW AND TWIST LOCK CLOSURE FOR FIREMAN'S LOCK.
 2. REFER TO DRAWINGS FOR EXACT QUANTITIES AND LOCATIONS. TYPICAL WIRING SHOWN.
 3. REFER TO SPECIFICATIONS FOR PRODUCT MANUFACTURERS AND ADDITIONAL REQUIRED EQUIPMENT.
 4. DEDICATED OUTSIDE TELEPHONE LINE TO REPORT TO LOCAL EMERGENCY DISPATCH DEPARTMENT. 2-WAY VOICE COMMUNICATION SHALL BE PROVIDED. WIRING BY DIV 27 CONTRACTOR.
 5. COORDINATE VOICE NETWORK TYPE WITH OWNER. PROVIDE VOIP OR CELLULAR GATEWAY KIT DEVICE IF REQUIRED.

4 ELEVATOR DISCONNECT SWITCH DETAIL
NTS

5 EMERGENCY 2-WAY COMMUNICATION SYSTEM DETAIL
NTS

DATE:	08/01/2022
DRAWN BY:	ML/MC
SCALE:	NTS
REVIEWED BY:	
PROJECT NO.	2021-091A

REVISIONS	DESCRIPTION
NO.	DATE
1	11/28/22

ELECTRICAL DETAILS

STATE PROJECT NO. 151-0305CV
ELEVATOR ADDITION
**BUNKER HILL
ELEMENTARY SCHOOL**
170 BUNKER HILL AVENUE
WATERBURY, CT 06708



SHEET NO.
E5.0

Branch Panel: ELEVATOR														
Location:					Volts: 120/208 Wye					A.I.C. Rating: 22K				
Supply From:					Phases: 3					Bus Material: CU				
Mounting: Surface					Wires: 4					Bus Rating: 150 A				
Enclosure: Type 1					MCB Rating / MLO: 150A/3P MCB									
CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT	
1	UH-1	20 A	3	1.17	5.80					3	90 A	ELEVATOR: MAIN POWER	2	
3	--	--	--			1.17	5.80			--	--	--	4	
5	--	--	--					1.17	5.80	--	--	--	6	
7	ELEVATOR: CAB LIGHTS	20 A	1	0.10	0.18					1	20 A	ELEVATOR: PIT RCPT	8	
9	ELEVATOR: SHAFT RCPT	20 A	1			0.18	0.10			1	20 A	ELEVATOR: PIT LIGHT	10	
11	ELEVATOR: SHAFT LIGHT	20 A	1					0.10	0.00	1	20 A	SPARE	12	
13	SPARE	20 A	1	0.00	0.00					1	20 A	SPARE	14	
15	SPARE	20 A	1			0.00	0.00			1	20 A	SPARE	16	
17	SPARE	20 A	1					0.00	0.00	1	20 A	SPARE	18	
				Phase Load:		7.24 kVA	7.24 kVA	7.06 kVA						
				Phase...:		60.6 A	60.6 A	58.9 A						
				Total Load:		21.55 kVA								
				Total Amps:		59.81 A								
Notes:														
SUPPLY FROM: MAIN ELECTRICAL PANEL - SEE POWER PLANS														
LOCATION: MAIN ELECTRICAL ROOM														

LIGHTING FIXTURE SCHEDULE				
TYPE	BASIS OF DESIGN MANUFACTURER / MODEL	VOLTAGE	SOURCE	FIXTURE DESCRIPTION - BASIS OF DESIGN
A2	COLUMBIA LIGHTING CFP22-40/33/2835	UNV	4000LM, 40W 3500K LED	2'x2' RECESSED LED FLAT PANEL WITH ADJUSTABLE LUMEN OUTPUT. FROSTED ACRYLIC LENS, 80+ CRI, 0-10V DIMMABLE, LED RATED LIFE OF 54,000 HOURS AT L70.
A2E	COLUMBIA LIGHTING CFP22-40/33/2835-PLD10M	UNV	4000LM, 40W 3500K LED	SAME AS TYPE "A2" EXCEPT WITH INTEGRAL EMERGENCY BATTERY PACK. PROVIDE WITH DUAL-LITE PLRITS REMOTE TEST SWITCH.
A4	COLUMBIA LIGHTING CFP24-55/41/3435	UNV	5500LM, 50W 3500K LED	2'x2' RECESSED LED FLAT PANEL. FROSTED ACRYLIC LENS, 80+ CRI, 0-10V DIMMABLE, LED RATED LIFE OF 54,000 HOURS AT L70.
A4E	COLUMBIA LIGHTING CFP22-55/41/3435-PLD10M	UNV	5500LM, 50W 3500K LED	SAME AS TYPE "A4" EXCEPT WITH INTEGRAL EMERGENCY BATTERY PACK. PROVIDE WITH DUAL-LITE PLRITS REMOTE TEST SWITCH.
B	COLUMBIA LIGHTING MPS-4-3S-HL-C-W-ED-U-ELL14-MPSWG4	UNV	5800LM, 42W 3500K LED	4' LED UTILITY STRIP FIXTURE. STEEL HOUSING WITH CURVED FROSTED ACRYLIC LENS. 80+ CRI, 0-10V DIMMABLE, LED RATED LIFE OF 60,000 HOURS AT L80. PROVIDE WITH WIRE GUARD AND EMERGENCY BATTERY PACK ACCESSORIES.
C	LITHONIA LIGHTING WSQ LED-P2-30K-SR3-MVOLT-E10WH-PIR	UNV	2900LM, 29W 3000K LED	ARCHITECTURAL LED WALL. SCONCE FIXTURE. TYPE III DISTRIBUTION, WITH INTEGRAL EMERGENCY BATTERY AND PASSIVE INFRARED MOTION SENSOR AND AMBIENT LIGHT SENSOR OPTION.
X	DUAL-LITE EVE-U-X-W-E-I	UNV	LED	LED EXIT SIGN. UL LISTED 90 MINUTE RUN TIME, INTEGRAL BATTERY BACKUP, THERMOPLASTIC HOUSING, UNIVERSAL MOUNTING AS APPROPRIATE FOR LOCATION INDICATED ON PLANS. SELF-DIAGNOSTIC TESTING FEATURE INCLUDED.
<div>NOTES:</div> <div>1. LIGHT FIXTURES IN THE SCHEDULE SHALL BE CONSIDERED BASIS OF DESIGN. EQUAL FIXTURE SUBSTITUTIONS ARE ACCEPTABLE FOR ALL FIXTURES IN THE LIGHTING FIXTURE SCHEDULE, UNLESS INDICATED OTHERWISE. EQUAL FIXTURE APPROVAL SHALL BE AS JUDGED BY THE ENGINEER AND THE ARCHITECT. IN ADDITION TO THE REQUIREMENTS LISTED IN THE LIGHTING FIXTURE SCHEDULE AND IN THE SPECIFICATIONS, THE PROPOSED EQUAL FIXTURES SHALL: A. BE THE SAME GENERAL SIZE, STYLE AND SHAPE, INCLUDING BUT NOT LIMITED TO LENS CONSTRUCTION AND SHADING. B. BE OF EQUAL QUALITY CONSTRUCTION AND FINISH. C. BE SUPPLIED WITH ALL REQUIRED ACCESSORIES TO MATCH THE SPECIFIED (BASIS OF DESIGN) FIXTURE. D. PROVIDE THE SAME DISTRIBUTION, EFFICACY AND SOURCE LUMEN OUTPUT. E. HAVE THE SAME LISTINGS AS THE BASIS OF DESIGN FIXTURE, INCLUDING DLC AND ENERGY STAR QUALIFICATIONS.</div> <div>2. ALL FIXTURES SHALL BE UL LISTED.</div> <div>3. ALL NECESSARY MOUNTING HARDWARE, HANGERS, BRACKETS, RAILS, YOKES, CANOPIES, STEMS, CHAINS, ROW JOINERS, ETC. SHALL BE FURNISHED AND INSTALLED.</div> <div>4. REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFIC DETAILS, ARRANGEMENT, MOUNTING HEIGHTS, SUSPENSION LENGTHS, CEILING CONSTRUCTION, ETC. ALL COLORS AND FINISHES SHALL BE SELECTED BY ARCHITECT.</div> <div>5. FIXTURES SHALL BE SEISMICALLY SUPPORTED AS REQUIRED BY THE APPLICABLE BUILDING CODE. FIXTURES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE AND SHALL BE INDEPENDENT OF DUCTS, PIPES, CEILINGS AND THEIR SUPPORTING MEMBERS. FIXTURES SHALL BE SUPPORTED WITH A MINIMUM OF 2 SUPPORTS.</div> <div>6. WIRE EMERGENCY FIXTURES AND EXIT SIGNS AHEAD OF SWITCHED LEGS.</div> <div>7. MINIMUM MOUNTING HEIGHT OF FIXTURES IN MECHANICAL AND ELECTRICAL SPACES IS 8'-6" AFF. COORDINATE MOUNTING HEIGHT IN FIELD WITH EQUIPMENT IN ROOM SUCH THAT LIGHTING IS NOT OBSTRUCTED BY DUCTWORK, PIPING AND CONDUIT. PROVIDE NECESSARY CHAIN-MOUNTING HARDWARE TO SUSPEND FIXTURES WHERE REQUIRED.</div> <div>8. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.</div> <div>9. WHERE EXIT SIGNS ARE SHOWN AS WALL MOUNTED ABOVE A DOOR, MOUNT SUCH THAT THE BOTTOM OF THE SIGN IS NO MORE THAN 3" ABOVE THE DOOR FRAME, UNLESS INDICATED OTHERWISE ON PLANS.</div>				

DATE:	09/01/2022
DRAWN BY:	ML/MC
SCALE:	NTS
REVIEWED BY:	
PROJECT NO.	2021-091A

NO.	REVISIONS	
	DATE	DESCRIPTION
	11/28/22	ISSUED FOR BID

ELECTRICAL SCHEDULES AND DIAGRAMS	
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STATE PROJECT NO. 151-0305CV ELEVATOR ADDITION BUNKER HILL ELEMENTARY SCHOOL 170 BUNKER HILL AVENUE WATERBURY, CT 06708
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<div>CES</div> <div>Consulting Engineering Services, Inc. 811 Middle Street Middletown CT 06457 860.432.1662 ceseng.com CES #2022177.00</div>

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<div>FRIAR</div> <div>21 Talcott Notch Road Farmington, CT 06032</div>
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SHEET NO. E6.0

THE CITY OF WATERBURY
MEMORANDUM

From: Delinquent Tax Office

Date 1/18/2023

To: Jerry Gay- Contract Manager
Department of Education

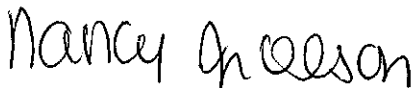
Subject: Tax Clearance

As of this date, the records in the Tax Collector's Office indicate that the following **are not delinquent**.

J.A. Rosa Construction, LLC
John A. Rosa
17 Town Line Rd.
Wolcott, CT 06716

If you have any questions regarding this issue, do not hesitate to call our office at (203) 574-6815.

Very truly yours,



NJO/wmf

Nancy J. Olson, CCMC
Deputy Revenue Collections Manager
City of Waterbury

MEMORANDUM

DATE: January 24, 2023

TO: Honorable Board of Aldermen

FROM: Rosh Maghfour, Interim Education Building & Facilities Project Manager

RE: Executive Summary for RFP #7516 Boiler System Replacement at International Dual Language School with Sarracco Mechanical Services, Inc.

The Education Department respectfully requests your review and approval of a contract for Boiler System Replacement at International Dual Language School in the amount of \$\$1,067,270.00. The project is funded through the Elementary and Secondary School Emergency Relief funds (ESSER II) and aligns with the grant use of funds to improve indoor air quality in schools. The contract was initiated under the Request for Proposal process (RFP #7516).

The project consists of furnishing and replacement of a new heating system, as well as the installation of new controllers for the Building Management System (BMS) to be completed in 180 days from notice to proceed. Three responses were received to RFP #7516 and Sarracco Mechanical Services; Inc. has been deemed the most qualified bidder. Currently, Sarracco has a City-wide contract to provide on-call HVAC and emergency repairs as well as corrective maintenance at various City and school buildings. This project will be managed by KBE in collaboration with school maintenance department.

Vendor's Disclosure and Tax Clearance are attached. The Education Department will have a representative present at your upcoming meeting to answer any questions you may have regarding this matter.

Thank you for your consideration.

Attachments (3)

c: Mike Konopka, Jerry Gay

JPY CLEAN DRAFT (V2) 2.2.23

**Construction Contract
for
International Dual Language School Boiler Replacement
between
City of Waterbury
and
Sarracco Mechanical Services, Inc.**

THIS CONTRACT, effective on the date signed by the Mayor, is by and between the **CITY OF WATERBURY**, City Hall, 235 Grand Street, Waterbury, Connecticut (the "City") and **SARRACCO MECHANICAL SERVICES, INC.**, located at 61 Mattatuck Heights, Waterbury, Connecticut, a duly registered Connecticut corporation (the "Contractor").

WHEREAS the Contractor submitted a bid to the City in response to **Request for Proposal ("RFP") No. 7516** for International Dual Language School Boiler Replacement; and

WHEREAS the City accepted the Contractor's bid for **RFP No. 7516**; and

WHEREAS the City desires to obtain the Contractor's services pursuant to the terms set forth in this Contract (the "Project").

NOW THEREFORE, THE PARTIES AGREE AND COVENANT AS FOLLOWS:

1. Scope of Services. The Contractor shall furnish all the labor, services, equipment, materials, supplies, transportation, and incidentals necessary to complete the Project as specified in this agreement (also referred to herein as the "Contract") and such shall be completed in a satisfactory manner, as reasonably determined by the City. All labor, services, equipment, materials, supplies, transportation, and incidentals shall comply with **(i)** all applicable local, state and federal laws, statutes, ordinances, rules and regulations, including without limitation all notice requirements thereunder, and **(ii)** generally accepted professional standards.

1.1. The Project consists of the installation of four new gas fired hot water condensing boilers, pumps and appurtenances and one gas fired domestic hot water heater with associated work to connect to remaining existing piping in accordance with Project's plans and specifications at The International Dual Language School located at 116 Beecher Avenue, Waterbury, Connecticut, all of which is more particularly detailed and described in the Bid Documents in **Attachment A**. **Attachment B** includes the ARPA (defined below) required contract provisions and, along with **Attachment A**, are hereby made material provisions of this Contract. **Attachment A** shall consist of the following, which are attached hereto, are acknowledged by the Contractor as having been received, or otherwise hereby incorporated by reference as noted below, and all are made a part hereof:

JPY CLEAN DRAFT (V2) 2.2.23

- 1.1.1** City's **RFP No. 7516**;
 - 1.1.2** Addendums 1 through to **RFP No. 7516** (attached hereto);
 - 1.1.3** Contractor's Price Proposal (revised), dated January 19, 2022, consisting of one page (attached hereto);
 - 1.1.4** Contractor's Response with associated attachments to **RFP No. 7516**, dated December 27, 2022, consisting of 27 pages (attached hereto);
 - 1.1.5** "City of Waterbury, Board of Education, **RFP No. 7516**, Attachment _ Scope of Services" (also referred to as "Technical Specifications"), consisting of 11 pages (attached hereto);
 - 1.1.6** "Site Map" with List of Drawings prepared by AI Engineers, 919 Middle Street, Middletown, CT, consisting of 20 pages (attached hereto);
 - 1.1.7** State of Connecticut Prevailing Wage Schedule dated December 6, 2022, and related information, consisting of 8 pages (attached hereto and as otherwise incorporated by reference).
 - 1.1.8** Contractor's Certificate of Insurance (attached hereto, or otherwise incorporated by reference);
 - 1.1.9** Contractor's Performance Bond (attached hereto, or otherwise incorporated by reference);
 - 1.1.10** Contractor's Payment Bond (attached hereto, or otherwise incorporated by reference);
 - 1.1.11** All amendment(s) and Change Orders issued by the City after execution of Contract (incorporated by reference);
 - 1.1.12** All applicable Federal, State and local statutes, regulations charter and ordinances, including those required for the American Rescue Plan Act of 2021 ("**ARPA**") and the two Elementary and Secondary School Emergency Relief Fund programs (collectively, "**ESSER**") to the extent the Project receives funding from same, are incorporated by reference, as well as Attachment B, titled "**CONSTRUCTION CONTRACTS - REQUIRED CONTRACT PROVISIONS – AMERICAN RESCUE PLAN ACT FUNDED PROJECTS, DATED JUNE 2021,**"; and
 - 1.1.13** All applicable permits and licenses (incorporated by reference).
- 1.2.** The entirety of **Attachment A** plus this executed instrument (including **Attachment B**) are together deemed the Contract Documents (hereinafter collectively referred to as "Contract Documents"). The City's record copy of the Contract Documents shall control and shall be effective and binding on the Contractor. If any provision in the Contract Documents conflict with any other provision therein, the provision in the component part of the Contract Document first enumerated below shall govern over any other component part which follows it numerically:
- 1.2.1** All applicable Federal, State, and local laws, regulations, charter and ordinances;
 - 1.2.2** Contract Amendment(s) and Change Orders;
 - 1.2.3** This Contract;
 - 1.2.4** Addendums to RFP No. **7516**;
 - 1.2.5** RFP No. **7516** including "City of Waterbury, Board of Education,

JPY CLEAN DRAFT (V2) 2.2.23

RFP No. **7516**, Attachment Scope of Services” (Technical
“Specifications”);

1.2.6 Contractor’s Price Proposal;

1.2.7 Contractor’s Response; and

1.2.8 Drawings.

2. Representations Regarding Qualification and Accreditation. The Contractor represents that its employees are licensed to perform the scope of work set forth in this Contract. The Contractor further represents that its employees have the requisite skill, expertise and knowledge necessary to perform the scope of work required under the terms of this Contract, including any supplementary work and the City relies upon Contractor’s representations.

2.1. Representations regarding Personnel. The Contractor represents that it has, or will secure at its own expense, all personnel required to perform the services under this Contract. Such personnel shall not be employees of or have any contractual relationship with the City, unless use of City employees or of personnel having a contractual relationship with the City is approved in writing. As set forth above, all the services required hereunder shall be performed by the Contractor or under its supervision and all personnel engaged in the work shall be fully qualified and shall be authorized or permitted under state or local law to perform such services.

2.2. Representations regarding Qualifications. The Consultant hereby represents that, to the extent required by Federal, State and Local statutes, regulations, codes, ordinances, and policies, that the Consultant and/or its employees be licensed, certified, registered, or otherwise qualified, the Consultant and all employees providing services under this Contract, are in full compliance with those statutes, regulations and ordinances. Upon City request, the Consultant shall provide to the City a copy of the Consultant’s licenses, certifications, registrations, etc.

3. Responsibilities of the Contractor. The Contractor agrees to properly implement the services required in the manner herein provided. The Contractor shall, in addition to any other responsibilities set forth in this Contract and the Schedules and Attachments hereto, perform the following coincident with the performance of this Contract:

3.1. Due Diligence Obligation. The Contractor acknowledges its responsibilities to examine and to be thoroughly familiar with the City’s bid document, including, but not limited to the plans, specifications, drawings and any addenda thereto. The Contractor hereby warrants and represents that prior to the submission of its proposal during the bid process it reviewed or was afforded opportunity, by the City, to review all physical items, facilities, services and functions essential to the satisfactory performance of the services required (“Due Diligence”) and thereby certifies that all such items, facilities, services and functions are included in this Contract and thereby warrants that:

3.1.1 it conducted or had opportunity to conduct all due diligence prior to the submission of its bid and, accordingly, any additional costs, services or

JPY CLEAN DRAFT (V2) 2.2.23

products resulting from the failure of the Contractor to complete Due Diligence prior to submission of its bid proposal shall be borne by the Contractor. Furthermore, the Contractor had the opportunity during the bid process to ask questions it saw fit and to review the responses from the City;

3.1.2 its failure or omission to make investigation and verification of data shall, in no way, be cause for future claim of ignorance of such data or conditions nor shall such failure to investigate and verify be the basis for any claim whatsoever, monetary or otherwise;

3.1.3 it is solely responsible for resolving any issues resulting from its failure to conduct due diligence and it shall assume all resulting costs it incurs during the Project;

3.1.4 it was responsible for specifying any changes and disclosing any associated new costs prior to submittal of its bid. In the event the Contractor failed to disclose any such new cost prior to the submittal of its bid, the Contractor hereby covenants that it shall remain solely responsible for, and shall absorb, those non-disclosed costs;

3.1.5 it has familiarized itself with the nature and extent of the Contract Documents, Project, locality, and with all local conditions and Federal, State and local laws, ordinances, rules and regulations that in any manner may affect cost, progress or performance of the Project;

3.1.6 it has given the City written notice of any conflict, error or discrepancy that the Contractor discovered in the City's bid documents and other documents for **RFP No. 7516** (collectively, the "Bid Documents");

3.1.7. it agrees that the Bid Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the Project;

3.1.8. it has carefully studied all reports of investigations and tests of subsurface and latent physical conditions at the site or otherwise affecting cost, progress or performance of the Scope of Services which were utilized in the preparation of the plans and specifications;

3.1.9. it has made or caused to be made examinations, investigations, measurements and tests and studies of any applicable reports and related data as it deems necessary for ensuring performance of the Scope of Services at the Contract Price within the Contract Time and in accordance with the other terms and conditions of the Contracts; and certifies no additional examinations, investigations, tests, reports or similar data are or will be required by Contractor for such purposes; and

JPY CLEAN DRAFT (V2) 2.2.23

3.1.10. it shall not take advantage of any obvious error or apparent discrepancy in the Contract. Notice of any error or discrepancy discovered shall be given immediately in writing to the City, who shall make such corrections and interpretations as it may deem necessary for the completion of the Project in a satisfactory and acceptable manner.

3.2. Safety. Contractor shall perform all work in a safe manner in full compliance with local, state and federal health and safety regulations. Contractor shall immediately correct any dangerous condition caused by or resulting from its work. If it fails to correct, or to act diligently to correct, any condition which the City reasonably believes to be a hazard to persons or property, then immediately upon oral or written notice to any supervisory or similar personnel of Contractor, City may, but shall not be required to, correct same at Contractor's expense. City shall Contractor in writing any oral notice given within five (5) business days thereafter.

3.3. Storage. In the event the Project site has insufficient, inadequate, and/or improper storage space, it shall be the responsibility of the Contractor to secure, provide and maintain at the Contractor's sole cost and expense **(i)** adequate off-site storage space for equipment, materials, incidentals, etc., and **(ii)** all associated delivery and transportation services. In either event, the Contractor shall assume full responsibility for equipment, materials, incidentals, etc. until both title and risk of loss pass to the City pursuant to Section 8 of this Contract.

3.4. Working Hours. To the extent the Contractor is required to be on City property to render the Contractor's services hereunder, the Contractor shall coordinate its schedule so that work on and at the Project site is performed during the hours of 8:00 a.m. to 4:00 p.m. Monday through Friday and 9:00 a.m. to 6:00 p.m. on Saturday, Sunday and legal holidays unless more exactly specified elsewhere in this Contract or **Attachment A** or unless prior written permission is obtained from the City to work during other times; for example, a second shift from 3 p.m. to 11 p.m. may be possible. This provision shall not excuse the Contractor from timely performance under the Contract.

3.5. Cleaning Up. The Contractor shall always keep the Project site free from accumulation of waste materials or rubbish caused by Contractor's employees or subcontractors, and at the completion of the work shall remove all rubbish from and about the Project and all tools, scaffolding and surplus materials and shall leave the Project site "broom clean" or its equivalent, unless more exactly specified. In case of dispute, the City may remove the rubbish and charge the cost to the Contractor.

3.6. Publicity. Contractor agrees not to deliberately disclose the fact that the City has entered into or terminated this Contract or disclose any of the terms of the Contract or use the City's name in connection with any publicity, unless the City gives prior written consent to such use of the City's name in each instance.

3.7. Standard of Performance. All Contractor labor, materials, supplies,

JPY CLEAN DRAFT (V2) 2.2.23

components, equipment, reports, plans, specifications, drawings, deliverables, incidentals, etc., required to be furnished or delivered under this Contract shall conform in all respects with the requirements set forth in this Contract and shall meet or exceed those standards generally recognized in the Contractor's craft and trade in the State of Connecticut. City specified manufacturer and/or brand name substitution desired by the Contractor shall be made only with the prior written consent of an authorized representative of the City's Using Agency.

3.7.1 In carrying out the Project, the Contractor must employ such methods or means as will not cause any interruption of or interference with the work of any other contractor, nor with the normal routine of the institution or agency operating at the Project site.

3.8. Contractor's Employees. The Contractor shall always enforce strict discipline and good order among its employees and shall not employ on the work any unfit person or anyone not skilled in the work assigned. The Contractor shall not, without the prior written approval of the City's Using Agency, substitute, terminate, replace or otherwise remove any Contractor employee expressly named, identified or required in this Contract.

3.9. Subsurface/Unknown Site Conditions. If Project site conditions are encountered which are **(i)** subsurface or otherwise concealed physical conditions or other conditions which differ materially from those indicated in the Contract Documents, or **(ii)** unknown conditions of an unusual nature which differ materially from those ordinarily found to exist and generally recognized as inherent or common in construction activities of the character provided for in this Contract, then prompt notice by the observing party shall be given to the other party to this Contract before Project site conditions may be disturbed; the Contractor shall thereafter wait for written instructions from the City before proceeding under such conditions.

3.10. Surveys. All surveys required under this Contract shall be performed by a State of Connecticut duly licensed land surveyor. Unless expressly stated to the contrary in Section 1 of this Contract and **Attachment A**, the Contractor shall perform all layout work, all field measurements and all construction staking required, necessary or prudent for the satisfactory prosecution of the Contractor's obligations under this Contract.

3.11. Permits and Licenses. Unless expressly stated to the contrary in Section 1 of this Contract and **Attachment A**, the Contractor shall secure and obtain all permits and all licenses required, or necessary, or prudent for the performance of the Contractor's obligations under this Contract., and for the City's occupancy, use, and operation of the Project.

3.12. Manufacturer's Directions. Where it is required in this Contract that materials, products, processes, equipment or the like be installed or applied in accord with manufacturer's directions, specifications or instructions, it shall be construed to

JPY CLEAN DRAFT (V2) 2.2.23

mean that the said application or installation by the Contractor shall be in strict accord with printed instructions furnished by the manufacturer of the material concerned for use under conditions like those at the Project site. One (1) copy of such instructions shall be furnished to the City.

3.13. Review by the City. The Contractor shall permit the City and the City's duly authorized representatives and agents (including KBE Building Corporation) to review, at any time, all work performed under the terms of this Contract at any stage of the Project.

3.14. Records Maintenance. The Contractor shall maintain or cause to be maintained all records, books or other documents relative to charges, costs, expenses, fees, alleged breaches of the Contract, settlement of claims or any other matter pertaining to the Contractor's demand for payment.

3.15. ARPA/ESSER. The Contractor possesses the knowledge and understanding of **ARPA** and **ESSER** and recognizes this Project is subject to the rules, regulations and mandatory contract provisions required by it

4. Responsibilities of the City and City Reservation of Rights. Upon the City's receipt of Contractor's written request for specific information, the City will provide the Contractor with existing documents, data and other materials the City agrees are necessary and appropriate to the services to be performed by the Contractor hereunder and the City will endeavor to secure, where feasible and where the City agrees it is necessary and appropriate, materials or information from other sources requested by the Contractor for the purpose of carrying out the services under this Contract.

4.1. The City may, in its sole discretion, designate person(s) to act as the City's Project Engineer(s) and/or Manager(s) and the City may, in its sole discretion, define such person(s) authority and responsibilities; initially, the Department of Education's School Inspector's Office and KBE Building Corporation are so designated.

4.2. The City reserves the right to **(i)** perform work related or unrelated to the Project with the City's own forces adjoining, adjacent to, or in the vicinity of, the Project site and/or **(ii)** let separate contracts related or unrelated to the Project for work and services adjoining, adjacent to, or in the vicinity of, the Project site. In such event, the Contractor shall afford all such parties reasonable opportunity for storage of materials and equipment and for the uninterrupted provision and delivery of such parties' work and/or services. The Contractor shall cooperate with such parties and in the case of a dispute, the decision of the City shall be complied with by all.

5. Contract Time. The Contractor shall Substantially Complete all work and services required under this Contract within two hundred forty **(240) consecutive calendar days** of the City's written Notice to Proceed and shall reach Final Completion within two hundred seventy **(270) consecutive calendar days** of the City's written Notice to Proceed ("Contract Time").

JPY CLEAN DRAFT (V2) 2.2.23

5.1. Attachment C is the Project's schedule. On a monthly basis, the Contractor shall deliver to the City a written status report setting forth an analysis and critique of the Contractor's compliance with said schedule.

5.2. Delay Damages.

5.2.1 Time is and shall be of the essence for all Project Phase Completion Dates, Milestones, Substantial and Final Completion Date. The Contractor further agrees that the Project shall be prosecuted regularly, diligently and uninterruptedly and at such rate of progress as will insure full completion thereof within the Contract time stated above. It is expressly understood and agreed, by and between the Contractor and City, that the Phase Completion Dates, Milestones, Substantial and Final Completion Date are reasonable for the completion of the Project.

5.2.1.1 The Contractor shall pay to the City the sum of the greater of **Five Hundred and 00/100 Dollars (\$500)** per consecutive calendar day for each calendar day for which the Contractor is in default in completing the work beyond the Final Completion Date, Substantial Completion Date, Milestones and Phase Completion Dates, as set forth in Section 5, or the actual damages incurred by the City caused by the delay. The preceding sum is hereby agreed upon not as a penalty, but as delay damages for the delay that the City shall suffer due to such default.

5.2.1.2 The City shall have the right to recover all damages pursuant to any remedy at law or equity including but not limited to deducting the amount of any such damages from any monies due the Contractor under this Contract. The Contractor understands that if the entire Work or of any portion of the Work that the City has agreed to accept separately, if any, is not attained by the applicable completion dates as set forth in the entire Section 5, the City will suffer damages, which are difficult to specify accurately and ascertain. Delay damages based upon delay shall be assessed to compensate the City for all actual loss sustained by the delay, including, but not limited to, loss of use, increased cost of material or services to complete the project, loss of State funding, all other another actual expense, and all other damages allowed by law, including attorney's fees.

5.3 No Damage for Delay. In no event shall the Contractor be entitled to any compensation or recovery of any damages in connection with any Delay, including, without limitation, consequential damages, lost opportunity damages, attorney's fees or other, similar remuneration. The City's exercise of any of its rights or remedies under the Contract Documents, including without limitation, ordering changes in the Work, or directing suspension, rescheduling or correction of the Work, regardless of the extent or

JPY CLEAN DRAFT (V2) 2.2.23

frequency of the City's exercise of these rights has been contemplated by the parties and shall not be construed as an exception.

6. Compensation. The City shall compensate the Contractor for satisfactory provision of all the goods and services set forth in this Contract as follows in this Section 6. No claims for additional compensation will be considered for conditions made known to the Contractor prior to bidding. No claims for additional compensation will be considered on account of failure of the Contractor to completely inform itself as required herein above.

6.1. Fee Schedule. Subject to retainage, limitations, etc. set forth below in this Section 6, the fee payable to the Contractor shall not exceed **ONE MILLION SIXTY-SEVEN THOUSAND TWO HUNDRED SEVENTY DOLLARS (\$1,067,270)** (hereafter referred to as "Total Compensation") with the basis for payment being Contractor's Bid set forth in **Attachment A**, which is summarized below and inclusive of the required payment and performance bonds:

- i. \$1,067,270 (base payment)
- ii. N/A (allowance/alternates); and
- iii. N/A (change orders, if any).

6.2. Retainage. At the City's sole discretion, it hereby reserves the right to withhold as retainage of five percent (5%) of any payment (or monetary sum otherwise required by law) owed to the Contractor to be withheld from payments to the Contractor otherwise payable to the Contractor until such time as the Contractor's work and services to be provided under this Contract are fully completed and accepted in writing by the City. The retainage does not include additional sums that the City may withhold due to the Contractor's failure to comply with provisions of this Contract.

6.3. Limitation of Payment. Compensation to the Contractor is limited to those fees set forth in Section 6.1. of this Contract and is further limited to work **(i)** performed in fact, **(ii)** conforming with this Contract, and **(iii)** accepted in writing by a duly authorized City employee. Such compensation shall be paid by the City upon its review and approval of the Contractor's invoices for payment and review of the Contractor's work.

6.3.1 Funding. In the event this Contract is funded, in whole or in part, by Federal and/or State monies, grants, loans, etc., all City payment(s) shall fully comply with all relevant Federal and State statutes and regulations. In the event this Contract is 100% funded by Federal and/or State monies, grants, loans, etc., the aggregate sum of all City payments shall not exceed the aggregate sum of such funding.

6.3.2 The Contractor and its affiliates are hereby provided with notice that the City reserves the right, in the City's sole discretion, to offset, withhold, or otherwise reduce City payment(s) to the Contractor, in an amount equaling the sum or sums of money the Contractor and/or its affiliates is/are, or become

delinquent or in arrears on, regarding the Contractor's and/or its affiliates real and personal property taxes and other payment obligations to the City.

6.4. Bid Costs. All costs of the Contractor in preparing its bid for **RFP No. 7516** shall be solely borne by the Contractor and are not included in the compensation to be paid by the City to the Contractor under this Contract or any other agreement.

6.5. Payment for Services, Materials, Appliances, Employees. The Contractor shall be responsible to the City for the suitability of services, materials and equipment furnished to comply fully with the requirements set forth in this Contract. The Contractor shall promptly pay all employees as their pay falls due, shall pay promptly as they fall due all bills for subcontractors, materials, supplies and services going into the work, and all bills for insurance, bonds, Worker's Compensation coverage, Federal and State Unemployment Compensation, and Social Security charges applicable to this Project. Before final City payment is made, the Contractor shall furnish to the City a sworn, notarized, affidavit stating that all the foregoing payment obligations have been fully completed.

6.6. Liens. Neither the City's final payment nor any part of the retained percentage, if any, shall become due until the Contractor, if required by the City, shall deliver to the City a complete release of all liens arising out of this Contract, or receipts in full in lieu thereof, and, if required, in either case, an affidavit that so far as the Contractor has knowledge or information, the releases and receipts include all the labor and material for which a lien could be filed; but the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to the City, to indemnify it against any lien. If any lien remains unsatisfied after all payments are made, the Contractor shall refund to the City all moneys that the City may be compelled to pay in discharging such a lien, including all costs and a reasonable attorney's fees.

6.7. Attorney's Fees and Costs. The prevailing party in any litigation arising hereunder shall be entitled to attorney's fees and costs from the losing party.

6.8. Contractor's Certificate of Completion. Upon the Contractor's (i) completion of all Project milestones, and (ii) Substantial Completion of the Project, and (iii) Final Completion of the Project, the Contractor shall, in each instance, file with the City a written, notarized affidavit setting forth the amount of Project work performed. The City reserves the right to verify or challenge by any reasonable means the accuracy of said affidavit.

6.9. Final Payment. All prior estimates and City payments, including those relating to extra or additional work, retainage(s), and holdback(s), shall be subject to correction by this final payment which is throughout this Contract called "Final Payment". No payment, final or partial, shall act as a release to the Contractor or its surety from any Contractor obligation(s) under this Contract.

6.10. Clean Water Fund Project Requirements. In the event this Contract is funded in whole or in part, is reliant upon, or falls within the jurisdiction of the Clean Water Fund and its statutes, regulations and rules, the Contractor shall:

6.10.1 Submit Applications for Payment in accordance with the following:

The City must receive the Contractor's Application for Payment by the City's or its designee's, review and recommendation for payment, by the fifteenth calendar day of the month to receive payment within the next 50 days. If not received by the fifteenth calendar day of the month, payment cannot be made until 50 days after the fifteenth calendar day of the subsequent month. The Contractor shall provide at the City's request, reasonable documentation to substantiate Contractor's Application for Payment.

6.10.2 Progress and Final Payments. The City will make progress payments on account of the Contract Price based on the Contractor's Applications for Payment, monthly during construction as provided below. All progress payments will be based on the progress of the Scope of Services as determined by the City, according to the schedule of values provided for in the Contract Documents and approved by the City. Prior to Substantial Completion, progress payments will be limited to an amount equal to 95 percent of the value of the Scope of Services completed. Upon Substantial Completion, the City will pay the amount as specified in the Contract Documents, subject to reasonable monetary holdback for punch list items.

7. Warranty of the Contractor. The Contractor warrants to the City that all materials, supplies, components, equipment, etc. furnished under this Contract shall be new and of good quality, except as otherwise expressly stated and permitted by the City elsewhere in this Contract. The Contractor warrants that none of its work shall be defective. The Contractor shall be liable to repair and install and/or replace without charge any service, component, equipment or part thereof which is defective or does not conform with this Contract within the greater of **(i)** 365 calendar days after the City delivers its written notice of its acceptance of the Project and statement therein establishing the final completion date, or **(ii)** that time or date expressly stated elsewhere in this Contract or **Attachment A**.

7.1. The Contractor further warrants that all materials, supplies, services, components, equipment, reports, plans, drawings, deliverables, incidentals, etc., shall be free from all defects caused by faulty design, faulty material or poor workmanship. The Contractor shall supply to the City copies of any written manufacturer's warranties and guarantees and assign same to the City and the City shall avail itself of same to the fullest extent provided by the terms thereof. The Contractor's foregoing warranty obligations are in addition to, and not a limitation of, all manufacturer's warranties and guarantees, and any other remedy stated in this contract or otherwise available to the City under applicable law.

8. Passing of Title and Risk of Loss.

8.1. The City's beneficial use of Project equipment, materials, site-work, etc. prior to the Contractor's final completion of the Project or prior to the City's final payment for the Project shall neither act to vest title in the City nor act to transfer risk of loss from the Contractor to the City. Said title and risk shall pass to the City upon the City's final payment for the Project.

8.2. Contractor and its insurer shall assume the risks of loss or damage to the

equipment up to and including the date title passes, except that City shall be responsible for loss or damage caused by City's gross negligence.

8.3. After Project equipment, materials, etc. are delivered to the Project worksite and become operable or functional, the Contractor shall not thereafter remove any such equipment, materials, etc. from the Project worksite without securing the prior written consent of an authorized City Using Agency employee.

9. Indemnification.

9.1. The Contractor shall indemnify, defend, and hold harmless the City, City's Boards, and Board of Education, KBE Building Corporation and all affiliated entities and each of their respective members, managers, partners, officers, directors, shareholders, commissions, agents, officials and employees from and against all claims, suits, damages, losses, judgments, costs and expenses including attorney's fees arising out of or resulting from the delivery of the labor, services, equipment, materials, reports, plans, specifications, design, drawings, deliverables, incidentals, etc. provided that any such claims, suits, damages, losses, judgments, costs or expenses **(i)** are attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, including the loss of use resulting there from, **(ii)** are alleged to be caused in whole or in part by any willful, intentional, negligent, or reckless act or omission of the Contractor, its employees, any subcontractor or consultant, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder; **(iii)** enforcement action or any claim for breach of the Contractor's duties hereunder or **(iv)** claim for intangible loss(es) including but not limited to business losses, lost profits or revenue, regardless of whether or not it is caused in part by a party indemnified hereunder.

9.2. In any and all claims against the City, Board of Education or any of City's boards, KBE Building Corporation and all affiliated entities and each of their respective members, managers, partners, officers, directors, shareholders, commissions, agents, employees or officials by the Contractor or any employee of the Contractor, any subcontractor or consultant, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 9 above, shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any subcontractor under Worker's Compensation Acts, disability benefit acts or other employee benefit acts.

9.3. The Contractor understands and agrees that any insurance required by this Contract, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify, defend, keep and hold harmless the City, the Board of Education, any of City's boards, KBE Building Corporation and all affiliated entities and each of their respective members, managers, partners, officers, directors, shareholders, commissions, agents, employees and officials as provided in this Contract.

- 9.4.** The Contractor expressly understands and agrees that any performance bond or insurance protection required by this Contract, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify, keep and save harmless and defend the City and the City's boards, KBE Building Corporation and all affiliated entities and each of their respective members, managers, partners, officers, directors, shareholders, commissions, agents, employees or officials as provided herein.
- 9.5.** Royalties and Patents. The Contractor shall, for all time, secure to the City the free and undisputed right to the use of any and all patented articles and methods used in the work and shall defend at Contractor's own expense any and all suits for infringement or alleged infringement of such patents, and in the event of adverse award under patent suits, the Contractor shall pay such awards and hold the City harmless in connection with any patent suits that may arise as a result of installations made by the Contractor and as to any award made thereunder.
- 9.6.** In the event this Contract and/or the Contractor's, or its subcontractor, work and services provisioned hereunder is/are subject to the provisions of any Federal or State statute or regulations, or the City Charter or City Ordinance, the Contractor shall indemnify, defend and hold harmless the City from any fine, penalty or other amounts imposed on the City under said statutes, regulations, Charter or Ordinances, if caused by Contractor, or its subcontractor, omission or commission.
- 10. Contract Bonds.** The Contractor shall furnish to the City, prior to the execution of this Contract by the City, both a performance bond and a payment bond, each bond written for a penal sum equaling the Section 6 "Total Compensation" amount in a form and with a surety acceptable to the City. The bonds shall continue in effect for the greater of (i) the warranty period set forth in Section 7 of this Contract, or (ii) 365 calendar days after the Final Completion Date referenced elsewhere in this Contract.
- 11. Contractor's Insurance.**
- 11.1.** The Contractor shall not commence work under this Contract until all insurance required under this Section 11 has been obtained by the Contractor and such insurance has been approved by the City. The Contractor shall not allow any subcontractor to commence work on any subcontract until all insurance required of any such subcontractor has been so obtained and approved by the City. Insurance shall be provided by insurers, satisfactory to the City and authorized to do business in the State of Connecticut, an "A-" Best's Rating and at least a Class V3 or better financial size
- 11.2.** At no additional cost to the City, the Contractor shall purchase and maintain the insurance coverages set forth below which shall protect the City and KBE Building Corporation and all affiliated entities and each of their respective members, managers, partners, agents, officers, directors, commissions, officials, stakeholders, shareholders and employees from claims which may arise out of or result from the Contractor's obligation under this Contract, whether such obligations are the Contractor's or subcontractor or person or entity directly or indirectly employed by said Contractor or subcontractor, or by any person or entity for whose acts said Contractor or

subcontractor may be liable.

11.3. Each insurance policy shall state that the insurance company shall agree to investigate and defend the insured against all claims for damages, even if groundless. If any insurance required herein is to be issued or renewed on a claims made form as opposed to an occurrence form, the retroactive date for coverage shall be no later than the commencement date of this Contract and shall provide that in the event of cancellation or non-renewal, the discovery period for insurance claims ("Tail Coverage") shall be available for at least 60 months.

11.4. The following policies with stated limits shall be maintained, in full force and effect, always during which the services are to be performed by the Contractor:

11.4.1 General Liability Insurance: \$1,000,000.00 per occurrence, **\$2,000,000.00** aggregate and **\$2,000,000.00** products and completed operations aggregate; providing coverage to protect the City for all damages arising out of bodily injuries, sickness to or death of all persons in any one accident or occurrence and for all damages arising out of destruction of property in any one accident or occurrence.

11.4.2 Automobile Liability Insurance: \$1,000,000.00 combined single limit (CSL); providing coverage to protect the City with respect to claims for damage for bodily injury and or property damage arising out of ownership, maintenance, operation, use or loading and unloading of any auto including hired & non-owned autos.

11.4.3 Workers' Compensation: Statutory Limits within the State of Connecticut: Employers' Liability:

EL Each Accident **\$1,000,000.00**

EL Disease Each Employee **\$1,000,000.00**

EL Disease Policy Limit **\$1,000,000.00**

Contractor shall comply with all State of Connecticut statutes as it relates to workers' compensation.

11.5. Failure to Maintain Insurance: In the event the Contractor fails to maintain the minimum required coverage as set forth herein, the City may at its option purchase same, and offset the Contractor's invoices for the cost of said insurance.

11.6. Cancellation: The City of Waterbury and KBE Building Corporation shall receive written notice of cancellation from the Contractor at least thirty (30) calendar days prior to the date of actual cancellation, regardless of the reason for such cancellation.

11.7. Certificates of Insurance: The Contractor's General, Automobile, Builder's Risk and Excess/Umbrella Liability Insurance policies shall be endorsed to add the City and KBE Building Corporation, and all affiliated entities and each of their respective members, managers, partners, agents, officers, directors, commissions,

officials, stakeholders, shareholders and employees as an additional insured and provide waiver of subrogation on all policies except Builder's Risk and Pollution Liability. The insurance afforded the additional insured shall be primary and non-contributory insurance and the coverage and limits provided under the Contractor's policies shall not be reduced or prorated by the existence of any other insurance applicable to any loss the additional insured may have suffered. Prior to the execution of this Contract by the City, the Contractor shall furnish to the City, subject to City approval, certificate(s) of insurance and Additional Insured Endorsement and Waiver of Subrogation Endorsement verifying the above coverages, including the naming of the City of Waterbury, as follows: **"The City of Waterbury and its Board of Education and KBE Building Corporation, and all affiliated entities and each of their respective members, managers, partners, agents, officers, directors, commissions, officials, stakeholders, shareholders and employees are listed as additional insured on all lines of coverage except Pollution Liability and waiver of subrogation applies to all lines of coverage except Pollution Liability and Builder's Risk as their interest may appear"**. The City's Invitation to Bid Number must be shown on the certificate of insurance to assure correct filing. The Contractor must supply replacement/renewal certificates at least 30 days prior to the expiration of the policy(ies). Said certificates shall contain a provision that coverage afforded under the policies shall not be cancelled or reduced for any reasons unless notice of than thirty (30) calendar days has been mailed to the City's Using Agency and a copy to the City's Office of Corporation Counsel, 235 Grand Street, Waterbury, CT 06702.

11.8. No later than thirty (30) calendar days after Contractor receipt, the Contractor shall deliver to the City a copy of the Contractor's insurance policies and endorsements and riders.

12. Conformance with Federal, State and Other Jurisdictional Requirements. By executing this Contract, the Contractor represents and warrants that, at all pertinent and relevant times to the Contract, it has been, is and will continue to be in full compliance with all applicable statutes, acts, ordinances, guidelines, resolutions, orders, judgments, decrees, injunctions, rules, and regulations of all government authorities applicable to performance by the Contractor of services hereunder, including those having jurisdiction over its registration and licensing to perform services hereunder; including, but not limited to, the following: **EQUAL EMPLOYMENT OPPORTUNITY; COPELAND ANTI-KICKBACK ACT**, as supplemented in the Department of Labor Regulations (29 CFR, Part 3); **DAVIS BACON ACT** as supplemented by Department of Labor Regulations (29 CFR Part 5); Section 103 and 107 of the Contract Work Hours and Safety Standards Act, as supplemented by the Department of Labor Regulations (29 CFR Part 5); the **HOUSING and COMMUNITY DEVELOPMENT ACT OF 1974**, as amended; **TITLE 31** and Section 12-430(7) of the State of Connecticut General Statutes. All applicable sections of the City Charter and Code of Ordinances are incorporated by reference made a part hereof.

12.1. Taxes-Federal, State and Local. The City is exempt from Federal Excise and Transportation, State and Local Sales and Use Taxes, including without limitation, taxes that would otherwise be imposed upon the Contractor for transactions required or necessitated hereunder between it and its subcontractors, suppliers, etc. The Contractor remains liable, however, for any applicable tax obligations it incurs. Moreover, the

Contractor represents that the bid and pricing contained in this Contract do not include the amount payable for said taxes.

12.2. Labor and Wages-Federal and State. The Contractor and its subcontractors shall conform to Federal and State of Connecticut labor laws, and all other laws, ordinances, and legal requirements affecting the work in Connecticut.

12.2.1 The Contractor is aware of, and shall comply with, the provisions of Title 31, §53 of the Connecticut General Statutes, latest revision (the "Act"), concerning the payment of minimum wages for work on public facilities. The provisions of the Act are hereby incorporated by reference and made a part of this Contract. The Act provides that the Connecticut prevailing wage law applies to certain remodeling, refurbishing, alteration, repair and new construction. The wages paid on an hourly basis to any person performing the work of any mechanic, laborer or worker on the work herein contracted to be done and the amount of payment or contribution paid or payable on behalf of each such person to any employee welfare fund, as defined in Conn. Gen. Stat. 31-53(i), shall be at a rate equal to the rate customary or prevailing for the same work in the same trade or occupation in the town in which such public works project is being constructed. Any contractor who is not obligated by agreement to make payment or contribution on behalf of such persons to any such employee welfare fund shall pay to each mechanic, laborer or worker as part of such person's wages the amount of payment or contribution for such person's classification on each pay day.

12.2.2 The Contractor is aware of, and shall comply with, as applicable, the provisions of the Federal Davis-Bacon Act, the American Rescue Plan Act, Pub. L. No. 117-2 (March 11, 2021), the Elementary and Secondary School Emergency Relief Supplemental Appropriations Act of 2021 signed into law December 27, 2020 (ESSER II Fund) and the American Rescue Plan Elementary and Secondary School Emergency Relief Fund signed into law March 11, 2021, all the provisions of which are hereby incorporated by reference and made a part of this Contract.

12.3. Compliance with Chapters 34, 38, and 39 of the Code of Ordinances of the City. By executing this Contract, the Contractor represents and warrants that, at all pertinent and relevant times to the Contract, it has been, is and will continue to be in full compliance with the provisions of Chapters 34, 38, and 39 of the Code of Ordinances of the City and well as any other relevant provisions of the Charter and the Code of Ordinances.

12.4. Compliance with CONN. GEN. STAT. § 4a-60g, as amended by June 2015 Special Session Public Act 15-5.

12.4.1 Definitions – For purposes of this paragraph:

i. "Small contractor" means any contractor, subcontractor, manufacturer, service company or nonprofit corporation (A) that maintains its

principal place of business in the state, (B) that had gross revenues not exceeding fifteen million dollars in the most recently completed fiscal year prior to such application, and (C) that is independent. "Small contractor" does not include any person who is affiliated with another person if both persons considered together have a gross revenue exceeding fifteen million dollars.

ii. "Minority business enterprise" means any small contractor (A) fifty-one per cent or more of the capital stock, if any, or assets of which are owned by a person or persons who (i) exercise operational authority over the daily affairs of the enterprise, (ii) have the power to direct the management and policies and receive the beneficial interest of the enterprise, (iii) possess managerial and technical competence and experience directly related to the principal business activities of the enterprise, and (iv) are members of a minority, as such term is defined in subsection (a) of section 32-9n, or are individuals with a disability, or (B) which is a nonprofit corporation in which fifty-one per cent or more of the persons who (i) exercise operational authority over the enterprise, (ii) possess managerial and technical competence and experience directly related to the principal business activities of the enterprise, (iii) have the power to direct the management and policies of the enterprise, and (iv) are members of a minority, as defined in this subsection, or are individuals with a disability.

iii. "Municipal public works contract" means that portion of an agreement entered into on or after October 1, 2015, between any individual, Contractor or corporation and a municipality for the construction, rehabilitation, conversion, extension, demolition or repair of a public building, highway or other changes or improvements in real property, which is financed in whole or in part by the state, including, but not limited to, matching expenditures, grants, loans, insurance or guarantees but excluding any project of an alliance district, as defined in section 10-262u, as amended by this act, financed by state funding in an amount equal to fifty thousand dollars or less.

12.4.2 The Contractor and subcontractor shall comply with the specific requirements of the State of Connecticut Set Aside Program, Conn. Gen. Stat. § 4a-60g, as amended by June 2015 Special Session Public Act 15-5, if the municipal public works contract awarded to the Contractor is funded in whole or in part by state funds.

12.4.3 The Contractor shall be subject to the following set-aside requirements if the municipal public works contract, is funded in whole or in part by the State of Connecticut and is more than **FIFTY THOUSAND DOLLARS (\$50,000.00)**, for the construction, rehabilitation, conversion, extension, demolition, or repairing of a public building or highway, or other changes or improvements in real property.

12.4.4 Set-Aside requirements – Any contractor awarded a municipal public works contract, based on competitive bidding procedures, shall comply with the following Set –Aside requirements:

- i. set aside at least twenty-five per cent (25%) of the total value of

the state's financial assistance for such contract for award to subcontractors who are small contractors; and

ii. of that portion to be set aside in accordance with Subparagraph i. of this subdivision, reserve a portion equivalent to twenty-five per cent (25%) of the total value of the contract or portion thereof to be set aside for awards to subcontractors who are minority business enterprises.

12.4.5 Failure of the Contractor or subcontractor to comply with the State of Connecticut Set-Aside requirements shall be a material breach of this Contract.

13. Discriminatory Practices. In performing this Contract, the Contractor shall not discriminate against any employee or applicant for employment, with respect to his or her hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of race, color, sex, age, religious creed, disability, national origin or ancestry, marital status, family status, prior psychiatric treatment, health care, military status or source of income or because of a handicap that is unrelated to the employee's or the applicant's ability to perform the duties of a particular job or position. Subcontracts with each subcontractor shall contain a provision requiring non-discrimination in employment as herein specified. This covenant is required pursuant to §93.04 of the Code of Ordinances of the City and any breach thereof may be regarded as a material breach of this Contract. Said provisions with subcontractors shall require conformity and compliance with all local, state and federal laws, rules and regulations and Executive orders pertaining to discrimination and equal opportunity requirements.

13.1. Discrimination Because of Certain Labor Matters. No person employed on the work covered by this Contract shall be discharged or in any way discriminated against because such person has filed any complaint or instituted or caused to be instituted any proceeding or has testified or is about to testify in any proceeding under or related to the labor standards applicable hereunder to its employer.

13.2. Equal Opportunity. In its execution of the performance of this Contract, the Contractor shall not discriminate and shall comply with applicable laws prohibiting discrimination on the grounds of race, color, religion, sex, national origin or citizenship status, age or handicap. The Contractor agrees to comply with all local, state and federal laws, rules and regulations and Executive orders pertaining to discrimination and equal opportunity requirements, and will require the same of all subcontractors

13.3. Contractor Corrective Action.

13.3.1. Pursuant to Conn. Gen. Stat. § 4a-60, as amended by June 2015 Special Session Public Act 15-5, the following are required for every Municipal Public Works Contract:

(a) Every contract to which an awarding agency is a party, every quasi-public agency project contract and every municipal public works contract shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the

contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved, in any manner prohibited by the laws of the United States or of the state of Connecticut; and the contractor further agrees to take corrective action to insure that applicants with job-related qualifications are employed and that employees are treated when employed without regard to their race, color, religious creed, age, marital status, national origin, ancestry, sex, gender identity or expression, intellectual disability, mental disability or physical disability, including, but not limited to, blindness, unless it is shown by such contractor that such disability prevents performance of the work involved;

(2) The contractor agrees, in all solicitations or advertisements for employees placed by or on behalf of the contractor, to state that it is an "affirmative action-equal opportunity employer" in accordance with regulations adopted by the Commission on Human Rights and Opportunities;

(3) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(4) The contractor agrees to comply with each provision of this section and sections 46a-68e and 46a-68f and with each regulation or relevant order issued by said commission pursuant to sections 46a-56, as amended by this act, 46a-68e, 46a-68f and 46a-86; and The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor as relate to the provisions of this section and section 46a-56, as amended by this act.

(b) If the contract is a public works contract, municipal public works contract or contract for a quasi-public agency project, the contractor agrees and warrants that he or she will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such public works or quasi-public agency project.

13.3.2. Pursuant to Conn. Gen. Stat. § 4a-60a, as amended by June 2015 Special Session Public Act 15-5, the following are required for every Municipal Public Works Contract:

(a) Every contract to which an awarding agency is a party, every contract for a

quasi-public agency project and every municipal public works contract shall contain the following provisions:

(1) The contractor agrees and warrants that in the performance of the contract such contractor will not discriminate or permit discrimination against any person or group of persons on the grounds of sexual orientation, in any manner prohibited by the laws of the United States or of the State of Connecticut, and employees are treated when employed without regard to their sexual orientation;

(2) The contractor agrees to provide each labor union or representative of workers with which such contractor has a collective bargaining agreement or other contract or understanding and each vendor with which such contractor has a contract or understanding, a notice to be provided by the Commission on Human Rights and Opportunities advising the labor union or workers' representative of the contractor's commitments under this section, and to post copies of the notice in conspicuous places available to employees and applicants for employment;

(3) The contractor agrees to comply with each provision of this section and with each regulation or relevant order issued by said commission pursuant to section 46a-56; and

(4) The contractor agrees to provide the Commission on Human Rights and Opportunities with such information requested by the commission, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor which relate to the provisions of this section and section 46a-56.

14. Good Jobs Ordinance

14.1. Conformance With An Ordinance Concerning The Hiring Of Waterbury Residents On Certain Publicly Funded Construction Projects.

14.1.1 The Contractors and its Subcontractors shall comply with the specific requirements of "An Ordinance Concerning the Hiring of Waterbury Residents on Certain Publicly Funded Construction Projects" (the "Good Jobs Ordinance"), as may be amended from time to time and as set forth in Chapter 34 of the Code of Ordinances of the City. While the principal provisions of the ordinance are summarized as set forth in paragraphs C-H below, the Contractor does hereby acknowledge that it has reviewed a copy of the Good Jobs Ordinance and that it has read the Ordinance and that Contractor is familiar with the obligations imposed on the Contractor and each Subcontractor by the Good Jobs Ordinance.

14.1.2 Failure of the Contractor or its Subcontractors to comply with the Good Jobs Ordinance shall be a material breach of this Agreement.

14.1.3 This paragraph shall apply to a Covered Project, as that term is defined in the Good Jobs Ordinance, in the City with a value of \$500,000.00 or greater and only to the extent permitted by federal and state law.

14.1.4 Definitions. For purposes of this paragraph:

- i.** "Administrator" shall be defined as it is in the Good Jobs Ordinance.
- ii.** "Apprentice" shall be defined as it is in the Good Jobs Ordinance.
- iii.** "Basic Skilled Worker" shall be defined as it is in the Good Jobs Ordinance.
- iv.** "Contractor" shall be defined as it is in the Good Jobs Ordinance.
- v.** "Covered Project" shall be defined as it is in the Good Jobs Ordinance.
- vi.** "Hiring Goal" shall be defined as it is in the Good Jobs Ordinance.
- vii.** "Resident" shall be defined as it is in the Good Jobs Ordinance.
- viii.** "Subcontractor" shall be defined as it is in the Good Jobs Ordinance and shall include the Contractor's direct subcontractor providing construction work and all lower tiered (level) providers of construction work.

14.1.5 Hiring Goals. If this Agreement requires the Contractor to perform work on a Covered Project, the Contractor and each Subcontractor shall have as its hiring goals:

- i.** at least thirty percent (30%) of its total worker hours performed by City Residents, and
- ii.** at least twenty-five percent (25%) of construction trade jobs shall go to Apprentices and/or Basic Skilled Workers, and
- iii.** at least seventy percent (70%) of all "new hires" (as that term is defined in the Good Jobs Ordinance) shall be "economically disadvantaged" individuals (as that term is defined in the Good Jobs Ordinance), and
- iv.** a minimum of five percent (5%) of the construction workforce labor hours will be local resident, minority artisans, and

- v. a minimum of five percent (5%) of the construction workforce labor hours will be women, and
- vi. a minimum of ten percent (10%) of the total work hours shall be allocated for minorities, or
- vii. as may otherwise be required by any superseding Federal or State employment discrimination prohibition laws.

14.1.6 Good Faith Efforts. The Contractor and each Subcontractor shall engage in Good Faith Efforts to comply with the Hiring Goals. For the purposes of this paragraph, the term “Good Faith Efforts” shall have the same meaning as it does in the Good Jobs Ordinance. The Contractor and each Subcontractor shall individually implement Good Faith efforts to satisfy the Hiring Goals.

14.1.7 Action Plan and Pre-Construction Meeting. Not later than fourteen (14) business days prior to the scheduled commencement date for construction, the Contractor shall submit a written plan-of-action to the City and to the Administrator of the Good Jobs Ordinance defining how the Contractor, and each Subcontractor, shall implement Good Faith Efforts to fulfill the Hiring Goals. Each plan-of-action shall include the anticipated number of job positions required for the Work. Not later than five (5) business day prior to the commencement date of construction, the Contractor must attend a mandatory "pre-construction" meeting with the City to review all plans-of- action and other relevant materials. No construction work shall proceed absent this pre-construction meeting.

14.1.8 Other Contractor Obligations. In addition to the foregoing, the Contractor shall ensure that all Subcontractor contracts and agreements expressly set forth and state as binding obligations therein, subject to appropriate party name change, the above Hiring Goals and Good Faith Efforts. The Contractor shall be accountable for, and liable to the City for, Contractor and each Subcontractor compliance with Hiring Goals and Good Faith efforts.

- i. The Contractor shall meet with the Administrator no less than four (4) weeks prior to the commencement of construction on a Covered Project and provide the Administrator with the number of job positions to be created by the project by trade and the qualifications by job tile.
- ii. The Contractor shall be required to produce Contractor and Subcontractor documentation that may be required under the provisions of the Good Jobs Ordinance or that the City or the Administrator reasonably believes will assist the City or the Administrator with their evaluation of Hiring Goals and Good Faith Efforts.

iii. The Contractor shall deliver weekly certified payroll records to the City within five (5) working days of the end of each payroll period. Moreover, the Contractor shall require each Subcontractor to create weekly certified payroll records.

iv. The Contractor's and each Subcontractor's payroll records shall include the person-hours, the residential address, race, gender, hiring date, and apprentice (job) classification of all personnel employed under this Agreement and all Contracts and Sub-Contracts thereunder. The Contractor and each Subcontractor shall mark their respective final payroll period records as being final and be signed by an authorized officer or employee.

14.2 Liquidated Damages Applicable To Section 14.1

14.2.1 If the City finds that the Contractor, or a Subcontractor, has failed to achieve Hiring Goals during any five (5) day work period (Monday through Friday), the City shall:

- i.** issue a written notice to the Contractor specifying the matters constituting such failure and the time period within which Good Faith Efforts documentation must be delivered to the City for its evaluation.
- ii.** if the Good Faith documentation is not provided or, if provided, it fails to demonstrate compliance with Good Faith Efforts, the Contractor shall, for each failure by the Contractor or a Subcontractor to achieve the Hiring Goals during a full five-day work period, pay to the City one thousand dollars (\$1,000.00) as liquidated damages.

14.2.2 If the City finds that the Contractor, or a Subcontractor, has failed to deliver weekly certified payroll records to the City within five (5) working days of the end of each payroll period the Contractor shall, as liquidated damages pay one thousand dollars (\$1,000.00) to the City for each week of ongoing violation.

14.2.3 The City shall provide the Contractor with an invoice identifying all sums due the City, as liquidated damages, because of the Contractor or a Subcontractor's failure to comply with the Good Jobs Ordinance as set forth above.

14.2.4 No portion of any invoice submitted by a Contractor that is subject to liquidated damages shall be paid by the City until such time as all liquidated damages relating to that invoice have been paid to the City.

14.2.5 The foregoing liquidated damages provisions shall be expressly set forth, subject to appropriate party name adjustments, as material provisions in

all Contracts that the Contractor has with Subcontractors and the Contractor is obligated hereunder to enforce compliance in such Contracts with Subcontractors.

14.2.6 Any payment of liquidated damages hereunder shall not preclude a later claim, nor any later finding of a breach, or any payment of additional damages related to such later claim.

15. Place Holder.

16. Termination.

16.1. Termination of Contract for Cause. If, through any cause, the Contractor shall fail to fulfill in a timely and proper manner its obligations under this Contract, or if the Contractor shall violate any of the covenants, agreements, or stipulations of this Contract, the City shall thereupon have the right to terminate this Contract by either **(i)** giving written notice to the Contractor of a date certain by which Contractor shall, to the written satisfaction of the City, cure after which and without further action by any party, such termination shall automatically become effective and binding, or **(ii)** giving written notice to the Contractor specifying the effective date of such termination at least five (5) business days before the effective date of such termination.

16.1.1 In the event of a termination, all finished or unfinished documents, data, studies, reports, plans, specifications, drawings, supplies, services, etc. prepared the City's property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed for such.

16.1.2 Notwithstanding the above, the Contractor shall not be relieved of liability to the City for damages sustained by the City by virtue of any breach of this Contract by the Contractor, and the City may withhold any payments to the Contractor for the purpose of setoff until such time as the exact amount of damages due the City from the Contractor is determined.

16.2. Termination for Convenience of the City. The City may terminate this Contract at any time for the convenience of the City, by a notice in writing from the City to the Contractor. If this Contract is terminated by the City as provided herein, the Contractor will be paid an amount which bears the same ratio to the total compensation as the services performed bear to the total services of the Contractor covered by this Contract, less payments of compensation previously made.

16.3. Termination for Non-Appropriation or Lack of Funding. The Contractor acknowledges that the City is a municipal corporation and that this Contract is subject to the appropriation and disbursement of funds by the City sufficient for this Contract for each budget year in which this Contract is in effect. The Contractor therefore agrees

that the City shall have the right to terminate this Contract in whole or in part without penalty to the City if sufficient funds to provide for City payment(s) under this Contract is not appropriated, not authorized, or not made available, or such funding has been reduced. In the event this Contract is subject, in whole or in part, to the appropriation and disbursement of Federal and/or State funds and those Federal and/or State funds are not appropriated or are not disbursed to the City, the Contractor hereby agrees that the City shall have the right to terminate this Contract in whole or in part without penalty to the City.

16.3.1 Effects of Non-Appropriation. If funds to enable the City to effect continued payment under this Contract are not appropriated, authorized or otherwise made available by law, the City shall have the right to terminate this Contract without penalty at the end of the last period for which funds have been appropriated, authorized or otherwise made available by law by giving written notice of termination to the Contractor.

16.3.2 Effects of Reduced Levels of Funding. If funding is reduced by law, or funds to pay the Contractor for the agreed to level of the products, services and functions to be provided by the Contractor under this Contract are not appropriated, authorized or otherwise made available by law, the City may, upon seven (7) business days written notice to the Contractor, reduce the level of the products, services or functions in such manner and for such periods of time as the City may elect. The charges payable under this Contract shall be equitably adjusted to reflect such reduced level of products, services or functions and the parties shall be afforded the rights set forth in this Contract.

16.3.3 No Payment for Lost Profits. In no event shall the City be obligated to pay or otherwise compensate the Contractor for any lost or expected future profits.

16.4. Rights Upon Termination.

16.4.1 Termination for Cause. In the event the City terminates this Contract for cause, the Contractor shall relinquish to the City any applicable interest, title and ownership including, but not limited to, perpetual use of any proprietary rights in and to the products and deliverables delivered to, in possession of and properly invoiced and paid for by (except to the extent such invoiced amount is disputed) the City. Regarding third party products, the Contractor shall transfer all licenses which it is permitted to transfer in accordance with the applicable third-party license. The City shall have no financial obligation to compensate the Contractor for such terminated products unless payment is otherwise approved by the City prior to such termination. The Contractor shall be liable for costs incurred by the City, including but not limited to reasonable attorney fees and all court awarded fees and costs incurred in terminating this Contract in whole or in part.

16.4.2 Termination for Lack of Funding or Convenience. In the event of

termination by the City for lack of funding or convenience, the City shall pay the Contractor for all labor, services, equipment, materials, reports, plans, specifications, drawings, deliverables, incidentals, etc.(including any holdbacks) installed and delivered to the City as of the Termination Date and the Contractor shall relinquish to the City any applicable interest, title and ownership including, but not limited to perpetual use of any proprietary rights in and to said labor, services, equipment, materials, reports, plans, specifications, drawings, deliverables, incidentals, etc. delivered to, in possession of and paid for by the City (except to the extent any invoiced amount is disputed). The Contractor shall be required to exercise commercially reasonable efforts to mitigate damages. In the event of a termination for Lack of Funding or Convenience the City and the Contractor may negotiate a mutually acceptable payment to the Contractor for reasonable demobilization expenses. Said demobilization expenses, if any, shall be handled in accordance with the provision of this Contract pertaining to changes in the Project.

16.4.3 Assumption of Subcontracts. In the event of termination, the City shall have the right to assume, at its option, one or all subcontracts for products, services and functions provided exclusively under this Contract.

16.4.4 Delivery of Documents. In the event of termination, **(i)** the Contractor shall promptly deliver to the City, in a manner reasonably specified by the City, all documents and other tangible items furnished by, or owned, leased, or licensed by, the City, and **(ii)** the City shall pay the Contractor for all services performed and deliverables completed and accepted (pro-rated for deliverables partially completed) prior to the effective date of the termination (except to the extent any invoice amount is disputed).

17. Force Majeure. Contractor shall not be held responsible for delays nor be subject to liquidated damages when such delays are caused by conditions beyond its control, including without limitation:

17.1. Acts of God, fire, explosion, epidemic, cyclone, flood, war, strikes, revolution, civil commotion, or acts of public enemies; and

17.2. Change of law and order, proclamation, regulation, ordinance, or governmental requirement.

17.3 Upon cessation of work for reason of force majeure delays, Contractor shall use its best efforts to meet the schedule set forth in Section 5 of this Contract.

18. Subcontracting and Assignment. The Contractor shall not, without the prior written approval of the City's Using Agency, subcontract, in whole or in part, any of the Contractor's services. Any subcontractor so approved shall be required to secure and maintain insurance coverage equal to or better than that required of the Contractor and shall name the City as an additional insured party and said subcontractors shall deliver to the City a certificate of insurance evidencing such coverages. All subcontractors shall comply with all federal, state

and local, laws, regulations and ordinances but such requirement shall not relieve the Contractor from its requirement that all services provided hereunder shall comply with all Federal, State and local, laws, regulations and ordinances.

18.1. The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by the Contractor.

18.2. The Contractor is responsible for and shall control activities of its subcontractors, and the subcontractors shall consult and cooperate with one another and other contractors working on the Project site. Each subcontractor shall furnish all necessary information to other subcontractors and shall lay out and install its own work to avoid any delays or interferences with the work of another. Any cost for changes, cutting and/or repairing, made necessary by failure to observe the above requirements shall be borne by the Contractor or subcontractor responsible for such failure or neglect.

18.3. The Contractor shall not, without the prior written approval of the City's Using Agency, substitute, terminate, replace or otherwise remove a subcontractor.

18.4. The Contractor shall not assign any interest in this Contract and shall not transfer any interest in the same (whether by assignment or novation) without the prior written approval of the City; provided, however, that claims for money due or to become due the Contractor from the City under this Contract may be assigned to a bank, trust, company, or other financial institution, or to a Trustee in Bankruptcy, without such approval. Notice of any such assignment or transfer shall be furnished promptly to the City.

19. Audit. The City reserves the right to audit the Contractor's books of account in relation to this Contract any time during the period of this Contract or at any time during the twelve-month period immediately following the closing or termination of this Contract. In the event the City elects to make such an audit, the Contractor shall immediately make available to the City all records pertaining to this Contract, including, but not limited to, payroll records, bank statements and canceled checks.

20. Interest of City Officials. No member of the governing bodies of the City, and no other officer, employee, or agent of the City who exercises any functions or responsibilities in connection with the carrying out of the Project to which this Contract pertains, shall have any personal interest, direct or indirect, in this Contract.

21. Interest of Contractor. The Contractor covenants that it presently has no interest and shall not acquire any interest, direct or indirect, in the Project or any parcel of land therein or any other interest which would conflict in any manner or degree with the performance of its services hereunder. The Contractor further covenants that in the performance of this Contract no person having any such interest shall be employed.

22. Entire Contract. This Contract shall constitute the complete and exclusive statement

of the contract between the parties as it relates to this transaction and supersedes all previous agreements and understandings, whether written or oral, relating to such subject matter. Any amendment to this Contract must be in writing and agreed to and executed by the City and the Contractor and must comply with the City's Charter and Code of Ordinances.

23. Independent Contractor Relationship. The relationship between the City and the Contractor is that of client and independent contractor. No agent, employee, or servant of the Contractor shall be deemed to be an employee, agent or servant of the City. The Contractor shall be solely and entirely responsible for its acts and the acts of its agents, employees, servants and subcontractors during the performance of this Contract.

24. Severability. Whenever possible, each provision of this Contract shall be interpreted in such a manner as to be effective and valid under applicable law. If any provision of this Contract, however, is held to be prohibited or invalid under applicable law, such provision shall be deemed restated to reflect the original intentions of the parties, as nearly as possible in accordance with applicable law, and if capable of substantial performance, the remaining provisions of this Contract shall be enforced as if this Contract was entered into without an invalid provision. If the ruling and/or controlling principle of law or equity leading to the ruling is subsequently overruled, modified or amended by legislation, judicial or administrative action, then the provision(s) in question as originally set forth in this Contract shall be deemed valid and enforceable to the maximum extent permitted by the new controlling principal of law or equity.

25. Survival. Any provisions of this Contract that impose continuing obligations on the parties shall survive the expiration or termination of this Contract for any reason.

26. Changes in the Project: Change Orders.

26.1. Requests for Change Orders. The City reserves the right on its own volition or based upon a proposal for a Change Order submitted in written form with a thorough explanation by the Contractor, to request from time to time any changes to the requirements and specifications of this Contract and the products to be provided and the functions and services to be performed by the Contractor under this Contract. Such changes must be authorized by the City. The City will not approve of any change orders, deletions, additions, or additional work items to the Scope of Services or any change in the terms and conditions of this Contract except by means of a City authorized amended Scope of Services, applicable and restricted to those items set forth in §1, above, or Change Order issued as set forth in this section, except in the event of an emergency endangering life or property.

26.2. Procedures.

26.2.1 The Contractor's Response to a Change Request.

- i. Within thirty (30) calendar days after receipt of a request by the City for any such change or such other period as the Parties may

mutually agree to in writing, the Contractor shall submit to the City a proposal describing any changes in Contract Milestones or Contract completion dates, products, functions, timing of delivery, assignment of personnel, and the like, and any associated price adjustment. The Contractor's proposal shall describe, in detail, the basis for the proposed price adjustment, including the charges for any products required to implement the change request.

ii. To the extent that additional cost or cost savings result from a change in required products, the Contractor shall obtain any additional products and provide them to the City at a negotiated price acceptable to the City and the Contractor. Similarly, if the change request is expected to result in a reduction in products required to perform the services, the Contractor's charges shall be reduced by the cost savings resulting from the products eliminated by the change request.

26.2.2 City's Acceptance of Change Request. If the City accepts the Contractor's proposal, the City shall issue a change order referencing the Contractor's proposal and both parties shall sign the change order. The Contractor shall not implement any change request until the City has issued a valid, properly executed, change order.

26.2.3 City's Rejection of Change Request. If the City does not accept the Contractor's proposal, the City may within two weeks of such non-acceptance: (i) withdraw its change request; or, (ii) modify its change request, in which case the procedures set forth above shall apply to the Contractor's response to the modified change request.

26.3. City Discretion. The City may, in its sole discretion, approve the proposed Change Order and shall forward same for additional signatures under the following conditions: (i) If it conforms to provisions of applicable laws, and (ii) if it is consistent with this Contract, and (iii) if the time of performance of this Contract will not be unreasonably delayed, (iv) the Final Completion date is not changed, (v) if the Change Order requires a change to the Final Completion date, such change has been authorized by an approved, executed, written Amendment to this Contract, and (vii) if the Change Order requires an increase in the price of the Contract, the City (1) has sufficient funds, and (2) if a budget transfer is required to cover the cost of the proposed Change Order, such transfer has secured the written approval of the Board of Aldermen and other required regulatory agencies.

26.4. Change Orders Governed by the Provisions of this Contract. All work performed under a Change Order is governed by the provisions of this Contract.

27. Conflicts or Disputes. This Contract represents the concurrence between the City and the Contractor and governs all disputes between them. In the instance of a conflict or dispute over issues not specifically referenced within the Contract, the following documents shall be

used as historical documents, without regard to the order of precedence, to resolve such conflicts or disputes, as follows: **(i)** the City's **RFP No. 7516** and **(ii)** the Contractor's Bid response to **RFP No. 7516**, dated hereto as part of **Attachment A**; said historical documents are attached.

27.1. Procedure. This procedure supersedes all statements to the contrary occurring either in proposals or other prior agreements, oral or written, and all other communications between the parties relating to this subject.

27.2. Presumption. This Contract or any section thereof shall not be construed against any party because the Contract or any section thereof was drafted by such party.

28. Disputes; Legal Proceedings; Waiver of Trial by Jury and Continued Performance. The Contractor agrees that it waives a trial by jury as to all claims, causes of action or disputes arising out of this Contract or services to be provided pursuant to this Contract. Notwithstanding any such claim, dispute or legal action, the Contractor shall continue to perform services under this Contract in a timely manner, unless otherwise directed by the City.

29. Binding Contract. The City and the Contractor each bind themselves, and their successors, assigns and legal representatives to the other party to this Contract and to the successors, assigns and legal representatives of such other party with respect to all covenants of his Contract.

30. Waiver. Any waiver of the terms and conditions of this Contract by either of the parties hereto shall not be construed to be a waiver of any other term or condition of this Contract.

31. Governing Laws. This Contract, its terms and conditions and any claims arising there from shall be governed by the laws of the State of Connecticut.

32. Notice. Except as otherwise specifically prohibited in this Contract, whenever under this Contract approvals, authorizations, determinations, notices, satisfactions or waivers are required or permitted, such items shall be effective and valid only when given in writing signed by a duly authorized officer of the City or the Contractor, and delivered in hand or sent by mail, postage prepaid, to the party to whom it is directed, which until changed by written notice, are as follows:

Contractor: Sarracco Mechanical Services, Inc.
61 Mattatuck Heights Road
Waterbury, CT 06705

City: City of Waterbury
Corporation Counsel's Office
Third Floor

235 Grand Street
Waterbury, CT 06702

33. City Code of Ordinances, Ethics and Conflict of Interest Code, Provisions. The Person (the term “Person” shall herein be as defined in Section 38 of the City’s Code of Ordinances) supplying the labor, services, equipment, materials, reports, plans, specifications, drawings, deliverables, incidentals, etc. under this Contract shall comply with all applicable Federal, State and Municipal statutes, regulations, charters, ordinances, rules, etc., whether they are expressly stated in this Contract, including but not limited to the following:

33.1. It shall be a material breach of this Contract, and, except as may be permitted by regulations or rulings of the City of Waterbury Board of Ethics it shall be a violation of the City’s Code of Ordinances, for any Public Official, City Employee or Member of a Board or Commission who is participating directly or indirectly in the procurement process as set forth in the City’s Code of Ordinances, including those participating in exempt transactions, to become or be the employee of any person contracting with the governmental body by whom the Official, Employee, or Board or Commission member is employed or is a member.

33.2. It shall be a material breach of this Contract, and it shall be a violation of the City’s Code of Ordinances for any Person to offer, give, or agree to give any current or former Public Official, Employee or Member of a Board or Commission, or for such current or former Public Official, Employee or Member of a Board or Commission to solicit, demand, accept or agree to accept from another Person, a gratuity or an offer of employment in connection with any: decision; approval; disapproval; recommendation; content of any specification or procurement standard; or rendering of advice, investigation, auditing, or in any other advisory capacity in any proceeding or application, request for ruling, determination, claim or controversy, or other particular matter, pertaining to any program requirement or a Contract or Purchase Order, or to any solicitation or proposal, therefore.

33.3. It shall be a material breach of this Contract and it shall be a violation of the City’s Code of Ordinances for any payment, Gratuity, or offer of employment to be made as an inducement for the award of a subcontract or order, by or on behalf of a subcontractor, the prime Contractor or higher tier subcontractor or any Person associated therewith, under a Contract or Purchase Order to the City.

33.4. The value of anything transferred or received in violation of the City’s Charter, Code of Ordinances, and/or regulations promulgated there under, by any Person subject to said Charter and/or Ordinances may be recovered by the City.

33.5. Upon a showing that a subcontractor made a kickback to the City, a prime Contractor or a higher tier subcontractor in connection with the award of a subcontract or order there under, it shall be conclusively presumed that the amount thereof was included in the price of the subcontract or order and ultimately borne by the City and will be recoverable hereunder from the recipient. In addition, said value may also be

recovered from the subcontractor making such kickbacks. Recovery from one offending party shall not preclude recovery from other offending parties.

33.6. It shall be a material breach of this Contract and it shall be a violation of the City's Code of Ordinances for a Person to be retained, or to retain a Person, to solicit or secure a contract with the City upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee; and every Person, before being awarded a City Contract, shall deliver to the City, on a City authored form, a representation that such Person has not retained anyone in violation of this subsection 34.6, the failure to deliver said form being a material breach of this Contract and a violation of the City's Code of Ordinances. Note, however, this subsection 34.6 shall not apply to full-time Employees who, as a condition of their employment, may be entitled to bonuses or other fees in accordance with their employment relationship.

33.7. The Person hereby expressly represents that he/she/it has complied with those sections of the City's Code of Ordinances requiring that said Person has **(i)** delivered to the City an affidavit, on a City authored form, stating that the Person and its affiliates have no delinquent taxes or other financial obligations owed to the City; **(ii)** filed the City authored financial disclosure statement form as set forth in the City's Code of Ordinances regarding disclosure of financial interests; **(iii)** delivered to the City a written acknowledgement, on a City authored form, evidencing receipt of a copy of the "Ethics and Conflict of Interest" ordinance for the City of Waterbury and hereby expressly represents that said Person is in full compliance with the entirety of said Code of Ordinances; and **(iv)** filed a current list of all taxable personal and real property as required by the State of Connecticut General Statutes. Any violation of this subsection 34.7 shall be deemed a material breach of this Contract and shall be a violation of the City's Code of Ordinances.

33.8. The definitions set forth in the City's Code of Ordinances shall be the primary source for interpretation of the forgoing subsections 34.1-34.7.

33.9. The Contractor is hereby charged with the requirement that it shall have knowledge of, and shall fully comply with, all relevant provisions of the City's Charter and all relevant provisions of the City's Code of Ordinances, including without limitation Chapters 93, titled "Discriminatory Practices", Chapter 38 titled "Centralized Procurement System", and Chapter 39 titled "Ethics and Conflict of Interest", of said Code as may be amended from time to time.

33.10. The Contractor hereby acknowledges receipt of a copy of the Chapters 38 and 39 of City's Ordinance regarding Procurement, Ethics, and Conflicts of Interest and has familiarized itself with said Code and hereby agrees to adhere to said Code. The text of Chapters 38 and 39 of said Code may be obtained from the Office of the City Clerk of the City and on the internet at the City Clerk's web site: <http://www.waterburyct.org/content/458/539/default.aspx> [click link titled "The City of Waterbury Code of Ordinances Passed 8/24/2009". For Chapter 38, click on **"TITLE III: ADMINISTRATION"**, then click on **"CHAPTER 38: CENTRALIZED PROCUREMENT SYSTEM"**. For Chapter 39, click on **"TITLE III: ADMINISTRATION"**, then click on **"CHAPTER 39: ETHICS AND**

CONFLICTS OF INTEREST”].

33.11. The Contractor is hereby charged with the requirement that it shall have knowledge of, and shall fully comply with, the City's Ordinance Sections 34.15 through 34.99 entitled, "Ordinance Concerning the Hiring of Waterbury Residents on Certain Publicly-Funded Construction Projects," and the State of Connecticut Legislature's Special Act No. 01-1.

33.12. Every Person who conducts business with, contracts, with or provides commodities or services to the City, is charged with notice of the extent of the powers and authority, and the limitations thereon, of the Public Officials and Employees of the City, as set forth in the charter of the City, the Code of Ordinances and any Regulations or Policies pertaining thereto. In particular, and without implying any limitation as to its applicability, it applies to all Persons who participate in the procedures pertaining to the Centralized Procurement System as set forth in Chapter 38, and the Ethics and Conflict of Interest provisions set forth in Chapter 39 of the Code of Ordinances.

33.13. INTEREST OF CITY OFFICIALS. No member of the governing body of the City, and no other officer, employee, or agent of the City who exercises any functions or responsibilities in connection with the carrying out of the project, to which this agreement pertains, shall have any personal interest, direct or indirect, in this agreement.

33.14. PROHIBITION AGAINST CONTINGENCY FEES. The Contractor hereby represents that it has not retained anyone to solicit or secure a contract with the City upon an agreement or understanding for a commission, percentage, brokerage or contingency fee.

33.15. FREEDOM OF INFORMATION ACT NOTICE. Pursuant to State statute, in the event the total compensation payable to the Contractor set forth in Section 6 of this Contract is greater than \$2,500,000.00, the City is entitled to receive a copy of all Contractor records and files related to the performance of this Contract and those records and files are subject to the Freedom of Information Act ("the Act") and may be disclosed by the City pursuant to the Act.

34. Definitions. Whenever the following, words, terms, etc. appear in this Contract, the intent and meaning shall be as follows:

34.1. Additional Work: Work required by the City that involves a substantial addition to, deduction from or modification of the Contract Documents.

34.2. Bid or Proposal: The form on which the bidder is to submit a bid for the Work contemplated.

34.3. Bidder: A person, partnership, corporation or other business organization submitting a bid on the form for the Work contemplated.

- 34.4. City:** The City of Waterbury, acting directly or through specifically authorized personnel.
- 34.5. Construction Supervisor:** An employee of the City of Waterbury, or other City duly authorized person.
- 34.6. Contract Time:** The number of days as stated in the Contract to: **(i)** achieve Substantial Completion and **(ii)** Final Completion.
- 34.7. Equal:** The recognized equivalent in substance and function; considering quality, workmanship, economy of operation, durability and suitability for purposes intended, and not constituting a change in the Work specified. Whenever the words "equal" or "equals" or words of like import are used, it shall be understood they mean "equal" in the opinion of the City.
- 34.8. Final Completion:** The time at which the Project has progressed to the point where, in the opinion of the City, the Project is complete such that it is ready for final payment as evidenced by the City's, or its duly authorized City representative's, written recommendation of final payment. The terms "finally complete" and "finally completed" as applied to the Project refer to Final Completion.
- 34.9. Notice to Proceed:** A letter from the City which shall state the date of execution of the Contract and specifically advise the Contractor to begin work on the Contract.
- 34.10. Plans:** All drawings or reproductions of drawings pertaining to the construction of the work contemplated and its appurtenances.
- 34.11. Project Engineer or Manager:** An employee of the City or a person, partnership, corporation or other business organization under contract with the City, commissioned to perform construction administration and inspection duties during construction.
- 34.12. Shop Drawings:** Drawings, diagrams, schedules, performance charts, brochures and other materials prepared by the Contractor or subcontractors, manufacturers or distributors which illustrate some portion of the work.
- 34.13. Specifications or Technical Specifications:** The description, provisions and other requirements pertaining to the materials, methods and manner of performing the Project.
- 34.14. Subcontractor:** A person, partnership, corporation or other business organization supplying labor and/or materials for work at the site of the Project to and under agreement with the Contractor.
- 34.15. Substantial Completion:** The time at which, in the opinion of the Engineer, the

Project (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Project (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Project mean Substantial Completion thereof.

34.16. Substitution: A replacement of specified material, device or equipment which is sufficiently different in substance, function, quality or workmanship to become the subject of a Change Order.

34.17. Supplementary General Conditions: An extension to the terms, conditions, and provisions set forth in this document as additional, material, provisions of this Contract.

34.18. Work: All plant, labor, materials, services, supplies, equipment and other facilities and items necessary for, or incidental to, the completion of the terms of the Contract.

34.19. Using Agency: School Inspector's Office, Department of Education.

IN WITNESS WHEREOF, the parties hereto execute this Contract on the dates signed below.

WITNESSES:

CITY OF WATERBURY

By: _____

Neil M. O'Leary, Mayor

Date: _____

**WITNESSES:
INC.**

SARRACCO MECHANICAL SERVICES,

By: _____

Its _____

Date: _____

ATTACHMENT A

ATTACHMENT B

ATTACHMENT C

MEMORANDUM

DATE: February 1, 2023

TO: Honorable Board of Aldermen

FROM: Rosh Maghfour, Interim Education Building & Facilities Project Manager

RE: Executive Summary to *Amendment #2* of the contract for Department of Education for Maloney Chiller Replacement with *M.J. Daly, LLC*.

M.J Daly, LLC was awarded a contract for Chiller Replacement at Maloney Magnet School on April 24, 2022 in the amount of not to exceed \$616,930.60. The contract was initiated under RFP no. 7104 and the funding source is Elementary and Secondary School Emergency Relief Fund (ESSER II).

Under Amendment# 1, the vendor required additional time beyond the completion date to April 30, 2023 to market supply constraints for HVAC equipment extending the timeline for completion beyond the current contract completion date.

Under Amendment#2, the vendor is seeking additional 90 days to reach final completion of the project in order to perform all required chiller testing and commissioning under load.

Thank you for your consideration.

Attachments

c: Board of Education, Mike Konopka, Jerry Gay

**Second Amendment
to the
Construction Contract
for the
Maloney Elementary School Chiller Replacement
between
The City of Waterbury
and
M.J. Daly, LLC**

THIS SECOND AMENDMENT, effective on the date signed by the Mayor of Waterbury, is by and between the City of Waterbury, 235 Grand Street, Waterbury, Connecticut, 06702 (“City”) and M. J. Daly, LLC, 110 Mattatuck Heights Road, Waterbury, Connecticut (the “Contractor”, collectively with the City, the “Parties”).

WHEREAS the Parties executed a construction contract, effective April 24, 2022, for the replacement of the chiller at Maloney Elementary School (the “Agreement”) in accordance with RFP 7104 (the “Project”);

WHEREAS the parties previously amended the Agreement, effective December 22, 2022, to amend certain provisions of Section 5 (the “First Amendment”), including extending the Project’s final completion date; and

WHEREAS the Parties seek to further amend the Agreement to extend further the Project’s final completion date, all as further provided below.

NOW THEREFORE, the Parties hereby agree and covenant to amend further the Agreement as follows:

1. Section 5 of the Agreement is further amended as follows:

5. Contract Time. The Contractor shall reach final completion of the Project (including all required commissioning and testing of the chiller) on or before July 30, 2023.

2. Other than as amended herein, all other terms, conditions and provisions of the Agreement and First Amendment remain in full force and effect and binding upon the Parties.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, the parties hereto execute this Second Amendment on the below signed dates.

WITNESSES:

CITY OF WATERBURY

By: _____
Neil M. O'Leary, Mayor

Date: _____

WITNESSES:

M.J. DALY, LLC

By: _____
Edward Carvalho, President

Date: _____



ESSER/ARP Monthly Expenditure Report
February 2, 2023 BOE Workshop

ESSER I

Beginning Date March 2020
 Ending Date September 2022

Total Grant : \$9,394,519

Public Portion - \$8,462,310
 \$8,462,310 YTD Exp/Enc
 \$0 YTD Balance

Non-Public Portion - \$ 932,209
 \$932,209 YTD Exp/Enc
 \$0 YTD Balance

ESSER II

Beginning Date December 2020
 Ending Date September 2023

Total Grant : \$41,651,124

\$16,817,783 YTD Exp/Enc
 \$24,833,341 YTD Balance

ARP ESSER III

Beginning Date May 2021
 Ending Date September 2024

Total Grant : \$89,691,176

\$27,451,437 YTD Exp/Enc
 \$62,239,739 YTD Balance



Detail of Encumbrance/Expenditures

ESSER I

Temporary Maintainers; Health Dept & Fire Dept Overtime for COVID Testing
Chromebook Management Services; Licenses; Teachers Laptops; Students Chromebooks; Chromebook Charging
Carts; Data Switches & Wireless Headphones
HVAC & Ventilation Projects- Regan Boilers Replacement, & heating pumps, Carrington BMS Upgrades, HVAC Repairs at Reed, Maloney, Rotella, Gilmartin, Duggan, WAMS, Career, and West Side.
Covid staff testing fees;
Fire safety equipment
Bilingual materials
PPE/Health & Safety Supplies; Handwashing Stations



ESSER II GF Staff Retainage- Maintainers Staff, IT Staff and School Counselors.
Summer School Programs; Summer Camps – YMCA, Boys & Girls & PAL
Transportation for Summer School; Summer school program supplies
Recruitment - UCONN Resident & Nex-Gen programs; College partnerships for recruitment
Translation Services
SEL Curriculum
Technology Professional Development Training
Portrait of Graduate Development and Assessment
CTE Supplies and Wilby Greenhouse Renovation
Food Service Deficit;
Facility Study
Administrative Costs - Contracted Project Manager Services; Contracted Legal Services
Design Services – Auditorium Upgrades; Air Handler Units; Mechanical Upgrades & Rotella Boiler
Summer school field trips
Boiler replacement /Tinker school and Kingsbury
School counselor Summer program
New Mentors Summer training
Design services –HVAC for Wilby, NEMS,WSMS,Crosby, Wallace, State St, Wilson
Design services- Boiler replacement for Driggs, Maloney, Washington, Generali)
Boiler replacement –Rotella
SEL Curriculum
Naviance
Duct & Vent Cleaning (Carrington, Duggan,Gilmartin, Reed)
Reboot pilot program



ARP ESSER III

(2) PT Crisis Youth Intervention Clinicians;
Accountant III
Facility Operation Manager
Extra Class Stipends for Teachers covering shortage areas;
Partners in Education (CT Center for School Change);
Outside Counsel Legal Fees for ARP ESSER Contracts;
Curriculum Update- Pear Deck & Legends of Learning;
Instructional Supplies & Equipment (School Principals)
Resources to Support Curriculum(Home Learning);
Equity Training Services
State Street Playground Equipment
HVAC Projects/Repairs- Maloney Chiller Replacement, Wilby AC, Crosby Cooling Tower, Kennedy Fan Replacement, WAMS ,Palace.
Upgrade furniture, fixtures and equipment based on school needs.
Digital platform to connect students with mentors.
Amplify reading student license, mCLASS DIBELS
Mechanical Upgrades at three schools (Crosby,Kennedy, Wilby)
SAFE after school program/behavioral clinicals
Nearpod, Kami, Rubicon subscription
Summer programs-Boys & Girls club
Workshop Athletic program
Biliteracy Training program
Enrichment programs in the Community (Palace Theater, Shakesperian, Mattatuck museum, Boys and Girls, YMCA)
Design services for HVAC (Sprague, Regan, Tinker, Washington, Bucks Hill, Chase , International, Generali
Harvard Graduate school- training school turnaround leaers
Linguistica International –translation services
Cormier Consulting
Varsity Tutors
Air cooled chillers (WAMS/Palace)
Removal and replacement of 9 playscapes

Waterbury Board of Education

FY2022-2023

**December
Expenditure Report**

ACCOUNT	CLASSIFICATION	FY 23 ORIGINAL BUDGET	FY 23 ADJUSTED BUDGET	DECEMBER EXPENDITURE	DECEMBER ENCUMBRANCE	CURRENT BALANCE	PROJECTED EXP.	PROJECTED DIFFERENCE
Salaries								
511101	Administrators	\$9,664,779	\$9,664,779	\$4,379,067	\$0	\$5,285,712	\$9,439,779	\$225,000
511102	Teachers	\$56,903,062	\$56,903,062	\$19,972,705	\$0	\$36,930,357	\$55,586,263	\$1,316,799
511104	Superintendent	\$438,103	\$438,103	\$207,201	\$0	\$230,902	\$438,103	\$0
511106	Early Incentive Certified	\$825,000	\$825,000	\$1,059,703	\$0	(\$234,703)	\$1,059,703	(\$234,703)
511107	Certified Coaches	\$770,000	\$770,000	\$227,789	\$0	\$542,211	\$770,000	\$0
511108	School Psychologists	\$1,449,226	\$1,449,226	\$227,894	\$0	\$1,221,332	\$898,226	\$551,000
511109	School Social Workers	\$1,948,427	\$1,948,427	\$643,903	\$0	\$1,304,524	\$1,948,427	\$0
511110	Speech Pathologists	\$2,294,414	\$2,294,414	\$871,346	\$0	\$1,423,068	\$2,189,414	\$105,000
511111	Ass. Superintendent	\$165,000	\$165,000	\$76,154	\$0	\$88,846	\$165,000	\$0
511113	Extra Compensatory Stipend	\$105,000	\$105,000	\$0	\$0	\$105,000	\$105,000	\$0
511201	Non-Certified Salaries	\$2,678,104	\$2,678,104	\$847,069	\$0	\$1,831,035	\$2,678,104	\$0
511202	Clerical Wages	\$1,597,126	\$1,597,126	\$484,366	\$0	\$1,112,760	\$1,382,126	\$215,000
511204	Crossing Guards	\$357,192	\$357,192	\$169,425	\$0	\$187,767	\$357,192	\$0
511206	Educational	\$450,000	\$450,000	\$125,413	\$0	\$324,587	\$450,000	\$0
511212	Substitute Teachers	\$150,000	\$150,000	\$352,930	\$44,508	(\$247,438)	\$397,438	(\$247,438)
511215	Cafeteria Aides	\$80,000	\$80,000	\$29,334	\$0	\$50,666	\$80,000	\$0
511217	Library Aides	\$178,348	\$178,348	\$46,303	\$0	\$132,045	\$178,348	\$0
511219	School Clerical	\$2,029,527	\$2,029,527	\$930,348	\$0	\$1,099,179	\$2,029,527	\$0
511220	Fiscal Administration	\$608,440	\$608,440	\$252,106	\$0	\$356,334	\$608,440	\$0
511222	Transportation Coordinator	\$189,737	\$189,737	\$74,795	\$0	\$114,942	\$189,737	\$0
511223	Office Aides	\$170,000	\$170,000	\$69,648	\$0	\$100,352	\$170,000	\$0
511225	School Maintenance Non-Certified	\$2,249,645	\$2,249,645	\$797,077	\$0	\$1,452,568	\$1,859,645	\$390,000
511226	Custodians Non-Certified	\$5,388,979	\$5,388,979	\$2,113,195	\$0	\$3,275,784	\$4,870,064	\$518,915
511227	Overtime - Outside Activities	\$200,000	\$200,000	\$79,697	\$0	\$120,303	\$200,000	\$0
511228	Paraprofessionals	\$9,886,881	\$9,886,881	\$3,908,075	\$0	\$5,978,806	\$9,886,881	\$0
511229	Bus Duty	\$265,000	\$265,000	(\$5,287)	\$0	\$270,287	\$265,000	\$0
511232	Attendance Counselors	\$125,373	\$125,373	\$51,176	\$0	\$74,197	\$125,373	\$0
511233	ABA Behaviorial Therapist	\$1,626,875	\$1,626,875	\$528,181	\$0	\$1,098,694	\$1,626,875	\$0
511234	Interpreters	\$195,456	\$195,456	\$59,660	\$0	\$135,796	\$151,955	\$43,501
511238	Swing SSPP	\$0	\$0	\$8,736	\$0	(\$8,736)	\$7,211	(\$7,211)
511236	Snow Removal	\$0	\$0	\$6,864	\$0	(\$6,864)	\$6,864	(\$6,864)
511237	Swing Space	\$0	\$0	\$0	\$0	\$0	\$0	\$0
511650	Overtime	\$640,000	\$640,000	\$478,792	\$0	\$161,208	\$640,000	\$0
511653	Longevity	\$9,705	\$9,705	\$8,563	\$0	\$1,142	\$9,705	\$0
511700	Extra Police Protection	\$683,452	\$683,452	\$81,406	\$0	\$602,046	\$683,452	\$0
511800	Vacation and Sick Term Payout	\$207,669	\$207,669	\$34,868	\$0	\$172,801	\$207,669	\$0
522501	Health Insurance-General	\$8,000,000	\$8,000,000	\$8,000,000	\$0	\$0	\$8,000,000	\$0
529001	Car Allowance	\$70,000	\$55,000	\$28,011	\$0	\$26,989	\$55,000	\$0
529003	Meal Allowances	\$24,800	\$24,800	\$21,114	\$3,220	\$467	\$24,800	\$0
Subtotal Salaries		\$112,625,320	\$112,610,320	\$47,247,628	\$47,728	\$65,314,964	\$109,741,321	\$2,868,999

ACCOUNT	CLASSIFICATION	FY 23 ORIGINAL BUDGET	FY 23 ADJUSTED BUDGET	DECEMBER EXPENDITURE	DECEMBER ENCUMBRANCE	CURRENT BALANCE	PROJECTED EXP.	PROJECTED DIFFERENCE
Purchased Services								
533000	Professional Services	\$1,500,000	\$1,500,000	\$1,457,933	\$26,781	\$15,285	\$2,300,000	(\$800,000)
533009	Evaluation	\$10,000	\$10,000	\$167	\$0	\$9,833	\$10,000	\$0
533020	Consulting Services	\$325,000	\$319,500	\$53,661	\$231,887	\$33,952	\$319,500	\$0
533100	Auditing	\$54,000	\$59,500	\$0	\$59,500	\$0	\$59,500	\$0
539005	Sporting Officials	\$30,000	\$15,000	\$1,008	\$0	\$13,992	\$15,000	\$0
539008	Messenger Service	\$27,000	\$27,000	\$0	\$0	\$27,000	\$27,000	\$0
543000	General Repairs & Maintenance	\$1,330,000	\$1,330,000	\$677,819	\$562,699	\$89,482	\$1,330,000	\$0
543011	Maintenance - Service Contracts	\$750,000	\$796,872	\$218,256	\$537,224	\$41,392	\$796,872	\$0
544002	Building Rental	\$562,084	\$562,084	\$191,576	\$347,307	\$23,201	\$562,084	\$0
545002	Water	\$250,000	\$250,000	\$51,635	\$0	\$198,365	\$250,000	\$0
545006	Electricity	\$3,129,855	\$3,129,855	\$1,287,897	\$0	\$1,841,958	\$3,129,855	\$0
545013	Security/Safety	\$125,000	\$125,000	\$36,785	\$62,163	\$26,052	\$125,000	\$0
551000	Pupil Transportation	\$17,461,954	\$17,461,954	\$4,248,389	\$11,598,048	\$1,615,516	\$18,011,954	(\$550,000)
553001	Postage	\$60,000	\$60,000	\$17,658	\$0	\$42,342	\$60,000	\$0
553002	Telephone	\$175,000	\$175,000	\$101,184	\$15,550	\$58,266	\$175,000	\$0
553005	Wide-area Network (SBC)	\$93,600	\$93,600	\$717	\$20,283	\$72,600	\$93,600	\$0
556055	Tuition - Outside	\$11,000,000	\$11,000,000	\$3,410,714	\$5,581,805	\$2,007,481	\$12,500,000	(\$1,500,000)
556056	Purchased Service - Outside	\$3,000,000	\$3,000,000	\$684,112	\$2,051,920	\$263,968	\$3,000,000	\$0
557000	Tuition Reimbursement	\$6,000	\$6,000	\$22,564	\$0	(\$16,564)	\$25,000	(\$19,000)
558000	Travel Expenses	\$5,000	\$5,000	\$4,089	\$0	\$911	\$5,000	\$0
559001	Advertising	\$32,500	\$32,500	\$14,476	\$0	\$18,024	\$32,500	\$0
559002	Printing & Binding	\$15,000	\$15,000	\$7,607	\$0	\$7,394	\$15,000	\$0
559104	Insurance - Athletics	\$26,000	\$20,636	\$20,636	\$0	\$0	\$20,636	\$0
Subtotal Purchased Services		\$39,967,993	\$39,994,501	\$12,508,884	\$21,095,168	\$6,390,450	\$42,863,501	(\$2,869,000)
Supplies/Materials								
561100	Instructional Supplies	\$1,620,000	\$1,600,000	\$698,388	\$206,335	\$695,278	\$1,600,000	\$0
561200	Office Supplies	\$78,590	\$78,590	\$27,673	\$11,129	\$39,788	\$78,590	\$0
561204	Emergency/Medical Supplies	\$2,000	\$2,000	\$0	\$0	\$2,000	\$2,000	\$0
561210	Intake Center Supplies	\$3,500	\$3,500	\$2,193	\$1,043	\$265	\$3,500	\$0
561211	Recruitment Supplies	\$50,000	\$50,000	\$19,990	\$8,954	\$21,055	\$50,000	\$0
561212	Medicaid Supplies	\$12,500	\$12,500	\$1,208	\$967	\$10,324	\$12,500	\$0
561501	Diesel	\$117,535	\$121,754	\$19,833	\$95,651	\$6,269	\$121,754	\$0
561503	Gasoline	\$201,174	\$156,956	\$57,992	\$93,199	\$5,764	\$156,956	\$0
561504	Heating Oil	\$0	\$40,000	\$15,883	\$2,798	\$21,320	\$40,000	\$0
561505	Natural Gas	\$1,666,000	\$1,666,000	\$377,058	\$0	\$1,288,942	\$1,666,000	\$0
561507	Janitorial Supplies	\$250,000	\$200,000	\$95,224	\$86,151	\$18,625	\$200,000	\$0
561508	Electrical Supplies	\$50,000	\$50,000	\$44,904	\$4,372	\$724	\$50,000	\$0
561509	Plumbing Supplies	\$100,000	\$100,000	\$45,404	\$36,684	\$17,912	\$100,000	\$0
561510	Building & Ground Supplies	\$150,000	\$252,364	\$133,616	\$96,078	\$22,670	\$252,364	\$0
561511	Propane	\$311,188	\$311,188	\$180,320	\$103,510	\$27,358	\$311,188	\$0
567000	Clothing Supplies	\$40,000	\$40,000	\$6,435	\$28,264	\$5,301	\$40,000	\$0
567001	Crossing Guard Uniforms	\$2,000	\$2,000	\$1,236	\$0	\$764	\$2,000	\$0
569010	Recreational Supplies	\$12,000	\$0	\$0	\$0	\$0	\$0	\$0
569029	Athletic Supplies	\$130,000	\$130,000	\$16,895	\$38,159	\$74,946	\$130,000	\$0
Subtotal Supplies/Materials		\$4,796,487	\$4,816,851	\$1,744,251	\$813,294	\$2,259,305	\$4,816,851	\$0

ACCOUNT	CLASSIFICATION	FY 23 ORIGINAL BUDGET	FY 23 ADJUSTED BUDGET	DECEMBER EXPENDITURE	DECEMBER ENCUMBRANCE	CURRENT BALANCE	PROJECTED EXP.	PROJECTED DIFFERENCE
Property								
575008	Furniture-Misc.	\$25,000	\$25,000	\$6,792	\$7,069	\$11,139	\$25,000	\$0
575200	Office Equipment	\$160,000	\$160,000	\$55,390	\$3,673	\$100,937	\$160,000	\$0
575408	Plant Equipment	\$40,000	\$23,128	\$11,722	\$11,406	\$0	\$23,128	\$0
Subtotal Property		\$225,000	\$208,128	\$73,905	\$22,148	\$112,076	\$208,128	\$0
Other/Miscellaneous								
589021	Mattatuck Museum	\$13,000	\$13,000	\$2,538	\$9,837	\$625	\$13,000	\$0
589034	Board of Ed Commissioners	\$20,700	\$20,700	\$10,350	\$0	\$10,350	\$20,700	\$0
589036	Emergency Fund	\$9,500	\$9,500	\$9,298	\$0	\$203	\$9,500	\$0
589056	Waterbury Promise	\$500,000	\$500,000	\$500,000	\$0	\$0	\$500,000	\$0
589201	Mileage	\$15,000	\$15,000	\$5,973	\$0	\$9,027	\$15,000	\$0
589205	Coaches Reimbursements	\$7,000	\$7,000	\$300	\$0	\$6,700	\$7,000	\$0
589900	Dues & Publications	\$60,000	\$60,000	\$56,154	\$3,542	\$305	\$60,000	\$0
591002	Transfer to Sinking Fund	\$0	\$0	\$0	\$0	\$0	\$0	\$0
591004	Athletic Revolving Fund	\$135,000	\$120,000	\$19,946	\$0	\$100,054	\$120,000	\$0
Total Other/Miscellaneous		\$760,200	\$745,200	\$604,558	\$13,379	\$127,263	\$745,200	\$0
GRAND TOTAL OPERATING BUDGET		\$158,375,000	\$158,375,000	\$62,179,226	\$21,991,717	\$74,204,057	\$158,375,000	\$0
Other Additional Funding								
	Alliance Non-Reform/Reform	\$33,534,869	\$33,534,869	\$10,984,566	\$0	\$22,550,303	\$33,534,869	\$0
	GF Surplus 15-16	\$1,000,000	\$1,000,000	\$0	\$0	\$1,000,000	\$0	\$1,000,000
	GF Surplus 14-15	\$1,000,000	\$1,000,000	\$0	\$0	\$1,000,000	\$0	\$1,000,000
	GF Surplus 16-17	\$450,000	\$450,000	\$0	\$0	\$450,000	\$0	\$450,000
	Contingency Surplus	\$675,000	\$675,000	\$0	\$0	\$675,000	\$0	\$675,000
	City Non Lapsing Account	\$500,000	\$500,000	\$0	\$0	\$500,000	\$0	\$500,000
Total Additional Funding		\$37,159,869	\$37,159,869	\$10,984,566	\$0	\$26,175,303	\$33,534,869	\$3,625,000
GRAND TOTAL ALL FUNDING		\$195,534,869	\$195,534,869	\$73,163,792	\$21,991,717	\$100,379,360	\$191,909,869	\$3,625,000

Education Operating Budget Timeline – Fiscal Year 2024

Proposed – Budget timeline

TBD – January-February 2023	Finance Committee meets to review and discuss the proposed budget and recommends budget to the Committee of the Whole
TBD – February 2023	Special Meetings - Committee of the Whole reviews the Finance Committee's budget recommendation at Workshop
TBD – February 2023	Special Meeting - Board of Education adopts budget request and sends it to the Mayor
February thru March 2023	Proposed Education Budget considered by Office of the Mayor and Office of Budget Control
By Thursday, March 30, 2023	Mayor submits Proposed City Budget to Board of Alderman
April thru May 2023	Meet with Board of Alderman Budget Subcommittee for review
By Friday, June 9, 2023	Board of Alderman adopts budget
May- First week of June 2023	Board of Education Finance Committee meets to discuss final budget
Thursday - June 1, 2023	Board of Education Workshop meets to adopt Board of Education final budget
Thursday - June 15, 2023	Board of Education Meeting to adopt final budget

**CITY OF WATERBURY
DEPARTMENT OF EDUCATION**

2/2/2023

Board of Education

Board of Education Commissioners:

With the approval of the Committee on Finance, the Superintendent of Schools recommends the following transfer for fiscal year 2022/2023 from General Fund Operating Budget:

FROM:

Accounting Unit	Account	Activity	Description	Amount
80510001	511102		Bucks Hill - Teachers	(\$250,000)
81110001	511102		Generali - Teachers	(\$250,000)

TO:

87510302 533000 Curriculum Instruction - Professional Services \$500,000

Transfer is needed to cover cost of substitute teacher placements from our outside vendor ESS.

FROM:

Accounting Unit	Account	Activity	Description	Amount
88510001	511102		Special Education - Teachers	(\$1,000,000)

TO:

88510001 556055 Special Education - Tuition Outside \$600,000

89510007 551000 Transportation - Pupil Services (Special Ed) \$400,000

Transfer is needed to cover cost of Special Ed Tuition & Transportation for an increase in Special Ed students being placed in outside facilities.

FROM:

Accounting Unit	Account	Activity	Description	Amount
87514501	511102		District Wide Art - Teachers	(\$550,000)
80810001	511102		Wendell Cross - Teachers	(\$400,683)

TO:

87510001 556055 District Wide - Tuition (Regular Ed) \$950,683

Transfer is needed to cover cost of regular ed students attending RESC schools.

FROM:

Accounting Unit	Account	Activity	Description	Amount
88031006	511226		Operation & Maintenance - Custodians	(\$122,000)

TO:

88031006 561507 Oper & Maint - Janitorial Supplies \$22,000

88031006 561509 Oper & Maint - Plumbing Supplies \$30,000

88031006 561510 Oper & Maint - Building & Ground Supplies \$30,000

88031006 575408 Oper & Maint - Plant Equipment \$40,000

Transfer is needed to cover supplies & equipment in maintenance department.

TOTAL \$2,572,683 (\$2,572,683)

Respectfully Submitted,

Dr. Verna D. Ruffin
Superintendent of Schools

**CITY OF WATERBURY
DEPARTMENT OF EDUCATION**

2/2/2023

Board of Education

Board of Education Commissioners:

With the approval of the Committee on Finance, the Superintendent of Schools recommends the following transfer for fiscal year 2022/2023 from Capital Improvement Budget:

FROM:

Accounting Unit	Account	Activity	Description	Amount
60180	547000	6018080099995	Capital Improvement - BOE Unallocated (Sinking Fund)	(\$245,000)

TO:

60180	547000	Capital Improvement - Washington Elementary Elevator Additions	\$125,000
60180	547000	Capital Improvement - Bunker Hill Elementary Elevator Additions	\$120,000

TOTAL			\$245,000	(\$245,000)
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Transfer to move funds from BOE Unallocated Sinking Fund to Capital Improvement for local share of increased cost to the elevator additions at Washington & Bunker Hill Schools.

Respectfully Submitted,

Dr. Verna D. Ruffin
Superintendent of Schools

WORKSHOP: Thursday, February 2, 2023
BOARD MEETING: Thursday, February 16, 2023

TO THE BOARD OF EDUCATION
 WATERBURY, CONNECTICUT

LADIES AND GENTLEMEN:

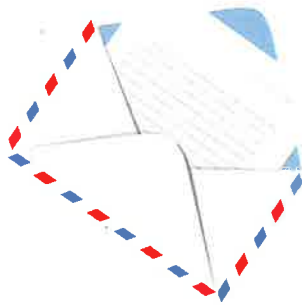
With the approval of the Committee on School Facilities and Grounds, the Superintendent of Schools recommends approval of the use of school facilities, at no charge, by the following school organizations and/or City departments:

GROUP	FACILITIES AND DATES/TIMES
Human Resources K. Medina	Wilby aud., café, classrooms: Fri., Mar. 17 th 2:00-6:00 pm for set-up and Sat., Mar. 18 th 7:00am – 4:00 pm for Police Exam
V. Demirali	Sprague gym: Wed., Feb. 15 th 4:30 – 6:30 pm (Literacy Family Night) Sprague gym: Fri., Mar. 17 th 3:30-8:00 pm (STEM Family Night)
M.. Rocco	W. Cross gym: Fri. ,Feb. 10 th 5:30-9:30 pm (Ties & Tiaras Dance) W. Cross gym: Fri. Feb. 3 rd 5:30-9:30 pm (Snow Flake Dance) W. Cross gym: Fri. Mar.24 th 5:30-8:00 pm (set-up for Craft Fair) W. Cross gym: Sat., Mar. 25 th 7:00am-9:30pm (Spring Craft Fair)
J. Franceskmo	Career Academy café: Thurs., Feb. 2 nd 4:30 – 8:00 pm (Karaoke Night Fundraiser/ students only)
L. Martin	Rotella comm. Room: Mar 28 th – April 6 th all day (Book Fair)
Park & Rec. J. Egan	West Side M/S pool & 1 classroom: Feb. 18 th thru Mar. 14 for the Training of for lifeguard certification (see attached schedule)

Approved

 Ann Sweeney

 Dr. Verna D. Ruffin
 Superintendent of Schools



COMMUNICATIONS



January 17, 2023 through
January 31, 2023



236 Grand Street
Waterbury, CT 06702

(203) 574-6761

The City of Waterbury
Connecticut
Department of Human Resources
Office of the Civil Service Commission

January 6, 2023

Crystal Betancourt
26 Midfield Dr., Apt. 29
Waterbury, CT 06705

Dear Ms. Betancourt:

Welcome to employment with the City of Waterbury. Your name is being certified to the Department of Education for the position of Paraprofessional I (Req. #2022959) at \$17.53 per hour. Please contact Miguel Pabon, Director of Pupil Services at (203) 574-8019 with any questions you may have in regards to this position.

We have scheduled your orientation for Thursday, January 19, 2023 at 9:00 a.m. at the Department of Education Training Room located at 236 Grand Street, 2nd Floor, Room 275 in Waterbury. You must attend this orientation session in order to work for the City. Your first day reporting to your new department/supervisor will be January 12, 2023 at your regular scheduled time.

At the orientation, we will provide you with a brief overview of the City, review its employment practices and complete all required paperwork. In addition, if you are an employee eligible for benefits, it is useful to bring the social security numbers and birth dates of your spouse and children in order to complete the insurance enrollment forms.

Please call us prior to the orientation session if you should have any questions regarding the process.

Your new probationary period in accordance with your applicable contract will be 6 months in duration. The department head will be responsible for executing your probationary evaluation no later than 6 months from your first day in your new position.

Again, welcome to the City of Waterbury.

Sincerely,

Nicholle West

Nicholle West
Human Resources Generalist
NW/sd

cc Board of Education
Dr. Ruffin, Supt. of Schools
Miguel Pabon, Director of Pupil Serv.
File

Carrie Swain

From: noreply@cabe.myenotice.com on behalf of Policy Highlights <noreply@cabe.myenotice.com>
Sent: Friday, January 20, 2023 7:00 AM
To: Carrie Swain
Subject: CABA Policy Highlights 1-20-2023

EXTERNAL MAIL- Think before you Click. More than 90% of successful cyber attacks start with a phishing email. This email originated from outside the District.



Policy Services

CABE Policy Highlights

Conrad Vahlsing, Senior Staff Attorney

January 20, 2023

Volume 22 Issue 15

The topic for Issue 15 of the CABE Policy Highlights is **District Philosophies of STEM and STEAM.**

Links to the sample policies excerpted in this article are provided in this issue of the Policy Highlights. Note that CABE has similar policies for additional subjects.

Please click this link to download the PDF version of this Policy Highlights.

Connecticut Association of Boards of Education

81 Wolcott Hill Road

Wethersfield, Connecticut 06109

Phone 860-571-7446 Fax 860-571-7452

www.cabe.org



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Connecticut Association of Boards of Education

Conrad Vahlsing, Senior Staff Attorney

PRESENTS POLICY HIGHLIGHTS

January 20, 2023

Volume 23 – Issue #15

District Philosophies of STEM and STEAM: A board of education's contemplation of its district's curriculum is one of its most important and rewarding responsibilities. There are many ways that boards influence curriculum, and this article will focus on crafting high-level policies that guide and inspire how individual subjects are handled.

Of course, boards have curriculum committees, which are tasked with recommending, developing, reviewing, and approving curriculum. These committees are mandated by state statute (Section 10-220(d)) and the statute empowers the curriculum committee to not just review and recommend but to approve curriculum. However, note that some boards retain final approval of curriculum decisions.

Besides the never-ending work of curriculum committees, boards can have an impact on curriculum through other policy avenues. For example, boards may choose to develop subject "philosophies" and enshrine them in the policy manual. These policies can be short but inspiring statements of what a board desires to be highlighted in the exposure to and mastery of a given subject, including STEM and STEAM subjects (the latter adds "arts" to the acronym for science, technology, engineering, and math).

These subject philosophies may be included in the Instruction series of a policy manual, and as an illustration of the possible content of these policies, here are a few excerpts from CABE samples:

Mathematics Philosophy ([CABE #6142.3](#))

To implement effectively a sound mathematics program, a style of teaching which is child-oriented should be utilized. The program should make mathematics an enjoyable and natural experience for each child.

Mathematics is an area in which all children can develop self-confidence and a positive self-image. A sound mathematics education should be provided so every child will have the opportunity to succeed.

Science Philosophy ([CABE #6142.4](#))

In today's highly specialized and technical world, the role of science education assumes great importance. We believe science education in the schools should foster in all students an understanding of, an interest in, and an appreciation of the world in which they live. It should develop scientifically literate individuals who have a substantial knowledge base of scientific facts, concepts and thinking skills, and an understanding of the relationship between science, technology, and society which will help them make responsible decisions.

Music Education Philosophy ([CABE #6142.8](#))

The Board of Education believes that music, both instrumental and vocal, plays an essential role in the education of all students by providing a unique language for expressing spiritual and emotional values that are both personal and universal. Students should be provided opportunities for individual performance and for group participation, both of which provide benefits for all students.

The Board believes that music provides students a historical link to the past and helps them to understand the present. Music can expand students' creative capabilities and greatly contributes to increasing their learning capacities in diverse subject areas. The music program should include the utilization of current technologies in the field.

As a point of inspiration for science programs that emphasize experimentation and student voice, even in elementary schools, *Education Week* recently highlighted a few programs across the country in an article entitled “How These Teachers Center Student Voice in Science Class” (Sarah Schwartz, December 27, 2022).

In New Jersey, the students of an elementary school “audit” the recycling bins in classrooms in order to determine the permissibility of the contents. The students also give presentations about what can and cannot be recycled in their county. A second grade teacher at the school says that these activities help students see connections between science and civic engagement.

In New Mexico, a fourth grade teacher asks students to draw what a scientist looks like, and when he first started teaching about fourteen years ago, most of the drawings had an “Einstein look.” He said that few students would draw kids or women as scientists. However, he said that this year, some students even drew themselves.

These anecdotes offer concepts that can be contained in a subject philosophy policy. For example, language about emphasizing connections between science and civic engagement, centering student voice, and ensuring that all students see themselves as potential scientists, mathematicians, or artists. A board can set an exciting and supportive tone for STEAM subjects and inspire its district's students to pursue expertise, and possibly an eventual career, in any subject to which they are drawn.

Here are links to the sample policies excerpted in this article; note that CABE has similar policies for additional subjects:

- [#6142.3](#) – Mathematics Philosophy
- [#6142.4](#) – Science Philosophy
- [#6142.8](#) – Music Education Philosophy

Carrie Swain

From: ANN SWEENEY
Sent: Thursday, January 26, 2023 12:47 PM
To: Carrie Swain
Subject: Fwd: A Racist Republican American Editorial

Carrie, not sure if this needs to go on the record.
Ann

Sent from my iPhone

Begin forwarded message:

From: Tony Wilusz <tonywilly157@gmail.com>
Date: January 26, 2023 at 11:43:45 AM EST
To: ELIZABETH BROWN <ebrown@waterbury.k12.ct.us>, JUANITA HERNANDEZ <jhernandez@waterbury.k12.ct.us>, LaToya Ireland <LaToya.Ireland@waterbury.k12.ct.us>, AMANDA NARDOZZI <amanda.nardozzi@waterbury.k12.ct.us>, Margaret O'Brien <Margaret.O'Brien@waterbury.k12.ct.us>, Rocco Orso <rorso@waterbury.k12.ct.us>, MELISSA SERRANO ADORNO <mserranoadorno@waterbury.k12.ct.us>, ANN SWEENEY <asweeney@waterbury.k12.ct.us>, "THOMAS VAN STONE SR." <tvanstone@waterbury.k12.ct.us>, Hector Navarro <Hector.Navarro@waterbury.k12.ct.us>
Subject: A Racist Republican American Editorial

EXTERNAL MAIL- Think before you Click. More than 90% of successful cyber attacks start with a phishing email. This email originated from outside the District.

I am sharing with you my response to a racist editorial in the Republican American. By Tony Wilusz

Friday January 20 the Republican American published an editorial entitled "Dubious allegations of racism in Waterbury." The editorial denies any evidence of racism in Waterbury and smugly poses the rhetorical question: "Shouldn't someone figure out if racism is the reason the millions of federal dollars spent in Waterbury on housing vouchers, food assistance and other health redistribution programs aren't producing equality?" This question reveals that the author failed to do even a modicum of research. Had the author looked at Town Profiles 2021 he/she could have found critical statistics which would have helped the writer to figure out if racism exists in the Waterbury region. The startling statistics for Waterbury are: a white population of 38%, an Afro-American population of 19%, and a Hispanic population of 37%; Waterbury's median income is \$42K and the poverty rate is 23%. Comparing this data with data from the nearby and largely white towns of Middlebury, Watertown, Thomaston, Plymouth, Wolcott, and Naugatuck reveals some stark truths. Averaging the data from these six towns shows these percentages: a white population of 87%, an Afro-American population of 2.6%, and a Hispanic population of 6.5% in these six

towns; the average income of these towns is \$87K; and the poverty rate is only 5.5%. So 158 years after the thirteenth amendment was enacted people of color in the Waterbury region are in reality segregated into Waterbury, have an income \$45K less than the nearby white majority towns, and have a poverty rate 17% higher. Is this data dubious? Or does it paint a very real portrait of a region where racism is the dominant social fabric?

This email message, including any attachment(s), is for the exclusive use of the intended recipients and may contain confidential and/or privileged information under applicable federal and state laws, including, but not limited to, the Family Educational Rights and Privacy Act (FERPA). If the reader of this message is not an intended recipient, you are hereby directed to delete and destroy this message and any copies of the same and to contact the sender immediately. Any unauthorized review, use, disclosure or distribution of this message, including any of its attachment(s), is strictly prohibited.

SCHOOL PERSONNEL USE ONLY

JAN 21 2023

DATE: January 20, 2023

TO: SCHOOL BUSINESS OFFICE

FROM: Keytza Medina, Human Resources Assistant

The undersigned hereby makes application for use of school facilities (after regular school hours) as follows:

NAME OF SCHOOL REQUESTED: WILBY SCHOOL/CAFÉ/AUDITORIUM
WILBY SCHOOL – CLASSROOMS

☒ Auditorium/Theater Arts ☒ Cafeterias ☐ Swimming Pool ☒ Classrooms

DATES REQUESTED: Saturday, March 18, 2023
FROM: 7:00 am TO: 4:00 pm

FOR THE FOLLOWING PURPOSES:

- Entry Level Police Officer Exam
- Expecting approximately 283 Candidates
- 40 Classrooms
- Setting up 3/17/2023 after 2pm. We would like access to the Auditorium on 3/18/23
- Sign-in Begins at 8:00am
- Two 6 foot sign-in tables in main entrance of café
- One 6 foot table in each cafeteria
- Clear all Teacher's desk – will arrange which floor with Principal

KM 1/20/23
APPLICANT DATE

.....

Please note the following provisions:
When the public is invited to an activity, police and fire departments must be notified. These arrangements *must* be made in person at the police and fire headquarters.

Book
SCHOOL PERSONNEL USE ONLY

JAN 17 2023

DATE: 1/17/2023

TO: SCHOOL BUSINESS OFFICE

FROM:

Njalla Demirali - Parent Liaison

The undersigned hereby makes application for use of school facilities (after regular school hours) as follows:

NAME OF SCHOOL REQUESTED: Sprague Elementary☐

Auditorium

☒

Gymnasium

☐

Swimming Pool

☐

Café/Rooms

DATES REQUESTED: 2/15/2023FROM: 4:30 am/pmTO: 6:30 am/pm

FOR THE FOLLOWING PURPOSES:

Literacy Family NightNjalla Demirali
APPLICANT

Please note the following provisions:

When the public is invited to an activity, police and fire departments must be notified.
These arrangements *must* be made in person at the police and fire headquarters.

Hook

SCHOOL PERSONNEL USE ONLY

DATE: 1/17/2023

TO: SCHOOL BUSINESS OFFICE

FROM: Vjolica Demirali - Parent liaison

The undersigned hereby makes application for use of school facilities (after regular school hours) as follows:

NAME OF SCHOOL REQUESTED: Sprague Elementary☐ Auditorium☒ Gymnasium☐ Swimming Pool☐ Café/RoomsDATES REQUESTED: 3/17/2023FROM: 3:30 am/pm TO: 8:00 am/pm

FOR THE FOLLOWING PURPOSES:

STEM Family Night.Vjolica Demirali
APPLICANT

.....

Please note the following provisions:

When the public is invited to an activity, police and fire departments must be notified.
These arrangements *must* be made in person at the police and fire headquarters.

Vjolica
Demirali

Book

JAN 25 2023

SCHOOL PERSONNEL USE ONLY

DATE: 1-25-23

TO: SCHOOL BUSINESS OFFICE

FROM: M. Rocco

The undersigned hereby makes application for use of school facilities (after regular school hours) as follows:

NAME OF SCHOOL REQUESTED: W. Cross

☐ Auditorium

☒ Gymnasium

☐ Swimming Pool

☐ Café/Rooms

DATES REQUESTED: Friday, Feb 10, 2023

FROM: 5:30 am/pm

TO: 9:30 am/pm

FOR THE FOLLOWING PURPOSES:

W. Cross PTA - Dance (Pk - 5)
Ties & Tiaras Dance
(Time includes set up & clean up)

M. Rocco
APPLICANT

Please note the following provisions:

When the public is invited to an activity, police and fire departments must be notified.
These arrangements *must* be made in person at the police and fire headquarters.

JAN 25 2023

Hook

SCHOOL PERSONNEL USE ONLY

DATE: 1-25-23

TO: SCHOOL BUSINESS OFFICE

FROM: M. Rocco

The undersigned hereby makes application for use of school facilities (after regular school hours) as follows:

NAME OF SCHOOL REQUESTED: W. Cross

☐ Auditorium

☒ Gymnasium

☐ Swimming Pool

☒ Café/Rooms

DATES REQUESTED: Friday, March 3, 2023

FROM: 5:30 am/pm

TO: 9:30 am/pm

FOR THE FOLLOWING PURPOSES:

Snow Flake Dance for
6th & 7th Graders.

Time above includes set up &
Clean up.

Margaret Rocco
APPLICANT

Please note the following provisions:

When the public is invited to an activity, police and fire departments must be notified.
These arrangements *must* be made in person at the police and fire headquarters.

Book

JAN 25 2023

SCHOOL PERSONNEL USE ONLY

DATE: 1-25-23

TO: SCHOOL BUSINESS OFFICE

FROM: M. Rocco

The undersigned hereby makes application for use of school facilities (after regular school hours) as follows:

NAME OF SCHOOL REQUESTED: W. Cross

☐ Auditorium ☒ Gymnasium ☐ Swimming Pool ☐ Café/Rooms

DATES REQUESTED: 3/24 + 3/25
FROM: 3/24 - 5:30 pm am/pm TO: 3/25 7:00 am am/pm
8:00 pm 9:30 pm

FOR THE FOLLOWING PURPOSES:
W.C. PTA Spring Craft Fair & Auction
Friday Evening - Set Up
Set all day Set up & clean up

M. Rocco
APPLICANT

Please note the following provisions:
When the public is invited to an activity, police and fire departments must be notified.
These arrangements *must* be made in person at the police and fire headquarters.

JAN 25 2023

SCHOOL PERSONNEL USE ONLY

DATE: 1/26/23

TO: SCHOOL BUSINESS OFFICE

FROM:

WCA - Jennifer Franceskino /
Robbion Pierz (club
advisor)

The undersigned hereby makes application for use of school facilities (after regular school hours) as follows:

NAME OF SCHOOL REQUESTED: WCA

☐ Auditorium

☐ Gymnasium

☐ Swimming Pool

☒ Café/Rooms

DATES REQUESTED: Thursday, Feb. 2, 2023

FROM: 4:30 am/pm pm TO: 8:00 am/pm pm

FOR THE FOLLOWING PURPOSES:

Karaoke Night Fundraiser - WCA
students only

Jennifer Franceskino
APPLICANT

Please note the following provisions:

When the public is invited to an activity, police and fire departments must be notified. These arrangements *must* be made in person at the police and fire headquarters.

JAN 30 2023

SCHOOL PERSONNEL USE ONLY

DATE: 1/26/2023

TO: SCHOOL BUSINESS OFFICE

FROM:

Lauren Martin

The undersigned hereby makes application for use of school facilities (after regular school hours) as follows:

NAME OF SCHOOL REQUESTED:

Rotella

☐

Auditorium

☐

Gymnasium

☐

Swimming Pool

☒

Café/Rooms

Community Room

DATES REQUESTED:

March 28th - April 6th

FROM:

all day

am/pm

TO:

all day

am/pm

FOR THE FOLLOWING PURPOSES:

Book Fair - Doors must remain locked

Lauren Martin
APPLICANT

Please note the following provisions:

When the public is invited to an activity, police and fire departments must be notified. These arrangements *must* be made in person at the police and fire headquarters.

JAN 31 2023

SCHOOL PERSONNEL USE ONLY

DATE: 2-1-23

TO: SCHOOL BUSINESS OFFICE

FROM: Recreation DEPT
JOHN EGAN INTERIM SUPERVISOR

The undersigned hereby makes application for use of school facilities (after regular school hours) as follows:

NAME OF SCHOOL REQUESTED: WESTSIDE MIDDLE SCHOOL

☐ Auditorium

☐ Gymnasium

☒ Swimming Pool

☐ Café/Rooms

DATES REQUESTED: 2-18-3/1, 3/5-3/14

FROM: 6 am/pm 9 AM TO: 8 am/pm 4 PM WEEKENDS

FOR THE FOLLOWING PURPOSES:

CERTIFICATION OF LIFEGUARDS FOR
EMPLOYMENT AT CITY POOLS AND LAKESIDE

John Egan
APPLICANT

.....
Please note the following provisions:

When the public is invited to an activity, police and fire departments must be notified.
These arrangements *must* be made in person at the police and fire headquarters.

First Session

Sat	Feb 18	9:00am- 4:00 pm
Sun	Feb 19	9:00 am -4:00 pm
Wed	Feb 22	6:00 pm - 8:00 pm
Thur	Feb 23	6:00 pm- 8:00 pm
Sun	Feb 26	9:00 am- 4:00 pm
Tues	Feb 28	6:00 pm- 8:00 pm
Wed	March 1	6:00 pm- 7:30 pm

Second Session

Sun	Mar 5th	9:00 am- 4:00 pm
Tues	Mar 7th	6:00 pm- 8:00 pm
Thurs	Mar 9th	6:00 pm-8:00 pm
Sat	Mar 11	9:00 am-4:00 pm
Sun	Mar 12	9:00 am- 4:00 pm
Mon	Mar 13	6:00 pm- 8:00 pm
Tues	March 14	6:00 pm- 8:00 pm

John Egan
Interim Supervisor of Recreation
Chase Parkhouse
(203)574-8292
X7589

COMMITTEE ON BUILDINGS AND SCHOOL FACILITIES

WORKSHOP: Thursday, February 2, 2023
BOARD MEETING: Thursday, February 16, 2023

**TO THE BOARD OF EDUCATION
WATERBURY, CONNECTICUT**

LADIES AND GENTLEMEN:

With the approval of the Committee on School Facilities and Grounds, the Superintendent of Schools recommends approval of the use of school facilities by groups and organizations, subject to fees and insurance as required.

GROUP	FACILITIES AND DATES/TIMES
Sunshine Dance Center	Kennedy aud.: June 3 rd 9am-5:50pm and June 4 th 12:00pm-5:30pm
E. Summa	(Dance Recital)

REQUESTING WAIVERS:

GROUPS NOT SUBJECT TO FEES OR WAIVER DUE TO TIME OF USE OR PREVIOUS WAIVER:

MONIES COLLECTED TO DATE:

\$ 27,726.29

Approved:

Ann Sweeney

Dr. Verna D. Ruffin
Superintendent of Schools

Book

DEPARTMENT OF EDUCATION - WATERBURY, CONNECTICUT
SCHOOL BUSINESS OFFICE
236 GRAND ST., WATERBURY, CT 06702
USE OF BUILDING PERMIT
TYPE OR USE PEN AND PRESS FIRMLY

JAN 17 2023

CONTRACT#

APPLICANT Emily Summa NAME OF ORGANIZATION Sunshine Dance Center
ADDRESS 451 Meriden Rd. Wthby. CT 06705 TELEPHONE # 203-509-5942
(street) (city) (state) (zip code)

SCHOOL REQUESTED Kennedy DATES 6/3, 6/4/23 ROOM(S) Auditorium
OPENING TIME 9:00am CLOSING TIME 5:30 pm PURPOSE Dance Recital

ADMISSION (if any) \$20.00 CHARGE TO BE DEVOTED TO Recital Fees
APPROXIMATE NUMBER OF PEOPLE TO BE PRESENT: ADULTS ~1000 CHILDREN 300 (about) (Dancers)

SIGNATURE OF APPLICANT Emily Summa DATE 1/17/23
PERSON(S) NAME, ADDRESS & PHONE NUMBER RESPONSIBLE FOR SUPERVISION:

Emily Summa (203) 509-5942, Jacqueline Downs (203) 725-5865
in the event that the Board of Education should need to resort to legal proceedings to collect any outstanding balances, the lessee is responsible for any and all attorney's fees, sheriff's fees and court costs associated with said proceedings. (ES) (PLEASE INITIAL)

SCHEDULE OF RATES: CUSTODIAL FEES: \$42/HR plus 1 HR. service per cust.
RENTAL FEES: \$1,000/4 HRS + \$200 EACH ADD HOUR
MISCELLANEOUS FEES: \$55/HR (Tech.)

SECURITY DEPOSIT \$ 500.- INSURANCE COVERAGE YES NO

PLEASE READ THE FOLLOWING CAREFULLY

- APPLICATION MUST BE RECEIVED AT LEAST THREE (3) WEEKS PRIOR TO THE ACTIVITY.
- A COPY OF YOUR INSURANCE MUST ACCOMPANY YOUR APPLICATION (IF APPLICABLE)
- IF SCHOOL IS CANCELLED FOR SNOW OR ANY OTHER REASON - ALL ACTIVITIES ARE CANCELLED ALSO.
- THERE WILL BE NO ACTIVITIES DURING SCHOOL OPEN HOUSE.
- CANCELLATIONS MUST BE MADE AT LEAST 48 HOURS IN ADVANCE OR YOU WILL BE CHARGED.
- POLICE AND FIRE PROTECTION MUST BE ARRANGED AND/OR CANCELLED BY THE RENTER. PLEASE CALL EACH DEPARTMENT FOR INFORMATION. POLICE DEPT. 574-6963 FIRE DEPT. 597-3452
- CALL THE SCHOOL CUSTODIAN AT LEAST ONE WEEK PRIOR TO YOUR ACTIVITY FOR ANY ARRANGEMENTS RE: PA SYSTEM, LIGHTING, ETC. (FOR WHICH THERE WILL BE AN EXTRA CHARGE).
- KITCHEN FACILITIES CAN NOT BE USED BY GROUPS WITHOUT SUPERVISION - PLEASE CALL THE FOOD SERVICE DEPT. AT 574-8210 TO ARRANGE FOR A FOOD SERVICE PERSON (FOR WHICH THERE WILL BE AN EXTRA CHARGE)
- PLEASE SEE REVERSE FOR ADDITIONAL RULES AND REGULATIONS.
- IT IS AGREED THAT REGULATIONS ADOPTED BY THE BOARD OF EDUCATION FOR USE OF SCHOOL BUILDINGS WILL BE RIGIDLY ENFORCED.

June 3rd
9am - 5:30 pm
June 4th
12pm - 5:30 pm

APPROVAL DATE _____ SCHOOL BUSINESS OFFICE _____

CHECKS OR MONEY ORDERS FOR FEES SHOULD BE MADE OUT TO THE BOARD OF EDUCATION AND MAILED TO THE SCHOOL BUSINESS OFFICE. NO CASH WILL BE ACCEPTED.