

MAIL BIDS TO: STAMFORD PUBLIC SCHOOLS

PURCHASING DEPARTMENT

P.O. BOX 9310

STAMFORD, CT 06901

BID NUMBER: B-4033

REQUESTING DEPT: PURCHASING

TITLE OF BID: KT MURPHY TOILET EXHAUST PROJECT

FOR STAMFORD PUBLIC SCHOOLS

BID OPENING: DATE: THURSDAY MAY 20, 2021

TIME: <u>2:30 P.M.</u>

PLACE: <u>PURCHASING</u>, 3<sup>rd</sup> FLOOR

888 Washington Boulevard

Stamford, CT 06901

BID DEPOSIT: YES 5%

PERFORMANCE BOND: YES 100% (Successful bidders only)

MAINTENANCE BOND: YES One Year (Successful bidders only)

PRE-BID/WALKTHROUGH

MANDATORY: DATE: THURSDAY APRIL 29, 2021

TIME: 11:00 A.M.

PLACE: K.T. MURPHY ELEMENTARY SCHOOL

19 HORTON STREET STAMFORD, CT 06902

### ALL ATTENDANCE MUST WEAR A FACEMASK

4 COPIES OF RESPONSE REQUIRED

This Bid Specification was prepared to solicit sealed bids on behalf of the Stamford Public School Facilities Department from qualified responsible contractors for Bathroom Exhaust Installation/Replacement at KT Murphy Elementary School, 19 Horton Street. Contractor services shall include installation/replacement of bathroom exhaust and associated ductwork, electrical, and architectural items as more particularly described in the specifications appended hereto. The scope of work is delineated in the attached specifications provided for this project.

All terms and conditions, specifications and bid forms are attached hereto. The lowest responsible bidder may be required to attend a meeting with District officials prior to the awarding of the bid contract.

### **B-4033**

### K. T. MURPHY TOILET EXHAUST PROJECT

### **Invitation to Bid/Overview of Services**

- Stamford Public Schools (SPS) is soliciting sealed bids for a Bathroom Exhaust Installation/Replacement at KT Murphy Elementary School. The SPS and its Facility Department intend to identify an outside Company (Contractor/Vendor) that will be able to provide said services. Examples of these specific services are outlined in more detail in "Scope of Services" section C and in "Exhibit A."
- Requests for proposals will be available at the purchasing department section of the Stamford Public Schools (SPS) website:
   <a href="https://www.stamfordpublicschools.org/district/finance-purchasing/pages/rfps-and-bids">https://www.stamfordpublicschools.org/district/finance-purchasing/pages/rfps-and-bids</a> starting Monday April 26, 2021.
- Contracts shall be awarded to the individual, consultants, or organization whose proposal best meets all criteria listed in the bid.
- Proposals must be sealed and received by Thursday May 20, 2021 at 2:30 P.M.
- Upon successful selection of a vendor, an award notification will be posted online at: https://www.stamfordpublicschools.org/district/finance-purchasing/pages/rfp-contract-award-notification
- Insurance Requirements: The selected proposer, upon the signing of the formal contract, will be required to deliver an insurance certificate in amounts, companies, and terms acceptable to the Risk Manager of the City of Stamford. (See section A.5 for further info)

### • Rejection of Proposals

Stamford Public Schools reserves the right to reject for any reason deemed to be in the District's best interest any and/or all proposals submitted under this Bid.

### Negotiated Changes

In the event negotiated changes occur after the awarding of the contract, the same pricing policies called for in the original contract will remain in effect.

### Selection Committee

For requests for proposals for services anticipated to exceed \$100,000, a selection committee shall be formed to review all proposals. The selection committee shall, if possible, interview the most qualified proposers. Bids over \$100,000 will require SPS Board of Education approval.

### SAMPLE SCORING SHEET

Proposal Selection Criteria	Points
Understanding of Engagement	15
Qualifications and Experience of Proposer	25
Professional References	10
Proposed Fee Arrangements	50
Total (maximum 100 pts)	100

### A. General Contract Information

### 1. Awarding the Contract (s)

The contract/s shall be awarded to the proposer whose proposal is deemed by the department head and/or selection committee to best provide the services desired, taking into account the requirements, terms and conditions contained in the request for proposals and the criteria for evaluating proposals. The SPS reserves the right to award this contract to one or multiple vendors provided that one vendor is financially beneficial to the district.

### 2. Contract Agreement

The successful bidder will be required to enter into an Agreement with Stamford Public Schools for the completion of the contract. If so, a sample copy of the Agreement is available at the following website:

https://www.stamfordpublicschools.org/sites/g/files/vyhlif3841/f/uploads/sample\_agreement for\_boe\_rfp\_packages\_1.pdf
The specifications of the proposal and the purchase order issued to the proposer shall
serve as a contract where no formal written contract is required.

### 3. Terms of Agreement

The Agreement and pricing shall remain in effect for the school year of FY2021-2022 beginning in July 1<sup>st</sup>, 2021, with option to renew for one (1) additional year, at the sole discretion of the SPS. Thereafter, the Agreement shall remain in effect until such time that either party gives sixty (60) business days prior written notice of its intent to either extend or terminate the Agreement.

### 4. Cancellation of the Contract

The Stamford Public Schools (SPS) reserves the right to cancel this contract, at any time, with sixty (60) days prior written notice to the consultant or organization, should any of the following conditions exist:

• Funds are not appropriated by the City of Stamford for the continuation of this contract

- The Stamford Public Schools (SPS), through changes in its requirements, method of operation, or program operation no longer has a need for the commodity or service.
- If the Contractor fails to fulfill its obligations under this contract properly and on time, or otherwise violates any provision of the contract, Stamford Public Schools may terminate the contract by written notice to the Contractor.
- As indicated in "sample contract on page 3" the SPS reserves the right to cancel for either cause or convenience.

### 5. Provision for Required Insurance

The Vendor shall maintain insurance, which complies with the insurance requirements contained in this Contract between the Stamford Public Schools, Stamford, Connecticut and the vendor. Such insurance required to be maintained by the vendor shall include:

- 1. General liability, which contains limits of liability of \$1,000,000/\$2,000,000 combined single limit per occurrence and aggregate for property damage and bodily injury. Such insurance shall contain operations liability, contractual liability, which covers any indemnities contained in this Contract, personal injury and advertising liability and completed operations and products liability.
- 2. If working with children, sexual abuse and molestation coverage, which may be included in the general liability policy or be a standalone policy, with a minimum limit of liability of \$1,000,000.
- 3. Workers' compensation and employers liability, which covers the employees of the Vendor, if applicable. Employer's liability insurance, which contains limits of liability of not less than \$100,000 each accident, \$100,000 disease policy limit and \$100,000 disease each employee.
- 4. Professional liability, which covers the professional services of the Vendor.

The Stamford Public Schools, the City of Stamford and their employees, agents and officers shall be designated as additional insureds under the general liability policy. All insurance maintained by the Vendor shall be primary insurance, not excess or concurrent, with any insurance maintained by or on behalf of the Stamford Public Schools or City of Stamford. The Vendor agrees to hold the Stamford Public Schools, the City of Stamford, and their employees, agents, and officers, safe and harmless from liability during the performance of this contract, and provide a waiver of subrogation in favor of the Stamford Public Schools, the City of Stamford, and their employees, agents and officers. The Vendor shall provide the Stamford Public Schools with evidence of insurance, which complies with the insurance requirements hereunder.

### **6.1 Non-Discrimination**

(a) The contractor agrees and warrants that in the performance of the contract, it 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,

sexual orientation, mental retardation 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. If the contract is for a public works project, the contractor agrees and warrants that it will make good faith efforts to employ minority business enterprises as subcontractors and suppliers of materials on such project. The contractor further agrees to take affirmative action to ensure 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, sexual orientation, mental retardation, 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;

- (b) 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 Connecticut Commission on Human Rights and Opportunities ("CCHRO");
- (c) 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 copy of these provisions, advising the labor union or worker's representative of the contractor's commitments under these provisions and to post copies of the notice in conspicuous places available to employees and applicants for employment;
- (d)The contractor agrees to comply with each provision of this section and Conn. Gen. Stat. Sections 4a-62, 32-9e, 46a-56 and 46a-68b to 46a-68k, inclusive, and with each regulation or relevant order issued by said CCHRO;
- (e) The contractor agrees to provide the SPS with such information requested by the SPS, and permit access to pertinent books, records and accounts, concerning the employment practices and procedures of the contractor.

### **6.2 Prime Contractor Responsibility**

Vendors submitting proposals to this Bid may utilize the services of subcontractors. If subcontractors are planned to be used, this should be clearly explained in the proposal. The prime Proposer will be responsible for the entire contract performance whether or not a subcontractor is to perform.

All corporate information in this Bid must be included for each proposed subcontractor. The Proposal must also include copies of any agreements to be executed between the prime Proposer and any subcontractors in the event of contract award. Under this Bid, the Stamford Public Schools retains the right to approve all subcontractors.

### 6.3 Subcontractors

The contractor shall include the provisions of subsection (6 and 6.1) in every subcontract or purchase order entered into in order to fulfill any obligation of a contract with the SPS and such provisions shall be binding on a subcontractor, vendor or manufacturer unless

exempted by regulations or orders of the CCHRO. The contractor shall take such action with respect to any such subcontract or purchase order as the SPS may direct as a means of enforcing such provisions.

The contractor agrees to comply with the CCHRO's requirements 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.

### 6.4 Ambiguity in the Bid Specification

Prior to submitting the proposal, the contractor is responsible to bring to the SPS' attention any ambiguity in this Bid. Failure to do so shall result in the contractor forfeiting any claim for adjustment based on such ambiguity as should have been noted by a prudent contractor.

In the event of any ambiguity between the SPS' Bid and the proposer's proposal, then whatever shall be more favorable to the Stamford Public Schools as determined in the sole discretion of the SPS shall prevail and take precedence.

### 6.5 Ownership Information

The Stamford Public Schools shall have unlimited rights to use, disclose, or duplicate, for any purpose whatsoever, all information developed, derived, documented or furnished by the contractor under any contract resulting from this Bid.

In the event of contract award, all data collected and other documentation procured as part of the contract will become the exclusive property of the Stamford Public Schools and may not be copied or removed by any employee of the contractor without written permission of the Stamford Public Schools.

### 6.6 Proprietary Information

The Stamford Public Schools will not disclose any portion of the proposals except to members of the proposal evaluation team prior to contract award. The Stamford Public Schools retains the right to disclose the name of the successful proposer, the amount of contract, and any other information in the proposal that is pertinent to the selection of the contractor.

### 6.7 Independent Project Cost Determination and Gratuities

By submission of an offer, the proposer certifies, that in connection with this proposal:

- The costs in this offer have been arrived at independently, without consultation, communication or agreement, for the purposes of restricting competition, as to any matter relating to such prices with any other proposer or competitor.
- The prices quoted in this offer will not change for a period of one hundred and twenty (120) days after the receipt date at the Stamford Public Schools of this offer.
- Unless otherwise required by law, the costs which have been quoted in this offer have not been knowingly disclosed by proposer and will not knowingly be

- disclosed by the proposer prior to award, directly or indirectly to any other proposer or to any competitor.
- No attempt has been made or will be made by the proposer to induce any other person or firm to submit or not to submit an offer for the purpose of restrictive competition.
- No elected official or appointed official or employee of the Stamford Public Schools or the City of Stamford shall benefit financially or materially from any contract awarded pursuant to this Bid.

### 6.8 Gifts

During the term of this contract, including any extensions, the Contractor shall refrain from making gifts of money, goods, real or personal property or services to any appointed or elected official or employee of the City of Stamford or the Stamford Board of Education ("BOE") or any appointed or elected official or employee of their Boards, Commissions, Departments, Agencies or Authorities. All references to the Contractor shall include its officers, directors, employees, and owners of more than 5% equity in the contractor. Violation of this provision shall constitute a material breach of this Agreement, for which this Agreement may be summarily terminated.

### 6.9 **Incurring Cost**

The Stamford Public Schools will not be held responsible for any costs incurred by the proposer for work performed in preparation and production of a proposal or for any work performed prior to the issuance of a contract.

### 6.10 Student Data Privacy

To effect the transfer of data subject to FERPA, the Contractor agrees and acknowledges as follows:

- **A.** The Contractor shall ensure compliance in all respects with the provisions of the Family Educational Rights and Privacy Act of 1974, 20 U.S.C. 1232g, ("FERPA") including any amendments or other relevant provisions of federal law, as well as all requirements of Chapter 99 of Title 34 of the Code of Federal Regulations. Nothing in this Agreement may be construed to allow either party to maintain, use, disclose or share student information in a manner not allowed by federal or state law or regulation.
- **B.** Student information, student records and student-generated content, as those terms are defined pursuant to Connecticut General Statutes §10-234aa (collectively "student data"), are not the property or under the control of the Contractor;
- C. The Board shall have access to and may request the deletion of student data in the possession of the Contractor except when 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, provided the Board may request the deletion of any such student data if such copy has been used by the operator to

repopulate accessible data following a disaster recovery; at any time by notifying Contractor, in writing, of such request and identifying the information to be deleted;

- **D.** The Contractor shall not use student data for any purposes other than those authorized pursuant to this Agreement with the Board;
- **E.** The procedures by which a student, parent or legal guardian of a student may review personally identifiable information contained in student data and correct erroneous information, if any, in such student record is set forth in Board Policy, with specific reference to Policy 5115 (as may be amended from time to time) and its associated Regulation(s), a copy of which may be found at <a href="http://www.stamfordpublicschools.org/district/board-education/pages/policy-handbook">http://www.stamfordpublicschools.org/district/board-education/pages/policy-handbook</a>.
- **F.** The Contractor shall take actions designed to ensure the security and confidentiality of student data:
- **G.** The Contractor shall adhere to the following procedures to notify the Board in the event that there has been an unauthorized release, disclosure or acquisition of student data:
  - a. Upon the discovery of a breach of security that results in the unauthorized release, disclosure or acquisition of student information, excluding any directory information contained in such student information, the Contractor shall notify, without unreasonable delay, but not more than thirty days after such discovery, the Board in writing through the Superintendent of Schools of such breach of security. During such thirty-day period, the Contractor may (A) conduct an investigation to determine the nature and scope of such unauthorized release, disclosure or acquisition, and the identity of the students whose student information is involved in such unauthorized release, disclosure or acquisition, or (B) restore the reasonable integrity of the Contractor's data system.
  - b. Upon the discovery of a breach of security that results in the unauthorized release, disclosure or acquisition of directory information, student records or student-generated content, the Contractor shall notify, without unreasonable delay, but not more than sixty days after such discovery, the Board of such breach of security. During such sixty-day period, the Contractor may (A) conduct an investigation to determine the nature and scope of such unauthorized release, disclosure or acquisition, and the identity of the students whose directory information, student records or student-generated content is involved in such unauthorized release, disclosure or acquisition, or (B) restore the reasonable integrity of the Contractor's data system.
- **H.** Student data shall not be retained or available to the Contractor upon expiration of the Agreement between the Contractor and the Board, except a student, parent or legal guardian of a student may choose to independently establish or maintain an electronic account with the Contractor after the expiration of such Agreement for the purpose of storing student-generated content.
- **I.** All student-generated content shall be the property of the student or the parent or legal guardian of the student.

- **J.** The Contractor shall implement and maintain security procedures and practices designed to protect student information, student records and student-generated content from unauthorized access, destruction, use, modification or disclosure that, based on the sensitivity of the data and the risk from unauthorized access, (1) use technologies and methodologies that are consistent with the guidance issued pursuant to section 13402(h)(2) of Public Law 111-5, as amended from time to time, (2) maintain technical safeguards as it relates to the possession of student records in a manner consistent with the provisions of 45 CFR 164. 312, as amended from time to time and (3) otherwise meet or exceed industry standards.
- **K.** The Contractor shall not use (1) student data for any purposes other than those authorized pursuant to this Agreement, or (2) personally identifiable information contained in student data to engage in targeted advertising.
- L. The parties agree that this Agreement controls over any inconsistent terms of conditions contained within any other agreement entered into by the parties concerning student data.
- **M.** If a court of competent jurisdiction finds that any provision of this Agreement is invalid, illegal or unenforceable, in any respect, then such invalidity, illegality or unenforceability shall not affect or impair any other remaining provisions of this Agreement, which shall remain in full force and effect. Moreover, if a court of competent jurisdiction finds that any provision of this Agreement is excessively broad, then such provision shall be construed by limiting it so as to be enforceable to the extent compatible with applicable law.
- **N.** If a court of competent jurisdiction finds that any provision of this Agreement is invalid, illegal or unenforceable, in any respect, then such invalidity, illegality or unenforceability shall not affect or impair any other remaining provisions of this Agreement, which shall remain in full force and effect. Moreover, if a court of competent jurisdiction finds that any provision of this Agreement is excessively broad, then such provision shall be construed by limiting it so as to be enforceable to the extent compatible with applicable law.

### **6.11 Code of Ethics**

Vendor shall comply with the Stamford Municipal Code of Ethics as codified in Chapter 19 of the City of Stamford Code of Ordinances and shall be considered an "employee", as defined in that Chapter, strictly for the purpose of compliance thereto. Vendor is prohibited from using its status as a vendor to derive any interest(s) or benefit(s) from other individuals or organizations.

### **6.12 Off Contract Purchase**

The District reserves the right to purchase items and/or products covered by this agreement from alternate sources, should, during the term of this agreement, the District obtain more favorable pricing from those alternate sources or determine that it is in its best interest to purchase an item from an alternate source. This Contract is not an exclusive Contract.

### 6.13 Information on Bidders' Background

In addition to the specific information required to be submitted in direct response to this procurement, the Stamford Public Schools reserves the right to request certain additional information from any/all bidders, such as Dunn & Bradstreet reports, certified financial statements, lists and details on equipment and other important and necessary information and documents that will serve the best interest of the City, in the opinion of Superintendent of Schools and/or of the Purchasing Agent, in determining the capabilities of a contractor.

### **6.14 Independent Contractor Status**

It is the intent of this proposal that the successful bidder is an independent contractor, and not an employee or agent. Nothing in this proposal or the contract to be signed shall be interpreted or construed as creating or establishing the relationship of employer and employee between the Stamford Public Schools and the Agency, or any employee or agent of the Agency, or between the Agency and any agent or employee of the Board. Both parties acknowledge that the Agency will not be an employee for federal or state tax purposes.

### B. <u>Background</u>

SPS serves some 16,000 students in 21 schools, grades Pre K – 12. The district, which encompasses 2,850,000 square feet of space, contains 13 elementary schools. Of the existing 13 elementary schools, 11 include grades K-5, the new school is K-3 and one includes grades K-8; five middle schools with grades 6-8, and three high schools. Included in this mix are five magnet elementary schools, one magnet middle school, two large comprehensive high schools, a magnet technology and engineering high school, and two alternative high school programs.

### C. <u>Scope of Services</u>

### **General Notes:**

- 1. Contract drawings, as far as they relate to the general arrangement and location of equipment, sheet metal, and piping, shall be understood as diagrammatic. Any changes to equipment, sheet metal, and piping locations necessary to avoid interference with other trades shall be made at no extra cost, and must be approved by the engineer.
- 2. The mechanical contractor shall install fire dampers with access doors in all ducts penetrating fire rated walls, whether specifically shown on the drawings or not.
- 3. The mechanical contractor shall furnish and install volume dampers in ductwork as required to balance the airflow at all registers and diffusers to the CMF's indicated on plan, whether specifically shown on the drawings or not.
- 4. The mechanical contractor shall field verify all existing conditions prior to the beginning of work, and shall coordinate all work with other trades.
- 5. Duct dimensions shown on mechanical drawings refer to inside clear duct dimensions. Where ductwork is lined, the mechanical contractor shall increase the size of duct to compensate for lining.

- 6. Locate thermostats and temperature sensors 5'-6" above finished floor unless otherwise noted on architectural DWGs. Coordinate location with furniture, cabinets, etc. & with architectural drawings.
- 7. Coordinate ductwork, grille, diffuser and register locations with lights, smoke detectors, and the architectural DWGs.
- 8. The mechanical contractor shall note that, in addition to the specifications and details given in these plans for pipe hangers and supports, all hangers and supports shall be designed and installed in compliance with applicable seismic codes.
- 9. The mechanical contractor shall submit for review a composite shop drawing, fully coordinated with all other trades, indicating ductwork, plumbing and sprinkler piping, smoke detectors, lights, conduits, smoke detectors, diffusers, grilles, etc.
- 10. All work shall comply with state building code, local building code, and energy code requirements. In case of conflict between the contract documents and a governing code or ordinance, the more stringent standard shall apply.
- 11. During construction, all open or incomplete ductwork shall be capped airtight with heavy polyethylene plastic. After the installation of ductwork, registers, grilles, and diffusers, the contractor shall blank off all registers, grilles, and diffusers with heavy polyethylene plastic and tape air tight, in areas that are under construction, until work is complete in those areas.
- 12. When general construction is complete, vacuum clean all diffusers, registers, grilles, and HVAC equipment. Remove any construction debris. Replace all air filters with new.
- 13. The owner's permanent HVAC equipment (existing/new) shall not be used by any contractor during construction for temporary heating, cooling, ventilation, or any other purpose. If temporary heating, cooling, ventilation, or airflow is required at any point during construction, the contractor shall provide temporary heating, cooling, or ventilation equipment, ductwork, controls, and power at their own expense.
- 14. Where existing building structural components have fireproof material, any area that is disturbed or damaged as a result of mechanical work, including the installation of hangers for piping, ductwork, or equipment, shall be patched with UL and FM approved fireproofing to match existing, or approved equal
- 15. The mechanical contractor shall be responsible for obtaining all necessary permits and for paying related fees.
- 16. The mechanical contractor shall provide all cutting, patching, core drilling, access panels, painting, and final restoration required to facilitate the installation of HVAC ductwork, control conduits, and piping, including above ceilings and in shafts that will not be replaced or opened under any other scope of work related to this project. Contractor to remove and replace ceilings, and open and patch shafts and walls, as required to execute the mechanical work.
- 17. The mechanical contractor shall be responsible for the cleaning of all existing supply air ductwork on all floors within the project area.
  - 18. All HVAC control wiring shall be run in EMT.
- 19. The mechanical contractor shall adhere to finish ceiling heights noted on architectural reflected ceiling plans (RCP's). Any deviation from finish ceiling heights noted on RCP's either higher or lower shall be reviewed and approved by architect before execution of the work.

**SPECIFICATIONS: PLEASE SEE EXHIBIT A (Bid Set/Drawings)** 

### D. Place of Work

K. T. Murphy Elementary School, 19 Horton Street, Stamford, CT 06902.

### **E.** Submission of Questions

Questions relating to this request for proposal must be submitted in writing (E-MAIL ONLY) to the following address <u>no later</u> than Friday May 14, 2021:

Stamford Public Schools
Kevin McCarthy
Director of Facility Operations
kmccarthy@stamfordct.gov

### F. Proposal Submission

Four (4) complete sets of the proposal along with one (1) electronic copy (USB Drive) are to be submitted in a sealed envelope and received by the Purchasing Department, 3<sup>rd</sup> Floor, by Thursday May 20, 2021 at 2:30 pm, and listing the following information on the outside of the envelope: B-4033 | Bidder's name and address | Proposal Due date. No telephone, electronic, or facsimile proposals will be considered. No proposals will be accepted after this time.

• Send your proposal to the attention of:

Stamford Public Schools Attn: 3<sup>rd</sup> Floor, Purchasing | B-4033 KT Murphy Toilet Exhaust Project 888 Washington Blvd. Stamford, CT 06901

**Due Date:** Bids must be received by 2:30 pm on Thursday May 20, 2021.

### The proposal should include:

- 1. Tax Exempt
  - The Stamford Public Schools is exempt from the payment of taxes imposed by the Federal Government and/or State of Connecticut. Such taxes must not be included in the bid price.
- 2. The "Official Response Form/Bid Form" attached must be completed.
- 3. The "Non-Collusion Affidavit" attached must be completed.
- 4. The "Contractor's Statement" attached must be completed.
- **5.** The "Contractor's Verification" attached must be completed.
- 6. The "Notice To Bidders"
- 7. All material submitted in response to this bid will become public record and will be subject to inspection after Intent to Award notice is issued. Any material requested to be treated as proprietary or confidential must be clearly identified and easily separable from the rest of the proposal.
- **8.** A proposal submitted in response to the bid shall constitute a binding offer. The autographic signature of the proposer shall indicate acknowledgement of this condition, or an officer legally authorized to execute contractual obligations. A submission in response to the bid acknowledges acceptance by the Proposer of all terms and conditions including compensation, as set forth herein. An Offeror shall identify clearly and thoroughly any variations between its proposal and the SPS's bid. Failure to do so shall be deemed a waiver of any rights to subsequently modify the terms of performance, except as outlined in the bid.

\*Failure to comply with all submission requirements may result in reduction of 5-10 points off the "Matrix of Qualifications" score. For instance, not submitting an electronic copy (USB Drive).

# B-4033 | KT MURPHY TOILET EXHAUST PROJECT

# G. Official Response Form/Bid Form

Name of Consultant/Vendor				
Name/Title of Primary conta	ct person			
Address of Vendor				
Phone Number of Vendor				
Contact Person e-mail for fol	low-up			
Number of Years' providing	similar work:	years		
List of School based referen district and phone numbers (			_	·
Reference District Con	ntact Name	Phone Number	<u>E-mail</u>	Contract Size
a)				
b)				
c)				
PRICING STRUCTURE				
The undersigned, having famil with the Project Manual, Tech KG&D Architects, PC, and Ac Project listed above, all in acco	nical Specificati Idenda, if any th	ons, and Drawings da ereto, hereby propose	ted 2/24/2021 at to construct ar	as prepared by
				Dollars
(\$	) (Total Lı	ımp Sum)		
<u>SCHEDULE</u>				
The undersigned agrees to come on the project shall be perform with BOE Facilities Departme	ned between 7AM nt.	M – 5PM weekdays or	as arranged ar	
Acknowledge receipt of A	ddenda number	and date #	Date:	/ /

### H. Non-Collusion Affidavit

The undersigned, having been duly sworn, affirms and says that to the best of his/her knowledge and belief:

- 1. The prices in this Proposal have been arrived at independently without collusion, consultation, communication, or agreement with any other Proposer or with any competitor for the purpose of restricting competition.
- 2. Unless otherwise required by law, the prices, which have been quoted in this Proposal, have not been knowingly disclosed by the Proposer and will not knowingly be disclosed by the Proposer prior to opening, directly or indirectly, to any other Proposer or to any competitor.
- 3. No attempt has been made or will be made by the Proposer to induce any other person, partnership or corporation to submit or not to submit a Proposal for the purpose of restricting competition.

Name of Proposer:	
By:	
•	
Print Name:	
Title:	

### STATE OF CONNECTICUT

# Contractor Verification (in accordance with Public Act 16-67)

<u>Directions to Contractor</u>: Connecticut law requires that any contractor applying or bidding for a contract (including individuals who are independent contractors) with a local or regional board of education, a governing council of a state or local charter school, or inter-district magnet school operator require any employee with the contractor who would be in a position involving direct student contact to supply the contractor with the information provided in this form. Information may be collected either through a written communication or telephonically.

In addition, pursuant to Connecticut General Statutes (C.G.S.) § 10-222c, the contractor is required to contact – either telephonically or through written communication – any current or former employer of an employee if such employer was a local or regional board of education, a governing council of a state or local charter school, or inter-district magnet school operator or if the employment caused the employee to have contact with children, to request any information concerning whether there was a finding of abuse or neglect or sexual misconduct against the employee. If the contractor receives any information indicating such a finding, or otherwise has knowledge of such a condition, the contractor must immediately forward such information to any local or regional board of education with which the contractor is under contract.

<u>Directions to Employee of Contractor:</u> Pursuant to Connecticut state law, employees of a contractor who would be in a position involving direct student contact must supply all of the information provided in Section 2 of this form.

Name

Street address

### Section 1 – To be completed by Contractor

City, State, Z	ip Code
Contact pers	on
Telephone n	umber/email address
<b>Part ∆</b> On a	Section 2 – To be completed by Employee of Contractor separate sheet of paper, please list the name, address and telephone number of each
current or for a governing	mer employer, if such current or former employer was a local or regional board of education, council of a state or local charter school, or inter-district magnet school operator, or if such otherwise caused you to have contact with children.
Part B. Pleas	se complete the questions below in their entirety.
Have you ev	er:
Y N	Been the subject of an abuse or neglect or sexual misconduct investigation by any employer, state agency or municipal police department (answer "no" if the investigation resulted in a finding that all allegations were unsubstantiated)?
Y N	Been disciplined or asked to resign from employment or resigned from or otherwise separated from any employment while an allegation of abuse or neglect was pending or under investigation by the Department of Children and Families (the "department"), or an

		o section 17a-101g of abuse or neglect, or of sexua se or neglect or sexual misconduct?	I
Y N	surrendered such a license or certif pending or under investigation by the misconduct was pending or under it	license or certificate suspended or revoked or ever ficate while an allegation of abuse or neglect was he department or an investigation of sexual investigation, or due to an allegation substantiated b t or of sexual misconduct or a conviction for abuse of	ру
Section 2 of the released by management of the released by management of the release by the named employ	his form to release to the entity listed in y previous employer pursuant to (C.G. ht to and authorize disclosure by the Sount to C.G.S. § 10-222c, as amendal State Department of Education of an yer(s) and the State Department of Education of control disclosure or release of records requal	rization. I hereby authorize the entities I have listed in Section 1 of this form the information required to I S.S.) § 10-222c along with any related records. I State Department of Education of the information led by Public Act 16-67, and I hereby authorize the my related records. I further hereby release the above ducation from any and all liability of any kind that may be sted pursuant to C.G.S. § 10-222c, as amended by	be e- ay
Signature of A	pplicant	Date	

allegation of sexual misconduct was pending or under investigation or due to an

in

### **NOTES:**

The terms provided below are currently defined in state law as follows. Please note that statutes may be amended from time to time.

Sexual Misconduct means - "any verbal, nonverbal, written or electronic communication, or any other act directed toward or with a student that is designed to establish a sexual relationship with the student, including a sexual invitation, dating or soliciting a date, engaging in sexual dialog, making sexually suggestive comments, self-disclosure or physical exposure of a sexual or erotic nature and any other sexual, indecent or erotic contact with a student." Connecticut General Statutes § 10-222c(k).

Abuse or neglect means - "abuse or neglect as described in Section 46b-120, and includes any violation of Sections 53a-70, 53a-70a, 53a-71, 53a-72a, 53a-72b or 53a-73a." Connecticut General Statutes § 10-222c(k).

The Connecticut State Department of Education is an affirmative action/equal opportunity employer and does not discriminate on the basis of race, color, religion, sex, gender identity or expression, sexual orientation, marital status, national origin, ancestry, age, criminal record, political beliefs, genetic information, intellectual disability, past or present history of mental disability, learning disability, or physical disability, including, but not limited to, blindness or any other basis prohibited by Connecticut state and/or federal nondiscrimination laws.

# **Contractor's Statement**

Pursuant to Section 103 .1 of the Stamford Code of Ordinances, I hereby provide the following:

If a joint venture, trustee, partnership, Limited Liability Company or partnership, the names and addresses of all joint venturers, beneficiaries, partners or members:
If a corporation, the names and addresses of all officers and the names and addresses of all parties owning over 10% of its common stock or over 10% of its preferred stock. If any of said stockholders is a holding corporation, the names and addresses of all persons owning a beneficial interest in over 10% of the common or preferred stock of said holding company.
The names and positions of all persons listed hereinabove who are elected or appointed officers or employees of the City of Stamford.
Name of Bidder/Proposer:
Signature of Bidder/Proposer:
Title:
Company Name:
Address:

### **Notice to Bidders**

1. All bids will be opened promptly at the advertised time of opening. There can and will be no delays or postponements which are not publicly advertised. Any bid received after the advertised time of opening cannot be accepted.

### 2. Obligation of bidders:

At the time of opening bids, each bidder shall be presumed to have inspected the sites, and to have read and made himself thoroughly familiar with the plans and contract documents including all addenda. The failure or omission of any bidder to receive or examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect to his bid.

Each bidder must fully inform himself of the construction and labor conditions relating to the work which is now or will be performed. Failure to do so will not relieve the successful bidder of his obligation to furnish all labor and materials necessary to carry out the provision of the contract documents and to complete the contemplated work. Inasmuch as possible, the contractor must, in carrying out his work, employ such methods or means as will not cause any interruptions or interference with the work of any other contractor.

### 3. Time is of the essence:

If the project is not completed by the date specified as the substantial completion date in the contract entered into by Stamford Public Schools and the Contractor, the Contractor shall pay all direct damages suffered by Stamford Public Schools and consequential and/or liquidated damages in the daily amount of 1/10 of 1% of the total contract value.

4. Stamford Public Schools is an Affirmative Action/Equal Opportunity Employer/purchaser. Small, Minority, Women and Disadvantaged Business Enterprises are encouraged to respond.

# SAMPLE CORPORATE RESOLUTION NEXT PAGE

### (COMPANY LETTERHEAD WITH LOGO HERE)

\_\_\_\_\_

# CORPORATE RESOLUTION

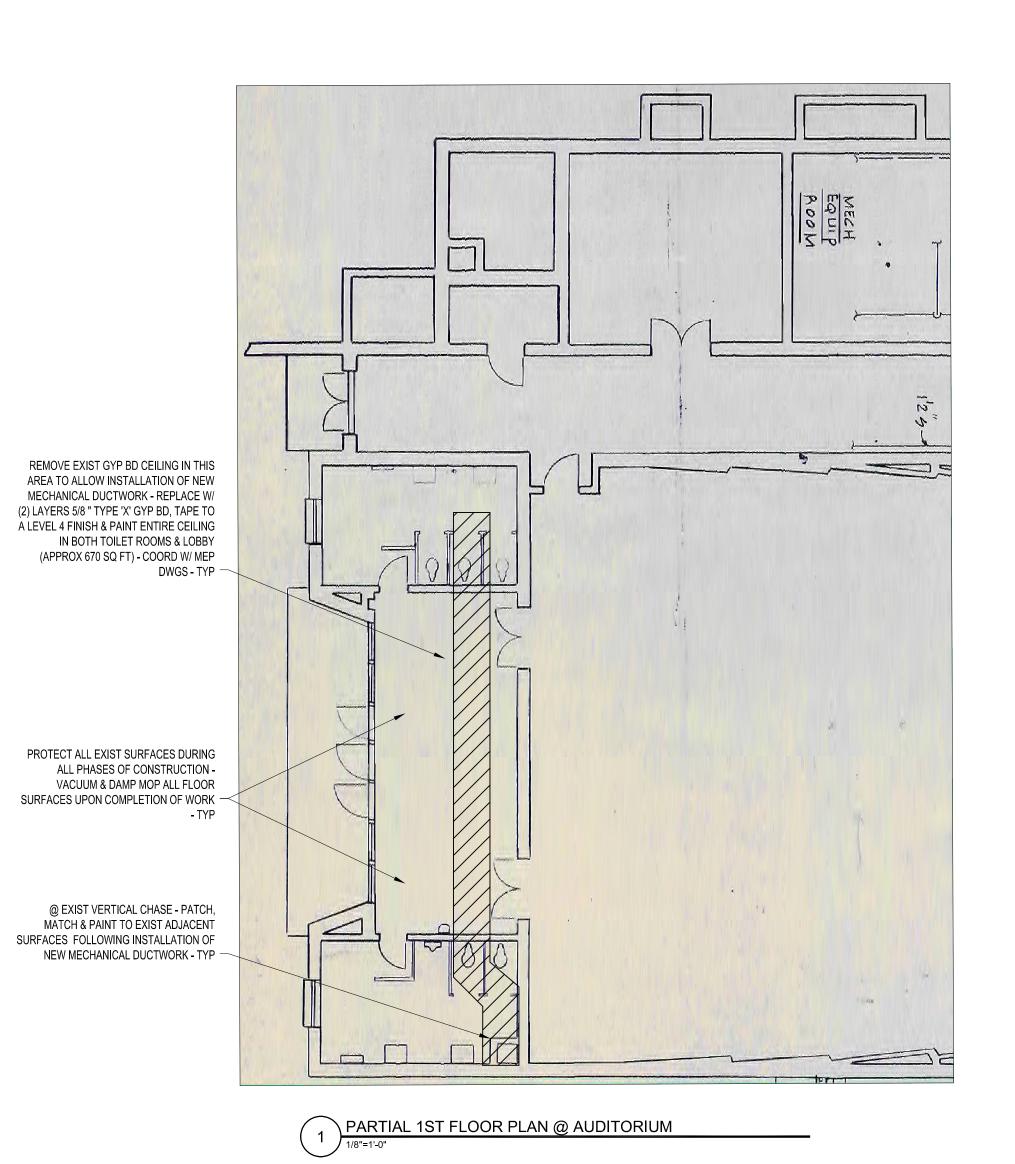
	DATE:				
We, the undersigned, bein	g all the Directors of _		(Name of compa		, organized and
existing under the laws of	(State)				ace of business a
	(otate)				
	(Compa	any's Ado	iress)		
hereby certify that the follo	owing individuals are	represei	ntatives of the co	ompany who	can execute
documents.					
			Date		
			Date		
			Date		
OLEAD FORM					DDINT

Hover over text boxes above to know what to input

# **EXHIBIT A**

(Bid Set/Specs - 16 pages)







OLA Consulting Engineers 50 Broadway, Hawthorne, NY 10532 914.747.2800

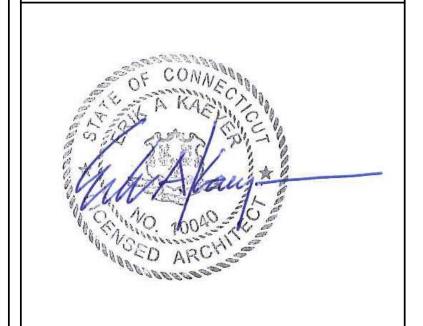
914.747.2800 8 West 38th Street, Suite 501 New York, NY 10018 646.849.4110

olace.com

888 Washington Blvd Stamford, CT 06901

STAMFORD PUBLIC SCHOOLS





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PROJECT TITLE

KT Murphy Elementary School

Toilet Exhaust Project

19 Horton St Stamford, CT 06902

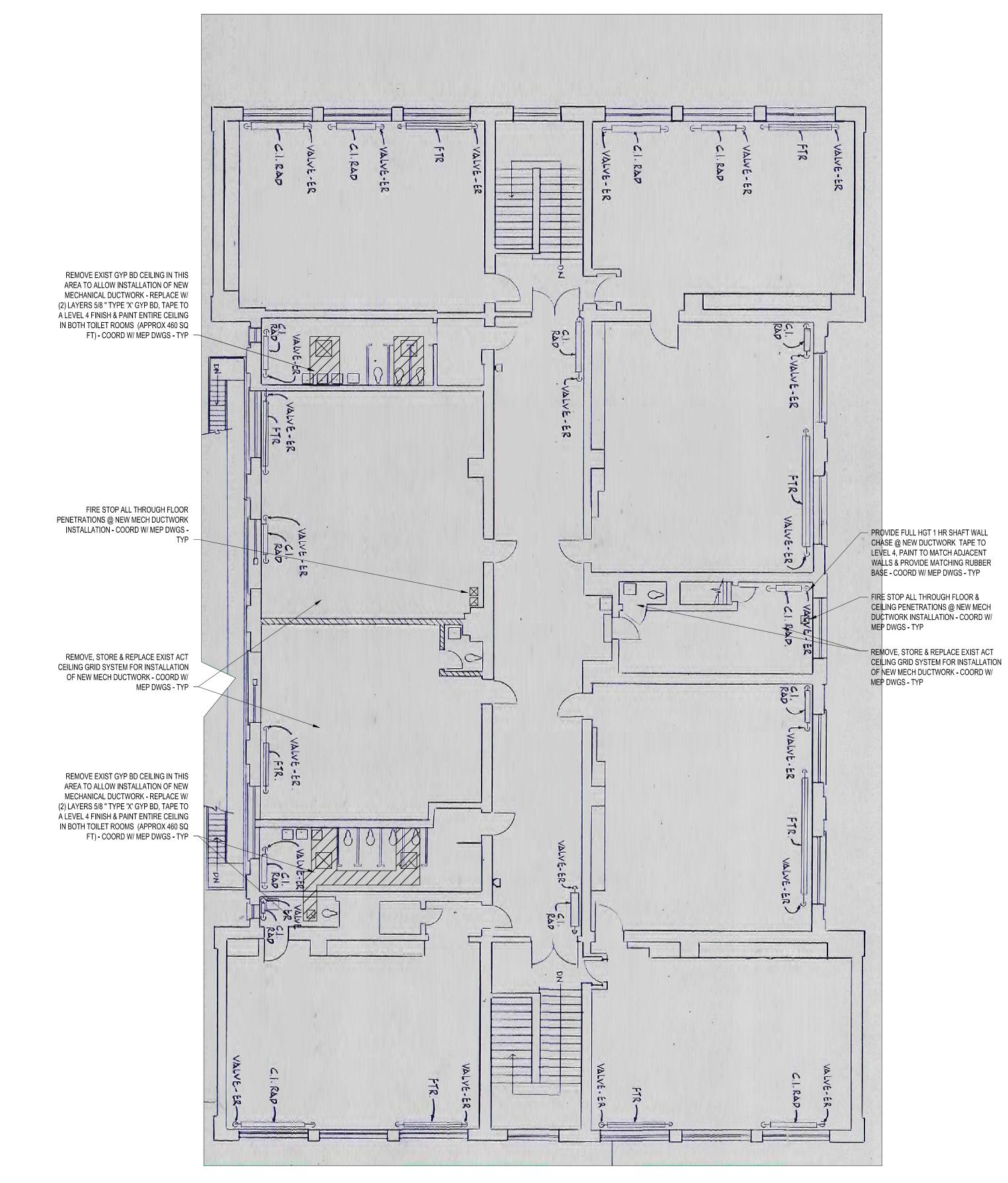
DRAWING TIT

1ST & 2ND FLOOR PLANS

SEAL	SCALE	PROJECT NO.
	AS SHOWN	NKGD0229.00
	DRAWN BY	DRAWING NO.
	CHECKED BY	$\Lambda$
		JAZUU
	DATE	<b>' '- '</b>
	02/24/2021	

2ND FLOOR PLAN





\ PARTIAL 3RD FLOOR PLAN

8 West 38th Street, Suite 501 New York, NY 10018 646.849.4110

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50 Broadway, Hawthorne, NY 10532 914.747.2800

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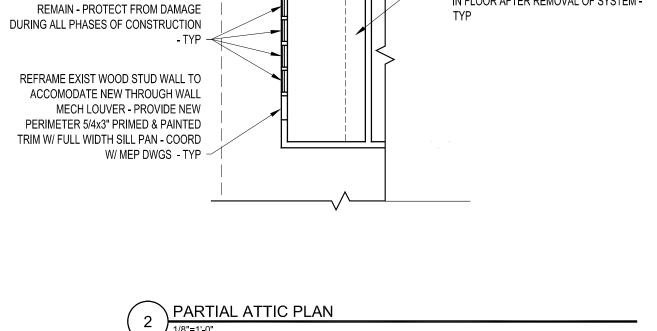
KT Murphy Elementary School

Toilet Exhaust Project

19 Horton St Stamford, CT 06902

3RD FLOOR PLAN & REAR ELEVATION

PROJECT NO. AS SHOWN NKGD0229.00 DRAWING NO. DRAWN BY CHECKED BY 02/24/2021



REMOVE & DISPOSE OF EXIST WOOD

SHELVING SYSTEM - INFILL ANY HOLES

IN FLOOR AFTER REMOVAL OF SYSTEM -

REFRAME EXIST WOOD STUD WALL TO ACCOMODATE NEW THROUGH WALL MECH LOUVER - PROVIDE NEW

PERIMETER 5/4x3" PRIMED & PAINTED TRIM W/ FULL WIDTH SILL PAN - COORD

EXIST DOUBLE HUNG WINDOWS TO

W/ MEP DWGS - TYP -

SYMBOLS A	ND ABBR	REVIATIONS			
SYMBOL	ABBREVIATION	DESCRIPTION	SYMBOL	ABBREVIATION	DESCRIPTION
	-	CONDUIT AND WIRING		SCH	SCHEDULE
	-	CONDUIT & WIRING TO BE REMOVED UON		SW	SWITCH(ES)
	•	HOMERUN TO PANEL, ARROWS INDICATE # 1P		TYP	TYPICAL
4	-	MULTI-POLE HOMERUN		UON	UNLESS OTHERWISE NOTED
	-	ELECTRICAL EQUIPMENT AS INDICATED		VIF	VERIFY IN FIELD
I <u></u> I	-	ELECTRICAL EQUIPMENT TO BE REMOVED UON		V	VOLT(S)
M	-	ELECTRIC METER			
J	-	JUNCTION BOX			
	-	FUSED DISCONNECT SWITCH			
	-	UNFUSED DISCONNECT SWITCH			
	-	COMBINATION MOTOR STARTER/FUSED DISC.			
$\boxtimes$	-	MOTOR STARTER			
$\bigcirc$	-	MOTOR			
$S_{M}$	-	MOTOR RATED TOGGLE SWITCH			
$\Leftrightarrow$	-	DUPLEX RECEPTACLE	NOTES:	REVIATIONS MAY	Y NOT BE APPLICABLE FOR THIS PROJECT.
<del> </del>	-	DOUBLE DUPLEX RECEPTACLE	1.) ALE CHAID CECTARD ABE	THE VIX THO TWO TWIN	THOT BETT FEIGNBEET ON THIS THOUSEN.
$\ominus$	-	SPECIAL RECEPTACLE	TYPICAL BRAI	NCH CIRC	UIT WIRING LEGEND
<u></u>	СВ	CIRCUIT BREAKER	2-#12 & 1-#12	GND (1-1P-20A OF	R 1-1P-15A CB)
60	-	ENCLOSED CIRCUIT BREAKER	——⇒ 3-#12 & 1-#12	•	,
/ 200AS	-	FUSED SWITCH	≥ 2-#12 & 1-#12	GND (2P-20A OR :	2P-15A CB)
Ů OR ↓	GND	GROUND AS PER LOCAL CODE	Q <sup>13</sup> ,		
₹ <b>1</b> WM	WM	WATER MAIN	T CIRCUIT # - RECEPTAC	LE	
M	MD	MOTORIZED DAMPER	NOTES:		
	SD OR CFSD	SMOKE DAMPER	1. EACH 120V AND 27 SHARED NEUTRAL H		ALL HAVE A DEDICATED NEUTRAL CONDUCTOR. IOT PERMITTED.
	А	AMPERE(S)	<b>I</b>		D FOR VOLTAGE DROP AND DERATING AS PER OR CIRCUITS THAT ARE BETWEEN 100' AND 150' IN
	AFF	ABOVE FINISHED FLOOR	· ·		DUCTORS SHALL BE #10 AWG. FOR CIRCUITS THAT TH, PHASE AND NEUTRAL CONDUCTORS SHALL BE
	AF	AMPERAGE OF FUSE	#8 AWG. FOR LENC WITH ENGINEER.	STHS GREATER	THAN 225' IN LENGTH, VERIFY CONDUCTOR SIZES
	AGL	ABOVE GRADE LEVEL			
	AS	AMPERAGE OF SWITCH			
	AWG	AMERICAN WIRE GAUGE	DEMOLITION I	NOTES	
	BCW	BARE COPPER WIRE	<b>I</b>		ECTED AND REMOVED BACK TO POWER SOURCE
	BLDG	BUILDING			OTED (UON) EXISTING TO REMAIN (EX.).
	С	CONDUIT	AND SHALL INCLUE	E ALL LABOR	OF DEMOLITION WORK IN THE FIELD PRIOR TO BID AND MATERIALS IN BASE BID INCLUDING ALL
	CKT	CIRCUIT	CONSTRUCTION AND	PROVIDE CONT	UIT AND WIRE IN ORDER TO ACCOMMODATE FINUOUS SERVICE TO DEVICES AND SYSTEMS TO
	CLG	CEILING	BUILDING POWER SH		NTLY. WORK REQUIRING THE SHUT-DOWN OF THE MED DURING OVERTIME AND SHALL BE INCLUDED
	COL	COLUMN	IN BASE BID.	CONDUIT AND	CONDUCTOR SIZES INDICATED SHALL BE FIELD
	CU	COPPER	VERIFIED PRIOR TO I		CONDUCTOR SIZES INDICATED SHALL BE FIELD
	DEM.	DEMOLISH AND REMOVE			ENT NO LONGER IN USE, SUCH AS DISCONNECT  , MOTOR STARTER PANELS, ETC. SHALL BE
	DISC	DRAMING	REMOVED UON.	JUNIOLLLING	, SINGLE DE
	DWG	DRAWING  ELECTRICAL METALLIC TURING			ISTING ELECTRICAL ITEMS THAT ARE NOT BEING OWNER OR DISPOSED OF AS DIRECTED.
	EMT EX.	ELECTRICAL METALLIC TUBING  EXISTING TO REMAIN			IN THE BASE BID FOR ALL MATERIAL & LABOR
	F EX.	FLOOR	COMPONENTS, EQU	IPMENT, WIRING	REROUTING & RELOCATION OF EXISTING SYSTEM  G, CONDUITS & CABLING SO AS TO MAINTAIN
	FBO	FURNISHED BY OTHERS	OPERATION OF ALL CONSTRUCTION PHA		DUGHOUT THE BUILDING DURING DEMOLITION &
	GFI	GROUND FAULT INTERRUPTER	-		
	HP	HORSEPOWER	+		
	IMC	INTERMEDIATE METAL CONDUIT	-		
	KVA	KILO-VOLT-AMPERE	†		
	KW	KILO-WATT	1		
	MAX	MAXIMUM	1		
	MCB	MAIN CIRCUIT BREAKER	1		
	MIN	MINIMUM	-		
	MLO	MAIN LUG ONLY	1		
	NIC	NOT IN CONTRACT	1		
	NTS	NOT TO SCALE	1		
	PBO	PROVIDED BY OTHERS	1		
	PNL	PANEL	-		
	REL.	REMOVE AND RELOCATE	1		
	RGS	RIGID GALVANIZED STEEL	1		
			I		

# **GENERAL NOTES**

- 1. ALL WORK SHOWN IS NEW UNLESS OTHERWISE NOTED (UON) EXISTING TO REMAIN (EX.).
- 2. THE DRAWINGS ARE TO BE CONSIDERED SCHEMATIC ONLY AND DO NOT NECESSARILY SHOW THE EXACT LOCATIONS AND DETAILS OF THE WORK TO BE INSTALLED.
- 3. ALL CONDUCTORS SHALL BE COPPER UON "ON DRAWINGS".
- 4. ELECTRONIC FILES OF THE MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION DRAWINGS ARE AVAILABLE TO THE CONTRACTOR. THE ENGINEER MAY GRANT THE CONTRACTOR A LIMITED LICENSE TO MAKE A DERIVATIVE WORK OF THE DATABASE FOR THE PURPOSE OF SHOP DRAWINGS, SUBMITTALS AND AS-BUILT DRAWINGS. UPON REQUEST, THE ENGINEER SHALL PROVIDE A RELEASE FORM THAT MUST BE SIGNED AND RETURNED BY THE CONTRACTOR PRIOR TO RELEASE OF THE ELECTRONIC FILES.
- CIRCUIT NUMBERS ARE FOR INFORMATION PURPOSES ONLY. ACTUAL CIRCUIT NUMBERS SHALL BE DETERMINED IN THE FIELD.
- CORE DRILLING OR TRENCHING THROUGH AN EXISTING FLOOR SLAB, WHEN REQUIRED, SHALL BE COORDINATED WITH THE OWNER. FLOOR SLABS SHALL BE RADAR SCANNED PRIOR TO CORE DRILLING OR TRENCHING. ALL WORK, INCLUDING CORE DRILLING, RADAR SCAN, INSTALLATION OF FIRE STOPPING, & CONDUIT/CABLE INSTALLATION SHALL BE PERFORMED DURING NON-BUSINESS HOURS AND INCLUDED IN BASE BID. USE EXTREME CAUTION DURING ANY CUTTING OPERATION TO AVOID DAMAGE TO EXISTING EQUIPMENT/SYSTEMS. ANY ITEMS DAMAGED AS A RESULT OF CORE DRILLING SHALL BE REPAIRED AT NO COST TO THE CLIENT. ALL CORES SHALL BE FIRE SEALED.
- WHERE GFI RECEPTACLES ARE CIRCUITED WITH GENERAL CONVENIENCE RECEPTACLES. THE GFI RECEPTACLE SHALL BE THE LAST DEVICE ON THE CIRCUIT.
- 8. INSTALL CONDUIT EXPANSION FITTINGS AT ALL LOCATIONS WHERE CONDUITS CROSS BUILDING OR STRUCTURE EXPANSION JOINTS.
- 9. DISCONNECT SWITCHES FOR MOTORIZED DAMPERS. CFSD/SD AND VAV BOXES SUPPLIED BY MECHANICAL CONTRACTOR AND INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR, SWITCHES NOT SHOWN ON PLANS.
- 10. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL CUTTING, PATCHING, PAINTING, AND FINAL RESTORATION REQUIRED TO FACILITATE THE DEMOLITION AND INSTALLATION OF ALL ELECTRICAL EQUIPMENT, INCLUDING BUT NOT LIMITED TO PANELBOARDS, CONDUITS, WIRING, DEVICES, FIXTURES, ETC. INCLUDING ABOVE CEILINGS. CONTRACTOR TO REMOVE AND REPLACE CEILINGS, AND OPEN AND PATCH WALLS, AS REQUIRED TO EXECUTE THE ELECTRICAL WORK.

# **DEFINITION OF TERMS**

- WHEREVER IN THE CONTRACT DOCUMENTS THE WORD "CLIENT" IS USED, IT MUST BE UNDERSTOOD THAT "CITY OF STAMFORD IS INTENDED.
- 2. WHEREVER IN THE CONTRACT DOCUMENTS THE WORD "ARCHITECT" IS USED, IT MUST
- 3. WHEREVER IN THE CONTRACT DOCUMENTS THE WORD "ENGINEER" IS USED, IT MUST BE UNDERSTOOD THAT "OLA CONSULTING ENGINEERS" IS INTENDED.
- 4. "WORK" MUST BE DEEMED TO CONSIST OF ALL LABOR AND OPERATIONS, TRANSPORTATION, HOISTING, MATERIALS, TOOLS, EQUIPMENT, SERVICES, INSPECTIONS, INVESTIGATIONS, COORDINATION AND SUPERVISION REQUIRED AND / OR REASONABLY NECESSARY TO PRODUCE THE CONSTRUCTION REQUIRED BY THE
- 5. "FURNISH" MEANS THE DESIGN, FABRICATION, PURCHASE AND DELIVERY TO THE JOB
- "INSTALL OR INSTALLATION" MEANS THE ACT OF PHYSICALLY PLACING, APPLYING, SETTING, ERECTING, ANCHORING, SECURING, ETC., CONSTRUCTION MATERIALS, EQUIPMENT, FURNISHINGS, APPLIANCES, AND SIMILAR ITEMS SPECIFIED AND FURNISHED AT THE JOB SITE. INSTALLATION OF SPECIFIED ITEMS MUST BE COMPLETE
- 8. THE FOLLOWING ARE DEFINITIONS OF SHOP DRAWING STAMP ACTIONS:
- PERFORMANCE, CAPACITY, ETC. AND SUBSTANTIAL CONFORMANCE TO THE CONTRACT DRAWINGS AND SPECIFICATIONS. FABRICATION AND/OR PURCHASE MAY COMMENCE.
- "MAKE CORRECTIONS NOTED" MEANS THAT THE SHOP DRAWING IS CORRECT AS TO PERFORMANCE, CAPACITY, ETC. AND SUBSTANTIAL CONFORMANCE TO THE CONTRACT DRAWINGS AND/OR SPECIFICATIONS, SUBJECT TO AND IN COMPLIANCE WITH THE ANNOTATIONS AND/OR CORRECTIONS INDICATED ON THE SHOP DRAWING. FABRICATION AND/OR PURCHASE MAY COMMENCE.
- PURCHASE. FABRICATIONS AND/OR PURCHASE MAY NOT COMMENCE.
- D. "REJECTED" MEANS THAT THE SHOP DRAWING DOES NOT COMPLY OR CONFORM TO THE CONTRACT DRAWINGS AND/OR SPECIFICATIONS. FABRICATION AND/OR PURCHASE MAY NOT COMMENCE.



OLA Consulting Engineers 50 Broadway, Hawthorne, NY 10532 914.747.2800 8 West 38th Street, Suite 501 New York, NY 10018

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- BE UNDERSTOOD THAT "KG&D ARCHITECTS" IS INTENDED.
- CONTRACT DOCUMENTS.
- SITE.
- IN ALL RESPECTS.
- "PROVIDE" MEANS TO FURNISH AND INSTALL CONSTRUCTION MATERIAL, EQUIPMENT, ETC. AS DEFINED ABOVE.
- A. "NO EXCEPTIONS TAKEN" MEANS THAT THE SHOP DRAWING IS CORRECT AS TO
- C. "AMEND AND RESUBMIT" MEANS THAT THE COMMENTS AND/OR CORRECTION ARE SO EXTENSIVE AND IMPORTANT THAT THE REVIEWER WANTS TO SEE HOW THE COMMENTS AND/OR CORRECTIONS ARE RESOLVED PRIOR TO RELEASE FOR FABRICATION AND/OR

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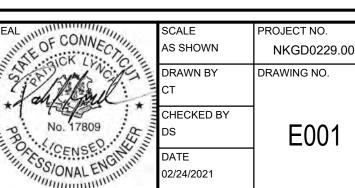
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PROJECT TITLE

KT Murphy Elementary School Toilet Exhaust Project

> 19 Horton St Stamford, CT 06902

ELECTRICAL SYMBOLS, **ABBREVIATIONS AND GENERAL NOTES** 



# **SPECIFICATIONS**

# E-1. SCOPE OF WORK

- A. ALL WORK SHOWN ON THE DRAWINGS IS NEW UNLESS OTHERWISE NOTED EXISTING TO REMAIN (EX.). THIS CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, TOOLS, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPERVISION AND OVERHEAD FOR THE FURNISHING AND INSTALLING OF ALL THE ELECTRICAL AND RELATED WORK COMPLETE, IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
- 1. MODIFICATION OF EXISTING PANELBOARDS, BALANCING AND UPDATED TYPED
- 2. REMOVAL, DISPOSAL, RELOCATION AND/OR INSTALLATION OF EXISTING SWITCHES, RECEPTACLES, WIRING, DISCONNECT SWITCHES AND ASSOCIATED CONDUIT, AND ANY OTHER ELECTRICAL EQUIPMENT.
- 3. JUNCTION AND OUTLET BOXES COMPLETE WITH COVERS, SWITCHES, RECEPTACLES AND ANY OTHER WIRING DEVICES AND SPECIAL COVER PLATES.
- 4. CONDUIT, CONDUIT FITTINGS, OUTLET BOXES, JUNCTION AND PULL BOXES TROUGHS. WIREWAYS AND ALL APPURTENANCES NECESSARY FOR ELECTRICAL RACEWAY SYSTEMS, INCLUDING NECESSARY SUPPORTS AND
- 5. INSULATED CONDUCTORS COMPLETE WITH SPLICES AND CONNECTIONS, INCLUDING CONNECTORS AND CONNECTION LUGS.
- 6. GROUNDING AND BONDING SYSTEM.
- 7. HOLES AND SLEEVES FOR CONDUITS PASSING THROUGH WALLS, FLOORS AND PARTITIONS.
- 8. TAGGING AND IDENTIFYING ALL EQUIPMENT AND DEVICES WITH NAMEPLATES.
- FIELD TESTS OF ALL EQUIPMENT AND ITS OPERATIONS AS SPECIFIED.
- 10. CUTTING AND PATCHING AS REQUIRED FOR INSTALLATION OF ELECTRICAL WORK.
- 11. AS-BUILT DRAWINGS.

### E-2 MATERIAL AND WORKMANSHIP

# A. GENERAL:

- THE WORK PERFORMED SHALL BE "FIRST-CLASS WORK" IN EVERY RESPECT. THE WORK SHALL BE PERFORMED BY A LICENSED ELECTRICIANS SKILLED IN THEIR RESPECTIVE TRADES, WHO SHALL AT ALL TIMES BE UNDER THE SUPERVISION OF COMPETENT PERSONS.
- 2. WORK THAT IS SLIPSHOD, POORLY LAID OUT, NOT PERFECTLY ALIGNED, OR THAT IS NOT CONSISTENT WITH THE REQUIREMENTS GENERALLY ACCEPTED IN THE TRADE FOR "FIRST-CLASS WORK" SHALL NOT BE ACCEPTABLE.
- 3. IN ADDITION TO THE MATERIALS SPECIFIED ELSEWHERE, ALL OTHER MISCELLANEOUS ITEMS NECESSARY FOR THE COMPLETION OF THE WORK SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR TO THE EXTENT THAT ALL SYSTEMS BE COMPLETE AND OPERATIVE.
- 4. ALL MATERIALS AND EQUIPMENT FURNISHED UNDER THIS SECTION SHALL BE NEW AND LISTED AND/OR LABELED BY THE UNDERWRITERS' LABORATORIES, INC., FOR THE APPLICATION, UNLESS OTHERWISE SPECIFIED HEREIN. MATERIALS, MATERIAL SIZES AND METHOD OF CONSTRUCTION NOT SPECIFIED SHALL BE AT LEAST EQUAL TO OR BETTER THAN THE STANDARDS AS LISTED BY THE UNDERWRITERS' LABORATORIES, INC., AND/OR THE REQUIREMENTS OF THE LAWS, REGULATIONS AND CODES MENTIONED HEREINAFTER. DEFECTIVE MATERIALS OR MATERIALS DAMAGED IN THE COURSE OF INSTALLATION OR TESTS SHALL BE REPLACED OR REPAIRED IN A MANNER MEETING WITH THE APPROVAL OF THE CLIENT.
- 5. ALL WORK UNDER THIS SECTION SHALL BE PERFORMED IN COOPERATION WITH THE WORK BY ALL OTHER CONTRACTORS AND SUBCONTRACTORS ON THE PROJECT, IN ORDER TO AVOID INTERFERENCES AND TO SECURE THE PROPER INSTALLATION OF ALL WORK. THIS CONTRACTOR SHALL REVIEW THE DRAWINGS AND SPECIFICATIONS COVERING THE WORK TO BE PERFORMED UNDER ALL SECTIONS. SO THAT HE UNDERSTANDS THE RELATION AND EXTENT OF THE WORK OF THIS SECTION WITH RESPECT TO THE WORK OF THE OTHER SECTIONS.
- 6. ALL WORK SHALL BE COORDINATED WITH THE OWNER & CLIENT AND SHALL MEET ALL CLIENT STANDARDS WHERE APPLICABLE AND SHALL BE SUBJECT TO APPROVAL FROM AN AUTHORIZED CLIENT REPRESENTATIVE. ALL MATERIALS USED SUCH AS CONDUIT, WIRING, LIGHT FIXTURES, WIRING DEVICES, ETC. SHALL MEET CLIENT STANDARDS UNLESS OTHERWISE INDICATED.

# E-3 LAWS, REGULATIONS AND CODES

# A. GENERAL:

1. ALL WORK UNDER THIS SECTION SHALL COMPLY WITH THE APPLICABLE FEDERAL, STATE, LOCAL CODES AND AUTHORITIES. WHERE REFERENCE IS MADE TO LAWS, CODES, REGULATIONS AND STANDARDS, THESE DOCUMENTS, INCLUDING THE LATEST REVISIONS AND AMENDMENTS THERETO IN EFFECT AS OF THE DATE OF BID OPENING, SHALL FORM PART OF THESE SPECIFICATIONS.

# E-4 SHOP DRAWINGS

- A. GENERAL: MANUFACTURER'S DATA OR SHOP DRAWINGS OF THE FOLLOWING APPARATUS GIVING FULL INFORMATION AS TO DIMENSIONS, MATERIALS, AND ALL INFORMATION PERTINENT TO THE ADEQUACY OF THE SUBMITTED EQUIPMENT INCLUDING WIRING DIAGRAMS SHALL ALSO BE SUBMITTED FOR APPROVAL AS DIRECTED:
- CONDUIT
- 2. CONDUCTORS
- 3. WIRING DEVICES
- 4. SPECIAL OUTLETS/EQUIPMENT
- 5. DISCONNECT SWITCHES
- 6. FUSES
- 7. PANELBOARDS

# E-5 RECORD DRAWINGS

# A. GENERAL:

1. THE CONTRACTOR SHALL MAINTAIN AN ACCURATE RECORD OF ALL DEVIATIONS IN WORK AS ACTUALLY INSTALLED FROM WORK AS INDICATED. THIS RECORD SHALL BE UPDATED DAILY AND SHALL BE KEPT AVAILABLE AT THE SITE FOR INSPECTION. UPON COMPLETION OF THE WORK, AND BEFORE FINAL PAYMENT IS AUTHORIZED, MARKED PRINTS WITH SIGNED CERTIFICATION OF ACCURACY, SHALL BE DELIVERED TO THE OWNER'S REPRESENTATIVE.

# E-6 INSTALLATION OF WORK

# A. GENERAL:

THE CONTRACTOR SHALL BE RESPONSIBLE TO EXAMINE THE SITE AND CHECK ALL FIELD CONDITIONS. NOTIFY THE ENGINEER OF ANY CONDITION WHICH DIFFERS FROM THAT INDICATED ON THE PLAN.

- 2. ALL WORK SHALL BE CAREFULLY LAID OUT IN ADVANCE SO THAT UNNECESSARY CUTTING, CHANNELING, CHASING OR DRILLING OF WALLS, PARTITIONS, FLOORS, CEILINGS OR OTHER SURFACES WILL BE AVOIDED. WHERE WORK IS NECESSARY FOR THE PROPER INSTALLATION, SUPPORT OR ANCHORAGE OF RACEWAYS, OUTLETS OR OTHER ELECTRICAL WORK, IT SHALL BE CAREFULLY DONE IN SUCH A MANNER AS TO AVOID ANY DAMAGE. ALL WORK WHICH MAY BE DAMAGED SHALL BE REPAIRED TO THE SATISFACTION OF THE OWNER.
- 3. ALL ELECTRICAL WORK SHALL BE PROTECTED AGAINST DAMAGE DURING CONSTRUCTION AND ANY WORK DAMAGED OR MOVED OUT OF LINE AFTER ROUGHING-IN SHALL BE REPAIRED AND RESET TO THE APPROVAL OF THE
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL ROUTING IN THE FIELD WITH EXISTING EQUIPMENT. PROVIDE ALL NECESSARY OFFSETS TO AVOID EXISTING EQUIPMENT & OBSTRUCTIONS.
- CORE DRILLING OR TRENCHING THROUGH AN EXISTING FLOOR SLAB, WHEN REQUIRED, SHALL BE COORDINATED WITH THE OWNER. FLOOR SLABS SHALL BE RADAR SCANNED PRIOR TO CORE DRILLING OR TRENCHING. ALL WORK, INCLUDING CORE DRILLING, RADAR SCAN, INSTALLATION OF FIRE STOPPING, & CONDUIT/CABLE INSTALLATION SHALL BE PERFORMED DURING NON-BUSINESS HOURS AND INCLUDED IN BASE BID. USE EXTREME CAUTION DURING ANY CUTTING OPERATION TO AVOID DAMAGE TO EXISTING EQUIPMENT/SYSTEMS. ANY ITEMS DAMAGED AS A RESULT OF CORE DRILLING SHALL BE REPAIRED AT NO COST TO THE CLIENT. ALL CORES SHALL BE FIRE SEALED.
- 6. CONTRACTOR SHALL VERIFY CONDUIT ROUTING WITH OWNER AND/OR CLIENT PRIOR TO INSTALLATION.

### B. CONDUIT WORK:

- ALL THREADED JOINTS IN CONDUIT WORK SHALL BE MADE WATERTIGHT BY A COATING OF THOMAS & BETTS KOPR-SHIELD COMPOUND ON THE MALE THREADS ONLY. WHENEVER THREADS ARE CUT, THEY SHALL BE COATED WITH KOPR-SHIELD BEFORE MAKING UP THE CONNECTION.
- EXPOSED CONDUIT ON CEILING SHALL BE RUN PARALLEL OR PERPENDICULAR TO WALL AND VISE VERSA TO CEILING, WHEN INSTALLED ON WALL. SECURE CONDUIT CLAMPS AND SUPPORTS TO MASONRY MATERIALS BY TOGGLE BOLT. EXPANSION BOLT OR STEEL INSERT. SPACING OF CONDUIT SUPPORTS SHALL NOT EXCEED 7 FEET.
- THE ENDS OF ALL CONDUIT SHALL BE CAREFULLY REAMED OUT FREE FROM BURRS BEFORE INSTALLATION AND AFTER THREADING. THE END OF EACH CONDUIT 1" AND SMALLER SHALL BE PROVIDED WHERE IT ENTERS A JUNCTION BOX, OUTLET BOX, CABINET, ETC., WITH A LOCK NUT AND BUSHINGS. FOR CONDUITS 1-1/4" AND LARGER, INSULATED BUSHINGS SHALL BE USED. IF INSULATED BUSHINGS ARE OF THE FULLY INSULATED TYPE, AN ADDITIONAL LOCK NUT SHALL BE USED INSIDE JUNCTION BOX OR CABINET BEFORE INSTALLING THE BUSHINGS.
- 4. FLEXIBLE SEAL-TITE CONDUIT AND SEAL-TITE FITTINGS SHALL BE USED TO CONNECT ALL MOTORS SO AS TO ISOLATE THE MOTION OR VIBRATION FROM THE RIGID CONDUIT SYSTEM AND THE BUILDING. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED IN ALL FLEXIBLE CONDUITS.
- CONDUITS SHALL BE SECURELY FASTENED IN PLACE WITH STRAPS, HANGERS AND SUPPORTS AS REQUIRED.
- 6. CONDUIT IN HUNG CEILINGS SHALL BE SUPPORTED IN AN APPROVED MANNER FROM THE BUILDING STRUCTURE.
- 7. FLEXIBLE METALLIC CONDUIT OR MC CABLE SHALL BE USED FOR BRANCH CIRCUIT WIRING ABOVE HUNG CEILINGS AND IN PARTITIONS.
- THE CONTRACTOR SHALL PROVIDE PULL BOXES, JUNCTION BOXES, CONDUITS, CONDUIT ELBOWS, AND OFFSETS IN CONDUIT RUNS WHICH INTERFERE WITH THE STRUCTURAL WOOD OR STEEL. MECHANICAL EQUIPMENT, DUCTWORK. PIPING, ETC., TO SUIT THE FIELD CONDITIONS.
- 9. NO MORE THAN THREE RIGHT ANGLE BENDS SHALL BE PERMITTED IN CONDUIT BETWEEN ANY TWO TERMINATION OR PULLBOXES. PROVIDE ADDITIONAL PULLBOXES AS REQUIRED.
- 10. ALL MC CABLE RUNS ABOVE HUNG CEILINGS SHALL BE SECURED TO BUILDING STRUCTURE. NO MC CABLES SHALL BE LEFT UNSUPPORTED ON DUCTWORK OR CEILING TILES.
- 11. WHERE MULTIPLE HOME RUNS ARE ROUTED TOGETHER IN THE SAME RACEWAY LONGER THAN 24 INCHES, CONDUCTORS SHALL BE INCREASED TO #10 AWG FOR UP TO EIGHT CONDUCTORS (HOT & NEUTRAL) MAXIMUM. INSTALLATION SHALL BE IN ACCORDANCE WITH THE AFOREMENTIONED CODE.

# C. CABLE AND WIRING WORK:

- CONDUCTORS FOR BRANCH CIRCUITS SHALL BE OF SIZES INDICATED ON THE ELECTRICAL DRAWINGS. BUT SHALL NOT BE SMALLER THAN NO. 12 AWG EXCEPT AS OTHERWISE SHOWN OR SPECIFIED.
- 2. ALL JOINTS, SPLICES AND TAPS FOR WIRING CONNECTIONS SHALL BE MADE WITH MATERIALS AS HEREINAFTER SPECIFIED.
- 3. CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET, AND NO SPLICES OR CONNECTIONS SHALL BE MADE, EXCEPT WITHIN OUTLET BOXES, JUNCTION BOXES OR CABINETS.
- 4. THE NEUTRAL WIRE SHALL NOT BE USED AS A GROUND WIRE. THE NEUTRAL WIRE SHALL BE AN INSULATED WIRE AND SHALL BE CONNECTED TO THE GROUND SYSTEM AT ONE PLACE ONLY. THIS CONNECTION SHALL BE MADE AT THE BEGINNING OF THE SEPARATELY DERIVED SYSTEM.

# D. ELECTRICAL GROUNDING AND BONDING:

- 1. ALL CABINETS AND TERMINAL BOXES SHALL BE BONDED TO THE CONDUIT SYSTEM, AND WHERE APPLICABLE TO THE GROUND WIRE.
- 2. THE ELECTRICAL RACEWAY SYSTEM, METALLIC ELECTRICAL EQUIPMENT FRAMES, HOUSING AND ENCLOSURES SHALL BE BONDED TOGETHER AND GROUNDED.
- 3. THE EQUIPMENT BONDING JUMPERS SHALL NOT BE SMALLER THAN THE SIZES LISTED IN THE AFOREMENTIONED CODE.
- 4. GROUND LUGS FOR CABLE CONNECTIONS SHALL BE SIMILAR TO BURNDY, TYPE YAV FOR CONDUCTOR SIZES AS PERMITTED BY THE AFOREMENTIONED CODES.
- 5. ALL GROUNDING AND BONDING SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER AND SHALL BE AS INCONSPICUOUS AS POSSIBLE. ALL WORK EXPOSED TO MECHANICAL DAMAGE SHALL BE PROTECTED IN AN APPROVED MANNER. ALL GROUND SCREWS AND BUSHINGS SHALL BE MADE TIGHT.
- THE PROVISION OF A FULLY-WIRED GROUNDING SYSTEM DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR PROVIDING CONTINUITY OF THE METALLIC RACEWAY SYSTEM. THE METALLIC RACEWAY SYSTEM SHALL BE

- ASSEMBLED AND BONDED TOGETHER TO FORM A CONTINUOUS PATH FROM THE MOST REMOTE OUTLET.
- ALL GROUNDING WIRES, EXCEPT AS OTHERWISE SPECIFIED OR INDICATED ON THE DRAWINGS, SHALL BE SIZED IN ACCORDANCE WITH THE RULES OF THE AFOREMENTIONED CODE.
- 8. FOR CONNECTION TO THE GROUNDING SYSTEM, THE CONTRACTOR SHALL FURNISH AND INSTALL A GROUND LUG WELDED TO THE INTERIOR OF EVERY METALLIC BOX, CABINET, HOUSING OR ENCLOSURE WHICH IS FURNISHED UNDER THIS OR ANY OTHER SECTION OF THE SPECIFICATIONS
- 9. EACH STEEL BOX SHALL BE CONNECTED BY THE USE OF A GROUNDING BUSHING ON RIGID CONDUIT, O.Z. TYPE BLG.
- 10. A SEPARATE GREEN INSULATED GROUND WIRE SHALL BE RUN WITH EACH CIRCUIT AS INDICATED.

### E. OUTLET BOXES:

- 1. OUTLET BOXES SHALL BE INSTALLED AT ALL LOCATIONS SHOWN ON THE DRAWINGS FOR ALL ELECTRICAL DEVICES INCLUDING CONVENIENCE RECEPTACLES. THE LOCATIONS OF THE OUTLETS ON THE DRAWINGS ARE APPROXIMATE. ACTUAL LOCATIONS SHALL BE COORDINATED IN THE FIELD.
- 2. ALL OUTLETS SHALL BE INSTALLED IN ACCESSIBLE LOCATIONS AND NONE SHALL BE INSTALLED ABOVE DUCTS, BEHIND FURRING OR OTHER SIMILAR LOCATIONS. ANY OUTLET DESIGNATED AS PROVIDING POWER FOR A PARTICULAR PIECE OF EQUIPMENT SHALL BE ACCESSIBLE FOR DISCONNECTION WITH SAID UNIT IN PLACE. ALL JUNCTION BOXES SHALL BE LABELED IDENTIFYING THE CIRCUIT(S) CONTAINED.
- 3. OUTLETS IN HUNG CEILING AREAS SHALL BE CONCEALED ABOVE HUNG CEILING FOR RECESSED LIGHTING FIXTURES; OR SET FLUSH WITH HUNG CEILING FOR SURFACE AND PENDANT MOUNTED LIGHTING FIXTURES. THESE OUTLETS SHALL BE SECURELY SUPPORTED FROM THE FRAMING WORK WHICH SUPPORTS THE CEILING OR FROM THE BUILDING STRUCTURE ABOVE THE
- 4. WHERE NECESSARY FOR THE SUPPORT OF THE ELECTRICAL WORK, BARS, ANGLES OR CHANNEL MEMBERS OF SUITABLE SIZE SHALL BE FURNISHED AND
- 5. MOUNTING HEIGHTS FOR ELECTRICAL DEVICES SHALL BE AS INDICATED ON ARCHITECTURAL PLANS. IF THERE ARE NO ARCHITECTURAL PLANS FOR THIS PROJECT THE MOUNTING SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED ON THE PLANS:

# a. RECEPTACLES: 18" AFF TO CENTERLINE OF BOX.

- 6. BLANK STEEL BOX COVERS SHALL BE INSTALLED ON ALL UNUSED OUTLETS UNLESS OTHERWISE INDICATED. IN FINISHED AREAS, BLANK COVERS SHALL BE PROVIDED. COLOR SHALL BE COORDINATED WITH THE ARCHITECT.
- 7. OUTLET BOXES FOR SWITCHES AND RECEPTACLES OUTLETS SHALL NOT BE MOUNTED BACK-TO-BACK.

# F. MECHANICAL EQUIPMENT CONNECTIONS:

- FOR ALL MOTORS, STARTERS, ETC. TO BE FURNISHED AND INSTALLED UNDER OTHER SECTIONS OF THE SPECIFICATIONS, THIS CONTRACTOR SHALL PROVIDE AND INSTALL ALL SAFETY DISCONNECTS SHOWN OR REQUIRED U.O.N.
- 2. CONTROL EQUIPMENT DEVICES SHALL BE FURNISHED AND INSTALLED UNDER OTHER SECTIONS OF THE SPECIFICATIONS.
- 3. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL WIRING BETWEEN THE CONTROL DEVICE AND THE MOTOR. THE POWER SUPPLY LEADS TO THE MOTOR FROM THE CONTROLLER SHALL BE THE SAME SIZE AS THE FEEDS INDICATED ON THE DRAWINGS.
- 4. THIS CONTRACTOR SHALL MAKE ALL ELECTRICAL CONNECTIONS BETWEEN MOTORS AND STARTERS AND LEAVE UNITS AND EQUIPMENT READY TO OPERATE.
- 5. ALL WIRING FOR MOTOR CONTROL INTERLOCK AND AUTOMATIC TEMPERATURE CONTROL SHALL BE FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR. PROVIDE 120 VOLT SUPPLIES FOR CONTROL EQUIPMENT AS DEFINED ON THE DRAWINGS AND APPROVED SHOP DRAWINGS.
- 6. EXACT LOCATIONS OF EQUIPMENT SHALL BE AS INDICATED ON MECHANICAL DRAWINGS.

# E-7 MATERIALS

# A. CONDUIT:

- MINIMUM SIZE OF CONDUIT SHALL BE 3/4" EXCEPT FOR LOW VOLTAGE CONTROL AND WIRING BETWEEN LIGHT FIXTURES WHERE 1/2" CONDUIT MAYBE USED OR UNLESS OTHERWISE INDICATED ON THE DRAWINGS OR SPECIFIED.
- 2. FLEXIBLE METALLIC CONDUIT, EXCEPT WHERE OTHERWISE SPECIFIED, SHALL BE SINGLE-STRIP ELECTROGAL VANIZED, SPIRALLY-WOUND, INTERLOCKED, STEEL FLEXIBLE CONDUIT.
- 3. MC CABLE MAY BE USED FOR WIRING IN CONCEALED AREAS OR AS INDICATED ON DRAWINGS. EMT SHALL BE USED IN ALL EXPOSED AREAS AND FOR WIRING
- 4. LOCKNUTS SHALL BE HEAVY GAUGE SHEET STEEL TYPE WITH A PLATED CORROSION-RESISTANT COATING.
- 5. BUSHINGS SHALL BE MALLEABLE IRON INSULATED TYPE WITH A CADMIUM COATING.
- 6. ALL CONDUIT INSTALLED IN WET LOCATIONS, OR WHERE EXPOSED TO WEATHER SHALL BE RIGID GALVANIZED STEEL CONDUIT (RGS), CONDUITS INSTALLED UNDERGROUND SHALL BE SCHEDULE 40 PVC AND INTERIOR CONDUITS SHALL BE EMT U.O.N.
- 7. ALL MAIN FEEDERS AND CIRCUITRY FOR MECHANICAL EQUIPMENT OR IN EXPOSED AREAS SHALL BE IN CONDUIT.

# B. SLEEVES:

SLEEVES THROUGH FIRE RESISTANT WALLS AND CEILINGS SHALL BE COMPLETELY PACKED WITH NON-COMBUSTIBLE FIRE STOP MATERIAL RATED FOR THE PARTICULAR WALL BEING PENETRATED. PENETRATIONS THRU FIRE RATED MATERIAL SHALL BE MINIMIZED.

# C. WIRE AND CABLE:

- ALL WIRE AND CABLE SHALL HAVE SOFT ANNEALED COPPER CONDUCTORS WITH 600 VOLT INSULATION, AND SHALL BE LISTED AND APPROVED BY UNDERWRITERS' LABORATORIES, AND SHALL MEET ALL SPECIFICATIONS OF THE IPCEA-NEMA STANDARDS.
- 2. ALL WIRE FOR GENERAL USE, UNLESS SHOWN OR SPECIFIED OTHERWISE, SHALL BE TYPE THHN. WIRE #10 AWG AND SMALLER SHALL BE CONSISTENTLY COLOR CODED THROUGHOUT BY MEANS OF COLORING APPLIED TO THE OUTER COVERING TO INDICATE PHASE AND NEUTRAL. ALL OTHER WIRES AND CABLES SHALL BE COLOR CODED BY APPLICATION OF A BAND OF APPROPRIATELY COLORED PLASTIC TAPE APPLIED OVER THE JACKETS AT EACH OUTLET, JUNCTION, PULL AND TERMINAL POINTS. THE COLOR CODING FOR WIRING SHALL BE:

120/208V 277/480V PHASE A BLACK PHASE B RED ORANGE PHASE C BLUE YELLOW NEUTRAL WHITE GREEN GREEN GROUND

- 3. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG SIZE UNLESS OTHERWISE INDICATED.
- 4. GROUND WIRE AND CABLE SHALL BE COPPER CONDUCTORS.
- 5. 120 VOLT CONDUCTOR LENGTHS IN EXCESS OF 100 FEET SHALL BE #10 AWG

### D. CONNECTORS FOR WIRE AND CABLE:

- 1. WIRE AND CABLE CONNECTORS SHALL BE SOLDERLESS, MECHANICAL, SOLID COPPER OR COPPER ALLOY TYPES. CONNECTORS SHALL BE BUCHANAN ELECTRICAL PRODUCTS COPPER SQUEEZE-ON TYPE WITH MOLDED RUBBER OR VINYL CAP, MINNESOTA MINING AND MANUFACTURING COMPANY "SCOTCHLOCK: OR IDEAL INDUSTRIES "SUPER NUT" SPRING CONNECTOR WITH
- 2. CONNECTORS FOR CONDUCTORS LARGER THAN #8 AWG SHALL BE MECHANICAL BOLTED TYPE, INSULATED WITH CLAMP-ON MOLDED COVERS. THE MANUFACTURER SHALL BE OZ ELECTRICAL MANUFACTURING COMPANY OR BURNDY ENGINEERING COMPANY.
- 3. ELECTRICAL INSULATING TAPE SHALL BE VINYL PLASTIC TYPE WITH PRESSURE ADHESIVE, MINNESOTA MINING AND MANUFACTURING COMPANY "SCOTCH" NO. 33 ELECTRICAL TAPE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION. ALL CONNECTORS AND CONNECTIONS HAVING IRREGULAR SURFACES SHALL BE PROPERLY PADDED WITH "SCOTCHFIL" PUTTY PRIOR TO APPLICATION OF TAPE.
- 4. ALL CABLE TIES INSTALLED IN PLENUM SHALL BE PANDUIT, TYPE HALAR, U.L. LISTED/APPROVED FOR USE IN PLENUM AREAS. ALL OTHER LOCATIONS SHALL BE NYLON TIE STRAPS AS MANUFACTURED BY THOMAS AND BETTS.

# E. WIRING AND OUTLET DEVICES:

- 1. UNLESS OTHERWISE NOTED, WIRING DEVICES SHALL BE AS HEREIN SPECIFIED OR AS PER BUILDING STANDARDS, INDUSTRIAL GRADE. DEVICES AND COVER PLATES SHALL SHALL BE GANGED UNDER COMMON FACEPLATE U.O.N. AND SHALL MATCH EXISTING DEVICES. VERIFY IN FIELD.
- 2. DUPLEX RECEPTACLES SHALL BE 15 OR 20 AMPERE, TWO-POLE, THREE WIRE, 125 VOLT, SELF GROUNDING, NEMA 5-15 OR 5-20, WITH MATCHING DEVICE
- 3. ISOLATED GROUND DUPLEX RECEPTACLE SHALL BE 15 OR 20 AMPERE, 125 VOLT, NEMA 5-15 OR 5-20, (ORANGE) WITH WHITE COVER PLATE.
- 4. SINGLE POLE, THREE-WAY AND FOUR-WAY SWITCHES SHALL BE 15 OR 20 AMPERE, 120/277 VOLTS, TOGGLE TYPE, WITH MATCHING DEVICE PLATE.
- 5. GFI RECEPTACLE SHALL BE 15 OR 20 AMPERE, TWO-POLE, THREE WIRE, 125 VOLT, NEMA 5-15 OR 5-20, WITH MATCHING DEVICE PLATE. COORDINATE COLOR WITH ARCHITECT.

# F. OUTLET AND JUNCTION BOXES:

- 1. RECESSED CEILING FIXTURE OUTLETS SHALL BE 4-11/16" SQUARE SHEET METAL BOX WITH BLANK COVER AND SUITABLE HANGER BAR: BOX TO BE FASTENED TO CEILING SUSPENSION MEMBERS IN AN APPROVED MANNER, NOT LESS THAN 1'-0" FROM FIXTURE OPENING.
- 2. EXTENSION RINGS FOR FLUSH OUTLETS SHALL BE GALVANIZED, DRAWN SHEET STEEL 4" OCTAGONAL OR SQUARE, 4-11/16" SQUARE RINGS TO SUIT FLUSH OUTLETS, 1-1/2" DEEP OR DEEPER WHERE NECESSARY.
- 3. ALL EQUIPMENT EXPOSED TO THE OUTDOORS SHALL BE IN A NEMA-3R ENCLOSURE, INCLUDING THE GFI RECEPTACLES.

# G. MISCELLANEOUS MATERIALS:

- 1. PIPE STRAPS FOR EXPOSED CONDUIT SHALL BE HEAVY DUTY CADMIUM OR ZINC COATED, ONE SCREW, MALLEABLE RIGID CONDUIT CLAMPS, COMPLETE WITH BACKSTRAPS (CLAMP BACKS), APPLETON ELECTRIC COMPANY #17100 AND #27100 LINE.
- 2. HANGER RODS SHALL BE GALVANIZED OR CADMIUM PLATED THREADED STEEL RODS OF ADEQUATE SIZE TO SUPPORT THE LOAD WHICH THEY CARRY MINIMUM DIAMETER SHALL BE 1/2".
- 3. INSERTS IN EXISTING CONCRETE WORK SHALL BE EXPANSION ANCHORS WITH TAPPED STEEL OR BRASS CORE NUTS SET IN DRILLED HOLES. PIERCE. PHILLIPS READ HEAD, STAR OR ACKERMAN-JOHNSON EXPANSION NUTS WILL BE ACCEPTABLE.
- 4. SPECIAL FASTENERS SHALL COMPRISE MISCELLANEOUS TYPES OF CONDUIT AND BOX FASTENERS OF MALLEABLE IRON OR STEEL WITH A CORROSION-RESISTANT COATING OF CADMIUM OR ZINC; THESE SHALL BE PROVIDED AS REQUIRED OR NECESSARY TO COMPLETE THE INSTALLATION OF ELECTRICAL WORK. THE TYPE SELECTED SHALL BE OF ADEQUATE STRENGTH FOR THE LOAD TO WHICH IT IS SUBJECTED AND OF A DESIGN SUITED TO THE
- INSTALLATION CONDITIONS. 5. FASTENING HARDWARE SHALL BE CADMIUM OR ZINC-PLATED STEEL, SHEET METAL OR MACHINE SCREWS, BOLTS, NUTS, WASHERS, SHIMS AND SIMILAR FASTENING ACCESSORY HARDWARE.
- 6. REFER TO ENGINEERING DRAWINGS (ELECTRICAL, MECHANICAL OR PLUMBING) FOR DETAIL.

# H. NEW CIRCUIT BREAKER PANELBOARDS:

- 1. FURNISH AND INSTALL CIRCUIT BREAKER PANELBOARDS AS INDICATED ON THE DRAWINGS. PANELBOARDS SHALL BE DEAD FRONT SAFETY TYPE EQUIPPED WITH THERMAL-MAGNETIC, BOLTED TYPE, MOLDED CASE CIRCUIT BREAKERS OF FRAME AND TRIP RATINGS AS SHOWN ON THE DRAWINGS. PANELBOARD BUS STRUCTURE AND MAIN LUGS OR MAIN BREAKER SHALL HAVE CURRENT RATINGS AS DRAWINGS. ALL BUSBARS SHALL BE COPPER. ALL PANELBOARDS SHALL BE SEISMIC RATED ACCORDING TO THE LOCAL BUILDING CODE REQUIREMENTS.
- 2. CIRCUIT BREAKERS SHALL BE EQUIPPED WITH INDIVIDUALLY INSULATED, BRACED AND PROTECTED CONNECTORS. THE FRONT FACES OF ALL CIRCUIT BREAKERS SHALL BE FLUSH WITH EACH OTHER. LARGE PERMANENT INDIVIDUAL CIRCUIT NUMBERS SHALL BE AFFIXED TO EACH BREAKER IN A UNIFORM POSITION. TRIPPED INDICATION SHALL BE CLEARLY SHOWN BY THE BREAKER HANDLE TAKING A POSITION BETWEEN ON AND OFF. PROVISIONS FOR ADDITIONAL BREAKERS SHALL BE SUCH THAT NO ADDITIONAL CONNECTORS WILL BE REQUIRED TO ADD BREAKERS.
- 3. EACH PANELBOARD, AS A COMPLETE UNIT, SHALL HAVE A RATING EQUAL TO OR GREATER THAN THE INTEGRATED EQUIPMENT RATING SHOWN ON THE DRAWINGS. PANELBOARD ASSEMBLY SHALL BE ENCLOSED IN A STEEL CABINET. THE RIGIDITY AND GAUGE OF STEEL TO BE AS SPECIFIED IN UL



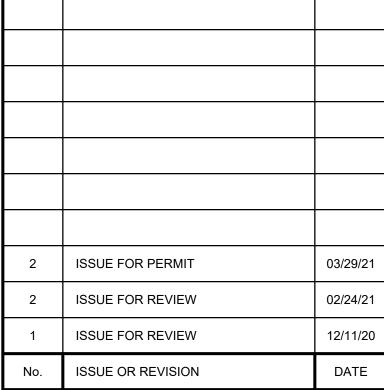
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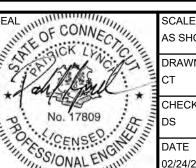
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KT Murphy Elementary School

**ELECTRICAL SPECIFICATIONS** 

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# SPECIFICATIONS CONTINUED

STANDARD 50 FOR CABINETS. THE SIZE OF WIRING GUTTERS SHALL BE IN ACCORDANCE WITH UL STANDARD 67 FOR PANELBOARDS. FRONTS SHALL INCLUDE DOORS AND HAVE FLUSH, BRUSHED STAINLESS STEEL, CYLINDER TUMBLER-TYPE LOCKS WITH CATCHES AND SPRING-LOADED DOOR PULLS. THE FLUSH LOCK SHALL NOT PROTRUDE BEYOND THE FRONT OF THE DOOR. ALL PANELBOARD LOCKS SHALL BE KEYED ALIKE. FRONT SHALL HAVE ADJUSTABLE INDICATING TRIM CLAMPS WHICH SHALL BE COMPLETELY CONCEALED WHEN THE DOORS ARE CLOSED. DOORS SHALL BE MOUNTED BY COMPLETELY CONCEALED STEEL HINGES. FRONTS SHALL NOT BE REMOVABLE WITH DOOR IN THE LOCKED POSITION. A CIRCUIT DIRECTORY FRAME AND CARD WITH A CLEAR PLASTIC COVERING SHALL BE PROVIDED ON THE INSIDE OF THE DOOR. THE DIRECTORY CARD SHALL PROVIDE A SPACE AT LEAST 1/4" HIGH AND 3" LONG OR EQUIVALENT FOR EACH CIRCUIT. THE DIRECTORY SHALL BE TYPED TO IDENTIFY THE LOAD FED BY EACH CIRCUIT. FRONTS SHALL BE OF CODE GAUGE, FULL FINISHED STEEL WITH RUST-INHIBITING PRIMER AND BAKED ENAMEL FINISH.

- 4. THE PANELBOARD INTERIOR ASSEMBLY SHALL BE DEAD FRONT WITH PANELBOARD FRONT REMOVED. MAIN LUGS OR MAIN BREAKER SHALL BE BARRIERED ON FIVE SIDES. THE BARRIER IN FRONT OF THE MAIN LUGS SHALL BE HINGED TO A FIXED PART OF THE INTERIOR. THE END OF THE BUS STRUCTURE OPPOSITE THE MAINS SHALL BE BARRIERED.
- 5. 208/120 VOLT PANELBOARDS SHALL BE PROVIDED WITH FACTORY INSTALLED 100% RATED NEUTRAL BUS AND GROUND BUS WHICH SHALL HAVE PROVISIONS FOR EACH CIRCUIT IN THE PANELBOARD. EQUIPMENT GROUND BUS SHALL BE BRAZED TO PANELBOARD ENCLOSURE.
- 6. PANELBOARDS SHALL BE LISTED BY UNDERWRITERS' LABORATORIES AND SHALL BEAR THE UL LABEL.

# I. DISCONNECT SWITCHES:

- THE CONTRACTOR SHALL FURNISH AND INSTALL FUSIBLE OR NON-FUSIBLE DISCONNECT SWITCHES AS REQUIRED AND/OR SHOWN ON THE DRAWINGS.
- 2. THE DISCONNECT SWITCHES, UNLESS OTHERWISE INDICATED OR SPECIFIED, SHALL BE HEAVY-DUTY, QUICK-MAKE, QUICK-BREAK OPERATED, IN NEMA 1 OR 3R ENCLOSURES, OF A CAPACITY, TYPE AND NUMBER OF POLES AS NOTED ON THE DRAWINGS. THE MAIN LUGS SHALL BE ADEQUATE TO ACCEPT THE SIZES OF CABLE INDICATED ON THE DRAWINGS.
- 3. ALL DISCONNECT SWITCHES SHALL BE FRONT OPERATED AND EACH SHALL CONTAIN A GROUNDING LUG WELDED TO THE INSIDE OF THE SWITCH ENCLOSURE.
- 4. SWITCHES SHALL BE HORSEPOWER RATED FOR LOAD SERVED AND RATED FOR 200KAIC RMS SYMMETRICAL FAULT CURRENT
- 5. SWITCHES SHALL HAVE PROVISIONS TO BE LOCKED IN THE OPEN POSITION WITH CLIPS TO ACCEPT CLASS J FUSES.
- 6. SWITCHES SHALL MEET NEMA STANDARD KS-1-1990 FOR TYPE HD SWITCHES AND SHALL BE U.L. LISTED.

# J. FUSES:

- 1. ALL FUSES SHALL BE UL LISTED.
- 2. FUSE SIZE SHALL BE AS INDICATED ON DRAWINGS AND/OR IN ACCORDANCE WITH THE AFOREMENTIONED CODE.
- FUSES SHALL BE BUSSMAN, LOWPEAK, DUAL ELEMENT, CURRENT LIMITING, TIME DELAY, CLASS J UNLESS OTHERWISE NOTED.
- 4. FURNISH THREE SPARE FUSES (SAME AS SPECIFIED) OF EACH SIZE AND TURNOVER TO BUILDING ENGINEER.

# K. PULLBOXES AND TROUGHS:

- 1. PULLBOXES AND TROUGHS WITH COVERS SHALL BE FABRICATED FROM MINIMUM #12 USSG GALVANIZED SHEET STEEL WITH ALL SEAMS AND JOINTS WELDED AND GROUND SMOOTH. COVERS SHALL BE SECURED TO PULLBOXES WITH NICKEL OR CADMIUM PLATED, OVAL HEAD SCREWS PROVIDED WITH STOP BEAD WASHERS. TROUGHS SHALL HAVE HINGED COVERS AND SHALL BE HELD CLOSED WITH EXTERNAL CLAMPS. DIMENSIONS OF BOXES AND TROUGHS SHALL BE AS REQUIRED BY ARRANGEMENT OF CONDUITS, EQUIPMENT OR APPLICABLE CODE REQUIREMENTS.
- 2. PULLBOXES AND TROUGHS SHALL BE FINISHED INSIDE AND OUTSIDE WITH A SHOP-APPLIED COAT OF ASA #61 LIGHT GRAY ENAMEL.
- 3. THE CONTRACTOR SHALL PROVIDE ALL PULLBOXES REQUIRED TO PULL WIRES IN CONDUIT RUNS WHETHER INDICATED ON THE DRAWINGS OR NOT. BOXES AND TROUGHS USING CONCENTRIC OR ACENTRIC KNOCKOUTS SHALL BE GROUNDED TO THE INCOMING CONDUITS BY MEANS OF GROUNDING FITTINGS AND BONDING JUMPERS. OZ TYPE BLG INSULATED GROUNDING BUSHINGS, AS SPECIFIED ELSEWHERE, SHALL BE USED. BONDING JUMPERS SHALL BE COPPER SIZED IN ACCORDANCE WITH THE AFOREMENTIONED CODE. A GROUND LUG SHALL BE WELDED INSIDE EACH BOX AND TROUGH.

# L. ALTERATIONS AND REMOVAL OF EXISTING EQUIPMENT, CONDUIT & WIRING:

- 1. THE EXISTING BUILDING ELECTRICAL SYSTEMS SHALL BE MAINTAINED IN OPERATION DURING THE CONSTRUCTION PERIOD. EXISTING SYSTEMS SHALL NOT BE SHUT DOWN NOR SHALL CONNECTIONS BE MADE THERETO WITHOUT PRIOR APPROVAL OF THE OWNER.
- 2. CERTAIN EXISTING CONDUITS AND ASSOCIATED WIRING ARE INDICATED ON THE DRAWINGS ACCORDING TO THE BEST INFORMATION AVAILABLE. CERTAIN OTHER EXISTING CONDUITS AND ASSOCIATED WIRING MAY NOT BE SHOWN. THE CONTRACTOR SHALL MAKE EVERY EFFORT TO DETERMINE THE LOCATION OF EXISTING CONDUIT AND WIRING AS REQUIRED FOR NEW CONSTRUCTION OR IF DAMAGED DURING CUTTING OPERATIONS, REPLACE/REPAIR AT NO EXPENSE TO THE OWNER.
- 3. WHERE EQUIPMENT IS REMOVED OR WHERE WALLS AND CEILINGS ARE DEMOLISHED, WIRING DEVICES, CONDUIT, WIRING AND INSTALLATION MATERIAL (FITTINGS, BOXES, HANGERS, SUPPORTS, ETC.) THAT IS NOT TO BE REUSED SHALL BE REMOVED. ALL CONDUITS REMOVED SHALL BE CUT FLUSH WITH CONSTRUCTION AND OPENINGS PATCHED. ALL WIRING REMOVED SHALL BE DISCONNECTED AS FAR BACK AS THE BRANCH CIRCUIT PANELBOARD TERMINALS UNLESS OTHERWISE NOTED. WHERE WIRING IS TO REMAIN IN EXISTING CONDUITS TO MAINTAIN CONTINUITY OF CIRCUITS AND PASSES THROUGH OUTLET BOXES NOT TO BE REUSED FOR WIRING DEVICES OR LIGHTING FIXTURES, SUCH OUTLETS SHALL BE FURNISHED WITH COVERPLATES. ACTIVE CIRCUITS, IF REQUIRED AND NECESSARY TO REMAIN, SHALL BE REROUTED WITH NEW MATERIALS.
- 4. ALL EQUIPMENT WHICH IS BEING REMOVED AND NOT BEING REUSED SHALL BE
- RETURNED TO THE OWNER OR DISPOSED OF AS DIRECTED. 5. CONTRACTOR SHALL MEASURE STEADY STATE LOAD CURRENTS ON EACH PANELBOARD FEEDER OR EACH PANELBOARD THAT WAS ALTERED. SHOULD THE DIFFERENCE AT ANY PANELBOARD BETWEEN PHASES EXCEED 20 PERCENT, REARRANGE CIRCUITS IN PANELBOARD TO BALANCE THE PHASE LOAD WITHIN 20 PERCENT. TAKE CARE TO MAINTAIN PROPER PHASING FOR MULTI-WIRE BRANCH CIRCUITS. UPDATE DIRECTORIES ACCORDINGLY.

A. PULL BOXES AND WIREWAYS SHALL BE SHOP PAINTED INSIDE AND OUTSIDE WITH ONE COAT OF PRIMER AND ONE COAT OF ENAMEL UNDERCOATER IN A LIGHT GRAY COLOR AS APPROVED BY THE CLIENT'S REPRESENTATIVE.

# E-9 IDENTIFICATION

- A. THE CONTRACTOR SHALL PROVIDE UPDATED TYPE WRITTEN PANELBOARD DIRECTORIES IN ALL NEW PANELBOARDS AND ANY EXISTING PANELBOARD THAT HAS BEEN ALTERED. CONTRACTOR SHALL TRACE CIRCUITS TO REMAIN AS REQUIRED.
- B. ALL ELECTRICAL EQUIPMENT, SUCH AS PANELS, AND ALL OTHER SIMILAR ITEMS WHICH ARE FURNISHED UNDER THIS HEADING OF THE SPECIFICATIONS SHALL BE ADEQUATELY IDENTIFIED WITH ENGRAVED LAMINATED PLASTIC NAMEPLATE HAVING BLACK BACKGROUNDS AND WHITE LETTERS. WORDING ON THE NAMEPLATES SHALL CLEARLY INDICATE THE NAMES AND FUNCTIONS OF THE EQUIPMENT. THE CONTRACTOR SHALL SUBMIT FOR APPROVAL, FIVE COPIES OF A LIST OF ALL EQUIPMENT TO BE IDENTIFIED TOGETHER WITH THE WORDING TO BE USED ON THE NAMEPLATES BEFORE ORDERING.
- C. A MAINTENANCE LABEL SHALL BE AFFIXED TO ALL EQUIPMENT REQUIRING PREVENTATIVE MAINTENANCE. TWO COPIES OF ALL MAINTENANCE MANUALS SHALL BE PROVIDED TO THE CLIENT.
- D. ALL FEEDERS SHALL BE TAGGED WITH APPROVED-TYPE STENCILED METAL TAGS IN ALL PANELS AND PULLBOXES THROUGH WHICH THEY ARE ROUTED. THIS TAGGING SHALL INCLUDE FEEDER NUMBER, PANEL SOURCE, CIRCUIT NUMBER, FEEDER SIZE AND EQUIPMENT SUPPLIED.

# E-10 TESTING

- A. ALL CIRCUITS SHALL BE TESTED FOR UNWANTED GROUNDS AND PROPER PHASE RELATION.
- B. THE CONTRACTOR SHALL PROVIDE QUALIFIED PERSONNEL TO CONDUCT AND/OR TO ASSIST THE CLIENT'S REPRESENTATIVE TO CONDUCT OPERATING TESTS AT THE COMPLETION OF THE WORK. THESE OPERATING TESTS WILL INCLUDE CHECKING THE FOLLOWING ELECTRICAL SYSTEMS:
- 1. WIRING DEVICES: A CHECK OF RECEPTACLES SHALL BE CHECKED FOR SMOOTHNESS OF OPERATION, CLEANLINESS OF INSTALLATION, CONDUCTOR CONNECTIONS, MANUFACTURER, RATINGS AND GROUNDING CONNECTIONS.
- 2. TEST ALL CIRCUITS FOR PROPER FUNCTIONING AND CONNECTION.
- 3. MECHANICAL EQUIPMENT: PROVIDE PERSONNEL TO ASSIST MECHANICAL CONTRACTOR IN TESTING ELECTRICALLY POWERED MECHANICAL EQUIPMENT. 4. ELECTRICAL CURRENT READINGS IN ALL PANELBOARDS AFFECTED BY WORK
- TO VERIFY BALANCING OF LOADS. 5. FOR ALL LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLE,
- PERFORM EACH VISUAL AND MECHANICAL INSPECTION AND ELECTRICAL TEST STATED IN NETA ACCEPTANCE TESTING SPECIFICATION. CERTIFY COMPLIANCE WITH TEST PARAMETERS.
- 6. FOR PANELBOARDS, PERFORM EACH VISUAL AND MECHANICAL INSPECTION AND ELECTRICAL TEST STATED IN NETA ACCEPTANCE TESTING SPECIFICATION. CERTIFY COMPLIANCE WITH TEST PARAMETERS.
- 7. FOR ENCLOSED SWITCHES AND CIRCUIT BREAKERS, PERFORM EACH VISUAL AND MECHANICAL INSPECTION AND ELECTRICAL TEST STATED IN NETA ACCEPTANCE TESTING SPECIFICATION. CERTIFY COMPLIANCE WITH TEST PARAMETERS.





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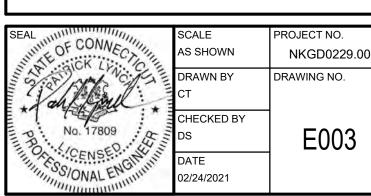
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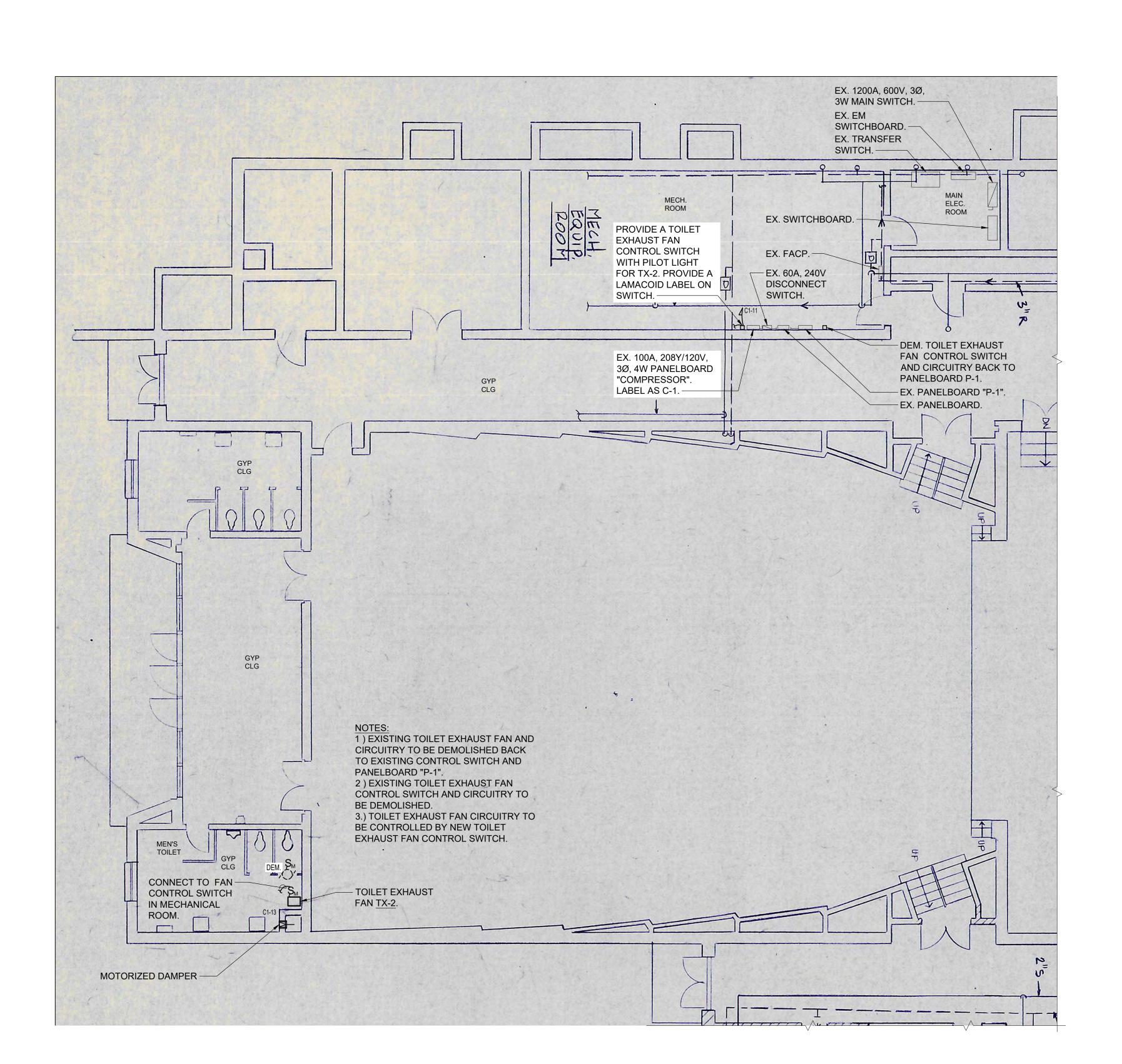
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**ELECTRICAL SPECIFICATIONS** 









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PROJECT TITLE

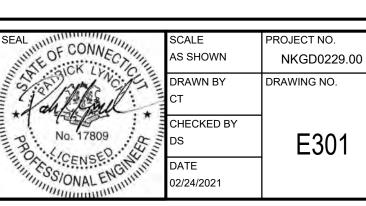
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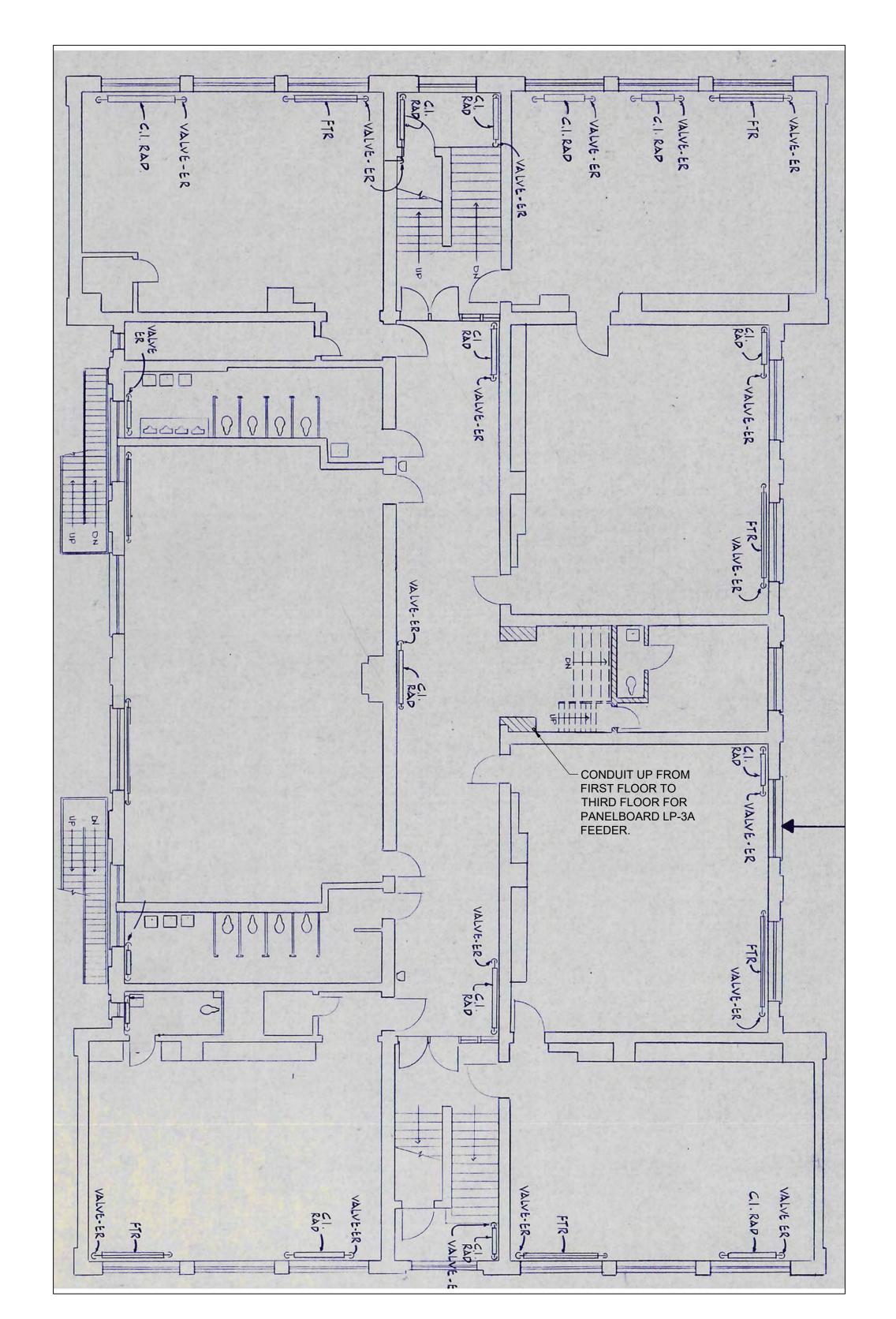
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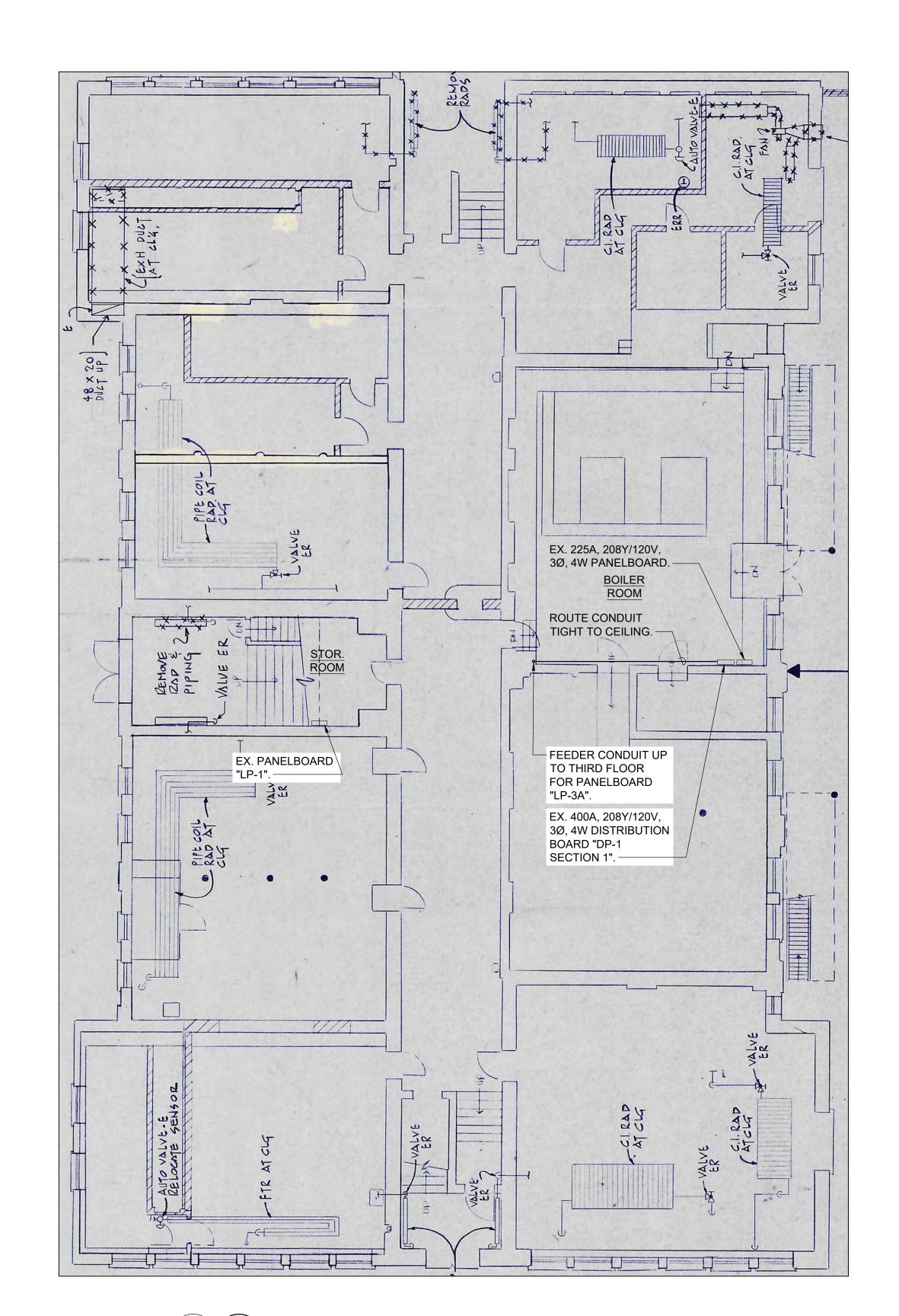
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ELECTRICAL FIRST FLOOR NEW WORK PLAN













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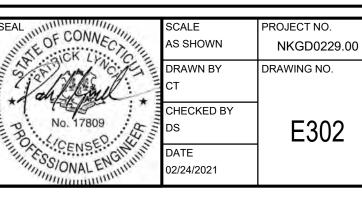
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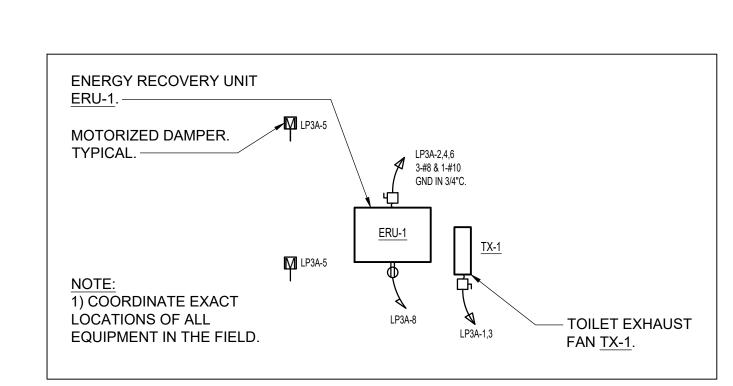
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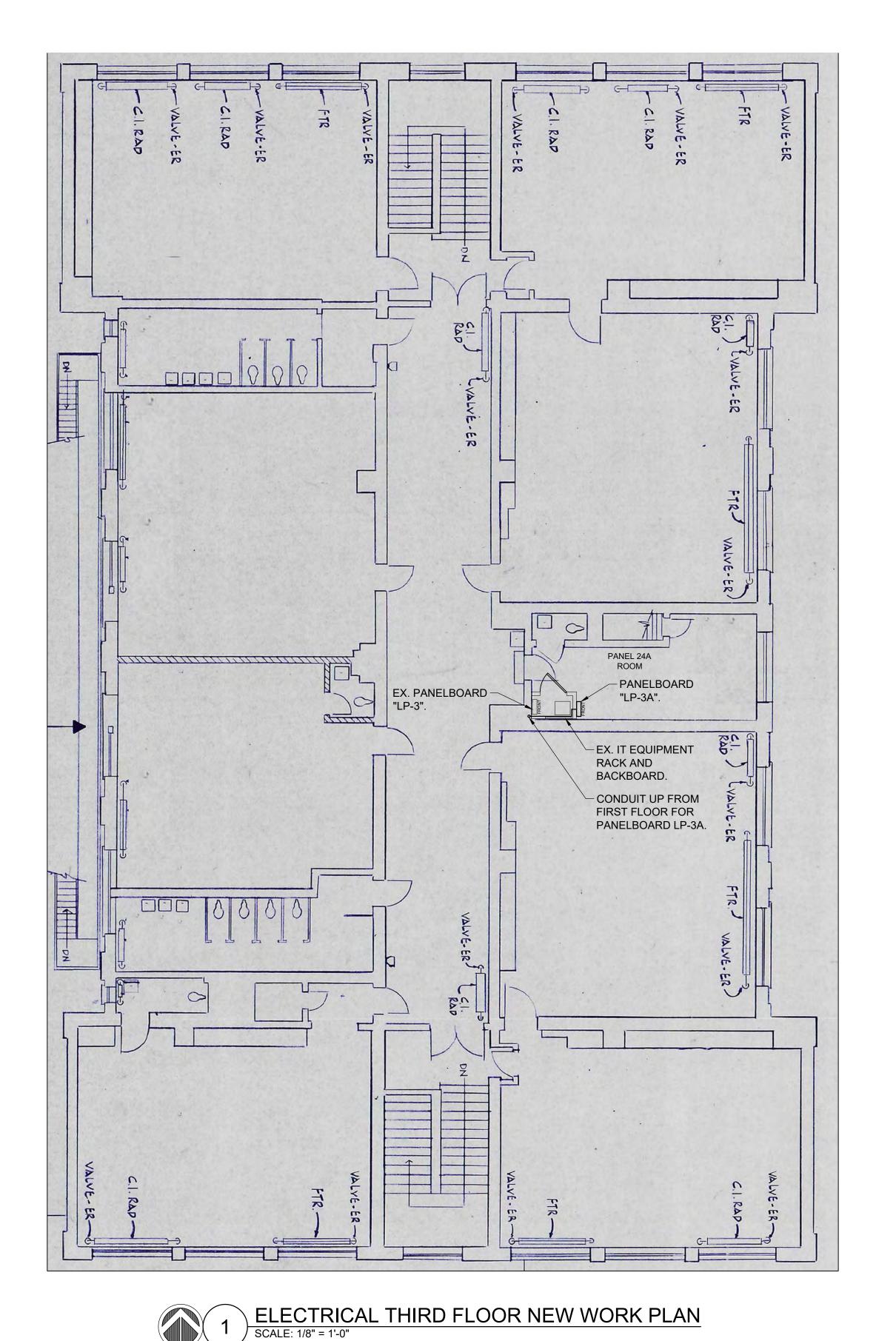
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ELECTRICAL FIRST AND SECOND FLOOR NEW **WORK PLANS** 











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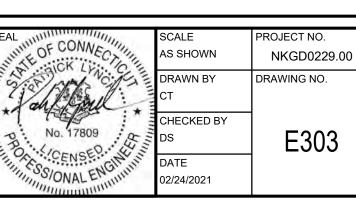
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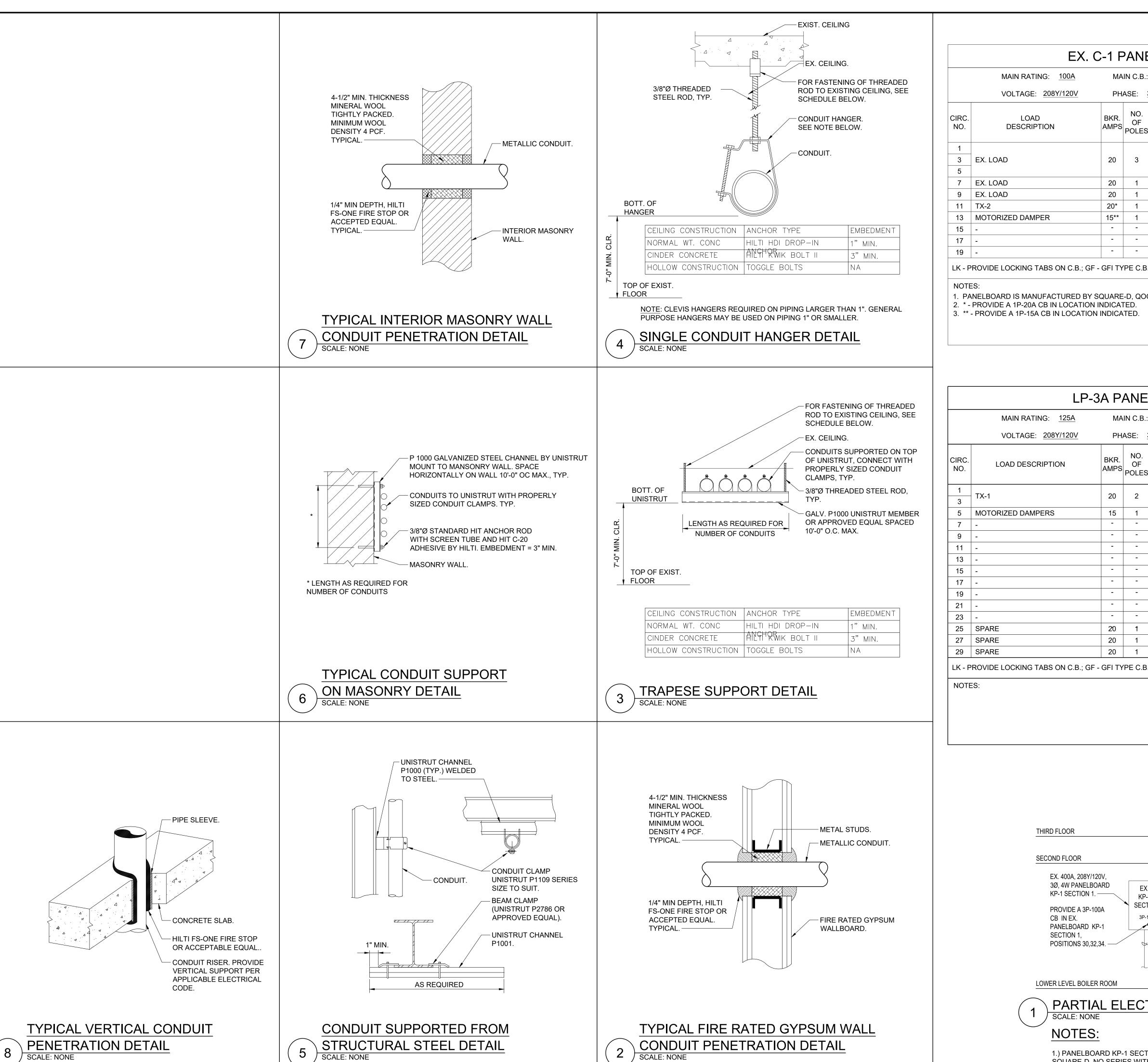
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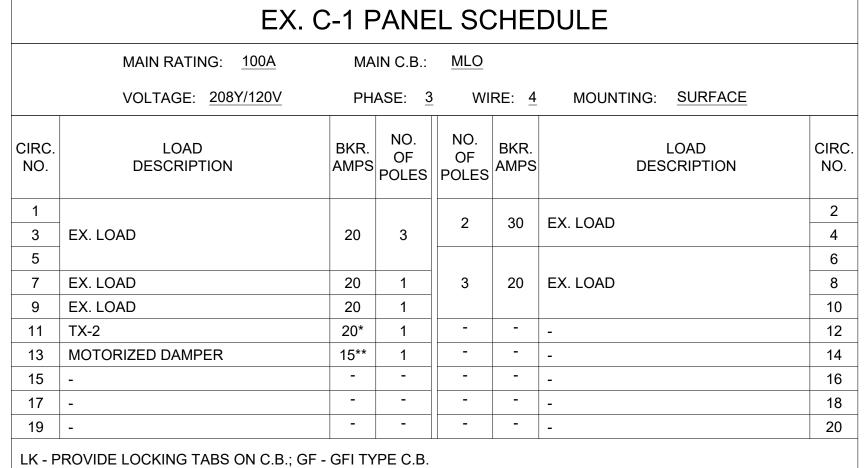
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ELECTRICAL THIRD FLOOR & ATTIC NEW WORK PLANS

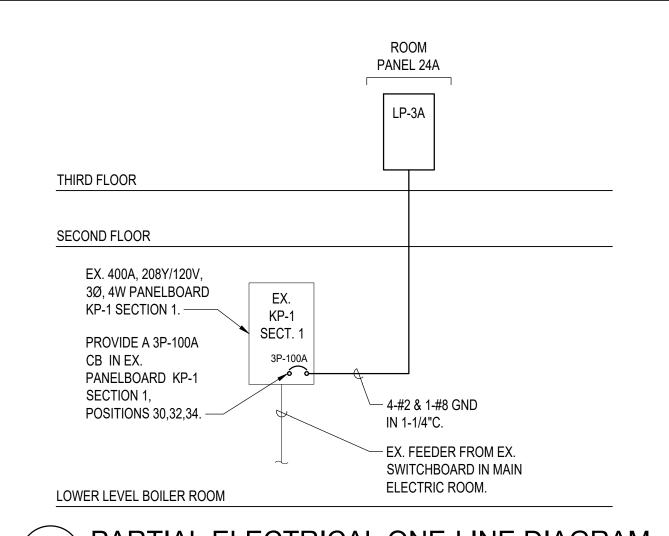






- 1. PANELBOARD IS MANUFACTURED BY SQUARE-D, QOC420L LOAD CENTER WITH SQ-D CIRCUIT BREAKERS.
- 2. \* PROVIDE A 1P-20A CB IN LOCATION INDICATED.

	LP-3A PANEL SCHEDULE							
	MAIN RATING: 125A	MA	IN C.B.:	<u>100A</u>		KAIC RATING: 22KAIC		
VOLTAGE: <u>208Y/120V</u> PHASE: <u>3</u> WIRE: <u>4</u> MOUNTING: <u>SURFACE</u>								
CIRC. NO.	LOAD DESCRIPTION	BKR. AMPS	NO. OF POLES	NO. OF POLES	BKR. AMPS	LOAD DESCRIPTION	CIRC. NO.	
1	TX-1	20	2	3	40	ERU-1	2 4	
5	MOTORIZED DAMPERS	15	1				6	
7	-	-	-	1	20	RECP NR ERU-1	8	
9	-	-	-	-	-	-	10	
11	-	-	-	-	-	_	12	
13	-	-	-	-	-	-	14	
15	-	-	-	-	-	-	16	
17	-	-	-	-	-	-	18	
19	-	-	-	-	-	-	20	
21	-	-	-	-	-	-	22	
23	-	-	-	-	-	-	24	
25	SPARE	20	1	1	20	SPARE	26	
27	SPARE	20	1	1	20	SPARE	28	
29	SPARE	20	1	1	20	SPARE	30	

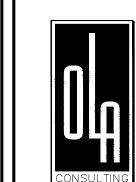


PARTIAL ELECTRICAL ONE-LINE DIAGRAM

NOTES:

SCALE: NONE

1.) PANELBOARD KP-1 SECTION 1 IS MANUFACTURED BY SQUARE-D, NQ SERIES WITH SQ-D CIRCUIT BREAKERS.



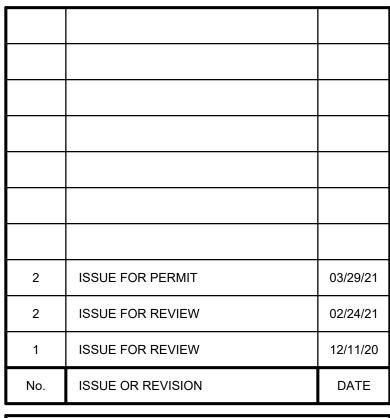
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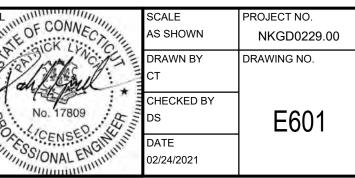
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**ELECTRICAL ONE-LINE** 

DIAGRAM, SCHEDULES & DETAILS



SYMBOL	ABBREVIATION	DESCRIPTION	SYMBOL	ABBREVIATION	DESCRIPTION		
SYMBOL		DESCRIPTION	SYMBOL	ABBREVIATION			
-	AC-	AIR CONDITIONING UNIT		-	RETURN DUCT UP		
-	AD	ACCESS DOOR		-	RETURN DUCT DOWN		
-	AFF	ABOVE FINISHED FLOOR	}	-	TRANSITION FROM SQUARE TO ROUND DU		
-	AHC	ABOVE HUNG CEILING		<u>-</u>	TRANSITION		
-	AP	ACCESS PANEL	{ D→ }	-	DUCT DROP		
-	BHP	BRAKE HORSEPOWER	{   R →   }	-	DUCT RISE		
-	BTU	BRITISH THERMAL UNIT		-	SQUARE VANED ELBOW		
-	CFM	CUBIC FEET PER MINUTE	[	-	DUCT RISE		
<u>-</u>	COD	CABLE OPERATED DAMPER	]——	-	DUCT DROP		
-	DB	DRY BULB TEMPERATURE		-	DUCT TRANSITION		
-	DIA. OR Ø	DIAMETER	<i>'</i>	-	ALUMINUM DUCT		
-	DX	DIRECT EXPANSION		AL	ACOUSTIC LINING		
-	EA	EXHAUST AIR		FD/AD	FIRE DAMPER W/ ACCESS DOOR		
-	EAT	ENTERING AIR TEMPERATURE		SD/AD	SMOKE DAMPER W/ ACCESS DOOR		
-	ER	EXHAUST REGISTER		CFSD	COMBINATION FIRE/SMOKE DAMPER W/ AC DOOR		
-	ESP	EXTERNAL STATIC PRESSURE		VD	VOLUME DAMPER		
-	EWT	ENTERING WATER TEMPERATURE		AL	ACOUSTIC LINING		
-	FCU	FAN COIL UNIT	\$ 6x8 \$	-	DUCT SIZE - 1ST FIGURE IS SIDE SHOWN		
-	FPM	FEET PER MINUTE		FC	FLEXIBLE CONNECTION		
-	FPS	FEET PER SECOND		-	ALUMINUM DUCT		
-	GPM	GALLONS PER MINUTE	ER CFM	-	EXHAUST REGISTER		
-	HP	HORSE POWER	SR/LD CFM	-	NEW SUPPLY REGISTER/LINEAR DIFFUSER		
-	LAT	LEAVING AIR TEMPERATURE		-	CONDENSATE PUMP		
-	LF	LINEAR FEET	GENERAL N		1		
_	LWT	LEAVING WATER TEMPERATURE	GLINLIALIN	J1L3			
-	MBH	1000 BRITISH THERMAL UNITS PER HOUR		HEY RELATE TO THE GENERAL ARRANGEMEN ET METAL, AND PIPING, SHALL BE UNDERSTO			
	MER	MECHANICAL EQUIPMENT ROOM	AND ECCATION OF EQUIPMENT, SHEET METAL, AND FIFTING, SHALE  AS DIAGRAMMATIC. ANY CHANGES TO EQUIPMENT, SHEET METAL,  LOCATIONS NECESSARY TO AVOID INTERFERENCE WITH OTHER TR				
_	NIC	NOT IN CONTRACT			T BE APPROVED BY THE ENGINEER.		
	OAI	OUTSIDE AIR INTAKE	2. THE MECHANICAL CONTRACTOR SHALL INSTALL FIRE DAMPERS WITH IN ALL DUCTS PENETRATING FIRE RATED WALLS, WHETHER SPECIFICA				
_	PSI	POUNDS PER SQUARE INCH	THE DRAWINGS OR NOT.  3. THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL VOLUME DAD DUCTWORK AS REQUIRED TO BALANCE THE AIRFLOW AT ALL REGISTERS A				
	RA	RETURN AIR					
_	RF-	RETURN FAN	1	E CFM'S INDICATE	O ON PLAN, WHETHER SPECIFICALLY SHOWN		
	RPM	REVOLUTIONS PER MINUTE	_		ALL FIELD VERIFY ALL EXISTING CONDITIONS		
	SA	SUPPLY AIR			, AND SHALL COORDINATE ALL WORK WITH O		
-	SP	STATIC PRESSURE	_	S SHOWN ON MECH	HANICAL DRAWINGS REFER TO INSIDE CLEAR		
-	TD	TRANSFER DUCT	DIMENSIONS. WH	ERE DUCTWORK IS	S LINED, THE MECHANICAL CONTRACTOR SHA MPENSATE FOR LINING.		
-					RATURE SENSORS 5'-6" ABOVE FINISHED FLO		
-	TF-	TRANSFER FAN	UNLESS OTHERW	ISE NOTED ON ARC	CATORE SENSORS 3-0 ABOVE FINISHED FLOCHION WITH ARCHITECTURAL DRAWINGS.		
-	TSP	TOTAL STATIC PRESSURE			OIFFUSER AND REGISTER LOCATIONS WITH LI		
-	TYP.	TYPICAL			ITECTURAL DWGS.		
-	U.O.N.	UNLESS OTHERWISE NOTED			ALL NOTE THAT, IN ADDITION TO THE N IN THESE PLANS FOR PIPE HANGERS AND		
-	WB	WET BULB TEMPERATURE	SUPPORTS, ALL H		PORTS SHALL BE DESIGNED AND INSTALLED I		
-	WG	INCHES OF WATER GAUGE	9. THE MECHANICAL	CONTRACTOR SHA	SMIC CODES. ALL SUBMIT FOR REVIEW A COMPOSITE SHOF TH ALL OTHER TRADES, INDICATING DUCTWOI		
	EX.	EXISTING TO REMAIN	PLUMBING AND SI	PRINKLER PIPING, S	SMOKE DETECTORS, LIGHTS, CONDUITS, SMC		
	REL.	REMOVE AND RELOCATE	,	COMPLY WITH STA			
	NEW	NEW WORK	ENERGY CODE RE	QUIREMENTS. IN (	TE BUILDING CODE, LOCAL BUILDING CODE, A CASE OF CONFLICT BETWEEN THE CONTRACT		
	DEM.	EXISTING TO BE REMOVED	DOCUMENTS AND STANDARD SHALL		DE OR ORDINANCE, THE MORE STRINGENT		
T	-	THERMOSTAT		•	OR INCOMPLETE DUCTWORK SHALL BE CAPP		
<b>→</b> √-	-	AIR INTO REGISTER	DUCTWORK, REG	STERS, GRILLES, A	THYLENE PLASTIC. AFTER THE INSTALLATION IND DIFFUSERS, THE CONTRACTOR SHALL BL		
$oldsymbol{\Theta}$	-	POINT OF CONNECTION DISCONNECTION	AND TAPE AIR TIG	HT, IN AREAS THAT	DIFFUSERS WITH HEAVY POLYETHYLENE PLA FARE UNDER CONSTRUCTION, UNTIL WORK IS		
_	SR	SUPPLY REGISTER	COMPLETE IN THO				
	CD	1-WAY	REGISTERS, GRIL	LES, AND HVAC EQ	COMPLETE, VACUUM CLEAN ALL DIFFUSERS, UIPMENT. REMOVE ANY CONSTRUCTION DEB		
CD		2-WAY	1	FILTERS WITH NEV			
CD		2-WAY	13. THE OWNER'S PE	RMANENT HVAC FO	QUIPMENT (EXISTING / NEW) SHALL NOT BE US		
CD		3-WAY	BY ANY CONTRAC	TOR DURING CONS	STRUCTION FOR TEMPORARY HEATING, COOL OSE. IF TEMPORARY HEATING, COOLING,		
CD			VENTILATION, OR	AIRFLOW IS REQU	RED AT ANY POINT DURING CONSTRUCTION,		
		4-WAY	1		PORARY HEATING, COOLING, OR VENTILATION S, AND POWER AT THEIR OWN EXPENSE.		
RR/RG/ER		RETURN REGISTER/GRILLE/EXHAUST REGISTER			URAL COMPONENTS HAVE FIREPROOF MATE		
	-	SUPPLY DUCT UP			AMAGED AS A RESULT OF MECHANICAL WOR ANGERS FOR PIPING, DUCTWORK, OR EQUIPN		
	i	SUPPLY DUCT DOWN	L OLIALI DE DATOLI		APPROVED FIREPROOFING TO MATCH EXIST		

# GENERAL NOTES CONTINUED

- 15. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR PAYING RELATED FEES.
- 16. THE MECHANICAL CONTRACTOR SHALL PROVIDE ALL CUTTING, PATCHING, CORE DRILLING, ACCESS PANELS, PAINTING, AND FINAL RESTORATION REQUIRED TO FACILITATE THE INSTALLATION OF HVAC DUCTWORK, CONTROL CONDUITS, AND PIPING, INCLUDING ABOVE CEILINGS AND IN SHAFTS THAT WILL NOT BE REPLACED OR OPENED UNDER ANY OTHER SCOPE OF WORK RELATED TO THIS PROJECT. CONTRACTOR TO REMOVE AND REPLACE CEILINGS, AND OPEN AND PATCH SHAFTS AND WALLS, AS REQUIRED TO EXECUTE THE MECHANICAL WORK.
- 17. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE CLEANING OF ALL EXISTING SUPPLY AIR DUCTWORK ON ALL FLOORS WITHIN THE PROJECT AREA.
- ALL HVAC CONTROL WIRING SHALL BE RUN IN EMT.
- 19. THE MECHANICAL CONTRACTOR SHALL ADHERE TO FINISH CEILING HEIGHTS NOTED ON ARCHITECTURAL REFLECTED CEILING PLANS (RCP'S). ANY DEVIATION FROM FINISH CEILING HEIGHTS NOTED ON RCP'S - EITHER HIGHER OR LOWER - SHALL BE REVIEWED AND APPROVED BY ARCHITECT BEFORE EXECUTION OF THE WORK

# **SPECIFICATIONS**

# M-1 SCOPE OF WORK

- A.) THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, TOOLS, APPLIANCES, SERVICES, HOISTING, SCAFFOLDING, SUPERVISION AND OVERHEAD FOR THE FURNISHING AND INSTALLING OF ALL THE HEATING, VENTILATING AND AIR CONDITIONING AND RELATED WORK COMPLETE. IN ACCORDANCE WITH THE DRAWINGS. SCHEDULES AND SPECIFICATIONS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
- 1. DEMOLITION OF FAN, ASSOCIATED DUCTWORK, WIRING.
- 2. INSTALLATION OF EXHAUST FANS, LOUVERS, ENERGY RECOVERY & MAKE-UP AIR UNIT, DUCTWORK, & WIRING.
- DUCTWORK INSULATION.
- 4. AUTOMATIC TEMPERATURE CONTROLS.
- TESTING AND BALANCING OF ALL EQUIPMENT

### M-2 WORK EXCLUDED

- A.) THE FOLLOWING ITEMS ARE EXCLUDED FROM THIS SECTION OF WORK: 1.) MOUNTING AND POWER WIRING FOR ALL MOTOR STARTERS.
- 2.) ALL ELECTRIC POWER WIRING EXCEPT WHERE FURNISHED AS AN INTEGRAL PART OF FACTORY ASSEMBLED EQUIPMENT OR AS OTHERWISE REQUIRED FOR
- AUTOMATIC TEMPERATURE CONTROLS, VARIOUS SAFETY CONTROLS AND MOTOR INTERLOCKS. 3.) WORK AND/OR MODIFICATIONS ASSOCIATED WITH PERIMETER HYDRONIC FINNED
- TUBE RADIATORS AND ASSOCIATED PIPING & TEMPERATURE CONTROLS LOCATED THROUGHOUT THE BUILDING.

### M-3 GENERAL REQUIREMENTS

A.) CONSTRUCT ALL APPARATUS OF MATERIALS AND PRESSURE RATINGS SUITABLE FOR THE CONDITIONS ENCOUNTERED DURING CONTINUOUS OPERATION.

B.) WHERE CORROSION CAN OCCUR, APPROPRIATE CORROSION-RESISTANT MATERIALS AND ASSEMBLY METHODS SHALL BE USED, INCLUDING ISOLATION OF DISSIMILAR METALS AGAINST GALVANIC INTERACTION. RESISTANCE TO CORROSION SHALL BE ACHIEVED BY THE USE OF THE APPROPRIATE BASE MATERIALS COATINGS SHALL BE RESORTED TO ONLY WHEN SPECIFICALLY PERMITTED BY THE SPECIFICATIONS.

C.) CONSTRUCT ALL EQUIPMENT IN ACCORDANCE WITH REQUIREMENTS OF ALL APPLICABLE CODES. ALL PRESSURE VESSELS AND SAFETY DEVICES THAT FALL WITHIN THE SCOPE OF THE ASME CODE SHALL CONFORM TO THE CODE AND BEAR THE ASME LABEL OR STAMP.

D.) MATCH AND BALANCE ALL SYSTEM COMPONENTS TO ACHIEVE COMPATIBILITY OF EQUIPMENT FOR SATISFACTORY OPERATION AND PERFORMANCE THROUGHOUT THE ENTIRE OPERATING TEMPERATURE AND CONTROL RANGES. ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND GUIDELINES.

E.) UPON COMPLETION OF WORK, THE ENTIRE MECHANICAL SYSTEM SHALL BE OPERATED IN THE PRESENCE OF THE OWNER TO DEMONSTRATE THAT ALL COMPONENTS ARE INSTALLED AND OPERATING PROPERLY.

F.) PROVIDE ALL CONTROLS, WIRING (EXCEPT POWER WIRING FOR MOTORS), PIPING, VALVES, ACCESSORIES AND OTHER COMPONENTS NECESSARY TO MAKE ALL SYSTEMS COMPLETE AND OPERABLE.

# M-4 REMOVALS

A.) REMOVE AND DISPOSE OF ALL EQUIPMENT, DUCTWORK, PIPING, DIFFUSERS AND ACCESSORIES WITHIN THE PROJECT AREA AS SHOWN ON THE DRAWINGS OR AS REQUIRED FOR THE INSTALLATION OF THE WORK OF THIS PROJECT.

B.) THIS WORK SHALL BE EXECUTED IN AN ORDERLY AND CAREFUL MANNER, WITH DUE CONSIDERATION FOR THE PROTECTION OF ADJACENT ACTIVITIES. DUST PRODUCING DEMOLITION SHALL BE ISOLATED WITH PROPER PRECAUTIONS.

C.) THE CONTRACTOR SHALL ASK THE OWNER FOR INSTRUCTIONS IF HE/SHE ENCOUNTERS DEMOLITION WORK WHICH MIGHT RESULT IN A HAZARDOUS CONDITION.

D.) MECHANICAL DEMOLITION INDICATED ON THE DRAWING IS ACCORDING TO THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL VERIFY ALL DEMOLITION WORK WITHIN THE AREA AND SHALL CONDUCT REMOVALS, AS REQUIRED, OR AS INSTRUCTED BY THE OWNER.

# M-5 DUST PROTECTION

A.) IT IS IMPERATIVE THAT DURING DEMOLITION, AND ALSO DURING NORMAL CONSTRUCTION, WHERE THERE IS ANY POSSIBILITY OF DUST DUE TO CONSTRUCTION WORK CONTAMINATING THE OWNER'S EQUIPMENT OR CAUSING A NUISANCE TO PERSONNEL, THIS CONTRACTOR SHALL FURNISH AND INSTALL SUITABLE PROTECTION AS REQUIRED.

B.) WHEREVER POLYETHYLENE IS USED AS PROTECTIVE TARPAULINS OR DROPCLOTH, IT SHALL BE FIRE-RETARDANT POLYETHYLENE SHEETING, .004" THICK.

# M-6 TIME AND MANNER

A.) ALL WORK SHALL BE PERFORMED DURING NORMAL WORKING HOURS UNLESS OTHERWISE DIRECTED BY THE OWNERS REPRESENTATIVE.

B.) PRIOR TO THE BEGINNING OF WORK THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF WORK TO THE OWNER. ANY SHUTDOWNS OF EXISTING EQUIPMENT AND/OR SYSTEMS SHALL BE VERIFIED IN WRITING WITH THE OWNER'S REPRESENTATIVE.

# SPECIFICATIONS CONT'D

C.) ANY SHUT-DOWN OF EXISTING SYSTEMS WHERE SUCH SHUT-DOWN IS REQUIRED FOR THE PERFORMANCE OF THE WORK UNDER THE CONTRACT SHALL BE AT SUCH TIMES AS DESIGNATED BY OWNER'S REPRESENTATIVE. RESTORE SYSTEMS TO ORIGINAL CONDITION AFTER PERFORMANCE WORK. THE INTENT IS TO INSURE MINIMUM INTERFERENCE WITH OPERATION OF EXISTING FACILITIES. REPAIR ANY DAMAGE DONE TO BUILDING RESULTING FROM INSTALLATION OF NEW WORK.

# M-7 SITE INSPECTION

A.) VISIT SITE BEFORE SUBMITTING BID. INSPECT AND VERIFY ALL CONDITIONS WHICH MAY AFFECT COST OF INSTALLATION. VERIFY EXACT LOCATION OF ALL EXISTING PIPES. DUCTS, BEAMS, ETC., WHETHER SHOWN ON THE DRAWINGS OR NOT, SO FAR AS THESE LOCATIONS RELATE TO THE NEW WORK. PROVIDE ANY OFFSETS IN NEW PIPING OR DUCTS AS MAY BE REQUIRED FOR PROPER CLEARANCES TO AVOID EXISTING DUCTS. CABLES OR OTHER OBSTRUCTION.

# M-8 RUBBISH REMOVAL

A.) EQUIPMENT, DUCTWORK, ETC., SPECIFIED TO BE REMOVED AND RUBBISH CAUSED BY CONSTRUCTION SHALL BE REMOVED FROM THE CONSTRUCTION SITE.

# M-9 CUTTING AND PATCHING

A.) THE CONTRACTOR SHALL PROVIDE ALL CUTTING REQUIRED FOR DUCTS, PIPING AND CONTROL CONDUITS PASSING THROUGH WALLS, FLOORS, ETC.

B.) PENETRATIONS FOR PIPING SHALL BE MADE BY CORE DRILLING WHENEVER POSSIBLE.

C.) PATCHING SHALL BE PROVIDED BY THE GENERAL CONTRACTOR EXCEPT WHERE DAMAGE AND/OR REPAIRS ARE NECESSITATED DUE TO ERROR OR NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS SUB-CONTRACTORS.

### M-10 SHOP DRAWINGS AND SUBMITTALS REQUIRED

A.) MANUFACTURER'S DATA OR SHOP DRAWINGS OF THE FOLLOWING APPARATUS GIVING FULL INFORMATION AS TO CATALOG NUMBERS, DIMENSIONS, MATERIALS AND ALL INFORMATION PERTINENT TO THE ADEQUACY OF THE SUBMITTED EQUIPMENT SHALL BE SUBMITTED FOR REVIEW:

- 1.) SHEET METAL CONSTRUCTION DETAILS.
- 2.) DUCTWORK LAYOUTS (\%" SCALE).
- 4.) AUTOMATIC TEMPERATURE CONTROLS INCLUDING WIRING AND CONTROLS DIAGRAMS.
- 5.) BALANCING REPORTS
- 6.) AIR OUTLETS AND REGISTERS.
- 7.) HANGERS AND INSERTS
- 8.) INSULATION. 9.) FANS.
- 10.) ENERGY RECOVERY MAKEUP UNIT.

### M-11 TESTING AND BALANCING

A.) THE CONTRACTOR SHALL ENGAGE THE SERVICES OF AN INDEPENDENT AIR BALANCING FIRM THAT SHALL BE SUBJECT TO THE REVIEW OF THE ENGINEER. THE BALANCING FIRM SHALL HAVE AT LEAST ONE MEMBER OF ITS FULL TIME STAFF WHO IS A LICENSED PROFESSIONAL ENGINEER WHO SHALL SUPERVISE THE BALANCING WORK.

B.) THE TESTING AGENCY SHALL BE FULLY CERTIFIED BY THE ASSOCIATED BALANCE COUNCIL OR AN EQUIVALENT ORGANIZATION AND SHALL HAVE AT LEAST ONE MEMBER OF THE AGENCY QUALIFIED AS A CERTIFIED TEST AND BALANCE ENGINEER THAT HAS BEEN ISSUED THIS CERTIFICATION. ALL FINAL REPORTS SHALL BE SIGNED BY THIS CERTIFIED TEST AND BALANCE ENGINEER AND SHALL INCLUDE HIS OFFICIAL STAMP. SUBMIT FOUR (4) COPIES OF REPORT FOR REVIEW. BOTH A PRELIMINARY AND FINAL BALANCING REPORT SHALL BE SUBMITTED.

C.) SUPPLY ALL LABOR, MATERIALS, INSTRUMENTS, ETC., REQUIRED FOR TESTING. REPAIR ALL DAMAGE TO PIPING OR EQUIPMENT WHICH OCCURS AS A RESULT OF TESTING. PLUG ALL HOLES IN DUCTS MADE FOR RAVERSE PURPOSES WITH APPROPRIATE SNAP-IN PLUGS. DUCT TAPE IS NOT ACCEPTABLE.

# D.) AIR BALANCE:

1.) ALL FANS AND DUCT SYSTEMS SERVING THE BUILDING SHALL BE COMPLETELY BALANCED BY THE ADJUSTMENT OF SHEAVES, DAMPERS, AND OTHER VOLUME AND DIVERTING CONTROL DEVICES. TO OBTAIN THE AIR QUANTITIES REQUIRED.

2.) THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER OF ANY CONDITION WHICH PREVENTS THE ADJUSTMENT OF THE EQUIPMENT TO DELIVER THE INDICATED DESIGN AIR QUANTITIES.

3.) SUBMIT SINGLE LINE DIAGRAMS OF ALL FAN SYSTEMS INDICATING OUTSIDE AIR INTAKE AND DISCHARGE DUCTS IDENTIFIED BY UNIT NUMBER.

4.) RECORD THE FOLLOWING TEST DATA FOR ALL FANS AND FAN MOTORS INSTALLED AT THE PROJECT AT FINAL BALANCED CONDITIONS:

- a. FAN SPEED (RPM).
- b. FAN STATIC PRESSURE (EXTERNAL AND TOTAL).
- c. MOTOR OPERATING AMPS. d. ACTUAL VOLTAGE.
- e. FAN CFM.

# E.) PIPE TESTS:

1.) ALL PIPING SHALL BE TESTED AS HEREINAFTER SPECIFIED. TESTS SHALL BE MADE AFTER ERECTION AND BEFORE COVERING IS APPLIED OR PIPING PAINTED OR CONCEALED AND AS SECTIONS OF MAINS AND GROUPS OR RISERS ARE COMPLETED. WHERE CONTROLS AND ACCESSORIES ARE NOT DESIGNED TO WITHSTAND PIPE TEST PRESSURES, THEY SHALL BE PROPERLY PROTECTED AGAINST DAMAGE DURING SUCH TESTS. ALL PIPING SHALL BE SUBJECTED TO A HYDROSTATIC TEST FOR A PERIOD OF TWO (2) HOURS WITHOUT FALL IN THE PRESSURE GAUGE READING.

2.) ALL PIPING SHALL BE TESTED TO A MINIMUM OF 1.5 TIMES THE SYSTEM WORKING PRESSURE WITH A MINIMUM OF 150 PSIG FOR WATER PIPING AND 100 PSIG FOR ALL OTHER PIPING.

# M-12 DUCTWORK - GENERAL REQUIREMENTS

A.) ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES SHALL BE PROVIDED AND ALL OPERATIONS REQUIRED FOR COMPLETE INSTALLATION OF THE DUCTWORK, DAMPERS AND ALL AUXILIARY WORK OF ANY KIND, NECESSARY TO MAKE THE SYSTEM COMPLETE AND READY FOR SATISFACTORY OPERATION SHALL BE PERFORMED.

B.) CONSTRUCT ALL EQUIPMENT IN ACCORDANCE WITH REQUIREMENTS OF ALL APPLICABLE CODES.



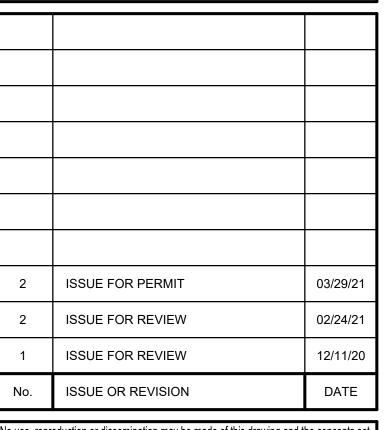
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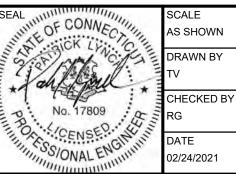
KT Murphy Elementary School **Toilet Exhaust Project** 

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MECHANICAL SYMBOLS, ABBREVIATIONS, NOTES & **SPECS** 

NKGD0229.00

DRAWING NO.



# SPECIFICATIONS CONT'D

C.) ALL INSTALLATIONS SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS AND REQUIREMENTS OF APPLICABLE CODES.

D.) INSTALL DUCTS AND HANGERS PLUMB AND LEVEL WITH JOINTS SQUARE AND DEVOID OF SHARP EDGES. ROUTE DUCTWORK TO MINIMIZE DIRECTIONAL CHANGES AND ABRUPT TRANSITIONS. PROVIDE ADEQUATE SPACE AROUND DUCTS TO ASSURE PROPER SUPPORT AND TO ALLOW THE INSTALLATION OF THE INSULATION SPECIFIED. INSTALL VOLUME DAMPERS AT BRANCHES CONNECTED INTO THE MAIN DUCT.

### M-13 DUCT CONSTRUCTION REQUIREMENTS

A.) CONSTRUCT AND SUPPORT ALL DUCTWORK IN ACCORDANCE WITH THE LATEST STANDARDS OF ASHRAE AND THE SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION. ALL WORK, MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE LATEST REQUIREMENTS OF NFPA 90A AND THE LOCAL AUTHORITIES HAVING JURISDICTION.

B.) ALL LOW PRESSURE DUCTWORK SHALL BE MADE OF BEST BLOOM GALVANIZED IRON

OF THE FOLLOWING U.S. STANDARD GAUGES: UP TO 30 INCHES MAXIMUM DIMENSION

NO. 24 30 INCHES TO 54 INCHES 55 INCHES TO 84 INCHES NO. 22

NO. 20 85 INCHES AND OVER NO. 18

### C.) NO DUCT SHALL BE LESS THAN 24 GAUGE.

D.) BRACING, GAUGES AND SUPPORTS INDICATED IN SMACNA MANUALS ARE THE MINIMUM ACCEPTABLE. ADDITIONAL BRACING OR SUPPORTS SHALL BE INSTALLED TO ELIMINATE ANY DISTORTION OR VIBRATION WHEN THE SYSTEMS ARE OPERATING OR UNDER TESTS.

- E.) ALL LONGITUDINAL SEAMS SHALL BE PITTSBURGH TYPE SEAMS LOCATED AT THE CORNERS.
- F.) DUCT SEALANT SHALL BE 3M CO. TYPE EC-800 SEALING COMPOUND OR EQUIVALENT.

## M-14 HANGERS AND SUPPORTS

### A.) GENERAL:

1.) PROVIDE HANGERS AND SUPPORTS TO SUPPORT THE WEIGHT OF DUCTS AND ASSOCIATED EQUIPMENT WITHIN THE DUCT RUN. FASTEN HANGERS AND SUPPORTS TO CONCRETE STRUCTURE BY INSERTS OR EXPANSION ANCHORS.

### B.) HORIZONTAL DUCTWORK:

1.) FOR DUCTS WITH A CROSS-SECTIONAL AREA OF 2 FT2 OR LESS, HANGERS SHALL BE CONSTRUCTED OF AT LEAST 1" BY  $\frac{1}{16}$ " STEEL STRAP. FOR DUCTS WITH A CROSS-SECTIONAL AREA OF OVER 2 FT2 HANGERS SHALL BE CONSTRUCTED OF AT LEAST 1" BY  $\frac{1}{8}$ " STEEL STRAP.

2.) FOR DUCTS WITH A CROSS-SECTIONAL AREA OF 4 FT2 OR LESS, HANGERS SHALL BE NO MORE THAN 8 FT APART; FOR DUCTS WITH A CROSS-SECTIONAL AREA OF MORE THAN 4 FT2 BUT NOT OVER 10 FT2 HANGERS SHALL BE NO MORE THAN 6 FT APART, AND FOR DUCT WITH A CROSS-SECTIONAL AREA OF MORE THAN 10 FT2 HANGERS SHALL BE NO MORE THAN 4 FT. APART. THE DISTANCES BETWEEN HANGERS SHALL BE MEASURED LINEARLY ALONG THE DUCT.

3.) STRAP HANGERS SHALL BE FASTENED TO DUCT WITH SHEET METAL SCREWS ON 2" CENTERS WITH NOT LESS THAN 2 PER VERTICAL SIDE. FOR DUCTS OVER 48" WIDE, STRAP HANGERS SHALL BE EXTENDED AROUND BOTTOM DUCT NOT LESS THAN 2" FROM EACH EDGE WITH AT LEAST ONE SHEET METAL SCREW PER LEG.

# M-15 TURNING VANES

A.) PROVIDE APPROVED TURNING VANES IN ALL 90 DEGREE SQUARE ELBOWS OF DOUBLE VANE CONSTRUCTION, OF THE SAME MATERIAL AS THE DUCTS IN WHICH THEY ARE INSTALLED.

# M-16 ACCESS DOORS IN SHEET METAL

A.) DOORS IN DUCTWORK SHALL BE PROVIDED FOR ACCESS TO ALL APPARATUS, ACCESSORIES, AUTOMATIC CONTROLS, VALVES, AUTOMATIC DAMPERS AND DAMPER MOTORS, SMOKE DETECTORS, AND ALL OTHER AREAS AND EQUIPMENT REQUIRING PERIODIC INSPECTION OR SERVICE.

B.) UNLESS OTHERWISE INDICATED, ACCESS DOORS IN DUCTS SHALL BE 20"X20". FOR DUCTS LESS THAN 24", THE DOOR SHALL BE A MINIMUM OF 12" LONG AND 2" SMALLER THAN THE DUCT WIDTH/HEIGHT DIMENSION. DEPENDING ON LOCATION.

C.) ACCESS DOORS SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND INSTALLED TO WITHSTAND THE SAME TEST PRESSURES WITHOUT DEFORMATION, VIBRATION OR LEAKAGE AS THE DUCTWORK IN WHICH THEY ARE PROVIDED. DOORS INSTALLED IN INSULATED DUCTWORK SHALL BE OF THE DOUBLE INSULATED, REINFORCED PANEL TYPE WITH MINIMUM 18 GAUGE SHEET METAL. ACCESS DOORS IN UN-INSULATED DUCTWORK MAY BE SINGLE PANEL CONSTRUCTION OF NOT LESS THAN 18 GAUGE SHEET METAL. ALL ACCESS DOORS SHALL HAVE HINGES, LOCKING DEVICES, AND RUBBER GASKETS AROUND THE PERIMETER.

D.) DOORS SHALL BE FIT CLOSELY. ROUND SOFT RUBBER GASKETING SHALL BE SECURELY ATTACHED TO THE DOORS BY CEMENT AND RIVETS SHALL BE COUNTERSUNK FOR A CONTINUOUS AIRTIGHT SEAL.

# M-17 DAMPERS

A.) PROVIDE VOLUME DAMPERS FOR NEW DUCT SYSTEMS IN EACH BRANCH DUCT, WHERE INDICATED, AND WHERE REQUIRED TO ACCOMPLISH AIR BALANCE. VOLUME DAMPERS TO BE FABRICATED WITH 16 GAUGE GALVANIZED STEEL WITH INTERLOCKING BLADES AND HEMMED EDGES SET IN A GALVANIZED STEEL FRAME. PROVIDE SINGLE BLADE BUTTERFLY TYPE DAMPERS WITH MAXIMUM ASSEMBLY LENGTH OF 48 INCHES. FOR LONGER LENGTHS USE MULTIPLE ASSEMBLIES INSTALLED SIDE BY SIDE.

B.) U.L. APPROVED FIRE DAMPERS SHALL BE INSTALLED IN ALL DUCTS PIERCING FIRE RATED WALLS, FLOORS OR CEILINGS WHETHER SPECIFICALLY INDICATED ON DRAWINGS OR NOT; EXCEPT FOR KITCHEN EXHAUST DUCTS. DAMPERS SHALL BE INSTALLED IN CONFORMANCE WITH NFPA-90A AND LOCAL CODES. FIRE DAMPERS SHALL BE SHUTTER TYPE WITH MINIMUM 11/2 HOUR RATING IN ACCORDANCE WITH NFPA 252. DAMPER SHALL BE RUSKIN OR AS APPROVED. FIRE DAMPER SHALL COMPLY WITH REQUIREMENTS OF UL 555.

# M-18 FLEXIBLE CONNECTIONS

A.) FOR AIR OUTLETS PROVIDE INLET CONNECTIONS OF NEOPRENE COATED AND IMPREGNATED FIBERGLASS CLOTH REINFORCED WITH CONTINUOUS GALVANIZED WIRE HELIX AND PREINSULATED WITH 11/4" THICK FIBERGLASS COVERED WITH REINFORCED ALUMINUM FOIL, FLEXIBLE TUBING CORP., "THERMALFLEX" TYPE M-KN (TEMPERATURE RANGE 0-250°F). CUT BACK INSULATION 4" FROM EACH END. SEAL ALL INSULATION ENDS AND JOINTS VAPORTIGHT. LIMIT THE FLEXIBLE CONNECTION LENGTH TO FOUR FEET MAXIMUM. SECURELY FASTEN THE FLEXIBLE RUNOUTS TO THE DUCTWORK. SLIP THE FLEXIBLE CONNECTION OVER A 4" LONG MATCHING SHEET METAL SLEEVE OR FITTING IN THE DUCT PREPARED WITH SEALING COMPOUND. CLAMP THE FLEXIBLE RUNOUT SECURELY TO THE DUCT WITH A 1" WIDE, 18 GAUGE GALVANIZED STEEL, BOLTED CLAMPING COLLAR. REINFORCE THE JOINT WITH SHEET METAL SCREWS AND SEALING COMPOUND.

B.) FAN, CV AND VAV BOX INLET AND DISCHARGE CONNECTIONS SHALL BE MADE WITH FLEXIBLE MATERIAL SO AS TO PROHIBIT THE TRANSFER OF VIBRATION FROM FANS TO DUCTWORK. CONNECTIONS SHALL BE MADE OF HEAVY VINYL AND NEOPRENE CLOTH. THE FLEXIBLE CONNECTIONS SHALL BE APPROXIMATELY 6" LONG AND HELD IN PLACE WITH HEAVY METAL BANDS OR DOUBLE HEMLOCK SECURELY ATTACHED TO PREVENT ANY LEAKAGE AT THE CONNECTION POINTS.

### M-19 INSULATION - GENERAL REQUIREMENTS

A.) ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES, SHALL BE PROVIDED. ALL OPERATIONS REQUIRED FOR COMPLETE INSTALLATION OF INSULATION AND RELATED WORK AS INDICATED ON THE DRAWING, OR SPECIFIED HEREIN, SHALL BE PERFORMED. THE EXECUTION OF THE WORK SHALL BE IN STRICT ACCORDANCE WITH THE INSULATION MANUFACTURER'S RECOMMENDATIONS AND THE BEST PRACTICE OF THE

B.) NO INSULATION SHALL BE APPLIED UNTIL ALL TESTS HAVE BEEN COMPLETED. ONLY INSULATION AND FINISH MATERIALS INCLUDING ADHESIVES, CEMENTS AND MASTICS WHICH CONFORM TO THE REQUIREMENTS OF ALL GOVERNING CODES AND ORDINANCES SHALL BE USED.

C.) ANY EXISTING INSULATION AND SURFACE FINISH DISTURBED OR DAMAGED BY THE INSTALLATION OF NEW EQUIPMENT OR OTHER ALTERATIONS TO THE SYSTEM SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.

### M-20 DUCT INSULATION

A.) THE CONTRACTOR SHALL NOTE THAT ALL NEW AND EXISTING DUCTWORK THAT IS NOT ALREADY INSULATED SHALL BE INSULATED AS PART OF THIS PROJECT.

B.) COVERINGS AND LININGS INCLUDING ADHESIVES WHERE USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE DEVELOPED INDEX NOT MORE THAN 50, WHEN TESTED IN ACCORDANCE WITH ASTM E 84 OR UL 723, USING THE SPECIMEN PREPARATION AND MOUNTING PROCEDURES OF ASTM E2231.

C.) ALL CONCEALED AIR CONDITIONING SUPPLY AND RETURN DUCTWORK, INCLUDING SUPPLY AND RETURN DUCTWORK RUNNING THROUGH RETURN AIR PLENUM ABOVE HUNG CEILING, SHALL BE COVERED WITH WITH 11/2" THICK R-6 FLEXIBLE FIBROUS GLASS BLANKET, MINIMUM DENSITY 1½ POUNDS PER CUBIC FOOT, MAXIMUM K-FACTOR: 0.27 AT 75°F MEAN TEMPERATURE, TEMPERATURE RANGE: 40°F TO 250°F FACTORY APPLIED VAPOR BARRIER FACING OF MINIMUM 0.7 MIL ALUMINUM FOIL LAMINATED TO FIRE RESISTANT KRAFT PAPER AND REINFORCED WITH GLASS FIBERS: 0.02 PERMEABILITY.

D.) ALL DUCTWORK EXPOSED TO VIEW IN MECHANICAL ROOMS, WHICH IS NOT INTERNALLY INSULATED, SHALL BE COVERED WITH 11/5" THICK RIGID BOARD TYPE MINERAL FIBER OR GLASS WITH A RESIN BINDER, MINIMUM DENSITY: 3 POUNDS PER CUBIC FOOT, MAXIMUM K-FACTOR: 0.27 AT 75°F MEAN TEMPERATURE, TEMPERATURE RANGE: 35°F TO 350°F, FACTORY APPLIED VAPOR BARRIER JACKET OF ALUMINUM FOIL LAMINATED TO FIRE RESISTANT KRAFT PAPER AND REINFORCED WITH GLASS FIBERS: 0.02 PERMEABILITY.

E.) ALL INSULATION SHALL BE APPLIED AS PER MANUFACTURERS RECOMMENDATIONS WITH ADHESIVE AND COPPER CLAD WIRE FOR FLEXIBLE TYPE AND MECHANICAL FASTENERS FOR RIGID TYPE. SEAL ALL SEAMS AND JOINTS VAPOR-TIGHT WITH FIRE RETARDANT, VAPOR BARRIER SEALANT.

F.) INTERNAL INSULATION EXPOSED TO AIRSTREAM SHALL PROVIDE DURABILITY IN **ACCORDANCE WITH UL 181.** 

# G.) ALTERNATE MANUFACTURERS:

1.) CERTAIN TEED

2.) OWENS-CORNING

# M-21 ACOUSTIC TREATMENT

A.) ALL SUPPLY AND RETURN DUCTWORK WITHIN 20' OF FANS OR WITHIN 5' OF VAV AND CV BOX DISCHARGE, AND ALL TRANSFER AIR DUCTWORK SHALL BE INSTALLED WITH 1" ACOUSTIC LINING. SUCH ACOUSTIC LINING SHALL BE FLEXIBLE GLASS FIBER DUCT LINER; ANSI/ASTM C553 WITH "K" VALUE OF 0.24 AT 75°F; 1.5 LBS./CU. FT. MINIMUM DENSITY; COATED ON AIR SIDE FOR MAXIMUM VELOCITY OF 4000 FEET PER MINUTE; APPROVED BY THE NFPA.

B.) STAPLING METHOD OF ATTACHMENT SHALL NOT BE PERMITTED. MAT-FACED DUCT LINER SHALL BE ADHERED BY A FIRE RETARDANT ADHESIVE SUCH AS BENJAMIN FOSTER 81-99 OR EQUIVALENT. MECHANICAL FASTENERS WHICH DO NOT PIERCE THE SHEET METAL SHALL BE INSTALLED ON 16" CENTERS ON TOP SECTIONS (WHEN WIDTH EXCEEDS 12").

C.) ALL EXPOSED EDGES OF ACOUSTIC LINING SHALL BE INSTALLED WITH SHEET METAL NOSING AND CAULKED.

# M-22 VAV AND CV BOXES - NOT USED

# M-23 VIBRATION ISOLATION

A.) ALL SUSPENDED FANS SHALL BE SUPPORTED WITH STEEL COMPRESSION SPRING AND NEOPRENE OR RUBBER ISOLATED UNIT WITHIN A STEEL HOUSING OR RETAINER LOCATED IN HANGER RODS. MINIMUM COMBINED STATIC DEFLECTION 1½". MINIMUM SPRING RUNOUT - 1/2". MASON INDUSTRIES, INC.- TYPE DNH.

# M-24 ELECTRIC WIRING

A.) THE ELECTRICAL CONTRACTOR WILL ERECT ALL STARTING EQUIPMENT FURNISHED UNDER THIS SECTION. EXCEPT STARTERS SPECIFIED TO BE FACTORY MOUNTED AND WIRED AS ALL INTEGRAL PART OF THE EQUIPMENT, AND WILL DO ALL WIRING NECESSARY TO SUPPLY POWER TO THE ELECTRIC MOTOR PROVIDED UNDER THIS SECTION, INCLUDING POWER TO THE STARTERS AND CONNECTIONS FROM STARTERS TO THE MOTORS.

B.) THIS CONTRACTOR SHALL INSTALL ALL MOTOR CONTROL, TEMPERATURE CONTROL WIRING AND INTERLOCK WIRING EXCLUSIVE OF MOTOR POWER WIRING.

# M-25 ELECTRIC MOTOR CONTROLS

A.) FURNISH AND TURN OVER THE ELECTRICAL CONTRACTOR WHO SHALL ERECT AND WIRE THE SAME, SUITABLE STARTING CONTROLLING EQUIPMENT, AND DISCONNECT SWITCHES.

B.) ALL CONTROLLERS SHALL BE ALLEN-BRADLEY. CUTLER-HAMMER. OR GENERAL ELECTRIC, FULLY ENCLOSED IN NEATLY FURNISHED VENTILATED BOXES. CONTROLLERS SHALL BE OF THE COMBINATION STARTER AND UNFUSED SWITCH TYPE. C.) ALL STARTERS FOR MOTORS 1/2 HORSEPOWER AND LARGER SHALL BE MAGNETIC ACROSS-THE-LINE TYPE WITH UNFUSED DISCONNECT SWITCH UNLESS OTHERWISE NOTED. SUCH STARTERS SHALL BE 208 VOLT, 3 PHASE, 60 CYCLE, A.C. SOURCE.

D.) ALL MAGNETIC STARTERS SUBJECT TO MANUAL START SHALL HAVE MOMENTARY CONTACT START AND STOP BUTTONS BUILT INTO COVER. ALL MAGNETIC STARTERS SUBJECT TO ELECTRICAL INTERLOCKS OR AUTOMATIC CONTROLS SHALL HAVE HAND-OFF-AUTOMATIC SWITCHES BUILT INTO COVER.

E.) ALL MAGNETIC STARTERS SHALL HAVE THERMAL OVERLOAD AND VOLTAGE PROTECTION IN EACH PHASE LEG. PROVIDE EACH STARTER WITH MINIMUM OF TWO AUXILIARY CONTACTS, ONE NORMALLY OPEN AND ONE NORMALLY CLOSED.

# M-26 AIR OUTLETS

A.) ALL OUTLET TYPES SHALL BE TESTED IN ACCORDANCE WITH ADC STANDARDS AND SHALL BEAR AN ADC LABEL. PROVIDE NEW AIR OUTLETS OF SIZE AND TYPE AS INDICATED ON THE DRAWING. CEILING DIFFUSERS SHALL BE ALUMINUM AND COMPLETE WITH GASKETS, OPPOSED BLADE DAMPERS AND CONTROL GRIDS. RETURN REGISTERS SHALL BE SINGLE DEFLECTION GRILLES WITH OPPOSED BLADE DAMPERS.

B.) CEILING OUTLETS SHALL BE FACTORY FINISHED WITH OFF-WHITE ENAMEL, OR AS OTHERWISE NOTED/APPROVED BY ARCHITECT/OWNER.

# C.) ACCEPTABLE MANUFACTURERS:

1.) TITUS

### M-28 PIPE INSULATION - NOT USED

M-28 PIPING INSTALLATION - GENERAL REQUIREMENTS - NOT USED

M-29 WATER TREATMENT - NOT USED

### M-30 AUTOMATIC TEMPERATURE CONTROLS

A.) PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES, AND PERFORM ALL OPERATIONS REQUIRED FOR THE AUTOMATIC TEMPERATURE CONTROL SYSTEM.

B.) THE CONTROL SYSTEM SHALL BE COMPLETE WITH ALL NECESSARY CONTROL DEVICES, THERMOSTATS, VALVES, SWITCHES, PANELS AND CONTROL WIRING TO PROVIDE THE DESCRIBED FUNCTIONS. PROVIDE INFORMATION TO THE ELECTRICAL CONTRACTOR REQUIRED TO PERMIT INSTALLATION OF POWER WIRING TO ANY CONTROL COMPONENTS.

C.) THE CONTROLS MANUFACTURER SHALL FURNISH FACTORY WIRED CONTROL PANELS WHICH SHALL HOUSE ALL RELAYS, DEVICES, SWITCHES, TRANSFORMERS, TERMINAL STRIPS, ETC., AS REQUIRED FOR THE COMPLETE TEMPERATURE CONTROL OF THE SYSTEM.

D.) ALL CONTROLS SHALL BE THE PRODUCT OF ONE (1) MANUFACTURER AND ALL COMPONENTS SHALL BE U.L. APPROVED WHERE APPLICABLE. SYSTEM SHALL BE THE LATEST TOP QUALITY EQUIPMENT AND SHALL BE INSTALLED COMPLETE IN ALL RESPECTS BY COMPETENT MECHANICS, REGULARLY EMPLOYED BY THE MANUFACTURER OF THE CONTROL SYSTEM. ALL AUTOMATIC CONTROL VALVES AND DAMPERS SHALL BE MANUFACTURED BY THE CONTROL MANUFACTURER.

E.) AFTER COMPLETION OF THE CONTROL SYSTEM WORK, THE CONTROL MANUFACTURER SHALL REGULATE AND ADJUST ALL THERMOSTATS, CONTROL VALVES, ETC., AND PLACE THEM IN COMPLETE OPERATING CONDITION SUBJECT TO THE REVIEW OF THE ENGINEERS. COMPLETE INSTRUCTIONS SHALL BE GIVEN TO THE OPERATING PERSONNEL AND/OR OWNER.

F.) THE CONTROL SYSTEM HEREIN SPECIFIED SHALL BE FREE FROM DEFECTS IN WORKMANSHIP AND MATERIAL UNDER NORMAL USE AND SERVICE. IF, WITHIN ONE (1) YEAR FROM DATE OF ACCEPTANCE BY THE OWNER, ANY EQUIPMENT HEREIN DESCRIBED IS PROVED TO BE DEFECTIVE IN WORKMANSHIP OR MATERIAL, IT SHALL BE ADJUSTED, REPAIRED OR REPLACED FREE OF CHARGE.

G.) DELIVER TO THE OWNER TWO (2) COPIES OF THE AS-INSTALLED CONTROL SYSTEM, LAMINATED IN CLEAR PLASTIC. PROVIDE IDENTIFYING TAGS ON ALL CONTROLS TO CONFORM TO THE DESIGNATIONS ON THE CONTROL DIAGRAMS.

H.) ALL CONTROL WIRING SHALL BE RUN IN EMT OR GALVANIZED CONDUIT. CONTROL CONDUIT AND/OR PIPING SHALL BE CONCEALED IN ALL SPACES EXCEPT IN MECHANICAL EQUIPMENT ROOMS AND UNFINISHED SPACES, AND SHALL BE INSTALLED IN PARALLEL BANKS WITH ALL CHANGES IN DIRECTIONS MADE AT 90 DEGREE ANGLES. CONTROL AND INSTRUMENT WIRING SHALL NOT BE INSTALLED ON DUCTWORK. WIRING AND PIPING SHALL BE SECURED TO THE BUILDING STRUCTURE, SUCH AS WALLS, COLUMNS, UNDERSIDE OF SLABS, ETC.

I.) ALL CONTROLLERS SHALL BE OF THE FULLY PROPORTIONING TYPE AND SHALL BE PROVIDED WITH AN ADJUSTABLE THROTTLING RANGE, MINIMUM RANGE SHALL BE 1°F. ALL ROOM THERMOSTATS SHALL BE LOCATED AS SHOWN ON THE PLANS. ALL THERMOSTATS AND OTHER CONTROLLERS SHALL HAVE ADJUSTABLE SET POINTS.

J.) PROVIDE A MINIMUM OF 5 FEET EXCESS CONTROL WIRING TO EACH THERMOSTAT FOR FUTURE RELOCATION OF THERMOSTATS. EXCESS CONTROL WIRING SHALL BE NEATLY BUNDLED AND SECURED.

# M-31 SEQUENCE OF OPERATIONS

# **TOILET EXHAUST FANS:**

TOILET EXHAUST FANS SHALL RUN CONTINUOUSLY WHILE IN THE OCCUPIED MODE. DURING UNOCCUPIED MODE THE TOILET EXHAUST FANS SHALL BE OFF. PROVIDE MOTORIZED DAMPER FOR EACH TOILET EXHAUST FAN ARRANGED TO OPEN UPON TOILET EXHAUST FAN ACTIVATION AND CLOSE UPON TOILET EXHAUST FAN DEACTIVATION. TOILET EXHAUST FAN SHALL NOT ENERGIZE UNTIL MOTORIZED DAMPER IS PROVEN OPEN.

# ENERGY RECOVERY UNIT:

THE UNIT SHALL BE CONTROLLED THROUGH THE MANUFACTURER 7-DAY PROGRAMMABLE DIGITAL THERMOSTAT / CONTROLLER AND SHALL ALLOW THE END USER TO SET SCHEDULE AND TEMPERATURE SET-POINTS. THE ERV SHALL BE SET TO OPERATE DURING ALL OCCUPIED HOURS. IN OCCUPIED MODE, SYSTEM MOTORIZED DAMPERS SHALL OPEN AND THE SUPPLY FAN, EXHAUST FAN, AND ENERGY WHEEL SHALL BE ENERGIZED. IN UNOCCUPIED MODE, THE REVERSE SHALL OCCUR. IN WINTER OPERATION, THE INTEGRAL ELECTRIC HEATER SHALL ENERGIZE AND MODULATE TO MAINTAIN A LEAVING AIR TEMPERATURE OF 78 DEGREES F (ADJUSTABLE).

# M-32 MISCELLANEOUS

A.) THE CONTRACTOR SHALL PROVIDE THE OWNERS WITH CATALOG DATA, OPERATING INSTRUCTIONS, MAINTENANCE INSTRUCTIONS AND RECORD (AS-BUILT) DRAWINGS OF ALL COMPLETED WORK. AS-BUILT DRAWINGS SHALL SHOW EXACT LOCATION OF ALL MECHANICAL SYSTEMS, EQUIPMENT, DUCTWORK, PIPING, ETC.

B.) SUBMIT THREE (3) SETS OF AS BUILT DRAWINGS AND AN ELECTRONIC FILE OF THE AS BUILT DOCUMENTS IN AN AUTOCAD LT 2014 FORMAT TO BUILDING MANAGEMENT & ENGINEER.

C.) ALL WORK SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

D.) PROVIDE CONTROL SYSTEM TRAINING TO OWNER. **END OF SPECIFICATIONS** 

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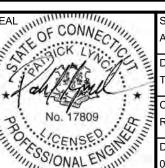
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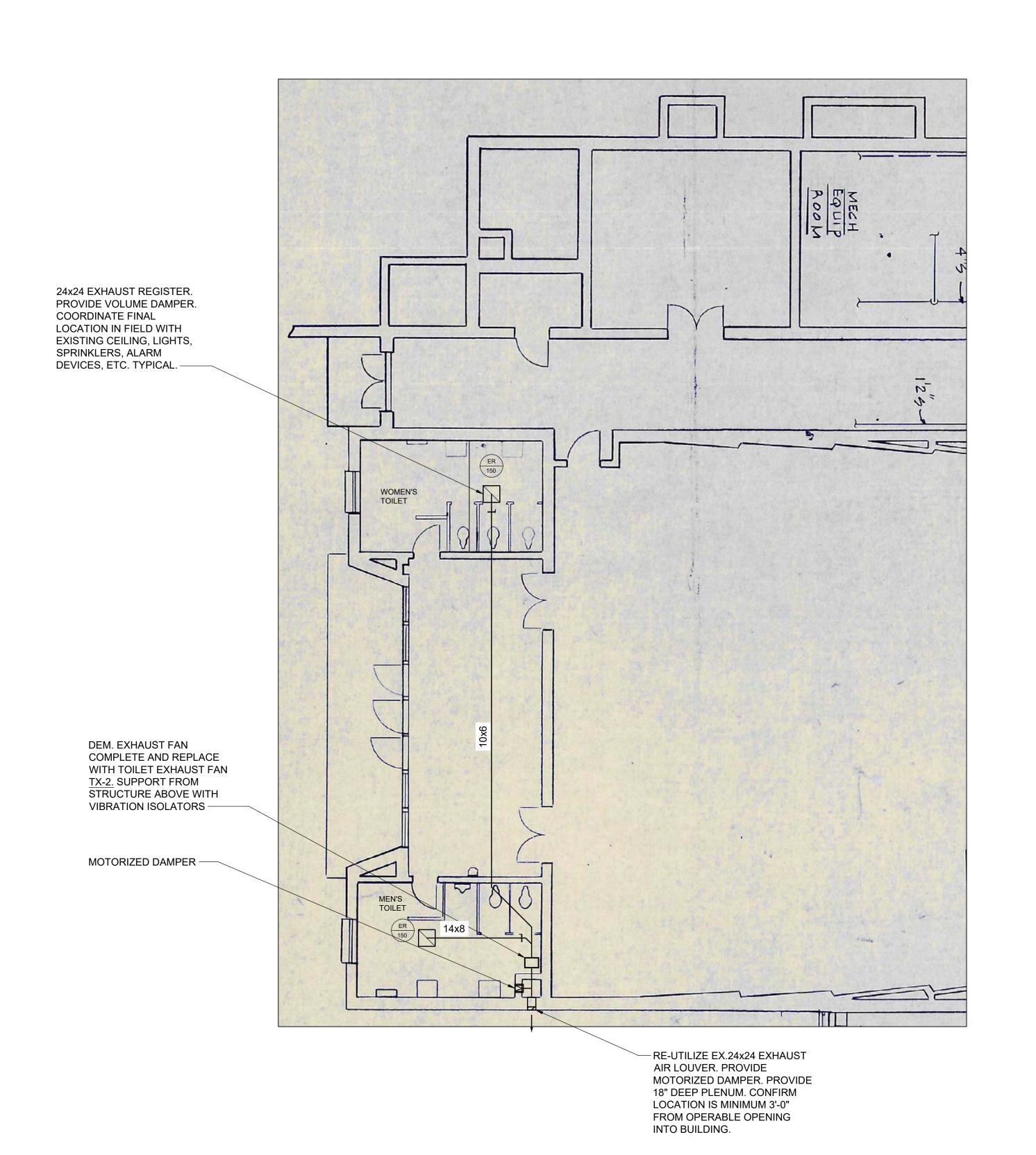
KT Murphy Elementary School Toilet Exhaust Project

> 19 Horton St Stamford, CT 06902

MECHANICAL **SPECIFICATIONS** 



AS SHOWN NKGD0229.00 RAWN BY DRAWING NO.



OLA Consulting Engineers 50 Broadway, Hawthorne, NY 10532 914.747.2800 8 West 38th Street, Suite 501 New York, NY 10018 646.849.4110

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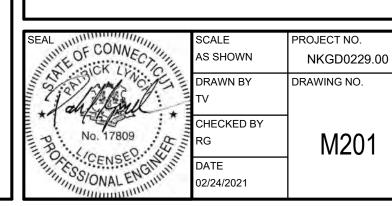
PROJECT TITLE

KT Murphy Elementary School

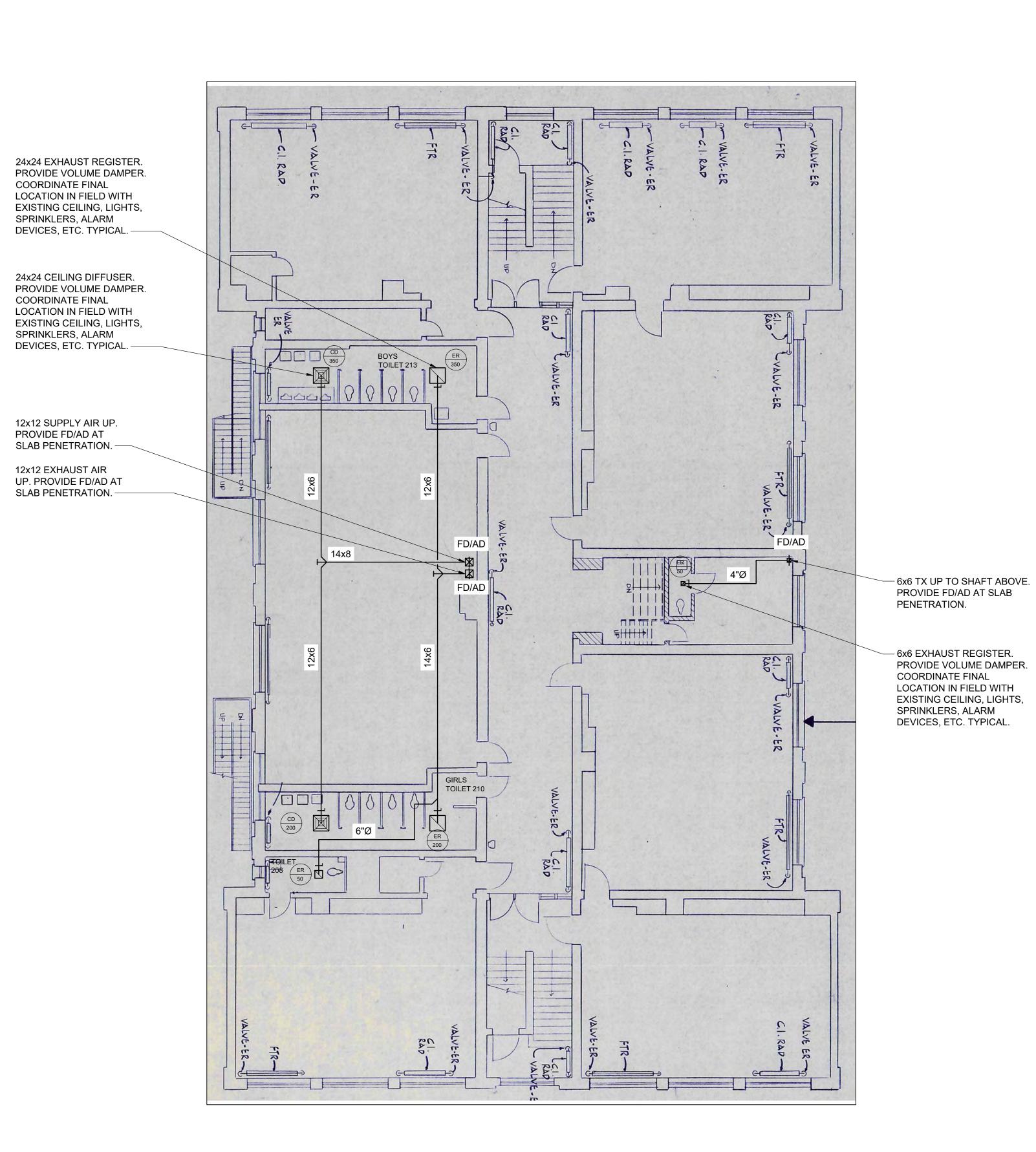
Toilet Exhaust Project

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MECHANICAL FIRST FLOOR NEW WORK PLAN



MECHANICAL FIRST FLOOR NEW WORK PLAN
SCALE: 1/8" = 1'-0"



CONSULTING

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PROJECT TITLE

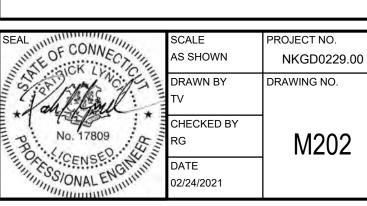
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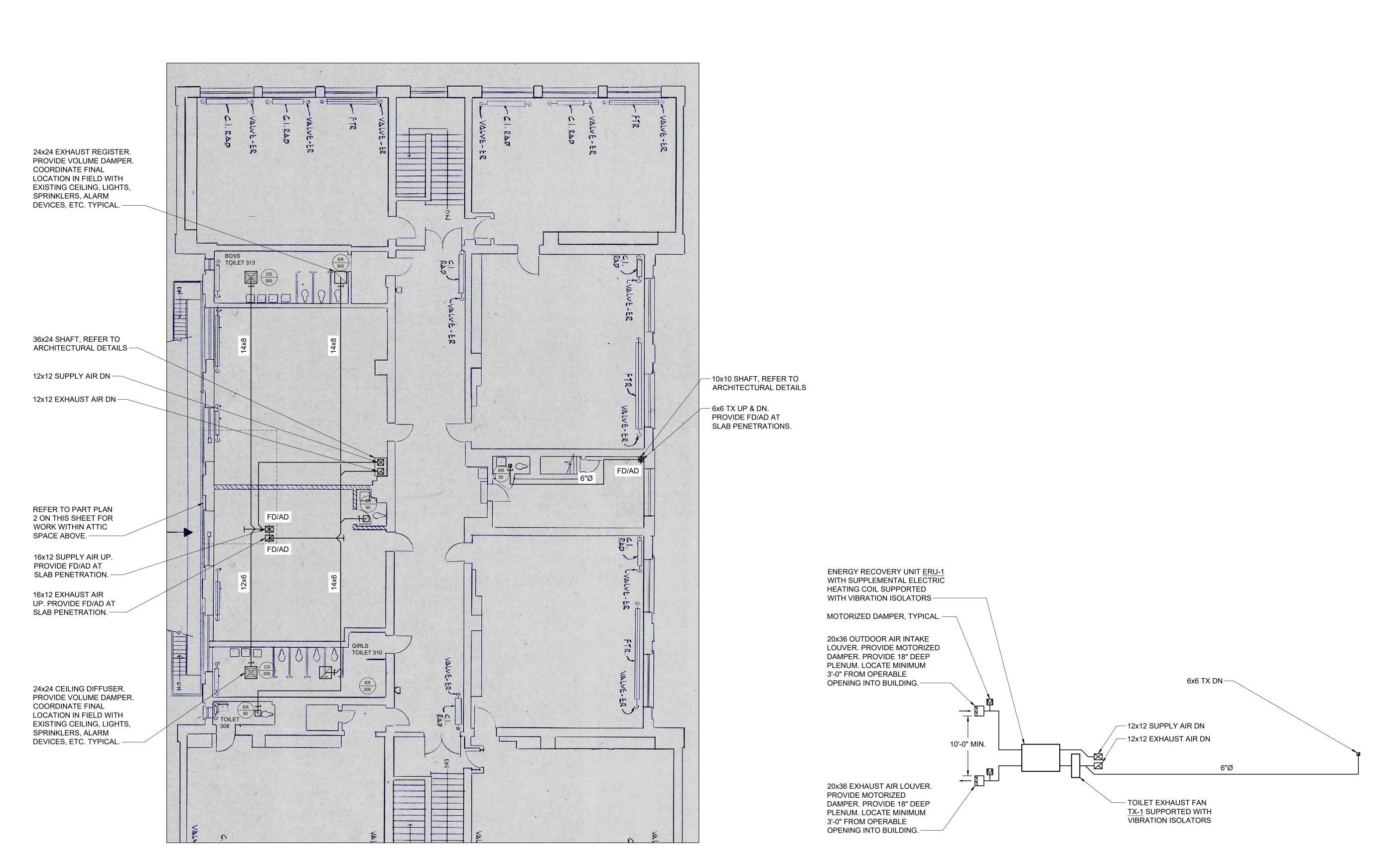
DRAWING TIT

MECHANICAL SECOND FLOOR NEW WORK PLAN



MECHANICAL SECOND FLOOR NEW WORK PLAN

SCALE: 1/8" = 1'-0"



MECHANICAL THIRD FLOOR NEW WORK PLAN
SCALE: 1/8" = 1'-0"

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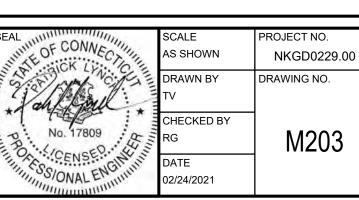
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KT Murphy Elementary School

Toilet Exhaust Project

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| MECHANICAL THIRD FLOOR | & ATTIC NEW WORK PLANS



2 MECHANICAL ATTIC NEW WORK PLAN
SCALE: 1/8" = 1'-0"

DESIGNATION	E	R		-
MODEL	3	FS		
MAX NK VEL (FT/MIN)	50	00		
MAX NC	2	25		
CONSTRUCTION	ALUM	1INUM		
BORDER/FRAME	SURFACE	MOUNTED		
DEFLECTION	45° F	45° FIXED		
SPACING	3/	3/4"		
	CFM RANGE	NOMINAL NECK SIZE	CFM RANGE	NOMINAL NECK SIZE
	0-150	8x8		
	151-250	10x10		
	251-350	12x12		
	351-725	18x18		
	726-950	22x22		
	951-1100	24x24		
	1101-1400	24x30		

1. RETURN REGISTERS ARE BASED ON TITUS.

2. THE ABOVE SCHEDULE INDICATES NOMINAL REGISTER NECK SIZES. THE CONTRACTOR SHALL COORDINATE THE REGISTER SIZE IN THE FIELD ACCORDING TO THE ACTUAL DUCT DIMENSIONS AND MAINTAIN AN EQUIVALENT CORE AREA. 3. ALL REGISTERS SHALL BE EQUIPPED WITH AN OPPOSED BLADE VOLUME DAMPER.

4. SUBMIT COLOR CHART FOR REVIEW AND APPROVAL BY ARCHITECT. 5. RETURN REGISTERS SHALL HAVE FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED. CONTRACTOR TO COORDINATE.

CEILING DIFFUSER SCHEDULE				
DESIGNATION	CD			
MODEL	ON	MI		
MAX CORE VEL (FT/MIN)	55	50		
MAX NC	2	5		
CONSTRUCTION	STE	EEL		
FRAME	LA	/-IN		
DEFLECTION	4 WAY			
FACE SIZE	24x24 / 12x12			
	CFM RANGE	NECK SIZE Ø	CFM RANGE	NECK SIZE Ø
	0-100	6"	0-100	6"
	101-200	8"	101-200	8"
	201-350	10"	201-350	10"
	351-450	12"	351-450	12"
	451-600	14"	451-600	14"
	601-700	15"	601-700	15"
IOTEO				

1. CEILING SUPPLY DIFFUSERS ARE BASED ON TITUS.

2. ALL DIFFUSERS SHALL BE EQUIPPED WITH AN OPPOSED BLADE VOLUME DAMPER.

3. COORDINATE COLOR SELECTION WITH ARCH PLANS.

4. SUPPLY DIFFUSERS SHALL HAVE FRAMES AND BORDERS SUITABLE FOR THE CONSTRUCTION IN WHICH THEY WILL BE INSTALLED, CONTRACTOR TO COORDINATE.

5. ALL LAY-IN DIFFUSERS SHALL HAVE A MODULE SIZE OF 24x24. FACE SIZES SHOWN IN SCHEDULE ARE FOR SURFACE MOUNT DIFFUSERS. NECK SIZES VARY ACCORDING TO THE SCHEDULE.

6. DIFFUSER BLOW PATTERN IS AS SHOWN ON DRAWINGS.

FAN SCHEDULE			
DESIGNATION	TX-1	TX-2	
LOCATION	ATTIC	AUDITORIUM BATHROOMS	
AREA SERVED	2ND & 3RD FLOOR BATHROOMS	AUDITORIUM BATHROOMS	
MANUFACTURER	GREENHECK	GREENHECK	
MODEL	CSP-A1750	CSP-A510	
CFM	1300	300	
FAN RPM	1325	1070	
SP (IN H₂O)	1	.375	
VOLTS/Ø/Hz	208/1/60	208/1/60	
AMPS	10.3	3.11	
MAX INPUT WATTS	1153	218	
INTERLOCK	ERCH-1	-	
NOTES:			

I. ALL MOTORS SHALL BE PREMIUM EFFICIENCY.

2. FURNISH MOTOR STARTERS AND DISCONNECT SWITCHES FOR EACH FAN.

3. FURNISH MOTOR AND BELT GUARD FOR ALL EXTERNAL MOTOR DRIVES. 4. FURNISH RUBBER IN SHEAR OR SPRING VIBRATION ISOLATORS AS PER THE SPECIFICATION.

5. FURNISH WALL MOUNTED SPEED CONTROLLER OR THERMOSTAT AS INDICATED ON PLAN.

## **EQUIPMENT NOTES**

- MOTORIZED DAMPER: SHALL BE RUSKIN MODEL CD40. 4" DEEP EXTRUDED ALUMINUM AIRFOIL DAMPER. DAMPER SHALL HAVE OPPOSED BLADES, MOTOR, AND LINKAGE. DAMPER SHALL BE LOW-LEAKAGE RATED
- 1.1. OUTSIDE AIR INTAKE & EXHAUST DAMPERS SHALL BE CLASS I MOTORIZED DAMPERS WITH MAXIMUM LEAKAGE RATE OF 4 CFM/FT<sup>2</sup> @ 1.0" W.G.; TESTED IN ACCORDANCE WITH AMCA 500D. DAMPERS SHALL BE CONFIGURED TO CLOSE AUTOMATICALLY WHEN THE SYSTEMS OF SPACE SERVED ARE NOT IN USE.
- 2. ALL HVAC EQUIPMENT SHALL HAVE 3" HIGH BLACK LAMACOID NAME PLATES WITH WHITE ENGRAVED LETTERS PERMANENTLY FASTENED TO EQUIPMENT. TYPICAL FOR ALL PUMPS AND HVAC EQUIPMENT.
- 3. LOUVERS: SHALL BE RUSKIN MODEL ELF15J, WITH 50% FREE AREA, 6063T5 EXTRUDED ALUMINUM BLADES AT 45° ANGLE AND 1-7/8" SPACING, 1-1/2" DEEP 6063T5 EXTRUDED ALUMINUM FRAME, AND 1/2" GALVANIZED STEEL BIRD SCREEN. MINIMUM LOUVER SIZE 6"x6". ANODIZED CUSTOM COLOR TO BE SELECTED BY ARCHITECT. COORDINATE WITH ARCHITECTURAL PLANS.
- 4. VOLUME CONTROL DAMPERS: FOR ALL ROUND & RECTANGULAR VOLUME CONTROL DAMPERS THAT ARE LOCATED ABOVE INACCESSIBLE CEILINGS, PROVIDE CABLE OPERATED DAMPERS. ROUND DAMPERS SHALL BE YOUNG BOWDEN MODEL 5020-CC. RECTANGULAR DAMPERS SHALL BE MODEL 830-CC2. CABLE CONTROLS SHALL BE MODEL 270-275 FOR CONCEALED LOCATIONS & MODEL 270-896C FOR LOCATIONS WHERE CABLES TERMINATE IN FINISHED SPACES. COORDINATE LOCATIONS IN THE FIELD.

## MAKE-UP AIR & ENERGY RECOVERY UNIT SCHEDULE

DESIGNATION	ERU-1	
LOCATION	ATTIC	
AREA SERVED	2ND & 3RD FLOOR BATHROOMS	
MANUFACTURER	GREENHECK	
MODEL	ERCH-20-30L-EH-01	
WEIGHT (LBS)	1134	
SUPPLY & EXHAUST FAN:		
CFM	1150	
MIN OA CFM	1150	
HP	1	
ESP (IN H <sub>2</sub> O)	1	
ENERGY RECOVERY PERFO	RMANCE (SUMMER):	
DESIGN OA (DB/WB)	87.4 / 76	
DESIGN SA (DB/WB)	77 / 65.4	
DESIGN RA (DB/WB)	75 / 62.5	
DESIGN EA (DB/WB)	85.3 / 73.7	
CAPACITY (MBH)	47.8	
ENERGY RECOVERY PERFO	RMANCE (WINTER):	'
DESIGN OA (DB/WB)	0 / -1.5	
DESIGN SA (DB/WB)	56 / 48.9	
DESIGN RA (DB/WB)	68 / 56.8	
DESIGN EA (DB/WB)	12.3 / 12.2	
CAPACITY (MBH)	69.5	
HEATING COIL: (ELECTRIC)	-	
E.A.T. (°F) DB/WB	56	
L.A.T. (°F) DB/WB	78.6	
CAPACITY (kW)	8.3	
FILTERS DATA:		
QUANTITY	2	
No./SIZE	2"MERV 8, 20x20	
ELECTRICAL DATA:		
VOLTS/Ø/Hz	208/3/60	
MCA	39.7	+
MAX FUSE SIZE	40	+
NOTES:	1	

1. PROVIDE THE FOLLOWING OPTIONS:

100% OUTSIDE AIR UNIT. DIRTY FILTER SENSOR.

· EXTRA DRIVE BELT AND FILTER SET.

· DISCONNECT SWITCH.

FREEZE-STAT.

2. PROVIDE THE FOLLOWING MOTOR CONTROL OPTIONS:

SINGLE POINT EXTERNAL POWER CONNECTION. · ALL MOTORS 1 HP OR GREATER SHALL BE PREMIUM EFFICIENCY. ALL MOTORS FURNISHED WITH VARIABLE FREQUENCY DRIVES SHALL BE INVERTER DUTY RATED & APPROVED FOR VARIABLE SPEED AND TORQUE

APPLICATIONS. · UNITARY CONTROLLER BY AUTOMATIC TEMPERATURE CONTROLS MANUFACTURER, COMPATIBLE WITH THE BUILDING AUTOMATION SYSTEM. 3. MOTOR STARTER WITH PHASE LOSS PROTECTION & DISCONNECT SWITCH FOR EACH UNIT SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR & INSTALLED BY THE ELECTRICAL CONTRACTOR. EACH UNIT SHALL BE FURNISHED WITH UNIT-MOUNTED LOCAL DISCONNECT SWITCH.



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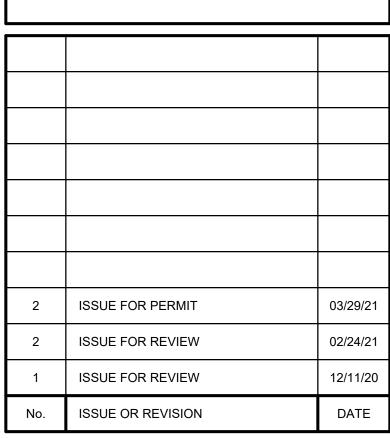
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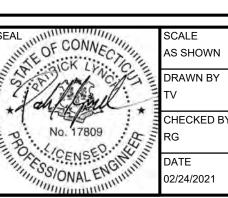
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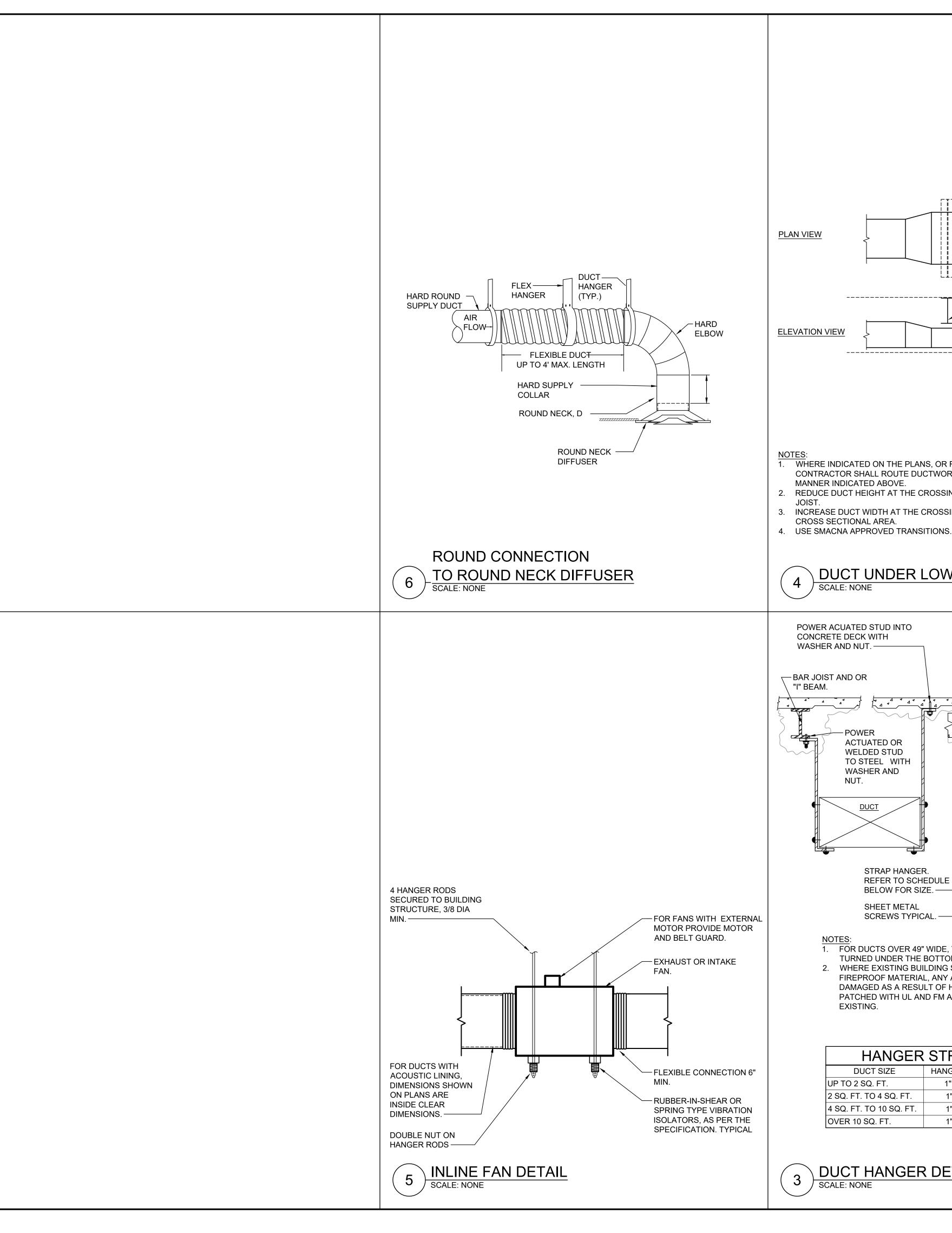
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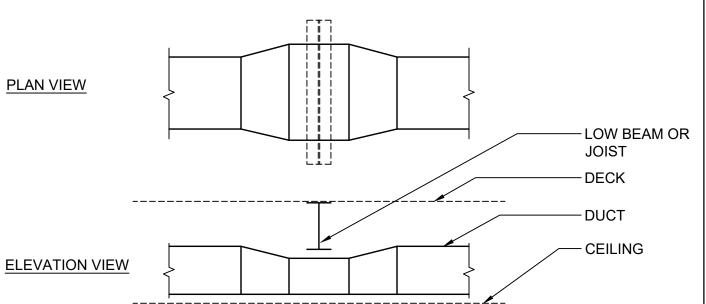
| MECHANICAL EQUIPMENT NOTES & SCHEDULES

NKGD0229.00

DRAWING NO.



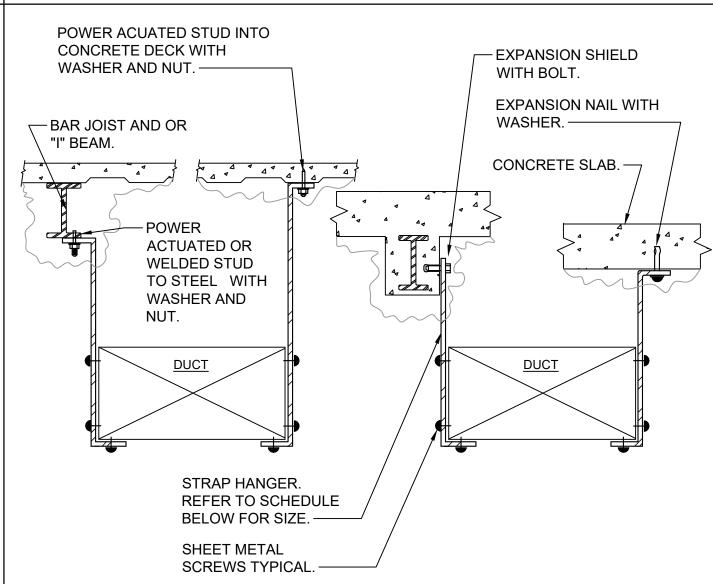




WHERE INDICATED ON THE PLANS, OR REQUIRED DUE TO FIELD CONDITIONS, THE CONTRACTOR SHALL ROUTE DUCTWORK UNDER LOW BEAMS OR JOISTS IN THE

- 2. REDUCE DUCT HEIGHT AT THE CROSSING IN ORDER TO FIT UNDER THE BEAM OR
- 3. INCREASE DUCT WIDTH AT THE CROSSING IN ORDER TO MAINTAIN THE SAME

## DUCT UNDER LOW BEAM DETAIL

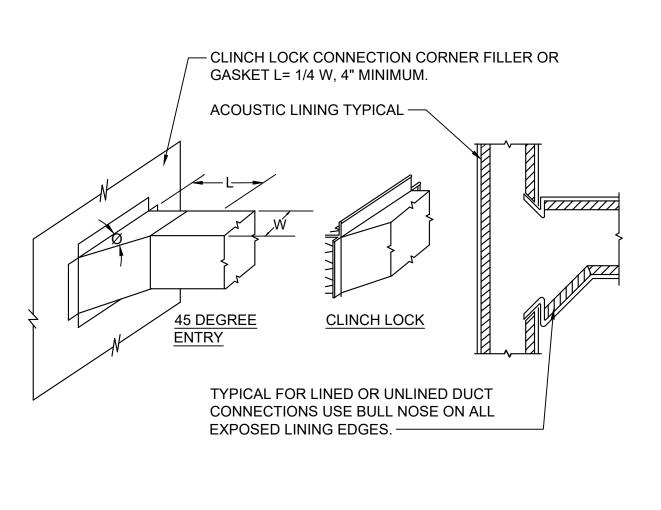


### 1. FOR DUCTS OVER 49" WIDE, THE STRAP HANGER SHALL BE TURNED UNDER THE BOTTOM OF THE DUCT.

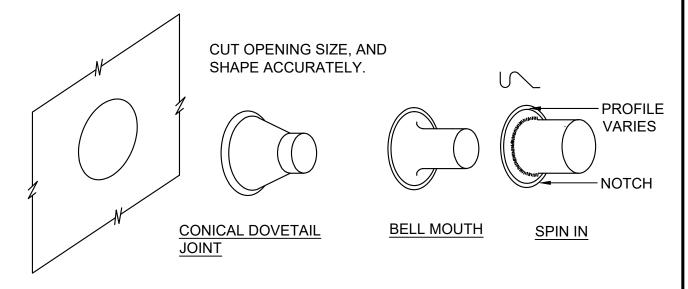
2. WHERE EXISTING BUILDING STRUCTURAL COMPONENTS HAVE FIREPROOF MATERIAL, ANY AREA THAT IS DISTURBED OR DAMAGED AS A RESULT OF HANGER INSTALLATION SHALL BE PATCHED WITH UL AND FM APPROVED FIREPROOFING TO MATCH

HANGER STRAP SCHEDULE			
DUCT SIZE	HANGER SIZE	MAXIMUM SPACING	
UP TO 2 SQ. FT.	1" x ½"	8'-0"	
2 SQ. FT. TO 4 SQ. FT.	1" x 1/8"	8'-0"	
4 SQ. FT. TO 10 SQ. FT.	1" x 1/8"	6'-0"	
OVER 10 SQ. FT.	1" x ½"	4'-0"	

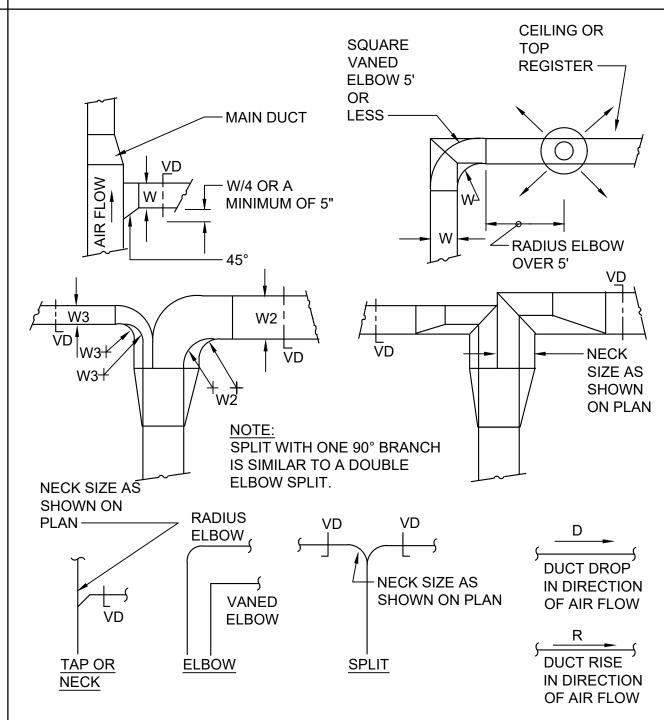
**DUCT HANGER DETAIL** 



CLOSE ALL OPENINGS AT CORNERS WITH FILLER PIECE OR GASKET.



## DUCT BRANCH CONNECTION DETAIL SCALE: NONE



GIVEN.

SCALE: NONE

- SINGLE LINE REPRESENTATIONS REFER TO DOUBLE LINE DETAILS. 2. USE RADIUS OR SQUARE VANED BENDS FOR BOTH ELBOWS AND SPLITS AS DETERMINED BY SPACE LIMITATIONS, AND THE DISTANCE FROM AIR
- 3. ALL SQUARE ELBOWS SHALL HAVE FACTORY TURNING VANES, AND
- MAINTAIN A CONSTANT WIDTH.
- 4. WHERE DUCTS SPLIT, THE SOLID LINE REPRESENTATION IS PREFERRED, UNLESS PRECLUDED BY SPACE, OR OTHERWISE INDICATED. 5. USE ELBOW SPLIT FOR BRANCH CONNECTIONS ONLY WHERE NECK SIZE IS

**DUCT BRANCH TAKE-OFF DETAIL** 



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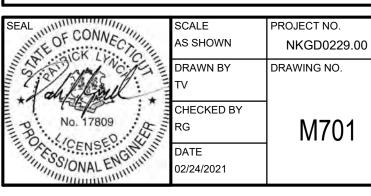
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PROJECT TITLE

KT Murphy Elementary School Toilet Exhaust Project

> 19 Horton St Stamford, CT 06902

MECHANICAL DETAILS



## **EXHIBIT B**

(General Conditions - 20 pages)

#### STAMFORD PUBLIC SCHOOLS

#### GENERAL CONDITIONS

#### 1. BID:

- a) Bids, as stated in the "Bid Sheet", will be compared on the basis of the sum of the quantities multiplied by respective unit prices, added to lump-sum prices.
- b) In the event that there is a discrepancy in the bid sheet between the lump sum and unit prices written in words and figures, the prices written in words shall govern.
- c) Stamford Public Schools agrees to examine and consider each bid submitted in consideration of the Bidder's Agreements, as hereinabove set forth in the Bid Sheet.
- d) Bid Sheet is used for itemized unit price and quantifiable work. Bid Form, described elsewhere, is for Lump Sum Total Construction Cost work.

#### 2. OBLIGATION OF BIDDERS:

- a) At the time of opening of bids, each bidder shall be presumed to have inspected the sites, and to have read and made themselves thoroughly familiar with the Plans and Contract Documents including all addenda. The failure or omission of any bidder to receive or examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect to his bid.
- b) Each bidder must fully inform themselves of the construction and labor conditions relating to the work which is now or will be performed. Failure to do so will not relieve the successful bidder of their obligation to furnish all labor and materials necessary to carry out the provisions of the contract documents and to complete the contemplated work. In as much as possible, the contractor must, in carrying out work, employ such methods or means as will not cause any interruptions or interference with the work of any other contractor.
- c) The successful bidder must furnish a field and office organization chart and equipment list to be used on the job to demonstrate that he has the capability to perform the work prescribed for this project and shall furnish Stamford Public Schools all other information and data requested on the form provided for this purpose; such submission to be made prior to construction startup.
- d) The Contractor shall supply a foreman full time on the job. Such foreman must be satisfactory to Stamford Public Schools. Failure to comply shall be cause for breach of contract.
- e) The Contractor's normal sequence of operation in performing the work under the terms of this contract shall be varied at the direction of Stamford Public Schools, so that priorities can be given in critical areas such as schedule, right-of-way, clearance, safety & security, and other Stamford Public Schools commitments, either present or future.
- f) The Contractor shall file an appeal to the Superintendent of Schools if the sequence of operation in performing the work is varied by Stamford Public Schools in a manner that is unacceptable to the Contractor.
- g) The Contractor shall have no claim against the City for damages or extra compensation on account of delays in execution of the work or delays in making the construction site available to the Contractor.

#### 3. CONTRACT DOCUMENTS:

a) Whenever the term "Contract Documents" is used herein, it shall include the Agreement, Information to Bidders, General Specifications, Bid Documents, Technical Specifications, Special Notes, Addenda, Project Plans, *Drawings and Sketches that are supplied* including all modifications thereof incorporated in the documents before their execution.

#### 4. STAMFORD PUBLIC SCHOOLS FACILITIES DEPARTMENT:

- a) The Stamford Public Schools Facilities Department will represent Stamford Public Schools, and shall have complete charge of all work involved final determination based on the recommendations made by the Architect, of all work involved.
- b) Hereinafter where the word "Facilities Department" appears it shall mean Stamford Public Schools Facilities Department or their duly authorized representatives performing their usual duties. i.e. Director of Facilities, Facilities Manager, etc.

#### 5. ARCHITECT:

a) The Architect of Record will be the entity governing the interpretation of the Contract Documents. The Architect shall have control over the quality of work and the conformance to the Contract Documents. Hereinafter where the word "Architect" appears it shall mean the Architect or his duly authorized representative performing their usual duties.

#### 6. CONTRACTOR:

a) Party of the second part to the contract, acting directly or through his agent or employees.

#### 7 SUBCONTRACTOR:

- a) Any individual, firm, partnership or corporation to whom the Contractor sub-lets or assigns any part or parts of this project covered by this contract.
- b) Subcontractor lists shall be provided by Contractor, and approved by Facilities Department.

#### 8. <u>NOTICE</u>:

- a) The term "notice" as used herein shall mean and include written notices.
- b) Written notice shall be deemed to have been served, when deposited in a United States Mail Box to or at last known business address of the person, firm or corporation for whom intended, or their or its duly authorized agent, representative or office, or enclosed in a postage prepaid wrapper or envelope addressed to such person or firm or corporation at his or their or its last known business address.

#### 9. TIME IS OF THE ESSENCE:

- a) Time is of the essence for this contract and as execution of the work may inconvenience property owners, vehicular traffic, pedestrians and adversely affect business in the area, it is essential that the work be pressed vigorously to completion. Also the cost of Facilities Department and the Architect's administration and supervision of construction, will be increased as the time occupied in the work is lengthened, and the deprivation to the occupants of Stamford Public Schools of the needed improvement on herein contract may cause damages to Stamford Public Schools.
- b) In the event the Contractor fails to perform the work in a timely manner due to the Contractor's poor planning, financial status, errors in construction or any other reason directly attributed to the Contractor's circumstances, Stamford Public Schools may institute default

proceedings against the Contractor to recover damages and losses. Any payments due the Contractor may be withheld pending final determinations, and the bonding company for the performance of the work on this contract may be notified of impending actions that may be warranted.

- c) If any delay is imposed on the Contractor by specific orders of the Architect or Engineer, i.e.; to stop the work (for reasons other than failure on the part of the Contractor to comply with the requirements of the Contract Documents), material or labor strikes, acts of God, etc., such delay will entitle the Contractor to an equivalent extension of time.
- d) When extra or additional work is ordered by the Architect, the Contractor will be allowed an extension of time expressed in days as determined by the Architect. The Contractor shall submit a written request for an extenuation of time, along with reasons for the request. A written response will be transmitted to the Contractor with a determination by Stamford Public Schools as to whether or not an extension of time will be granted. This shall be done in accordance with the provisions of the Stamford Code, Article II, Purchasing, Section 23-18.4, Contracts.

#### 10. COMMENCEMENT OF WORK:

a) The Contractor shall commence work on the day specified in the order by the Architect, as the date of such commencement; and shall fully complete the work within the number of consecutive calendar days from said date as hereinafter specified as the period for completion of their contract, unless such period shall be extended as hereinafter provided by Stamford Public Schools.

#### 11. BID FORM:

- a) Bid Form is used for Lump Sum Total Construction Cost work. All bids must be written or typed upon the Bid Form, and must state the proposed price of each item of the work, both in words and in figures, and must be signed by the bidder with his business address.
- b) All information is to be completed on the Bid Form. Incomplete form may be rejected as non-conforming. Exclusions or other extraneous notes are not to be written on the Bid Form and may be the basis for elimination.

#### 12. WORKING HOURS AND HOLIDAYS:

- a) The Contractor shall perform no work during Facilities Department employees' holidays nor before or after the Stamford Public Schools' normal working hours, without specific approval of the Facilities Department.
- b) Overtime hours are to be pre-approved by the Facilities Department and compensated via a Change Order to the Contract Sum.
- c) The normal working hours of Stamford Public Schools are Monday through Friday, 7:00 a.m. to 3:00 p.m. Other hours must be arranged in advance.

#### 13. GUARANTEE MAINTENANCE BOND:

a) The Contractor shall secure a maintenance bond with a company which shall have been approved by the Corporation Counsel of the City of Stamford, guaranteeing his work in all phases of construction for a period of two (2) years from the date of acceptance by the City which shall also cover all damages due to trench settlement.

- b) Unless noted otherwise on the Bid Cover Sheet, the face value of the maintenance bond shall be 10% of the base bid of contracts. For contracts less than \$50,000, the face value shall be \$5,000.00.
- c) The Contractor shall leave the work in perfect order at completion, and neither the final certificate of payment nor any other provision of the contract shall relieve the Contractor of the responsibility for negligence, for faulty materials or workmanship within the extent and period as herein provided. Upon written notice the Contractor shall remedy all defects due thereto and pay all expenses for any damage to other work resulting therefrom.

#### 14. ADDITIONAL OR SUBSTITUTE BOND:

- a) If at any time Stamford Public Schools becomes dissatisfied with the performance bond as issued by the present surety or sureties, or if for any other reason such bond shall cease to be adequate surety to Stamford Public Schools, the Contractor shall within five (5) days after notice from the City to do so, substitute an acceptable bond in such form and sum and signed by such other sureties as may be satisfactory to the City.
- b) The premium on such bonds shall be paid by the Contractor. No further payment shall be deemed due nor shall be made until new sureties shall have qualified.

#### 15. POWER OF ATTORNEY:

a) Attorneys-in-fact who sign contract bonds must file with each bond a certified copy of their power of attorney to sign said bond.

#### 16. QUALIFICATIONS FOR EMPLOYMENT:

- a) No person under the age of sixteen (16) years and no person currently serving sentences in a penal or correctional institution shall be employed to perform any work on the project under this contract.
- b) No person whose age or physical condition is such as to make his employment dangerous to his health or safety or to the health and safety of others shall be employed to perform any work on the project under this contract.
- c) Provided that this sentence shall not operate against the employment of physically handicapped persons otherwise employed where such persons may be safely assigned to work which they can ably perform.
- d) There shall be no discrimination because of race, creed, color or political affiliation in employment of persons for work on the project under this contract.

#### 17. PAYMENT OF EMPLOYEES:

- a) The Contractor and each of his subcontractors shall pay each of his employees engaged in the work on the project under this contract in full (less deductions made mandatory by law) in a timely and routine manner.
- b) The Contractor and each of his subcontractors shall pay prevailing wage as required on projects totaling amounts which trigger prevailing wages in accordance with Connecticut Department of Labor.

#### 18. ACCIDENT PREVENTION:

- a) Precaution shall be exercised at all times for the protection of all persons (including employees) and property.
- b) The safety provisions of applicable laws, building and construction codes shall be observed.
- c) Reference is hereby made to Occupational Safety and Health Administration standards as described in OSHA Construction Standards found in 29 CFR 1926
- d) Machinery, equipment and all hazards shall be guarded or eliminated in accordance with the safety provisions of the manual of "Accident Prevention in Construction", published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable laws.

#### 19. INSPECTION:

a) The Architect or his authorized representative shall be permitted to inspect the work, materials, payrolls, records of personnel, invoices of material and other relevant data and records of this contract.

#### 20. PAYMENTS:

- a) Stamford Public Schools' terms of payment are Net 45 Days after approval of invoice by Facilities Department employee. No invoice will be paid until acceptance of goods ordered.
- b) Application for payment must be submitted by the Contractor to the Architect, for certification and approval of quantities and costs incurred during said pay period. Only upon approval by designated representative will application be forwarded to Stamford Public Schools for approval and processing.
- c) Stamford Public Schools shall retain five percent (5%) of each application until final completion and acceptance of all work covered by this contract.

#### 21. TECHNICAL SPECIFICATIONS "OR EQUAL CLAUSES":

- a) Whenever in this contract or specifications, a particular brand or make of material, device or equipment is shown or specified, such brand, make of material, device or equipment should be regarded merely as a standard unless otherwise specified.
- b) If three or more brands, makes of material, devices or equipment are shown or specified, each should be regarded as the equal of the others.
- c) When in the opinion of the Architect, any other brand, make of material, device or equipment is recognized as equal to that specified, considering quality, workmanship and economy of operation, and suitable for the purpose intended, it will be accepted.
- d) In the opinion of the Architect, all material and workmanship shall in every respect be in accordance with what is in conformity with approved modern practice.
- e) Whenever the plans, drawings, specifications, other contract documents, or the quality of the work, admit of doubt as to what is permissible, the interpretation will be made by the Architect, as to which is in accordance with approved modern practice, in order to meet the particular requirements of the contract.
- f) In all cases, new material shall be used unless the Architect waives this provision with a special written notice.

#### 22. INSPECTION AND TESTS:

- a) All material and workmanship (if not otherwise designated) shall be subject to inspection, examination and tests, by the Architect, or his duly authorized representatives, at any and at all times during the manufacture and/or construction, and at any and all places where such manufacture or construction is carried on.
- b) Without additional charge, the Contractor shall furnish promptly all reasonable facilities, labor and material necessary to make tests so required, safe and convenient.
- c) Special full size and performance tests shall be conducted as described in the specifications.
- d) If at any time before final acceptance of the entire work, the Architect considers necessary or advisable any examination of any portion of the work already completed, by removing or tearing out the same, the Contractor shall upon request, furnish promptly all necessary facilities, labor and materials.
- e) If such work is found to be defective in any material respect, due to material or faulty construction by the Contractor, or any subcontractor, or if any work shall be covered over without approval of the Architect (whether or not the same shall be defective) the Contractor shall be liable for the expense of such examination and of satisfactory reconstruction.
- f) If, however, such approval and consent shall have been given and if such work is found to meet the requirements of this contract, the Contractor shall be compensated for the extent of such examination and reconstruction in the manner herein provided for the payment of the cost of "EXTRA WORK."

#### 23. COSTS AND TESTS:

- a) The selection of Bureau Laboratories, and/or agencies for the inspection and tests of supplies, materials or equipment shall be subject to the direction of the Architect.
- b) If inspection, tests, analysis of the materials or equipment, should disclose that said material or equipment requires rejection, then the cost of said inspection, test analysis shall be borne by the Contractor and said cost shall be deducted from the Contractor's current estimate by the Engineer. If supplies, material or equipment shall be found acceptable, the cost of said inspection, tests or analysis shall be borne by Stamford Public Schools.

### 24. PROTECTION OF WORK AND PROPERTY:

- a) The Contractor shall at all times safely guard Stamford Public Schools' property from injury or loss, in connection with this contract.
- b) The Contractor shall at all times safely guard and protect their own work and that of adjacent property from damage.
- c) The Contractor shall replace and make good any such damage, loss or injury. All passageways, guard fences, lights and other facilities required for protection by local conditions must be provided and maintained.

#### 25. POWER OF CONTRACTOR TO ACT IN AN EMERGECY:

- a) In case of an emergency which threatens loss or injury of property and/or safety of life, the Contractor shall be allowed to act without previous instructions from the Architect or Facilities Department, as they see fit.
- b) The Contractor shall notify the Architect immediately thereafter of any compensation claimed by the Contractor due to such extra work, and shall submit same to the Architect for approval. When the Contractor has not taken action, but has notified the Architect or Facilities Department of an emergency threatening injury to persons or damage to the work,

or any adjoining property, the Contractor shall act as instructed or authorized by the Architect or Facilities Department to prevent such threatened injury or damage.

#### 26. <u>CERTIFICATE OF COMPLETION</u>:

a) Upon completion of all work whatsoever required, the Architect shall file a written certificate with the Facilities Department and the Contractor, for the entire amount of work performed and compensation earned by the Contractor, including extra work and compensation thereof.

#### 27. FINAL PAYMENT:

- a) Within forty five (45) days of filing a Certificate of Completion, Stamford Public Schools shall pay to the Contractor the amount therein stated, less all prior payments and advances whatsoever to or for the account of the Contractor.
- b) All prior estimates and payments, including those relating to extra work, shall be subject to correction by this present payment, which throughout this contract is called the FINAL PAYMENT.

#### 28. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE:

- a) The acceptance by the Contractor of the final payment, shall be and shall operate as a release to Stamford Public Schools of all claims and of all liability to the contract or for all things done or furnished in connection with this work, and for every act and neglect of Stamford Public Schools and others relating to or arising out of this work, accepting the Contractor's claim for interest upon the final payment, if the payment is improperly delayed.
- b) No payment, however, final or otherwise, shall release the Contractor or his sureties from any obligation under this contract or of the performance bond.

#### 29. SUB-SURFACE STRUCTURES:

- a) All sub-surface structures and public utility lines have been located as far as possible, as indicated on the plans and information obtained from the respective utilities.
- b) Stamford Public Schools does not assume the responsibility for the accuracy of this information.

#### 30. <u>SUB-SURFACE CONDITIONS</u>:

- a) Bidders are notified that it is obligatory for them to obtain all the information they require as to the existing physical conditions relative to the work and in particular to sub-surface conditions
- b) The Contractor shall be held liable for any additional cost to the construction which may result due to these conditions, and each bidder in bidding must rely exclusively upon their own investigation and that they make this bid with the full knowledge of the kind, quality and quantity of work required.
- c) The undersigned understands that information relative to subsurface and other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) has been furnished only for his information and convenience without any warranty of guarantee, express or implied, that the subsurface and/or other structures (surface and/or subsurface) actually encountered will be the same as these shown on the drawings or in any of the other contract documents and he agrees that he shall not use or be entitled to use any such information made available to him through the contract documents or otherwise or obtained

by their own examination of the site, as a basis of or ground for any claim against Stamford Public Schools, arising from or by reason of any variance which may exist between the aforesaid information made available to or acquired by them and the subsurface and/or other conditions, natural phenomena, existing pipes and other structures (surface and/or subsurface) actually encountered during the construction work, and they have made due allowance therefor in this bid.

#### 31. CONTRACTOR'S TITLE TO MATERIALS:

a) No materials or supplies for the work shall be purchased by the Contractor or sub-contractor, subject to any chattel mortgage or under any conditional sale or other agreement for which interest is retained by the seller.

#### 32. SUPERINTENDENCE BY CONTRACTOR:

- a) The Contractor shall employ a project superintendent who shall be present full time at the site of the work and who shall have full authority to act for the Contractor.
- b) The Contractor shall employ a project foreman who shall be in attendance at the worksite during working hours.
- c) It is understood that such representative shall be acceptable to Stamford Public Schools and shall be one whose experience and length of service in this particular kind of work warrants their ability to perform the duties entailed to the satisfaction of the Facilities Department, and who can continue in that capacity for the particular job involved unless they cease to be employed by the Contractor.
- d) The Facilities Department reserves the right of investigation to satisfy Stamford Public Schools that the appointed superintendent is properly qualified to carry out the obligations entailed to perform the work herein contemplated in the plans and specifications and directions.

#### 33. <u>REPRESENTATIONS OF CONTRACTORS</u>:

- a) The Contractor represents and warrants:
  - a. That they are financially solvent and that they are experienced in and competent to perform the type of work, or to furnish plant and equipment materials and supplies.
  - b. That they are familiar with all Federal, State and Municipal laws, ordinances and regulations, which in any way may affect the work of those employed therein.
  - c. That they have carefully examined the plans and specifications and the site of the work, and that from their own investigation they has satisfied themselves about the nature and location of the work, character, quality and quantity of the surface and sub-surface materials likely to be encountered, as well as the character of equipment and other facilities needed for the performance of the work, the general local conditions and all other conditions which may in any way affect the work.

#### 34. PATENT RIGHT:

a) As part of their obligation hereunder and without any additional compensation, the Contractor will pay for all patent fees or royalties required in respect to the work or any part thereof, and will fully indemnify Stamford Public Schools for any loss on account of infringement of any patent rights.

#### 35. PERMITS AND REGULATIONS:

- a) The Contractor shall procure and pay for all permits and licenses necessary for the execution of work.
- b) The Contractor shall comply with all laws, ordinances, rules and regulations relating to the performance of the work.

#### 36. CORRECTION OF WORK:

- a) All work, all material, whether incorporated in the work or not, all processes of manufacture and all methods of construction, shall be at all time and places subject to the inspection of the Architect, who shall be the final judge of the quality and suitability of the work and materials, processes of manufacture and methods of construction for the purpose for which they are used.
- b) Should items fail to meet the approval of the Architect items shall be forthwith reconstructed, made good, replaced and corrected, as the case may be, by the Contractor, at their own expense.
- c) Rejected material shall immediately be removed from the site.
- d) Acceptance of material and workmanship by the Inspectors shall not relieve the Contractor from his obligation to supply other materials and workmanship when so ordered by the Architect.
- e) If, in the opinion of the Architect, it is undesirable to replace any defective or damaged material, or to reconstruct or correct any portion of the work injured or not performed in accordance with the contract, the compensation to be paid to the Contractor hereunder, shall be reduced by such amount which the Architect deems equitable.
- f) The Contractor expressly warrants that his work shall be free from any defects in material or workmanship, and agrees to correct any such defects, which may appear within the maintenance period, following final completion of work.
- g) Neither acceptance of the completed work, nor payment thereof, shall operate to release the Contractor or his sureties from any obligation under or upon this contract or the performance bond.

#### 37. STATEMENT SHOWING AMOUNT DUE FOR WAGES, MATERIAL AND SUPPLIES:

- a) With each application for payment under this contract, the Contractor and every subcontractor shall deliver to Stamford Public Schools a written verified statement in a form satisfactory to Stamford Public Schools, showing in detail the amounts then due and unpaid by such Contractor or subcontractor, to all laborers for daily or weekly wages, men employed by Contractor under the contract for performance of work at the site thereof, or to other persons for material and equipment delivered at the site of the work.
- b) The term "laborers" as used herein, shall include workmen and mechanics.

#### 38. RIGHT TO WITHHOLD PAYMENTS:

- a) Stamford Public Schools may withhold from the Contractor as much of any approved payment due him, as Stamford Public Schools deems necessary.
  - a. <u>1st.</u> To assure the payment of just claims due and unpaid of any person supplying labor or materials for the work.
  - b. 2nd. To protect Stamford Public Schools from loss due to defective work not remedied.

- c. <u>3rd.</u> To protect Stamford Public Schools 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 of his subcontractors.
- b) Stamford Public Schools shall have the right, as agent for the Contractor, to apply any such amounts so withheld in such manner as Stamford Public Schools may deem proper, to satisfy such claims or to secure such protection.
- c) Distribution of such money shall be considered as payments for the amount of the Contractor.

#### 39. RIGHT TO STOP WORK OR TERMINATE CONTRACT:

- a) If the Contractor shall be adjudged bankrupt, an assignment shall be made for the benefit of creditors. A receiver or liquidator shall be appointed for the Contractor and for any of his property. The Contractor shall be dismissed within twenty (20) days after such appointment. The proceedings in connection therewith shall not be stayed within the said twenty (20) days. If the Contractor shall refuse or fail after notice or warning from the Facilities Department, to supply enough properly skilled workmen or proper materials, or if the Contractor shall fail to prosecute the work or any part thereof with such diligence as will insure its completion within the period herein specified (or duly authorized extension thereof) or shall fail to complete the work within said period, or if the Contractor shall fail to make prompt payment to persons supplying labor or materials for the work, or if the Contractor shall fail or refuse to regard laws, ordinances or the instructions of the Facilities Department or otherwise be guilty of a substantial violation of any provision of this contract, then in any such event, Stamford Public Schools without prejudice to any other right or remedy, may give seven (7) days notice to the Contractor, to terminate the employment of the Contractor.
- b) The Contractor shall lose the right to proceed either for the entire work or (at the option of Stamford Public Schools) for any portion thereof on which delays shall have occurred. Stamford Public Schools may as it deems expedient take possession of the work and complete it by contract or otherwise.
- c) In such cases, the Contractor shall not be entitled to receive any further payment until the work is finished.
- d) If the unpaid balance of the compensation to be paid the Contractor hereunder, shall exceed the expense of so completing the work (including compensation for additional managerial administrative and inspection services and any damages for delay), such excess shall be paid to the Contractor.
- e) If such expense shall exceed such unpaid balance, the Contractor and his sureties shall be liable to the City for such excess.
- f) If the right of the Contractor to proceed with the work is so terminated, Stamford Public Schools may take possession of and utilize in completing the work, such materials, appliances, supplies, plant and equipment as may be on the site of the work, and necessary therefor.
- g) If the work shall be stopped by order of the Court or any other public authority, for a period of three (3) months, without act or fault of the Contractor or any of his agents, servants, employees, or subcontractors, the Contractor may upon ten (10) days notice to Stamford Public Schools, discontinue their performance of the work and/or terminate the contract.

#### 40. <u>USES OF PREMISES AND REMOVAL OF DEBRIS</u>:

- a) The Contractor undertakes at his own expense:
  - a. To take every precaution against injuries to persons or damage to property.

- b. 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 his work.
- c. To place upon the work area or any part thereof, only such loads as are consistent with the safety of that portion of the work.
- d. To frequently clean up all refuse, rubbish, scrap material and debris caused by his operations, so that the site of the work shall at all times present a neat, orderly and workmanlike appearance. Failure to comply with this article within 24 hours of notification may result in the Owner having the work performed by outside sources at the Contractor's expense. These expenses will be deducted from the regular monthly periodic estimate.
- e. To remove before final payment all surplus materials, false work, temporary structures, (including foundations thereof), plant of any description and debris of every nature resulting from his operation, and to put the site in a neat and orderly condition.
- f. To effect all cutting, fitting or patching of his work required to make the same conform to the plans and specifications, and with the consent of the Architect, to cut or otherwise alter the work of any other Contractor.

#### 41. ALL WORK SUBJECT TO CONTROL OF THE ARCHITECT:

- a) In the performance of the work, the Contractor shall abide by all orders, directions recommendations and requirements of the Architect and shall perform all duties to the satisfaction of the Architect, and at such time and places and, by such methods and in such manner and sequence as the Architect may require.
- b) The Architect shall determine the amount, quantity, acceptability and fitness of all parts of the work, shall interpret the plans, specifications, contract and any extra work orders, and shall decide all other questions in connection with the work.
- c) The Contractor shall employ no plant, equipment, materials, methods or workmen to which the Architect objects, and shall remove no plant materials, equipment or other facilities from the site of the work, without the Architect's permission. Upon request, the Architect shall confirm in writing any oral order, direction requirement or determination.

#### 42. ARCHITECT, CONTROL NOT LIMITED:

a) The enumeration herein or elsewhere in the contract of particular instances in which the opinion, judgment, discretion or determination of the Architect, shall control or in which work shall be performed to his or their satisfaction as subject to his or their approval or inspection, shall not imply that only matters similar to those enumerated shall be governed and performed, but without exception all the work shall be governed and so performed.

#### 43. PROVISIONS REQUIRED BY LAW DEEMED INSERTED:

a) Each and every provision of law and clause required by law 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, and if through mistake or otherwise any such provision is not correctly inserted, then upon the application of either party, the contract shall forthwith be physically amended to make such insertion.

#### 44. SUBLETTING, SUCCESSOR AND ASSIGNS:

a) The Contractor shall not sublet any part of the work under this contract, nor assign any moneys due him hereunder without first obtaining the written consent of Stamford Public Schools.

#### 45. ALLOWANCES:

- a) The Contractor shall include all Allowances stated in the Specifications and Contract Documents. Items covered by Allowances shall be supplied in adequate, but not excessive quantities, as outlined by the specifications. Materials and equipment covered under an Allowance shall be selected and ordered insufficient time so as not to delay other related or dependent work.
- b) Allowances shall cover the actual costs of materials and equipment plus delivery, installation, labor, overhead & profit.
- c) Whenever costs are more or less than the specified Allowance, the Contract Sum will be adjusted accordingly by Change Order. The amount of the Change Order shall reflect the difference in actual material, equipment labor and associated overhead and profit versus the specified amount of Allowance.

#### 46. HANDLING AND DISTRIBUTION:

- a) The Contractor shall handle, haul and distribute all materials and all surplus materials on the different portions of the work, as necessary or required; shall provide suitable and adequate storage room for materials and equipment during the progress of the work, and shall be responsible for the protection, loss of, or damage to materials and equipment furnished by him, until the final completion and acceptance of the work.
- b) Storage and demurrage charges by transportation companies and vendors shall be borne by the Contractor.

#### 47. MATERIALS:

- a) Samples Inspection Approval, unless otherwise expressly provided on the Drawings or in any of the other contract documents, only new material and equipment shall be incorporated in the work. All materials and equipment furnished by the Contractor to be incorporated in the work shall be subject to the inspection and approval of the Architect. No material shall be processed or fabricated for the work or delivered to the work site without prior approval of the Architect.
- b) As soon as possible after execution of the Agreement, the Contractor shall submit to the Architect the names and addresses of the manufacturers and suppliers of all materials and equipment he proposes to incorporate into the work. When shop and working drawings are required as specified below, the Contractor shall submit prior to the submission of such drawings, data in sufficient detail to enable the Architect to determine whether the manufacturer and/or supplier have the ability to furnish a product meeting the specifications. As requested, the Contractor shall also submit data relating to the materials and equipment he proposes to incorporate into the work in sufficient detail to enable the Architect to identify and evaluate the particular product and to determine whether it confirms to the Contract Requirements. Such data shall be submitted in a manner similar to that specified for submission of shop and working drawings.
- c) The Contractor shall furnish facilities and labor for the storage, handling and inspection of all materials and equipment. Defective materials and equipment shall be removed immediately from the site of the work.

- d) If the Architect so requires, either prior to or after commencement of the work, the Contractor shall submit additional samples of materials for such special tests as the Architect deems necessary to demonstrate that they conform to the specifications. Such samples, including concrete test cylinders, shall be furnished, taken, stored, placed and shopped by the approved molds for making concrete test cylinders. Except as otherwise expressly specified, with technical specifications, Stamford Public Schools shall make arrangements and pay for the tests.
- e) All samples shall be packed so as to reach their destination in good condition, and shall be labeled to indicate the material represented, the name of the building or work and location for which the material is intended and the name of the contractor submitting the sample. To ensure consideration of samples, the Contractor shall notify the Architect by letter that the samples have been shipped and shall properly describe the samples in the letter. The letter of notification shall be sent separate from and should not be enclosed with the samples. Facilities Department shall be copied on all letters and transmittals
- f) The Contractor shall submit data and samples, or place his orders, sufficiently early to permit consideration, inspection, testing and approval before the materials and equipment are needed for incorporation in the work. The consequence of his failure to do so shall be the Contractor's sole responsibility.
- g) When required, the Contractor shall furnish to the Architect triplicate sworn copies of manufacturer's shop or mill tests (or reports from independent test laboratories) relative to materials, equipment, performance rating and concrete data.

#### 48. WATCHMAN:

- a) If it becomes necessary to supply watchmen during non-regular working hours, they shall be employed until (in the opinion of the Facilities Department) their services are no longer required.
- b) The Contractor shall employ and pay a satisfactory, sober, able-bodied watchman who shall be in attendance upon the work at all times, (regardless of the hour) whenever work by the regular employees stops.

#### 49. MAINTENANCE OF TRAFFIC:

- a) The Contractor shall conduct operations in such a manner so that work does not impose unnecessary hardship upon the residents along the route of the work.
- b) Streets may be closed to traffic only upon written order of the City of Stamford Traffic Engineer. Traffic shall be maintained within the project area except where it is found impracticable, or seriously interferes with the Contractor's operations. If permanent repairs are not completed immediately, the pavement surface along the line of work shall be maintained in a condition comparable to the adjacent road surface.
- c) People living or having business within the barricaded zone shall be permitted to use the highway for auto traffic if possible.
- d) The Contractor shall protect all phases of the work from damage due to traffic, etc., and provide necessary watchmen, signalmen and (if so ordered by the Facilities Department) police officers.
- e) No direct payment for maintenance of traffic will be made, but shall be considered as included in the base bid submitted.

#### 50. DRIVEWAYS AND PROPERTY ENTRANCES:

- a) Excavated materials and equipment shall be placed in such position as not to unnecessarily impede travel on the streets, or access to driveways. A sufficiently clear space for pedestrian travel shall be maintained on the sidewalks, and all property entrances and driveways shall be kept clear, where possible.
- b) Where necessary, bridges shall be constructed and maintained for residents. Before closing any driveway or entrance, the Contractor shall give the owner or resident of the property involved, due notice of such temporary closing. When this is not practicable and an emergency arises, the Contractor shall, on the order of the Facilities Department, provide a satisfactory place to house temporarily, any motor vehicle, which may be prevented from being housed at night.
- c) No direct payment will be allowed for this work or condition, but shall be considered as included in the base bid submitted.

#### 51. DUST:

a) The Contractor shall at all times during the execution of this contract, control the nuisance of flying dust, by water sprinkling or by application of oil, or a method satisfactory to the Facilities Department.

#### 52. PRESERVATION OF TREES:

a) Trees and shrubs on the site of the work shall be protected during the entire period of the contract, and if injured by the Contractor or his employees, shall be replaced, unless it is covered by the bid items, at his expense before the completion of the contract.

#### 53. INSPECTION OF WORK AWAY FROM THE SITE:

- a) If work to be done away from the construction site is to be inspected on behalf of Stamford Public Schools during its fabrication, manufacture, or testing, or before shipment, the Contractor shall give notice to the Architect of the place and time where such fabrication, manufacture, testing or shipping is to be done.
- b) Such notice shall be in writing and delivered to the Architect in ample time so that the necessary arrangements for the inspection can be made.

#### 54. CONTRACTOR'S SHOP AND WORKING DRAWINGS:

- a) The Contractor shall submit for approval (in reproducible form unless otherwise specified) shop and working drawings of concrete reinforcement, structural details, piping layout, wiring, materials fabricated for the contract and materials and equipment for which such drawings are specifically requested.
- b) Such drawings shall show the principal dimensions, weight, structural and operating features, space required, clearances, type and/or brand of finish or shop coat, grease fittings, etc., depending on the subject of the drawing, when it is customary to do so. When the dimensions are of particular importance, or when so specified, the drawings shall be certified by the manufacturer or fabricator as correct for the contract.
- c) When so specified or if considered by the Architect to be acceptable, manufacturer's specifications, catalog data, descriptive matter, illustrations, etc., may be submitted for approval in place of shop and working drawings. In such case, requirements shall be as specified for shop and working drawings, insofar as applicable, except that the submission shall be in quadruplicate.

- d) The Contractor shall be responsible for the prompt and timely submittal of all shop and working drawings so that there shall be no delay to the work due to the absence of such drawings.
- e) No material or equipment shall be purchased or fabricated for the contract until the required shop and working drawings have been submitted as hereinabove provided and approved as conforming to the contract requirements. All such materials and equipment and the work involved in their installation or incorporated into the work shall then be as shown in and represented by said drawings.
- f) Until the necessary approval has been given, the Contractor shall not proceed with any portion of the work such as the construction of foundations, the design or details of which are dependent upon the design or details of work, materials, equipment or other features for which approval is required.
- g) All shop and working drawings shall be submitted to the Architect by and/or through the Contractor, who shall be responsible for obtaining shop and working drawings from his subcontractors and returning approved drawings to them. Unless otherwise approved, all shop and working drawings shall be prepared on standard size, 24 inch by 36 inch sheets, except those which are made by changing existing standard shop or working drawings. All drawings shall be clearly marked with the names of Stamford Public Schools, Contractor, and building, equipment or structure to which the drawing applies, and shall be accompanied by a letter of transmittal giving a list of the drawing number and the names mentioned above. The Architect shall be copied on all letters and transmittals.
- h) Only drawings, which have been checked and corrected by the fabricator, should be submitted to the Contractor by his subcontractors and vendors. Prior to submitting drawings to the Architect, the Contractor shall check thoroughly all such drawings to satisfy him that the subject matter thereof conforms to the drawings and specifications in all respects. All drawings, which are correct, shall be marked with the date, checker's name and indication of the Contractor's approval, and then shall be submitted to the Architect. Other drawings shall be returned for correction.
- i) The approval of shop and working drawings, etc., will be general only and shall not relieve or in any respect diminish the responsibility of the Contractor for details of design, dimensions, etc., necessary for proper fitting and construction of the work as required in the contract and for achieving the result and performance specified hereunder.
- j) Should the Contractor submit for approval, equipment that requires modifications to the structures, piping, layout, etc., detailed on the drawings, he shall also submit for approval, details of the proposed modifications. If such equipment and modifications are approved, the Contractor, at no additional cost to the City, shall do all work necessary to make such modifications.
- k) The marked-up reproducible of the shop and working drawings or one mark-up copy of catalog cuts will be returned to the Contractor. The Contractor shall furnish one copy of all "Approved" and "Approved as Noted" shop drawings, submittals, catalog cuts, manufacturer's data or test results to the Architect/Engineer. The Contractor shall furnish additional copies of such drawings or catalog cuts when so requested.

#### 55. OCCUPYING PRIVATE LAND:

a) The Contractor shall not (except after written consent from the proper parties) enter or occupy with workers, tools, materials, or equipment, any land outside the right-of-way or property of Stamford Public Schools or the City of Stamford. A copy of the written consent shall be given to the Facilities Department.

#### 56. INTERFERENCE WITH AND PROTECTION OF STREETS:

- a) The Contractor shall not close or obstruct any portion of a street, road or private way without obtaining permits therefore from the proper authorities. If any street, road or private way shall be rendered unsafe by the Contractor's operations, he shall make such repairs or provide such temporary ways or guards as shall be acceptable to the Facilities Department and to the proper authorities.
- b) Streets, roads, private ways and walks not closed shall be maintained passable and safe by the Contractor, who shall assume and have full responsibility for the adequacy and safety of provisions made therefore.
- c) The Contractor shall, at least 24 hours in advance, notify the Police and Fire Departments in writing, with a copy to the Architect and Facilities Department, if the closure of a street or road is necessary. The Contractor shall cooperate with the Police Department in the establishment of alternate routes and shall provide adequate detour signs, plainly marked and well-lighted, in order to minimize confusion.

#### 57. STORAGE OF MATERIALS AND EQUIPMENT:

- a) All excavated materials, construction equipment and materials and equipment to be incorporated in the work shall be placed so as not to injure any part of the work or existing facilities and so that free access can be had at all times to all parts of the work and to all Public Utility installations in the vicinity of the work.
- b) Materials and equipment shall be kept neatly piled and compactly stored in such locations as will cause a minimum of inconvenience to public travel and adjoining owners, tenants and occupants.

#### 58. INSUFFICIENCY OF SAFETY PRECAUTIONS:

a) If at any time, in the sole judgment of the Architect, the work is not properly lighted, barricaded, or in any other respect safe in regard to public travel, persons on or about the work, or public or private property, the Architect shall have the right to order such safeguards to be erected and such precautions to be taken as he deems advisable and so that the work and conditions are OSHA compliant. The Contractor shall comply promptly with such orders. If, under such circumstances, the Contractor does not or cannot immediately put the work and the safeguards into proper and approved condition, or if the Contractor or his representative is not upon the site so that he can be notified immediately of the insufficiency of safety precautions, the Architect may hire the services of outside Contractors to put the work into such a condition that it shall be, in his opinion, in all respects safe. The Contractor shall pay all costs and expenses incurred by the Architect or Stamford Public Schools in so doing. Such action of the Architect, or his failure to take such action, shall in no way relieve or diminish the responsibility of the Contractor for any and all costs, expenses, losses, liability, claims, suits, proceedings, judgments, awards or damages resulting from, by reason of or in connection with any failure to take safety precautions or the insufficiency of the safety precautions taken by him or by the Architect acting under authority of this article or for failure to comply with the provisions of any State or Federal Occupational Safety and Health Laws, Rules or Regulations.

#### 59. SANITARY REGULATIONS:

a) When deemed necessary by the Facilities Department, the Contractor shall provide suitable sanitary facilities for the use of those employed on the work. Such facilities shall be made available when the first employees arrive on the site of the work, shall be properly secluded

- from public observation and shall be constructed and maintained during the progress of the work in suitable numbers and at such points and in such manner as may be required or approved.
- b) The Contractor shall maintain the sanitary facilities in a satisfactory and sanitary condition at all times and shall enforce their use. The Contractor shall rigorously prohibit the committing of nuisances on the site of the work, on the lands of Stamford Public Schools, or on adjacent property.
- c) Stamford Public Schools shall have the right to inspect such facilities at all times to determine whether or not they are being properly and adequately maintained.

#### 60. DIMENSIONS OF EXISTING STRUCTURES:

a) Where the dimensions and locations of existing structures are of importance in the installation or connection of any part of the work, the Contractor shall verify such dimensions and locations in the field before the fabrication of any material or equipment, which is dependent on the correctness of such information. The Contractor will be solely responsible for the accuracy of these dimensions and measurements.

#### 61. WORK TO CONFORM:

a) During its progress, and on its completion, the work shall conform truly to the lines, levels and grades indicated on the drawings or given by the Architect and shall be built in a thoroughly substantial and workmanlike manner, in strict accordance with the drawings, specifications and other contract documents and the directions given from time to time by the Architect.

#### 62. COMPUTATION OF QUANTITIES:

- a) For estimating quantities in which the computation of areas by Geometric methods would be comparatively laborious, it is agreed that the Planimeter shall be considered an instrument adapted to the measurement of such areas.
- b) It is further agreed that the computation of the Volume Prismoids shall be by the method of average end areas.

#### 63. PLANNING AND PROGRESS SCHEDULES:

- a) Before starting the work and from time to time during its progress, as the Architect may request, the Contractor shall submit to the Architect a written description of the methods he plans to use in doing the work and the various steps he intends to take.
- b) Within two (2) days after the date of starting work, the Contractor shall prepare and submit to the Architect a written schedule fixing the respective dates for the start and completion of various parts of the work.
- c) The Contractor shall update the schedule on a monthly basis and submit each schedule to the Architect for review, approval and change where necessary during the progress of the work.

#### 64. PRECAUTIONS DURING ADVERSE WEATHER:

- a) During adverse weather and against the possibility thereof, the Contractor shall take all necessary precautions so that the work may be properly done and satisfactory in all respects.
- b) When required, protection shall be provided by the use of plastic sheets, tarpaulins, wood and building-paper shelters or other approved means.

c) The Architect may suspend construction operations at any time when, if in his sole judgment, the conditions are unsuitable or the proper precautions are not being taken, whatever the weather may be.

#### 65. AS-BUILT DRAWINGS:

- a) The Contractor shall be responsible for maintaining a set of as-built drawings during the course of the work for examination by the Architect.
- b) The Contractor shall submit to the Architect/Engineer a reproducible set of as-built drawings at the completion of the work and in any case prior to or along with his request for final payment. As built information required shall be in accordance with, but not necessarily limited to, the provisions of City of Stamford Technical Specification for Survey, Line and Grade. As-builts will be submitted in both reproducible and CAD format.-
- c) This is separate from the Building Department's requirement of an Archive Disk of As-Built Documents and Permit Drawings, which is to be submitted prior to issuance of a Certificate of Occupancy or Approval.

#### 66 SCOPE OF WORK CHANGES:

a) The intent of the contract is to complete the work or improvements in full compliance with the plans, specifications, technical specifications, special notes, etc.

#### a. Quantities:

- i. The unit bid prices shall be applied to the applicable quantities actually used and accepted in the performance of this project. Quantities have been established using the best information available for accuracy. In some instances, however, quantities may have been provided for some items in order to establish a unit price in the eventuality that the item of work may occur during the construction of the project.
- ii. Should the actual quantities constructed vary from those estimated, whether higher or lower, the Contractor is made aware that the applicable item will be paid for based upon his unit bid price bid for that item. Exceptions to this article are noted below in Section 2 <u>Change in Project Scope.</u>
- iii. Increases in the estimated quantities shall be documented and paid for through the Change Order to the contract price. Extras and Credits may be consolidated during the project via change order.

#### b. Cost Plus Items:

- i. If the City orders the performance of any work not covered by the drawings or specifications, and for which no unit price or lump sum basis can be agreed upon, then such extra work shall be done on a Cost-Plus percentage basis of payment as follows:
  - Direct Labor And Foreman Costs For all labor including equipment operators, and foremen in direct charge of the specific operation, the Contractor shall receive the rate of wage actually paid as shown by his certified payroll, which shall be at least the current local minimum prevailing wage rate, including benefits, per hour, per position, in accordance with the current State of Connecticut, Labor Department Minimum Rates & Classifications for Construction. Compensation shall be for each hour that said labor and foreman are actually

engaged in such work, including such overtime as provided by existing laws and regulations. All personnel above the grade of foreman are excluded from receiving compensation under this section.

- c. Overhead and Profit: An amount equal to ten (10) percent of the total sums as specified above (1.0) will also be paid the contractor as Overhead and Profit. This OH&P is not to be added again to materials', equipment, subcontractors' or superintendence costs.
- d. <u>Materials</u> For all materials used, the Contractor shall receive the actual cost of such materials, including freight and delivery charges, as shown by original receipted bills to which shall be added a sum equal to ten (10) percent for Overhead and Profit.
- e. Equipment Rental For machinery, trucks, or equipment, exclusive of operator's hire, and except small tools and equipment for which no rental is allowed, which it may be deemed necessary to use, the City will allow the Contractor the cost of renting such machinery, trucks, or equipment, which shall include fuel and lubricants, as are actually used in the performance of the work, but to which no percentage shall be added. Equipment rental costs must be approved by the City prior to any work being performed.
- f. Sub-Contracts Cost-Plus work may be performed by a subcontractor only when (a) the Contractor has obtained approval of the subcontractor by the City and (b) the work has been performed by the subcontractor in strict compliance with the terms of the contract. In such event, the Contractor shall receive the cost of any such subcontract to which shall be added a sum equal to ten (10) percent for Overhead and Profit.
- g. <u>Superintendence</u> The foregoing payments shall be received by the Contractor as payment in full for all work done on a Cost Plus basis, and shall be accepted to cover all general superintendence, use of small tools and equipment for which no rental is allowed, job and general overhead, bonding, expenses, and anticipated profit.
  - i. <u>2.0 Daily Work Submission</u> The cost of the work done each day shall be submitted to the Engineer in a satisfactory form, on the succeeding day and shall be approved by him or adjusted accordingly.
  - ii. 3.0 Monthly Payments Monthly payments of all charges for extra work, whether priced on the Cost Plus basis or an agreed-upon basis, shall upon completion, and approval, be requested with the subsequent monthly progress billing.

#### b) Change of Project Scope

a. In the event that the overall scope of the project is increased or decreased by 25% or more, either party to the contract may request a revised contract consideration to the stipulated bid unit prices that may be affected by the change. After the City and contractor reach agreement on revised unit prices, a change order will be issued reflecting these changes. The re-negotiated unit prices will be based on the original contract unit prices with additions or subtractions indicated so as to justify the new unit price to the satisfaction of the City. The revised unit prices will be applied only to that portion of the project in which the scope has been changed, in accordance with this article, and shall not be applied to any of the quantities of the original bid. An

example of such a change may be the addition to or deletion of the originally stated project items.

i. All of the above requirements shall be carried out in accordance with the provisions of the Stamford Code, Article II, Purchasing, Section 23-18.4, Contracts.

#### 67. COORDINATION of PLANS and SPECIFICATIONS

- a) Any requirement on the Drawings/Plans or in the Specifications, Special Notes or Provisions shall be equally binding on the Contractor.
- b) In case of conflict, the Plans/Drawings shall take precedence over the Specifications. Special Notes or Provisions shall take precedence over Plans and Specifications.

#### 68. NO PAYMENT

a) Unless otherwise provided for by a specific Contract Item, no separate payment shall be made for any of the requirements as described in the above General Specifications, but shall be deemed included in the total bid price for all the work in this Contract.

#### 69. <u>NOISE</u>

a) The Contractor will be required to limit noise operations pursuant to City of Stamford Charter Chapter 164 -1 to and including Chapter 164 -13.

# EXHIBIT C

(Wage Rates - 9 pages)

## Minimum Rates and Classifications for Building Construction

ID#: 21-21196

## Connecticut Department of Labor Wage and Workplace Standards Division

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: Stamford Project Town: Stamford State#: Stamford FAP#: Stamford

Project: KT Murphy School Bathroom Toilet Exhaust Fans Installation (Stamford)

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	42.07	30.99
2) Boilermaker	38.34	26.01
3a) Bricklayer, Cement Mason, Concrete Finisher (including caulking), Stone Masons	36.18	35.62 + a
3b) Tile Setter	34.9	25.87
3c) Terrazzo Mechanics and Marble Setters	31.69	22.35
3d) Tile, Marble & Terrazzo Finishers	26.7	21.75
3e) Plasterer	33.48	32.06
LABORERS		
4) Group 1: Laborers (common or general), acetylene burners, concrete specialists, wrecking laborers, fire watchers.	31.0	22.15
4a) Group 2: Mortar mixers, plaster tender, power buggy operators, powdermen, fireproofer/mixer/nozzleman (Person running mixer and spraying fireproof only).	31.25	22.15

**As of:** March 30, 2021

Project: KT Murphy School Bathroom Toilet Exhaust Fans Installation (Stamford) 4b) Group 3: Jackhammer operators/pavement breaker, mason tender (brick), mason tender (cement/concrete), forklift operators and forklift operators (masonry).	31.5	22.15
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.	32.0	22.15
4d) Group 5: Air track operator, sand blaster and hydraulic drills.	31.75	22.15
4e) Group 6: Blasters, nuclear and toxic waste removal.	34.0	22.15
4f) Group 7: Asbestos/lead removal and encapsulation (except it's removal from mechanical systems which are not to be scrapped).	32.0	22.15
4g) Group 8: Bottom men on open air caisson, cylindrical work and boring crew.	29.28	22.15
4h) Group 9: Top men on open air caisson, cylindrical work and boring crew.	28.74	22.15
4i) Group 10: Traffic Control Signalman	18.0	22.15
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.	34.53	25.64
5a) Millwrights	35.64	26.49
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)	40.0	36.15
7a) Elevator Mechanic (Trade License required: R-1,2,5,6)	55.12	34.765+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)	39.18	22.55 + a

Project: KT Murphy School Bathroom Toilet Exhaust Fans Installation (Stamford)		
9) Ironworker, Ornamental, Reinforcing, Structural, and Precast Concrete Erection	36.67	37.62 + a
OPERATORS		
Group 1: Crane handling or erecting structural steel or stone, hoisting engineer 2 drums or over, front end loader (7 cubic yards or over), work boat 26 ft. and over and Tunnel Boring Machines. (Trade License Required)	42.45	25.30 + a
Group 2: Cranes (100 ton rate capacity and over); Excavator over 2 cubic yards; Piledriver (\$3.00 premium when operator controls hammer); Bauer Drill/Caisson. (Trade License Required)	42.11	25.30 + a
Group 3: Excavator; Backhoe/Excavator under 2 cubic yards; Cranes (under 100 ton rated capacity), Grader/Blade; 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 Fine Grade. (slopes, shaping, laser or GPS, etc.). (Trade License Required)	41.32	25.30 + a
Group 4: Trenching Machines; Lighter Derrick; Concrete Finishing Machine; CMI Machine or Similar; Koehring Loader (Skooper).	40.91	25.30 + a
Group 5: Specialty Railroad Equipment; Asphalt Paver; 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	40.28	25.30 + a
Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller; Pile Testing Machine.	40.28	25.30 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	39.95	25.30 + a
Group 7: Asphalt roller, concrete saws and cutters (ride on types), vermeer concrete cutter, Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24	39.59	25.30 + a
Group 8: Mechanic, grease truck operator, hydroblaster; barrier mover; power stone spreader; welding; work boat under 26 ft.; transfer machine.	39.17	25.30 + 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).	38.71	25.30 + a
Group 10: Vibratory hammer; ice machine; diesel and air, hammer, etc.	36.54	25.30 + a
Group 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment.	36.54	25.30 + a

Project: KT Murphy School Bathroom Toilet Exhaust Fans Installation (Stamford)		
Group 12: Wellpoint operator.	36.48	25.30 + a
Group 13: Compressor battery operator.	35.86	25.30 + a
Group 14: Elevator operator; tow motor operator (solid tire no rough terrain).	34.66	25.30 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	34.23	25.30 + a
Group 16: Maintenance Engineer/Oiler.	33.54	25.30 + a
Group 17: Portable asphalt plant operator; portable crusher plant operator; portable concrete plant operator.	38.11	25.30 + a
Group 18: Power safety boat; vacuum truck; zim mixer; sweeper; (Minimum for any job requiring a CDL license).	35.53	25.30 + a
PAINTERS (Including Drywall Finishing)		
10a) Brush and Roller	35.62	22.55
10b) Taping Only/Drywall Finishing	36.37	22.55
10c) Paperhanger and Red Label	36.12	22.55
10e) Blast and Spray	38.62	22.55
11) Plumber (excluding HVAC pipe installation) (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2)	44.63	32.95
12) Well Digger, Pile Testing Machine	37.26	24.05 + a
Roofer: Cole Tar Pitch	42.0	19.55 + a
Roofer: Slate, Tile, Composition, Shingles, Singly Ply and Damp/Waterproofing	40.5	19.55 + a
15) Sheetmetal Worker (Trade License required for HVAC and Ductwork: SM-1,SM-2,SM-3,SM-4,SM-5,SM-6)	46.92	42.80
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)	44.63	32.95

Project: KT Murphy School Bathroom Toilet Exhaust Fans Installation (Stamford)

-----TRUCK DRIVERS-----

29.86	25.79 + a
29.97	25.79 + a
30.03	25.79 + a
30.08	25.79 + a
30.13	25.79 + a
30.35	25.79 + a
30.13	25.79 + a
45.92	26.08 + a
25.76	7.34
	29.97 30.03 30.08 30.13 30.35 30.13 45.92

Project: KT Murphy School Bathroom Toilet Exhaust Fans Installation (Stamford)

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

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson
- 3) Cranes (under 100 ton rated capacity)

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 journeyperson 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.

Project: KT Murphy School Bathroom Toilet Exhaust Fans Installation (Stamford)

~~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:** March 30, 2021

#### **Important Information:**

For use with Building, Heavy/Highway, and Residential

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.

ALL Cranes: When crane operator is operating equipment that requires a fully licensed crane operator to operate he receives an extra \$4.00 premium in addition to the hourly wage rate and benefit contributions:

- 1) Crane handling or erecting structural steel or stone; hoisting engineer (2 drums or over)
- 2) Cranes (100 ton rate capacity and over) Bauer Drill/Caisson
- 3) Cranes (under 100 ton rated capacity)

Crane with boom including jib, 150 feet - \$1.50 extra.

Crane with boom including jib, 200 feet - \$2.50 extra.

Crane with boom including jib, 250 feet - \$5.00 extra.

Crane with boom including jib, 300 feet - \$7.00 extra.

Crane with boom including jib, 400 feet - \$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 journeyperson instructing and supervising the work of one apprentice in a specific trade.

## Connecticut General Statute Section 31-55a: Annual Adjustments to wage rates by contractors doing state work

- 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: <a href="www.ctdol.state.ct.us">www.ctdol.state.ct.us</a>.
- 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.

## 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 Persons 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.