



# **CSK ARCHITECTS, P. C.**

**RENOVATIONS FOR NEW TOILET FACILITIES at  
PIERCE ELEMENTARY SCHOOL for the**

**MERRILLVILLE COMMUNITY SCHOOL CORPORATION  
6701 DELAWARE STREET  
MERRILLVILLE, INDIANA 46410**

## **ADMINISTRATION**

**DR. DEXTER SUGGS, Sr., SUPERINTENDENT / BUSINESS  
MEGHAN DAMRON, CHIEF FINANCIAL OFFICER  
GREG GRIFFITH, DIRECTOR: MAINTENANCE SERVICES**

## **BOARD OF SCHOOL TRUSTEES**

**ALEX DUNLAP III, PRESIDENT  
JAMES DONOHUE, VICE PRESIDENT  
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**February 12, 2025**

**Architect's Project #24018**



6919 W. LINCOLN HIGHWAY  
CROWN POINT, IN 46307  
219.322.5950 [www.cskarchitects.com](http://www.cskarchitects.com)



**CERTIFICATION PAGE**

**Project:** **Renovations for New Toilet Facilities at the  
Pierce Elementary School for the  
Merrillville Community School Corporation  
6701 Delaware Street  
Merrillville, Indiana 46410**

**Owner:** **Merrillville Community School Corporation**  
Dr. Dexter Suggs, Sr., Superintendent / Business  
Meghan Damron, Chief Financial Officer  
Greg Griffith, Director: Maintenance Services

**Board of School Trustees**  
Alex Dunlap III, President  
James Donohue, Vice President  
DeLena Thomas, Secretary  
Judy Dunlap, Member  
Bob Krause, Member

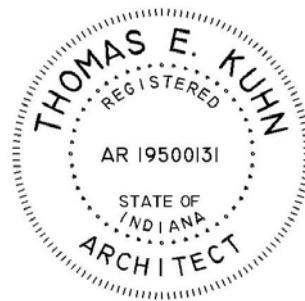
**Architect:** **CSK Architects, P.C.**  
6919 W. Lincoln Highway  
Crown Point, Indiana 46307  
(219) 322-5950

**Project Architect:** **Thomas E. Kuhn, AIA, CSI, ALA**  
E-Mail: [tkuhn@cskarchitects.com](mailto:tkuhn@cskarchitects.com)  
Office: (219) 322-5950  
Cell Phone: (219) 741-1849

**Architect's Project #'s:** **24018**

**Dated:** **February 2, 2025**

**Certified By:**   
Thomas E. Kuhn, AIA, CSI, ALA



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SECTION 00 1113

NOTICE TO QUOTERS

Renovations for New Toilet Facilities at the  
Pierce Elementary School 2025 for the  
Merrillville Community School Corporation  
6701 Delaware Street  
Merrillville, Indiana 46410

Sealed proposals for the Renovations for New Toilet Facilities at the Pierce Elementary School for the Merrillville Community School Corporation all in accordance with Quote Documents as prepared by CSK Architects, P.C. will be received by the Merrillville Community School Corporation at their Administrative Services Building at 6701 Delaware Street, Merrillville, Indiana 46410 until 9:00 AM on Friday March 7<sup>th</sup>, 2025, at which time they will be opened and publicly read aloud. Quotes received after the above stated time and date as specified, shall be returned to the sender unopened and declared non-acceptable.

All Quoters are requested to attend the Pre-Quote Meeting. The Pre-Quote Meeting will be at 3:00 PM on Monday February 24<sup>th</sup>, 2025 at the Pierce Elementary School. Please enter the building at entrance door #5.

Work includes: General Construction

Electronic copies of the Quote Documents will be made available at no cost via Dropbox upon an Email request from the Architect. Email Tom Kuhn at [tkuhn@cskarchitects.com](mailto:tkuhn@cskarchitects.com). Electronic copies of the Quote Documents will be made available at no cost via the Merrillville Community School Corporation website at [www.mvsc.k12.in.us/quote](http://www.mvsc.k12.in.us/quote). Hard copies of the Quote Documents are available for review at the Office of the Architect and also available for review at the Merrillville Community School Corporation Administrative Services Building at 6701 Delaware Street, Merrillville, Indiana 46410.

All quotes shall be sealed and submitted on the Quote Proposal Form in the Project Manual obtained from the office of CSK Architects, P.C., 6919 W. Lincoln Highway, Crown Point, 46307.

The Merrillville Community School Corporation reserves the right to reject any or all quotes, to waive any informalities in quoting, or to return unopened any proposal received after the time fixed herein.

No Base Quote or shall be withdrawn for a period of sixty (60) days, subsequent to the opening of quotes.

Merrillville Community School Corporation, 6701 Delaware Street, Merrillville, Indiana 46410

END OF SECTION

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## SECTION 00 1115

### QUOTE AND POST QUOTE SUBMISSION REQUIREMENTS

#### PART 1 GENERAL

##### 1.01 QUOTE SUBMISSION REQUIREMENTS

- A. The following Request for Quotes Package Documents must be submitted in accordance with the Architect's Quote Documents and the Request for Quotes.
1. Architect's Quote Form fully executed, signed and dated. Signator must be legally authorized by the contractor quoting the work. All addendums issued by the Architect must be acknowledged on the Quote Form.

The above documents shall be submitted in sealed envelopes per specification Section 00 2113 - Instructions for Providing Quotes and 00 1115 – Quote and Post Quote Submission Requirements. Failure to submit any of the above documents may disqualify the Quoter's quote.

#### B. POST QUOTE SUBMISSION REQUIREMENTS

1. The Contractor providing quotes are also required to submit all RFI's for all portions of their and their subcontractors work for outstanding issues, clarifications, etc. that were not addressed prior to the bid. RFI's are required to be submitted to the Architect within seven (7) consecutive calendar days of the bid due date and time. The Owner is requesting this information in order to evaluate the contractor providing quotes' understanding of the Quote Documents, their responsiveness and level of responsibility and their complete and thorough comprehension of the Scope of Work.
2. The intention of this requirement is also intended to encourage the contractor providing quotes' to thoroughly evaluate the Scope of Work and to submit during the quoting process RFI's in order for the Architect to provide all contractor's providing quotes with the level of detailed information the contractor's providing quotes require to submit a sound and competitive quote.
3. The contractor's providing quotes are required to submit to the Architect within 24 hours of quote due date and time a complete list of subcontractors listing only one contractor to be awarded a contract for each work category. The contractor's providing quotes may not deviate from awarding contracts to the listed subcontractors without permission from the Owner.

END OF SECTION

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## SECTION 00 2113

### INSTRUCTIONS FOR PROVIDING QUOTES

#### 1.01 SPECIAL INVITATION

- A. The Owner reserves the right to reject any or all Quotes. Quotes must comply with all requirements of Quote Documents. See Section 00 1115 Quote and Post Quote Submission Requirements.
- C. Contractors providing quotes are required to inform themselves fully as to the conditions relating to construction and labor under which the work will be or is now being performed, and insofar as practicable, the Contractor must employ such methods and means in the carrying out of his work as will not cause any interruption of or interference with any other Contractor.
- D. This Project Manual has bound hereto a complete set of Quoting forms; these are for the convenience only of the quoters
- E. All Contractors providing quotes are cautioned to carefully read and examine the complete set of Quote Documents to acquaint themselves with any and all requirements therein and submit Requests for Information (RFI) to clarify all issues that are not understood by the Contractors providing quotes
- F. The Project Manual is bound into one book. The specifications are divided into sections. Such assembly and divisions does not relieve the Contractor from any work shown or specified in any part of the drawings or Project Manual. Contractors providing quotes should also notice all cases where it is specified that certain work or material contractors providing quotes, or both, is to be omitted by them, and is to be furnished by others or incorporated therein. It is understood that the various contractors providing quotes have included such work in their Quotes even though the same is not specifically mentioned within various sections of the specifications upon which they are contractors providing quotes.

#### 1.02 QUOTE FORMS

- A. All Quotes must be submitted in conformity with and shall be based upon and submitted subject to all requirements of the Quote Documents.
- B. Quote documents shall be enclosed in two envelopes (outer and inner), both of which shall be sealed and clearly labeled "Quote Documents" so as to guard against opening prior to the time set therefore. The contractors providing quotes shall be responsible for the placement of his/her firm's name and Project Title of the project on the outside of both of such Quote envelopes.
- C. The Owner may consider as informal any Quote on which there is an alteration of or departure from the Quote Form hereto attached.
- D. The Quote will be based upon the completion of the work according to the Quote Documents together with all Addenda thereto and any alternates which may be requested.

- E. Contractors providing quotes may offer Voluntary Combination Quotes on the Quote Form provided the contractors providing quotes also provides Quotes for all Base Quotes included in Combination Quotes.

### 1.03 INTERPRETATIONS

- A. If any person contemplating submitting a Quote for the proposed contract is in doubt as to the true meaning of any part of these proposed Quote Documents, he may submit to the Architect a written request preferably by email for an interpretation thereof. Any interpretation of such documents will be made only by written addendum duly issued by the office of the architect and a copy of such addendum will be provided to each contractor providing a quote on record at the Architect's office as a Quote Document holder. The Owner will not be responsible for any other explanation or interpretations of such documents which anyone presumes to make on behalf of the Owner before expiration of the ultimate time set for the receipt of the Quotes.

### 1.04 CONDITIONS OF SITE AND WORK

- A. All contractors providing quotes shall examine the site and thoroughly familiarize themselves on the conditions to be met both above and below grade on the site of the proposed building. Any contractor providing a quote that is awarded a contract, shall not be allowed any extra compensation by reason of any matter or thing concerning which such contractor providing a quote might have fully informed himself prior to submission of the Quote . The Contractor shall have free use of the premises surrounding the building and within the Owner's property, but shall box all trees and shrubs that come within his operations and which are not to be removed.

### 1.05 TAXES

- A. This project has tax exempt status

### 1.06 PERMITS, FEES, LICENSES AND NOTICES

- A. The Contractor is required to acquire all local building permits for the work and pay the cost for such. The Owner will reimburse the Contractor for the cost of these permits either directly or by Change Order.
- B. Unless otherwise provided in the Quote Documents, the owner shall pay for all other permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the work which are customarily secured after execution of the contract.
- B. The contractors providing quotes shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the work.
- C. It is not the responsibility of the contractor to make certain that the Quote Documents are in accordance with applicable laws, statutes, building codes and regulations. If the contractor providing a quote observes that any of the Quote Documents are at variance therewith in any respect, he shall promptly notify the Architect in writing, and any necessary changes shall be accomplished by appropriate modification.

- D. The contractors and subcontractors are responsible to secure all local contractor licenses that may be required by the local governing agency having jurisdiction over the work.

#### 1.07 CORRECTIONS

- A. All erasure, interpolations and other physical changes in a Quote should be signed or initialed by the contractor providing the quote. No erasures, interpolation or other physical changes should be made by anyone in any Quote after its submission.

#### 1.08 TIME FOR RECEIVING QUOTES

- A. Quotes received prior to the time of opening will be securely kept unopened. The officer whose duty it is to open them will decide when the specified time has arrived, and no Quote received thereafter will be considered. No responsibility will attach to an officer for the premature opening of a Quote not properly addressed and identified.
- B. Contractors providing quotes are cautioned to allow ample time for transmittal of Quotes by mail or otherwise. Contractors providing quotes should secure correction information relative to the provable time of arrival and distribution of mail at the place where Quotes are to be opened and, so far as practicable, make due allowance for possible delays.

#### 1.09 WITHDRAWAL OF QUOTES

- A. Quotes may be withdrawn by written or email request dispatched by the contractor providing the quote in time for delivery in the normal course of business prior to the time fixed for opening, provided that telegraphic withdrawal is confirmed in writing over the signature of the contractor providing the quote within 48 hours thereafter. Negligence on the part of the contractor providing the quote in preparing the Quote confers no rights for the withdrawals of the Quote after it has been opened.

#### 1.10 AWARD OF CONTRACT - REJECTION OF QUOTES

- A. The Contract will be awarded to the lowest responsive and responsible contractor providing the quote complying with the conditions of the Request for Quotes, provided his/her Quote is reasonable and to the interest of the Owner to accept it. The contractor providing the quote to whom the award is made will be notified at the earliest possible date. The Owner also reserves the right to reject any Quote from who have previously failed to perform properly, or complete on time contracts of a similar nature, who is not in the position to perform the contract or has habitually and without just cause neglected the payment of bills or otherwise disregarded his obligations to subcontractors, material men or employees. In determining the lowest responsive and responsible contractor providing the quote, the following elements in addition to those above mentioned will be considered: whether the contractor providing the quote involved (a) maintains a permanent place of business, (b) has adequate plant equipment to do the work properly and expeditiously, (c) has a suitable financial status to meet the obligation incidental to the work, (d) has appropriate technical experience (e) has responded to all conditions of the Quote Documents.

#### 1.11 TIME OF COMPLETION

- A. The work shall be commenced and completed in accordance with Specification Section 01 1000 - Summary of Work.

#### 1.12 "OR EQUAL" CLAUSE

- A. Whenever in any of the Quote Documents an article, material, or equipment is defined by describing a proprietary product, or by using the name of a manufacturer or vendor, the term "or equal", if not inserted, shall be implied. The specific article, material or equipment mentioned shall be understood as indicating the type, function, minimum standard of design, efficiency and quality desired and shall not be construed in such a manner as to exclude manufacturer's products of comparable quality, design and efficiency.
- B. The contractors providing the quotes will be required to base their proposals on the articles, materials and equipment specified, and shall not make any substitutions, unless approval of proposed substitution is issued by an addendum issued by the Architect.
- C. The contractor may offer any voluntary alternate for alternate articles, materials or equipment on the Quote Proposal. Award of Quote shall not be based on voluntary alternates.

#### 1.14 RIGHT OF FIRST REFUSAL

- A. Owner shall have right of first refusal on any removed materials. If Owner elects not to keep any removed materials, the contractor shall remove from site. If Owner elects to keep removed materials, the contractor shall store on site as directed by Owner, until Owner can remove at a later date if he wish.

END OF SECTION

SECTION 00 3100

AVAILABLE PROJECT INFORMATION

1.01 INFORMATION AVAILABLE

- A. Certification Statement Regarding Investments in Iran – copy attached to this section.
- B. CSK Architects, P.C.'s Disclaimer Form for limited use of electronic copies of the Contract Documents which will be made available to the successful bidder for their use to assist in the construction of the project per the requirements of such will be made available electronically from the Architect.

END OF SECTION

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CERTIFICATION STATEMENT REGARDING INVESTMENTS IN IRAN

I, \_\_\_\_\_ , certify to the following:

1. Pursuant to Indiana Code 5-22-16.5 *et seq.*, I am not now engaged in investment activities in Iran.
2. I understand that providing a false certification could result in the fines, penalties, and civil action listed in I.C. 5-22-16.5-14.

Executed this \_\_\_\_\_ day of \_\_\_\_\_ , 2021.

Signature: \_\_\_\_\_

Printed: \_\_\_\_\_

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**DISCLAIMER FOR USE OF  
CSK ARCHITECTS, P.C.  
CADD DRAWINGS**

\_\_\_\_\_ does hereby acknowledge they have the authority to act as the legal agent of \_\_\_\_\_ and does hereby acknowledge that CSK Architects, P.C. has been requested to deliver to them CADD Drawings for the Architect's Project #\_\_\_\_-\_\_\_\_\_ as prepared by CSK Architects, P.C. The requested drawings listed below are to be used at their own risk and solely in order to assist with the \_\_\_\_\_ Project's As-Built Drawings, Shop Drawings, Submittals or Diagrams. CSK Architects, P.C. makes no warranty, expressed or implied for the use of such CADD Drawings.

Drawings requested:

Accepted: \_\_\_\_\_  
(Signature)

Date: \_\_\_\_\_

Please return signed Disclaimer Form.

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SECTION 00 4100

QUOTE FORM

To: Merrillville Community School Corporation  
6701 Delaware Street  
Merrillville, Indiana 46410

Submitted By: \_\_\_\_\_  
(Company Name)

The undersigned, having familiarized themselves with the local conditions affecting the cost of the work and the Quote Documents, including the Project Manual and Construction Documents on file in the Office of the Architect, hereby propose to perform everything required to be performed and to provide and furnish all of the labor and materials, necessary tools, expendable equipment, and all utility and transportation services necessary to complete in a workmanlike manner all of the work in connection with the Renovations for New Toilet Facilities at the Pierce Elementary School for the Merrillville Community School Corporation 6701 Delaware Street Merrillville, Indiana 46410, all in accordance with the Quote Documents as prepared by the Architect CSK Architects, P.C., 6919 W. Lincoln Highway, Crown Point, Indiana 46307, including Addenda \_\_, \_\_, \_\_, \_\_, issued thereto for the sum stated below in accordance with the category designations listed:

**BASE QUOTE #1 – General Construction**

To include any and all work associated with the Renovations for New Toilet Facilities at the Pierce Elementary School all in accordance with the Quote Documents as Base Quote #1.

In submitting this proposal, it is understood that the right is reserved by the Owner to reject any and all quotes. It is agreed that this quote may not be withdrawn for a period of sixty (60) days from the opening thereof.

If awarded all of the work the undersigned agrees to substantially complete the work in \_\_\_\_ consecutive calendar days.

Date: \_\_\_\_\_

Firm Name: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Official Address: \_\_\_\_\_

\_\_\_\_\_

END OF SECTION



SECTION 00 4513

QUOTER'S QUALIFICATIONS

QUALIFICATIONS FOR QUOTERS

In order for a quoter to submit a prime quote on this project, the quoter must have completed a project of comparable size, type and complexity and must have been in business as their current licensed/incorporated entity for at least five (5) years.

Quoters shall submit a statement with their quote acknowledging this and shall so list those projects in that statement.

The quoter is required to maintain on a continual basis at least one (1) major trade (i.e., carpentry, masonry, etc.) with their own employees (in house). The quoter may add additional employees, as they need. The intention of this requirement is to attract quoters that are contractors capable and experienced adequately to manage, coordinate and complete the work in accordance with typically accepted and required practices of general contracting and the Bid Documents.

END OF SECTION

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SECTION 00 5200

CONSTRUCTION CONTRACT

The attached Contract Agreement between Owner and Contractor where the basis of payment is a stipulated sum will be utilized on the project.

END OF SECTION

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## CONSTRUCTION AGREEMENT

This CONSTRUCTION AGREEMENT is made effective the \_\_\_\_\_ day of \_\_\_\_\_, 202\_\_ by and between MERRILLVILLE COMMUNITY SCHOOL CORPORATION (the "Owner") and \_\_\_\_\_ an Indiana Corporation (the "Contractor").

### RECITALS:

WHEREAS, Owner is a School Corporation organized and existing under the laws of the state of Indiana and operates a school located at 199 E. 70<sup>th</sup> Avenue, Merrillville, IN 46410 (the "Property"); and,

WHEREAS, Owner wishes to contract with Contractor to provide the Renovations for New Toilet Facilities at the Pierce Elementary School (the "Project") on the Property in accordance with the Work and Contract Documents as further defined and as set forth herein; and,

WHEREAS, Contractor is in the construction business and agrees to contract with Owner to complete the Project according to the terms and conditions set forth herein;

NOW THEREFORE, in consideration of the mutual covenants and conditions set forth herein, the parties agree as follows:

#### 1. SCOPE OF THE WORK.

A. Description of the Work. The Contractor shall provide all labor, supervision, services, equipment, materials, and supplies necessary to complete the Project in accordance with the Contract Documents (the "Work"). The Work may include other services such as inspection, testing, etc., if required by the Contract Documents.

B. Contract Documents. The Contract Documents consist of the following, all of which are specifically incorporated herein by reference:

- i. this Agreement;
- ii. any and all plans, drawings and/or specifications prepared by Owner, its agents, architects and/or engineers and provided to Contractor in relation to describing the Project and the Work (the "Plans");
- iii. Project Documents/Project Manual containing full description of the scope of the Work including all Exhibits;
- iv. Performance and Payment Bonds;
- v. Change Orders, if any, executed between the Owner and Contractor; and
- vi. Contractor's completed bid for the Project.

C. Owners Representatives.

2. Architect: CSK Architects, P.C., Thomas E. Kuhn, AIA, ALA, CSI, President

3. COMMENCEMENT AND COMPLETION OF THE WORK.

A. Contract Time. Contractor shall commence the Work on or about June 1, 2025 (the "Commencement Date"). The Contract shall be substantially complete no later than August 1, 2025. The date of Substantial Completion is that date on which the Work is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use, as certified in writing by the Owner's Architect, Owner's Engineer, Owner's Project Manager and/or other Owner's Designated Agent.

B. Progress Schedules. Contractor shall develop a progress schedule and work with the Owner's Architect, Owner's Engineer, Owner's Project Manager and/or other Owner's Designated Agent for review and comment before starting work on the Project. The progress schedule shall be updated monthly or more frequently if requested by Owner.

4. CONTRACT PRICE. Owner agrees to pay and the Contractor agrees to accept the price of \_\_\_\_\_ and 00/100 (\$ \_\_\_\_\_) Dollars for the Work.

5. UNIT PRICES.

i. None

6. PAYMENT OF CONTRACT PRICE.

A. Deposit. The Owner shall initially deposit with the Contractor the sum of Zero and 00/100 (\$0.00) Dollars as the down payments.

B. Progress Payments and Retainage. Upon submission of a periodic application for payment by the Contractor, which shall occur no more frequently than monthly, the Owner shall proceed promptly in compliance with applicable laws to obtain approval of and remit payment to Contractor. All applications for payment shall be subject to the approval of the Owner, Owner's architect and/or lender, and shall be accompanied by appropriate invoices of the Contractor and partial or final waivers as appropriate. A retainage equal to five percent (5%) of the amount of each approved application for payment shall be withheld by the Owner pending completion of the Work by Contractor.

C. Payment of Subcontractors. The Contractor shall be solely responsible for ensuring payment of all subcontractors and materialmen performing or supplying any part of the Work on the Project, and shall pay each subcontractor or materialman, upon receipt of payment from the Owner, an amount equal to the percentage of completion allowed to the Contractor on account of such subcontractor's or materialman's work, less the percentage retained from payments to the Contractor. The Contractor shall also require each subcontractor or materialman to make similar payments to its sub-subcontractors or sub-materialmen, as the case may be. Contractor shall advise all sub-contractors and materialmen that this is a no-lien contract. To the extent of payments made by the Owner to the Contractor, the Contractor shall indemnify and hold the Owner harmless from any and all liability for any claims for payment of such subcontractors and materialmen; and from any liens, claims, security interests or encumbrances filed by subcontractors or materialmen, or anyone claiming by, through or under such subcontractors or materialmen.

D. Final Payment. Neither final payment nor any remaining retained percentage shall become due until the Contractor submits: (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered have been paid or otherwise satisfied; (2) satisfactory releases and waivers of liens executed by any and all subcontractors or materialmen performing Work for which any claim, security interest or encumbrance may be filed against the Owner or the Owner's property, provided that the Contractor may, if any subcontractor refuses to furnish a release or receipt in full, furnish a bond satisfactory to Owner to indemnify it against any claim by lien or otherwise. If any lien or claim remains unsatisfied, Owner, at its option, may withhold from the sum due Contractor an amount sufficient to discharge such lien or claim including costs and a reasonable attorney's fee. Final payment is subject to inspection and approval of the Work by Owner, its architect and/or all public authorities with jurisdiction thereof. Final payment is due thirty (30) days after substantial completion.

E. No-Lien. Contractor agrees that no liens shall be placed against the site or against any Owner location. THIS IS A NO-LIEN CONTRACT.

7. RESPONSIBILITIES OF CONTRACTOR. Contractor's duties and rights in connection with this Agreement are as follows:

A. Responsibility for and Supervision of Construction. Contractor shall be solely responsible for all construction under this Agreement, including the techniques, sequences, procedures and means for coordination of the Work. Contractor shall supervise and direct the Work, and give it all attention necessary for such proper supervision and direction. Owner shall not perform, supervise, direct, or control the Work. Contractor is being hired as an independent contractor and Owner is relying on Contractor's representation of its ability to fully perform the Work.

B. Furnishing of Labor, Materials, and Equipment. Contractor shall provide and pay for all labor, supervision, services, supplies, materials, and equipment, including tools, construction equipment, machinery, temporary utility services, transportation, and all other facilities and services necessary for the proper completion of the Work in accordance with this Agreement. The Contractor shall furnish all labor and materials, and do all the work required by the Plans and Contract Documents.

C. Payment of Taxes; Utility Hook-ups; Procurement of Licenses and Permits. Contractor shall pay all taxes imposed by law in connection with the Work in accordance with this Agreement including without limitation sales, use, and similar taxes, and shall pay for all licenses, fees and permits necessary for the Work.

D. Compliance with Construction Laws and Regulations. Contractor shall perform the Work in a professional and workmanlike manner in accordance with the Plans and specifications for the Project and with industry standards; in compliance with all applicable laws, ordinances, rules, regulations, permits and orders of any public authorities relating to performance of the Work.

E. Responsibility for Negligence of Employees and Subcontractors. Contractor assumes full responsibility for all acts and/or omissions of all its employees on the project, for those of its subcontractors and its employees, and for those of all other persons doing work under a contract with Contractor or at the request of Contractor.

F. Warranty of Fitness of Equipment and Materials. Contractor represents and warrants to Owner that all equipment and materials used in the Work, and made a part thereof, or placed permanently in connection therewith, will be new unless otherwise specified herein, of good quality, free of defects, and in conformity with this Agreement and the Plans. It is understood between the parties that all equipment and materials not so in conformity are defective.

G. Restoration of Worksite. Contractor shall be solely responsible for restoring the worksite to its original conditions.

H. Clean-Up. Contractor agrees to keep the Work premises and adjoining ways free of waste material and rubbish caused by its work and/or that of its subcontractors. Contractor further agrees to remove all such waste material and rubbish on termination of the Work, together with all of its tools, equipment, machinery, and surplus materials. Contractor further agrees, on completion of work at the site, to conduct general clean-up operations.

I. Safety Precautions and Programs. Contractor has the duty and shall be responsible for initiating, providing, maintaining, supervising, and overseeing all safety orders, precautions, and programs necessary to the reasonable safety of the Work. Contractor shall take all reasonable and necessary precautions for the safety of all Work employees and other persons whom the Work might affect, all labor and materials incorporated in the project, and all property and improvements on the

construction site and adjacent thereto, complying with all applicable laws, ordinances, rules, regulations and orders.

J. Business Interruption. The Contractor shall perform the Work in a manner which minimizes the disruption of Owner's business and shall agree with Owner upon a schedule before the Work begins.

8. INSURANCE, PAYMENT AND PERFORMANCE BONDS.

A. Before starting Work, Contractor shall furnish a performance bond and a payment bond from surety companies that are duly licensed or authorized to issue bonds required by the Owner. Each bond shall be in an amount equal to the Contract Price, as security for the faithful performance and payment of all of Contractor's obligations under the Contract. These bonds shall remain in effect until the completion of the correction period specified in Paragraph 8 but, in any case, not less than one year after the date when final payment becomes due.

B. Before starting Work, Contractor shall furnish evidence of insurance from companies that are duly licensed or authorized in the jurisdiction in which the Project is located with a minimum AM Best rating of A-/Excellent, or better. Contractor shall provide insurance coverage for not less than the following amounts, or greater where required by Laws and Regulations:

i. Workers' Compensation in the amounts as required by Indiana law:

Indiana Statutory Employer's Liability:

Bodily Injury, each Accident	\$ 1,000,000.00
Bodily Injury By Disease, each Employee	\$ 500,000.00
Bodily Injury/Disease Aggregate	\$ 1,000,000.00

ii. Commercial General Liability:

General Aggregate	\$ 2,000,000.00
Products - Completed Operations Aggregate	\$ 2,000,000.00
Personal and Advertising Injury	\$ 1,000,000.00
Each Occurrence (Bodily Injury and Property Damage)	\$ 1,000,000.00

iii. Automobile Liability Combined Single Limit: \$ 1,000,000.00

iv. Excess or Umbrella Liability:

Per Occurrence	\$ 5,000,000.00
General Aggregate	\$ 5,000,000.00

C. All insurance policies required to be purchased and maintained will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 10 days prior written notice has been given to the insured and additional insured.

D. Automobile liability insurance provided by Contractor shall provide coverage against claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance, or use of any motor vehicle. The automobile liability policy shall be written on an occurrence basis.

E. Contractor's commercial general liability policy shall include the following coverages and endorsements:

i. Products and completed operations coverage maintained for three years after final

payment;

- ii. Blanket contractual liability coverage to the extent permitted by law;
- iii. Broad form property damage coverage; and
- iv. Severability of interest; underground, explosion, and collapse coverage; personal injury coverage.

F. The Contractor's commercial general liability and automobile liability, umbrella or excess, policies shall include and list Owner, which designation shall also include Owner's respective officers, board members, employees, agents, and consultants, as additional insureds; and the insurance afforded to the additional insured shall provide primary coverage for all claims covered thereby (including as applicable those arising from both ongoing and completed operations) on a non-contributory basis. Additional insured endorsements will include both ongoing operations and products and completed operations coverage.

G. Umbrella or excess liability insurance shall be written over the underlying employer's liability, commercial general liability, and automobile liability insurance. Contractor may demonstrate to Owner that Contractor has met the combined limits of insurance (underlying policy plus applicable umbrella) specified for employer's liability, commercial general liability, and automobile liability through the primary policies alone, or through combinations of the primary insurance policies and an umbrella or excess liability policy.

H. The Contractor shall provide property insurance covering physical loss or damage during construction to structures, materials, fixtures, and equipment, including those materials, fixtures, or equipment in storage or transit.

I. If Contractor has failed to obtain and maintain required insurance, Owner may exclude the Contractor from the Site, impose an appropriate set-off against payment, and exercise Owner's termination rights hereunder.

J. Include a Waiver of Subrogation Clause in favor of Additional Insured (see above) with respect to Commercial/Comprehensive General Liability, Automobile Liability and Umbrella Liability; and a Waiver of Subrogation Clause with respect to Workers Compensation & Employers Liability Insurance.

9. CONTRACTOR'S INDEMNIFICATION. Notwithstanding any other provision in this Agreement or Contract Documents, to the fullest extent permitted by law:

A. The Contractor shall indemnify and hold harmless the Owner from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from the failure of the Contractor to perform its obligations or undertakings as stated in the Contract Documents, the inaccuracy of any representation or warranty of the Contractor contained in the Contract Documents, and/or the performance of the Work; provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or injury to or destruction of tangible property (other than the Work itself), including loss of use resulting therefrom, but only to the extent caused by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable.

B. The Contractor shall indemnify and hold the Owner harmless from any and all liability of any kind or nature arising from or any way related to any claim of any Subcontractor or sub-subcontractor related in any way to the performance of the Work, whether by Contractor or any subcontractors or sub-subcontractors, or to Contractor's coordination of the Work; and defend and pay the costs, including attorney's fees, of any and all claims or suits against the Owner of any kind or nature arising therefrom.

C. The Contractor's indemnification obligations hereunder apply notwithstanding any insurance coverage maintained by Contractor, except that the amount of any indemnification liability

of Contractor to Owner shall be reduced to the extent that such insurance proceeds are payable to Owner in regard to such indemnity claims.

10. CORRECTION OF THE WORK. Notwithstanding any other provision in this Agreement:

A. Contractor's Obligation to Correct the Work. The Contractor shall correct, at the Contractor's expense, any of the Work which is not in accordance with the Contract Documents or is otherwise not completed. If the Contractor fails to commence and continue with reasonable diligence and promptness any required correction of the Work within fifteen (15) days of receipt of written notice from the Owner, then the Owner shall have the right, in addition to any other right and remedies available to the Owner, to:

i. Order the Contractor in writing to stop the Work until the cause for stoppage has been eliminated; and/or

ii. Correct such deficiencies itself and charge (by offset or otherwise) the cost thereof to the Contractor.

In the event that the Contractor fails to correct the Work as provided herein, Owner shall be entitled to pursue any and all remedies available at law or equity, including its costs and expenses and reasonable attorney fees, associated with obtaining any such remedy.

B. Correction of the Work After Substantial Completion. The Contractor's obligation to correct the Work as set forth in paragraph 8(A) above shall extend with respect to any condition concerning which the Owner notifies the Contractor in writing within one (1) year after the date of Substantial Completion. The time shall be extended with respect to any portion of the Work performed after the date of Substantial Completion, for a period commensurate with the period of time between Substantial Completion and the actual performance of the Work. The foregoing shall not be construed to establish a period of limitation with regard to any other obligation undertaken or warranty made by the Contractor under Contract Documents, including without limitation any warranties made by Contractor concerning the quality of the Work or the quality of the materials or equipment furnished in conjunction thereto, or any rights or remedies of the Owner in relation thereto.

11. CHANGE ORDERS. Notwithstanding any other provision in this Agreement, a Change Order is a written instrument signed by the Owner and Contractor which states agreement upon all or any one of the following:

A. A change in the Work;

B. The amount of the adjustment in the Contract Price, if any; and/or

C. The extent of any adjustment in the Contract Time, if any.

Neither a change in the scope of the Work, nor any adjustment in the Contract Price or Contract Time, shall be valid unless made pursuant to a validly issued Change Order signed by the Owner and Contractor.

12. TERMINATION RIGHTS.

A. Owner's Right to Terminate the Contract. Should the Contractor neglect to prosecute the Work properly or fail to perform a provision of the Agreement, the Owner, after seven (7) days written notice to the Contractor may, without prejudice to any other remedy it may have, make good any deficiencies and may deduct the cost thereof from payment then or thereafter due the Contractor or, at its option, may terminate the Agreement and take possession of all materials and finish the

Work by such means as it sees fit.

B. Contractor's Right to Terminate the Contract. Should the work be stopped by any public authority for a period of fourteen (14) days or more through no fault of the Contractor, or should the work be stopped through act or neglect of the Owner for a period of fourteen (14) days, or should the Owner fail to pay the Contractor any payment within thirty (30) days after it is due, then the Contractor, upon seven (7) days written notice to the Owner, may stop work or terminate the Agreement and recover from the Owner payment for all work completed. Contractor hereby waives all claims against Owner for consequential damages arising out of or related to the termination of this Agreement by either party.

13. MEDIATION. All claims, demands, disputes, controversies and differences that may arise between the parties to this Agreement shall be submitted to non-binding mediation.

A. The mediation provisions of this Agreement shall with respect to such controversy or dispute survive the date of final completion.

B. Either party shall demand such mediation in writing in accordance with the notice provision of this Agreement.

C. The mediation costs and expenses of each party shall be borne by that party. The mediator's fee shall be divided evenly between the parties.

D. The parties' failure to complete mediation shall not preclude or bar any party from seeking remedies in a court of proper jurisdiction.

14. NOTICES. Any notice provided for or concerning this Agreement shall be in writing and shall be deemed sufficiently given when hand delivered, sent by certified or registered mail or deposited with an overnight bonded courier, if sent or delivered to the respective address of each party as set forth at the end of this Agreement or at such other address as provided in writing.

15. RISK OF LOSS. The risk of loss or damage to the Work until the completion of the construction and acceptance of the Work by Owner shall be borne by the Contractor.

16. BINDING EFFECT. This Agreement shall be binding upon and the benefits shall inure to the respective parties, their heirs, assigns or successor in interest.

17. CONTROLLING LAW AND VENUE. For purposes of interpretation and enforcement, the laws of the State of Indiana shall control. Any suit or claim arising from or related to this Agreement shall be brought in the state courts of Lake County, Indiana.

18. ENTIRE AGREEMENT. This Agreement and all documents incorporated by reference contain the entire understanding and agreement between the parties and there are no representations, warranties, covenants, or understandings, whether oral or in writing, other than those expressly set forth in this Agreement.

19. AMENDMENTS. This Agreement may not be amended or modified except by mutual agreement of the parties set forth in writing and signed by both parties, and as provided herein with regard to work changes.

20. SEVERABILITY. If one or more provisions of this Agreement are for any reason held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality or unenforceability shall not affect any other provision hereof, and this Agreement shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.

21. SUBSTANTIAL COMPLETION. Contractor shall provide a letter notifying the Owner

that the Project is substantially complete. The Owner has thirty (30) days to inspect, or cause to inspect the Work, and create a punch list of outstanding work items. The Project is substantially complete upon verification that the punch list is complete or thirty (30) days after the initial letter in the event that a punch list does not exist.

22. CONTRACTOR'S CERTIFICATIONS.

A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract.

B. Contractor shall enroll in and verify the work eligibility status of all newly hired employees of the Contractor through the electronic verification of work authorization program of the Illegal Immigration Reform and Immigration Responsibility Act of 1996 (P.L.104-208), Division C, Title IV, s. 403(a), as amended (the "E-Verify Program"). Contractor shall execute the E-Verify Affidavit, attached hereto as "Exhibit 3" and incorporated herein by reference.

C. Contractor certifies that it is not engaged in investment activities in Iran, as defined by Indiana Code §5-22-16.5-8.

D. Contractor shall comply with Ind. Code § 20-26-5, *et seq.* In particular, Contractor shall perform criminal history checks for its employees who will be providing services on behalf of the Contractor under this Agreement prior to the employee beginning such work. Contractor shall not permit any person to provide services on behalf of Contractor if the person has engaged in conduct proscribed by Ind. Code § 20-26-5, *et seq.*

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals as of the day and year set forth above.

OWNER:

MERRILLVILLE COMMUNITY SCHOOL CORPORATION

By: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: 6701 Delaware St.  
Merrillville, IN 46410

CONTRACTOR:

\_\_\_\_\_ (Contractor)

By: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

SECTION 00 7200

GENERAL CONDITIONS

The A.I.A. Document A201-2017, General Conditions of the Contract for Construction 2017 Edition, shall be included as part of this Specification by reference and all parties active on the project are bound thereto. A copy of said document is on file at the Architect's Office for review by the contractor.

END OF SECTION

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## SECTION 00 7510

### INDIANA'S ILLEGAL IMMIGRATION LAW

#### PART 1 – GENERAL

- 1.01 The Contractor shall comply with Indiana's Illegal Immigration Law, 2011 Senate Enrolled Act 590. The Contractor shall enroll in and verify the work eligibility status of all newly hired employees through E-verify, as that term is defined under Indiana Law. The requirement to enroll and verify the work status under E-verify shall terminate if the E-verify program ceases to exist.
- 1.02 The Contractor must submit with their bid a fully executed copy of the attached "Contractor's E-Verify Affidavit of Compliance with Indiana's Illegal Immigration Law".
- 1.03 If notified by the Owner of a violation of these provisions, the Contractor must, within thirty (30) days, remedy the breach and inform the Owner, in writing, of the actions taken to remedy. Failure to remedy within thirty (30) days can result in termination of the contract.

CONTRACTOR'S E-VERIFY AFFIDAVIT OF COMPLIANCE  
WITH INDIANA'S ILLEGAL IMMIGRATION LAW

COMES NOW \_\_\_\_\_ and having been first sworn  
(Printed Name)

upon his or her oath does affirm under penalties of perjury that:

1. I make this affidavit upon personal knowledge.
2. This affidavit is made by me as an individual or as the authorized legal agent of the below-noted entity.
3. I, nor the below-noted entity, knowingly employ unauthorized aliens as that term is defined under Indiana law.

I hereby verify under penalties for perjury that the foregoing statement is true.

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

Executed as:

An Individual \_\_\_\_\_, or

A Representative of \_\_\_\_\_  
(Name of Company)

\_\_\_\_\_  
(Address)

END OF SECTION

## SECTION 01 1100

### SUMMARY OF WORK

#### PART 1 GENERAL

##### 1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. General: The work consists of furnishing all labor, materials, equipment, supplies, transportation, fuel, superintendence, temporary construction facilities, insurance, taxes, permits, fees and all other services and facilities, except as stated to be furnished by others, necessary to complete the work as called for on the plans and/or herein specified.

##### 1.02 WORK BY OWNER

- A. Items noted 'NIC' (Not in Contract), and 'by others' will be furnished and installed by the Owner or by others under separate contracts. This does not relieve the Bidder to supply all requirements of the Bid Documents when certain portions of such are noted to be furnished by others.
- B. The bidder shall assist and accommodate all other contractors contracted directly with the Owner and must anticipate and accommodate their requirements during construction and scheduling.

##### 1.03 CONTRACTOR USE OF SITE AND PREMISES

- A. Project Access: The Owner does not intend on closing the facilities or portions thereof to carry out the work which must be coordinated and scheduled with the Owner.
- B. Employee parking will be permitted where approved by the Owner.
- C. Utility Outages and Shutdowns: Coordinate with the Owner.

##### 1.04 PROJECT SCHEDULE

- A. Assuming the quotes are acceptable to the Owner the Owner intends to award the contracts at their next Board meeting on March 18, 2025.
- B. Work may commence immediately after the execution of contract along with the submission of the bidder's Certificate of Insurance but no sooner than June 1, 2025
- C. The Owner expects the work to be completed as soon as possible and no later than August 1, 2025

END OF SECTION

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## SECTION 01 2600

### CONTRACT MODIFICATION PROCEDURES

#### PART 1 GENERAL

##### 1.01 GENERAL

- A. Contract Documents: The Contract Documents include:
- Project Manual
  - Notice to Quoters
  - Quote form
  - Contract
  - General Conditions
  - Instructions to Quoters
  - Specifications and Construction Documents
  - Addenda
  - Insurance Policies

For convenience of reference, this Specification is divided into various headings and sub-headings. However, such divisions do not make the Owner or Architect responsible for the limitations of the Contract of any subcontractor, each of which is dependent upon its own definite confines, regardless of Specification Divisions. Also, all items shown on the Plans must be furnished and installed even though not specifically specified or noted in the Specifications.

Perform all work required to complete the Project, as awarded, and provide and furnish all labor, tools, materials, expendable equipment, transportation, services, Permits, Fees, Insurance and Warranties required to perform and complete in a workmanlike manner, all the work required by the Drawings and/or described in the Specifications, including all addenda as prepared by CSK Architects, P.C., 6919 W. Lincoln Highway, Crown Point, Indiana 46307.

- B. Examination of Site: All Contractors are held to have examined the site and to have compared it with the Drawings and Specifications and to have satisfied themselves as to the conditions.
- C. Hours of Work: The Contractors shall furnish sufficient forces to insure the execution of the work in accordance with the approved progress schedule. Work shall be performed during regular working hours. Work may be performed on night shifts, overtime, and holidays when permission to do so has been obtained from the Owner. No requirements of work other than at regular working hours shall form the basis of claims by the Contractors for additional compensation. There shall be no compensation from owner to work on overtime hours. Contractor shall include all expected overtime expenses in their quote.
- D. Errors and Omissions: The Specifications, Drawings and directions furnished by the Architect are intended to cooperate and agree. The Drawings and Specifications are to be interpreted according to the true meaning, spirit and intention of the work without any extra charge whatsoever. If any discrepancies or variations appear between any of the Drawings or Specifications, such discrepancies are to be interpreted by the Architect. The contractors shall immediately notify the Architect of all such discrepancies. Architect has the right to correct any errors or omissions in the work as necessary for proper fulfillment of their intentions for the Project. In case of discrepancies which vary in the quantity or quality, the greater quantity or quality of work shall prevail.

Anything shown on the Plans and not mentioned in the Specifications, or vice-versa, must be furnished by the respective contractor without extra compensation. Further, if any material or work is required which is absolutely necessary to carry out the full meaning and intent of the Plans and Specifications, the respective contractor hereby agrees to consider and allow for the same as fully as if they are so noted, and perform the work without extra charge or claim for extra compensation.

Drawings and Specifications shall be treated as equals. In the occurrence of discrepancies between drawings and specifications, it shall be the contractor's responsibility to notify the Architect in writing immediately upon discovery for interpretation by the Architect.

- E. Contractor's Acknowledgment: The Contractor acknowledges, upon submittal of a Quote:
1. That he understands the Quote Documents.
  2. That he has the equipment, technical ability, personnel, and facilities to construct the Project in accordance with the Quote Documents.
  3. That he has examined the Quote Documents and has found these sufficiently complete to prepare a sound Quote for the work contemplated.
  4. That he has personally inspected the project site and verified information indicated.
- F. Standards and Industry Specifications: Comply with any material or operation specified by reference to the published Specifications of a manufacturer, society, institute, association, administration, conference, council, bureau, etc. Use the requirements of the Specification or Standard listed. Those not listed herein, if any, must be current copies at time of Award of Contract.
- In case of conflicts between the referenced Specifications or Standards, the one having the more stringent requirements govern. The Contractor, if requested, must furnish an affidavit from the requirements specified. Certification does not relieve the Contractor from the responsibility of complying with any added requirements specified herein.
- G. Federal Construction and Safety Requirements (OSHA): All construction and safety procedures used on this Project must meet the Occupational Safety and Health Standards, National Consensus Standards, and Established Federal Standards including all requirements of the Williams-Steiger Occupational Safety and Health Act of 1970, Hornberge, Lee Occupational Safety and Health Act, Volume 36 Federal Register Number 105 Occupational Safety and Health Standards and any other requirements set by the Occupational Safety and Health Administration.
- H. Other Construction and Safety Requirements: Work on this Project must comply with the requirements of any Specifications and/or Standards listed and/or organizations referred to throughout these Contract Documents.
- I. Explanation of Specifications:
1. These specifications are of the abbreviated type and include incomplete sentences. Omissions of words or phrases such as "the Contractor shall", "shall be", etc., are intentional. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the drawings.

2. Where "as shown", "as indicated", "as detailed" or words of similar import are used, it shall be understood that reference to the drawings accompanying the specifications is made unless otherwise stated. Where "as directed", "as required", "as authorized", "as approved", "as accepted", or words of similar import are used, it shall be understood that the direction, requirement, permission, authorization, approval or acceptance of the Architect is intended unless otherwise stated. As used herein, "provide" shall be understood to mean "provided complete in place", that is, "furnished and installed".

J. No Damages for Delays:

1. An extension of time shall be the Contractor's exclusive remedy in the event of a delay, no matter how or by whom caused. Contractor further specifically acknowledges that it shall have no claim for increase in contract price or damages because of any delays whatsoever to all or any part of the work whether foreseen or unforeseen, and whether caused by any person's hindrance or active interference.

## 1.02 CASH ALLOWANCE

- A. Costs Included in Allowances: Actual cost of product to Contractor or Subcontractor and delivery to site, less applicable trade discounts. The Contractor shall not be allowed to mark up the cost of the materials. The Contractor must substantiate actual quantities purchased and costs of the products to the Contractor with copies of paid invoices referencing the project and submit them to the Architect.
- B. Costs Not Included in the Allowance: Substantiating and submitting cost estimates for selected materials, handling at the site, including unloading uncrating, and storage; protection of products from elements and from damage and labor for installation and finishing.
- C. Architect Responsibilities:
1. Consult with Contractor in consideration and selection of products and suppliers.
  2. Select products in consultation with Owner and transmit decision to Contractor.
  3. Prepare Change Order.
- D. Contractor Responsibilities:
1. Assist the Architect in selection of products and suppliers and verification of required quantities of each product and associated costs thereof.
  2. Obtain proposals from suppliers and offer recommendations.
  3. On notification of selection by Architect, execute purchase agreement with designated supplier.
  4. Arrange for and process shop drawings, product data, and samples. Arrange for delivery.
  5. Promptly inspect products upon delivery for completeness, damage, and defects. Submit claims for transportation damage.
- E. Funds will be reconciled with the specified Cash Allowances only by Change Order prior to ordering materials.
- F. Cash Allowances: Refer to Specific Sections

### 1.03 SCHEDULE OF VALUES

- A. Submit three (3) typed schedule of values on AIA Form G703 - Application and Certificate for Payment Continuation Sheet with each Application for Payment.
- B. The AIA Form G703 - Application and Certificate for Payment continuation sheet shall be executed as follows:
  - 1. The prime contractor's material supplier's name(s) and type(s) of material(s) shall be listed as a separate line item.
  - 2. Each subcontractor's name and type of work that his contract covers shall be listed as a separate line item.
  - 3. The subcontractor's material supplier's name(s) and type(s) of material(s) shall also be listed as a separate line item directly below the subcontractor.
  - 4. The prime contractor's profit and overhead shall be listed as a separate line item.
- C. Revise schedule to list approved Change Orders, with each Application For Payment.

### 1.04 APPLICATION FOR PAYMENT

- A. Submit three (3) copies of each application on AIA Form G702 - Application and Certificate for Payment, submit three (3) copies of Owner Claim Form when required by the owner.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Progress payments: Based upon Application for Payment submitted to the architect by the Contractor and Certificates for Payment issued by the architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided in the Conditions of the Contracts as follows:

On the first day of each month 95% of the proportion of the Contract Sum properly provided and allocable to labor, materials and equipment incorporated in the work and 95% of the portion of the Contract Sum properly allocable to materials and equipment suitable stored at the site or at some other location agreed upon in writing by the parties, up to the first day of that month, less the aggregate of previous payments in each case.

Payout requests submitted in proper order and received by the Architect by the first of the month will be processed and delivered to the Owner by the 10th of the month for Owner processing.

Until final payment, the Owner will pay 95% of the amount due the Contractor on account of progress payments.

Until final payment, the Owner will withhold 5% retainage of the amount due to the contractor on account of progress payments.

On all contracts totaling \$200,000.00 or more the retainage withheld by the Owner for such progress payments shall be placed in an escrow account with a bank, savings and loan institution, or the State of Indiana or an instrumentality thereof as escrow agent pursuant to an escrow agreement as provided in I.C. 1971, 5-16-5.5

and the escrow agent shall promptly invest all escrowed principal and income for the Contractor and/or according to the terms of the escrow agreement.

- D. Submit three copies of AIA Form G702 - Application and Certificate for Payment for the retainage only to be withheld and placed in the escrow account.
- E. Submit with final payment the following fully executed forms:
  - 1. AIA Form G 706 - Contractors Affidavit of Payment of Debts and Claims
  - 2. AIA Form G 706A - Contractors Affidavit of Release of Liens.
  - 3. AIA Form G 707 - Consent of Surety Company to Final Payment.

#### 1.05 WAIVERS OF LIEN

- A. Submit three (3) copies of Partial Waivers of Lien fully with each Application for Payment and Final Waivers of Lien as follows:
  - 1. Prime Contractor's shall submit with each Application for Payment a Partial Waiver of Lien in full amount equal to payment amount requested.
  - 2. Prime Contractor's shall submit with each Application for Payment, Partial Waivers of Lien from their material suppliers, subcontractor(s) and subcontractor's material suppliers for the previous month's payment. The Waivers of Lien shall be executed in amounts equal to the Schedule of Values of the previous payment. The Prime Contractor will not receive payment until this requirement is fulfilled.
  - 3. Prime Contractor's shall submit with Final Application for Payment his Final Waiver of Lien and Final Waivers of Lien from material suppliers, subcontractors and subcontractor's material suppliers.

#### 1.06 PAYMENT FOR MATERIALS STORED

- A. Payments may be made on account for materials or equipment not incorporated in the work, but delivered and suitably stored at the site. Materials may be stored at another location other than the work site if properly identified as the property of the Owner and properly protected. Storage of material at the place of business of the vendor is not acceptable. Such payments shall be conditional upon the submission by the contractor of the following: 1) receipts marked by the supplier as paid; 2) supplier's waiver of lien listing specific materials involved; 3) invoice with copy of canceled check showing payment; or 4) such other evidence of payment as the Owner may require in lieu thereof to establish ownership of all items except those listed as miscellaneous materials below. For materials stored off site the contractor shall provide a Certificate of Insurance listing the materials insured in the Owner's name.

For the aggregate of miscellaneous stored materials for which payment is requested and above proof of payment is not available, a complete list will be provided along with the affidavit of payment for stored materials. Upon certification by the Owner's representative that the listed materials are suitably stored, payment can be made. Miscellaneous materials are defined as pipe, fittings, wire, conduit, etc., normally stored as stock items in contractor's warehouse. For materials stored other than at the construction site, applicable insurance and transportation to the site shall be provided by the contractor.

- B. In no instance shall the payments exceed 95% of the net value of material or equipment stored. As stored materials are incorporated into the work, the value shall be removed from the total value of stored material requested in successive

payments. Proof of ownership through one of the above methods will be required for additional materials.

## 1.07 ALTERNATES

- A. Alternate Construction: In case the Owner accepts quantitative alternates in which certain items or building portions are omitted, the respective Contractors must construct the building and make necessary provisions to permit omitted portions to be added at a future date with minimum difficulty. Provide blind openings. Leave necessary extensions of reinforcing steel. Provide capped tees in pipes and conduits, etc.

In case qualitative alternatives are accepted, any substitute material or items used must harmonize with the intended design. The arrangement of substitute material or items must equal or exceed the quality of those specified in the Base Proposal as nearly as possible.

All cost of evaluating equipment and material proposed under the terms of these Specifications for design, quality and performance compliance incurred by the Architect, must be borne by the Contractor.

The Architect will provide the final decision as to acceptance or rejection of such alternate proposals.

For approval of products other than those specified, Contractors must submit a request in writing at least ten (10) days prior to Quote date and hour. Requests received after this time will not be reviewed or considered regardless of cause. Clearly define requests to describe the product for which approval is desired. Accompany all requests with manufacturer's literature, specifications, drawings, cuts, performance data, and list of references or other information necessary to completely describe the item. Approval by the Architect will come in the form of an Addendum to the Specifications issued to all contractors on record. The Addendum will indicate the additional products which are acceptable for this Project.

All additional costs associated with the acceptance of an alternate in order to accommodate such alternate into the design must be borne by the contractor proposing such alternate, regardless of the type of trade or construction affected.

- B. Voluntary Alternates: The Contractor, at his option, may submit voluntary alternates as may be permitted in other sections of these Specifications or Quote Forms.

In Voluntary Alternates, clearly indicate the amount to be added to or deducted from the base Proposal if material or equipment other than that specified is proposed to be furnished and indicate manufacturer.

## 1.08 CHANGE ORDERS

- A. The general contractor mark-up on change orders shall not exceed 10% for change orders under \$10,000.00. For change orders exceeding \$10,000.00 the general contractor's mark-up shall not exceed 10% for first \$10,000.00 and shall not exceed 5% for the amount in excess of the first \$10,000.00.
- B. The general contractor's mark-up on change orders shall include and cover all general contractor profit, overhead, supervision, bond cost, record drawing cost, etc.

- C. All change orders shall be substantiated by submission of subcontractor's proposals. Cost breakdowns requested by the Architect must be provided.
- D. Change orders will be verbally approved by the Architect and the Owner on an as needed basis and the paperwork will be processed on a monthly basis. However, on a case by case basis changes may be approved more frequently at the Owner's discretion.

#### 1.09 INSURANCE

##### A. Insurance Policy Requirements:

- 1. All insurance policies required under the terms hereof shall be executed by companies authorized to do business in the State of Indiana and proof of such authority shall be furnished to the Owner prior to the signing of the Contract. All insurance policies shall be in form and all other particulars satisfactory to the Owner.
- 2. The Prime Contractors shall furnish the Owner with satisfactory proof of carriage of the insurance required and shall not commence work under this Contract until he has obtained all the insurance required under this paragraph and such insurance has been approved by the Owner, nor shall the Contractor allow any Subcontractor to commence work on his subcontract until all similar insurance required of the Subcontractor has been obtained and approved.

##### B. Prime Contractors' Insurance:

- 1. Compensation and Occupational Disease Insurance
  - a. The Contractor shall take out and maintain during the life of this contract, Workmen's Compensation and Occupational Disease Insurance, Employers Liability, for all of his employees employed at the site of the project, in full compliance with the statutes of the project, in full compliance with the statutes of Indiana applicable thereto, and, in case any work is sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation and Occupation disease Insurance for all of the latter's employees unless such employees are covered by the protection afforded by the Contractor. In case any class of employees engaged in hazardous work under this contract at the site of the project are not protected under Workmen's Compensation statute, the Contractor shall provide and shall cause each subcontractor to provide insurance coverage equal to that provided under the Workmen's Compensation statute for the protection of his employees not otherwise protected.
  - b. Workmen's Compensation and Employer's Liability Insurance in amounts sufficient, in the opinion of the Contractor, the Owner, and the Architect, to protect the Owner, the Architect, the Contractor and the Subcontractors from all liability for bodily injury, sickness, or disease (including death resulting at any time therefrom) of any of their employee, including all liability or damage which may arise by virtue of any statute or law in force or which may hereafter be enacted.
- 2. Public Liability and Property Damage Insurance
  - a. Contractor shall effect and maintain during life of this Contract Commercial Public Liability including Personal Injury and Property Damage Liability Insurance (construed as including Contractor's Contingent or Protective Insurance if necessary to protect the

Contractor from damage claims arising from any operation under this contract) as shall protect him and any Subcontractors performing work covered by this Contract, from claims for damage for personal injury, including accidental death, as well as from claims for property damage which may arise from operations under this Contract, whether such operations by himself or by any Subcontractor, or anyone directly or indirectly employed by either of them, and the amounts of insurance shall be as follows:

Contractor's liability insurance shall be a \$1,000,000.00 Single Limit Comprehensive General Liability Insurance Policy covering all his operations on an occurrence basis with the following coverages included:

Bodily Injury Liability  
 Property Damage Liability  
 Products Liability (including contractual)(Broad Form)

General Contractor agrees to continue Completed Operations coverage for one (1) year after the work is accepted by the Owner. Commercial General Liability shall include coverage on: Premises, Operations, Independent Contractors (Protective Liability), Products and Completed Operations, Contractual Liability as may be assumed and insurable under this contract. There shall be no exclusions for special hazards under Property Damage for "c," collapse caused by grading or excavation: "u," underground property: "x," explosion or blasting.

3. Subcontractor's Public Liability and Property Damage Insurance
  - a. Contractor shall require each of his Subcontractors to procure and maintain during the life of his subcontract, Subcontractor's Public Liability and Property Damage Insurance of the type and of the limits specified in Subparagraph 3 above.
4. The Contractor's Commercial General Liability Insurance shall include premises – operations (including explosion, collapse and underground coverage) elevators, independent contractors, products liability, completed operations, and blanket contractual liability on all written contracts, all including broad form property damage coverage.
5. The insurance shall name the Owner and Architect as an additional insured and shall be written for the greater of the following limits, or those required by law.
  - a. Workers' Compensations
 

1.	State:	Statutory	
2.	Applicable Federal	Statutory	
3.	Employer's Liability	\$1,000,000 per Accident	\$1,000,000
	Disease, Policy Limit		\$1,000,000
  - b. Comprehensive General Liability (including Premises- Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage)
 

1.	Bodily Injury:	\$1,000,000 Each Occurrence	
		\$2,000,000 Annual Aggregate	
2.	Property Damage:	\$1,000,000 Each Occurrence	
		\$2,000,000 Annual Aggregate	

3. Products and Completed Operations to be maintained for two years after Substantial Completion: \$5,000,000 Aggregate
  4. Property Damage Liability Insurance shall provide X, C, and U coverage
  5. Broad Form Property Damage Coverage shall include Completed Operations.
- c. Contractual Liability
1. Bodily Injury: \$1,000,000 Each Occurrence  
\$2,000,000 Annual Aggregate
  2. Property Damage: \$1,000,000 Each Occurrence  
\$2,000,000 Annual Aggregate
- d. Personal Injury, with Employment Exclusion deleted: \$2,000,000 Annual Aggregate
- e. Business Auto Liability (including owned, non-owned, and hired vehicles):
1. Bodily Injury: \$1,000,000 Each Person  
\$1,000,000 Occurrence
  2. Property Damage: \$1,000,000 Each Occurrence
- f. For all worker's compensation and employer's liability insurance required hereby, Contractor shall require waiver of subrogation for itself and for all subcontractors, or others performing Work on the Project pursuant to the terms of Contractor's Contract with Owner.
- g. In addition to the above, each Prime Contractor will be required to verify that he carries an Umbrella or Blanket Excess Liability insurance coverage in an amount not less than \$2,000,000.00
- h. All risks of Physical Loss (including Fire and Extended Coverage). The General Contractor at his own expense shall provide fire and extended coverage insurance protection for materials and equipment belonging to the Contractor which is not to be worked into the building, and the Owner assumes no responsibility for fire and extended coverage or loss on such scaffolding, equipment or materials which are not be worked into the building. During the entire construction period, the General Contractor shall provide extinguishers of the type for the intended protection as approved by NFPA and OSHA and shall provide such extinguisher in each construction shed and temporary office, as well as in other locations are reasonably required, and all other fire protection reasonably required, to properly protect the project, and to comply fully with the requirements of insurance underwriters for the project and municipal county and state authorities.

C. Owner Furnished Insurance

1. Owner shall effect and maintain a Special Perils Building Risk Insurance upon all work to one hundred percent (100%) of the insurable value thereof, including all items of labor and materials connected therewith in or adjacent to the structure, materials in place or to be used as part of the permanent construction. This insurance does not cover any tools owned by mechanics, any tools, equipment, scaffolding, stagings, towers, forms, etc., rented by the Prime Contractor. This insurance shall be extended to include vandalism. Each Prime Contractor will be named as an additional insured.
2. The Owner shall furnish the Contractor, if so requested, copies of the Owner Insurance policies.

3. The Owner and Contractor waive all rights against each other for damages caused by fire or other perils to the extent covered by insurance provided under this paragraph, except such rights as they may have to the proceeds of such insurance held by the Owner as trustee. The Contractor shall require similar waivers by Subcontractors and Sub-subcontractors.
4. The Owner as trustee shall have power to adjust and settle any loss with the insurance unless one of the parties in interest shall object in writing within five days after the occurrence of loss to the Owner's exercise of this power; and if such objection be made, arbitrators shall be chosen as provided in Paragraph 4.5 of General Conditions. The Owner as trustee shall in that case, make settlement with the insurers in accordance with the directions of such arbitrators. If distribution of the insurance proceeds by arbitration is required, the arbitrators will direct such distribution.
5. The Architect shall be listed as co-insured on the Builder's Risk Policy.

END OF SECTION

## SECTION 01 3100

### PROJECT MANAGEMENT AND COORDINATION

#### 1.01 COORDINATION

- A. The General Contractor shall have full responsibility to coordinate and expedite all phases of the work of all Contractors notwithstanding the fact that the Owner will take Quotes and award separate Contracts on some divisions of work. The Contractors must give sufficient notice of their work schedule to other contractors so they may have ample time to install their work.

Each and every contractor and subcontractor must afford all other contractors and subcontractors reasonable opportunity for the introduction and storage of their material and execution of their work, and properly connect and coordinate his work with theirs, and employ as far as possible such methods and means in carrying out his work as will prevent any interruptions or interference with any other Contractor's or subcontractor's work. Any defects as may develop in any other Contractor's work after the execution of this work and which could not be ascertained before this work commenced is the responsibility of the original contractor who developed the work which became defective.

- B. Equipment: Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Layout of Work: Thoroughly examine the construction documents and Specifications carefully checking the figured dimensions, before commencing work and report to the Architect if any error, discrepancy or defect appears. Unless otherwise directed by the Architect, the location and arrangement of the various parts of the installations must be as indicated on the construction documents. Each Contractor is responsible to make any changes necessary to pass immovable obstructions without additional cost to the Owner. Under no circumstances is any size to be decreased or any radical changes to be made in any part of the installation without the written consent of the Architect.

Each Contractor must lay out his own work. Locations, lines and grades, pipe and conduit lines, valves and other appurtenances for which no figured dimensions or elevations are given are considered approximate only. Set the Actual locations as directed at the time of the installation.

- D. Substantial Completion: Coordinate completion and clean-up of work of separate Sections in preparation for Substantial Completion.
- E. Owner Occupancy: After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- F. Damage to Other Contractors: Any Contractor or subcontractor claiming damages from another Contractor or other subcontractor, or Owner on account of delay, negligence, or carelessness of other Contractors or subcontractors must make claim for same in writing at the time the damages are incurred, and within five (5) days,

deliver such written claims to the Architect, to the Owner, and to the party at fault, so that such claim may be arbitrated by the Architect. Failure to act as above will render such claim null and void.

- G. Trade Regulations: The Contractors agree to accord with such lawful agreements as it may have either individually, or as a member of any employer's association with trade unions, and to work in harmony with such labor unions and the representatives thereof for both his own employees and subcontractor's employees. The Contractor shall likewise take all steps to settle any differences that might arise between employees or groups thereof or trade unions as to work to be performed by any employee or member of any union.
- H. Acceleration of Work: If in the Architect's judgment, it becomes necessary during the execution of the work to accelerate any of the work of any Contractor, the Architect can direct any contractor as follows:
  - 1. Cease work at any point and transfer men to other point or points directed and execute such portions of contracted work in advance of other parts.
  - 2. Promote the progress of any work as a whole and enable other Contractors to hasten, properly engage and carry on their work.
  - 3. Temporarily omit such portions of any work as necessary for the advancement of the work of other contractors and then go back thereafter and execute the work left out at such a time the Architect directs. All expense involved in transfer or going back must be borne by the respective contractors who are required to cease work, transfer their men and execute portions of their work in advance of other parts to promote the progress of the work as a whole.

#### 1.02 FIELD ENGINEERING

- A. Grades, Lines and Levels: The Contractors verifies all grades, lines, levels, and dimensions indicated on the construction documents, and must report all inconsistencies before commencing work.
- B. Field Measurements: Each Contractor or subcontractor must obtain their own lines and grades and assume all responsibility for their accuracy. They must reconcile all measurements and conditions on the site of the proposed work.

#### 1.03 ALTERATION PROJECT PROCEDURES

- A. Materials: As specified in product Sections; match existing products and work for patching and extending work.
- B. Remove, cut, and patch work in a manner to minimize damage and to provide a means of restoring products and finishes to original condition.
- C. Where new work abuts or aligns with existing, perform a smooth and even transition. Patched work to match existing adjacent work in texture and appearance.
- D. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.

- E. Where a change of plane of 1/4 inch or more occurs, submit recommendation for providing a smooth transition for Architect review.
- F. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.

#### 1.04 CUTTING AND PATCHING

- A. Cutting and patching shall be performed by the proper trades or crafts necessary for the material involved, but the cost of same shall be borne by the Contractor requiring the cutting and patching.
- B. Patching shall mean the restoration of a surface or item to its original condition to match the existing adjoining surfaces unless otherwise indicated, noted, detailed or specified.
- C. Cutting and patching includes cleaning of all surfaces soiled by this work.
- D. Submit written request in advance of cutting or altering elements which affects structural integrity of element.
- E. Identify any hazardous substance or condition exposed during the Work to the Architect.

#### 1.05 PRECONSTRUCTION CONFERENCE

- A. The architect will schedule a preconstruction conference.
- B. Attendance Required: Owner's representatives, Architect, General Contractor and all other contractors as requested by the architect.
- C. Agenda:
  - 1. Submission of list of Subcontractors for approval, list of Products for approval, schedule of values, progress schedule and critical work sequencing.
  - 2. Designation of personnel representing the parties in Contract, and the Architect.
  - 3. Relation and coordination of prime contractors.
  - 4. Submittal of shop drawings, project data and samples.
  - 5. Procedures and processing of field decisions, submittals and Change Orders.
  - 6. Scheduling.
  - 7. Use of premises by Owner and Contractor.
  - 8. Major equipment deliveries and priorities.
  - 9. Owner's requirements.
  - 10. Construction facilities and controls provided by Owner.
  - 11. Temporary utilities provided by Owner.
  - 12. Security and housekeeping procedures.
  - 13. Safety and First-Aid Procedures.
  - 14. Procedures for maintaining record documents.

## 1.06 PROGRESS MEETINGS

- A. The Architect shall schedule and administer progress meetings.
- B. The General Contractor and all subcontractors active on the project are required to attend progress meetings with the owner's representative and architect every week, or at more frequent intervals if conditions require same, during the entire life of the project for the purpose of expediting the work and considering other matters pertaining thereto.
- C. Architect's Duties:
  - 1. Notify contractors of regular and called meeting 4 days in advance of meeting date.
  - 2. Record minutes; include significant proceedings and decisions.
  - 3. Type and distribute minutes of meetings to the Owner and Prime Contractors.
- D. Meeting Agenda:
  - 1. Review of Work progress.
  - 2. Field observations, problems, and decisions.
  - 3. Identification of problems which impede planned progress.
  - 4. Review of submittals schedule and status of submittals.
  - 5. Review of off-site fabrication and delivery schedules.
  - 6. Maintenance of progress schedule.
  - 7. Corrective measures to regain projected schedules.
  - 8. Planned progress during succeeding work period.
  - 9. Coordination of projected progress.
  - 10. Maintenance of quality and work standards.
  - 11. Effect of proposed changes on progress schedule and coordination.
  - 12. Other business relating to Work.
- E. Location: General Contractors field office or as indicated in notice.

## 1.07 PRE-INSTALLATION CONFERENCES

- A. When required in individual specification Sections the Contractor shall schedule and coordinate a Pre-installation Conference at the work site prior to commencing work of the Section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section or as requested by the architect.
- C. Notify Architect three (3) days in advance of meeting date.
- D. Review conditions of installation, preparation and installation procedures, and coordination with related work.

END OF SECTION

## SECTION 01 3300

### SUBMITTALS

#### 1.01 GENERAL

- A. The contractors are fully responsible for and required to provide all submittals in a timely manner to avoid delaying construction. Contractors are requested to provide submittals electronically as much as possible.**
- B. The Architect shall be held harmless for the contractor's failure to provide submittals, provide them in a timely manner or for their accuracy.**

#### 1.02 SUBMITTAL PROCEDURES

- A. The Contractor shall prepare, review, stamp with his approval, and submit all shop drawings, and other submittals electronically when possible to the Architect for all products and equipment to be incorporated into the project.
- B. The Contractor shall submit all samples and other submittals that cannot be submitted electronically to the Architect for all products and equipment to be incorporated into the project.
- C. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- D. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
- E. Coordinate submission of related items and schedule submittals to expedite the Project.
- F. Contractor must identify on the submittals variations from the Contract Documents, specified Products or system limitations which may be detrimental to successful performance of the completed Work.
- G. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- H. The contractor shall distribute copies of reviewed submittals to concerned parties and instruct parties to promptly report any inability to comply with provisions.

#### 1.03 SUBCONTRACTOR'S LIST

- A. Each contractor submitting a prime bid shall submit a complete list of all subcontractors to be awarded contracts on the project within 24 hours of bid due date and time. The list shall list only one subcontractor for each work category. The contractor's bid may be rejected if the subcontractor's list is not submitted as requested. The successful bidder's award of subcontractor's contracts shall not deviate from the subcontractor's list as submitted unless approved by the Owner.

#### 1.04 SCHEDULE OF VALUES

- A. Each successful bidder shall submit their Schedule of Values for approval on AIA Form G703 - Application and Certificate for Payment Continuation Sheet within 15 days of execution of construction contract.
- B. The Schedule of Values shall be executed under provisions of Specification Section 01 2600 – Contractor Considerations, Item 1.03 "Schedule of Values".

#### 1.05 CONSTRUCTION PROGRESS SCHEDULES

- A. Submit to the Architect and the Owner within 10 days after date of Owner-Contractor Agreement an initial Progress Schedule.
- B. Revise and resubmit as required.
- C. Submit revised schedules with each Application for Payment, identifying changes since previous version.
- D. Submit a horizontal bar chart with separate line for each section of Work, identifying first workday of each week.
- E. Show complete sequence of construction by activity, identifying Work of separate stages and other logically grouped activities. Indicate the early and late start, early and late finish, float dates, duration and critical activities.
- F. Indicate estimated percentage of completion for each item of Work at each submission.

#### 1.06 PROPOSED PRODUCTS LIST AND SUBMITTAL LOG

- A. Within 10 days after date of Owner-Contractor Agreement, submit a Submittal Log as well as a complete list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
- B. For products specified only by reference standards, give manufacturer, trade name, model or catalog designation, and reference standards for approval.

#### 1.07 SHOP DRAWINGS

- A. Submit Shop Drawings for all manufactured products and all shop of field fabricated items.
- B. Shop Drawings shall mean drawings indicating in detail all pertinent information of the item being depicted.
  - 1. Advertising brochures will not be accepted as Shop Drawings.
  - 2. Erection and setting drawings and schedules are considered Shop Drawings and shall be submitted along with detailed Shop Drawings.
  - 3. Shop Drawings and schedules shall repeat the identification shown on the contract drawings; sheet number, detail number, room number and specification section and article number.
  - 4. Shop drawings shall be submitted only on sheets 8-1/2" x 11" or of a size corresponding to the construction documents.

5. Note variances from the Contract Documents. Failure to do so will void any claim by the contractor against the Owner based upon submittals being approved by the Architect.
- C. Shop Drawings, Product Data and Samples submitted to the Architect by the Contractor shall bear the Contractor's approval stamp indicating that: 1) he has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents, and 2) there are no material changes or deviations from the contract documents. Failure of the contractor to accurately review Shop Drawings which results in additional review by the Architect may result in back charge to the contractor for the Architects additional review time.
  - D. Submit one copy of all submittals. The Architect will return one copy of the approved shop drawings to the Contractor and Owner. All copies submitted electronically will be returned electronically. The Architect will retain one copy. Submit shop drawings to Architect a minimum of (15) fifteen days prior to date contractor requires them back and note date that contractor requires approved Shop Drawings returned on contractor transmittal.
  - E. Architects review of shop drawings is for design only and is subject to all conditions of the contract documents. This review is not for quantities or dimensions. The contractor is responsible for all dimensions to be confirmed and correlated at the job site; for information that pertains solely to the fabrication processes or to techniques of construction; and for coordination of the work of all trades. Any additional cost incurred by the contractor resulting from failure of the contractor to field verify dimension are solely the responsibility of the said contractor.
  - F. Architect's Drawings: Copies of the Architect's CADD drawings may be obtained from the Architect for use by the General Contractor and their direct subcontractors solely for the purpose of coordination and expediting of work for shop drawings or layout work and not for any other purpose.

#### 1.08 PRODUCT DATA

- A. Submit product data for all manufactured items.
- B. Product data includes manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data.
  1. Clearly mark each copy to identify pertinent materials, products or models and contract document identification; sheet number, detail number, room number and specification section and article number.
  2. Submit only pages, which are pertinent.
  3. Show dimensions and clearances required for maintenance and service.
  4. Show performance characteristics, capacities and reference standards.
  5. Show wiring and piping diagrams, controls and finishes.
  6. Provide manufacturer's preparation, assembly, and installation instructions.
  7. Note variances from the contract documents including manufacturer's recommended changes to sequencing and to piping and control diagrams.
  8. Supplement manufacturers' standard data to provide information unique to this Project.
- C. Submit one copy of all submittals. The Architect will return one copy each of the approved shop drawings to the Contractor and Owner. All copies submitted electronically will be returned electronically. The Architect will retain one copy. Submit shop drawings to Architect a minimum of (15) fifteen days prior to date

contractor requires them back and note date that contractor requires approved Shop Drawings return on contractor transmittal.

#### 1.09 SAMPLES

- A. Submit samples to illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
- B. Submit samples of finishes from the full range of manufacturers' standard colors, textures, and patterns for Architect's selection.
- C. Include identification on each sample, with full Project information.
- D. Submit the number or samples specified in individual specification Sections one of which will be retained by Architect/Engineer.
- E. Reviewed samples which may be used in the Work are indicated in individual specification Sections.

#### 1.10 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.
- C. Architect will take no action on these submittals.

#### 1.11 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to Architect for review, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect.
- D. Architect will take no action on these submittals.

END OF SECTION

## SECTION 01 4500

### QUALITY CONTROL

#### 1.01 QUALITY ASSURANCE/CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform work by persons qualified to produce workmanship of specified quality.
- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

#### 1.02 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.
- B. Obtain copies of standards when required by Contract Documents.
- C. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- D. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

#### 1.03 FIELD SAMPLES

- A. Install field samples at the site as required by individual specifications Sections for review.
- B. Acceptable samples represent a quality level for the Work.
- C. Where field sample is specified in individual Sections to be removed, clear area after field sample has been accepted by Architect.

#### 1.04 MOCK-UP

- A. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes.
- B. Where mock-up is specified in individual Sections to be removed, clear area after mock-up has been accepted by Architect.

## 1.05 INSPECTION AND TESTING LABORATORY SERVICES

- A. Owner will employ and pay for services of an Independent Testing Laboratory acceptable to Architect, to perform specified services and testing.
  - 1. Contractor shall cooperate with the laboratory to facilitate the execution of its required services.
  - 2. Employment of the laboratory shall in no way relieve Contractor's obligations to perform the Work of the Contract.
- B. The Testing Laboratory will perform inspections, tests, and other services specified in individual specification Sections and as required by the Architect.
- C. Five copies of written reports will be promptly submitted by the Testing Laboratory to the Architect, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents. Each report shall include:
  - 1. Date issued.
  - 2. Project title and number.
  - 3. Testing laboratory name, address and telephone number.
  - 4. Name and signature of laboratory inspector.
  - 5. Date and time of sampling of inspection.
  - 6. Record of temperature and weather conditions.
  - 7. Date of test.
  - 8. Identification of product and specification section.
  - 9. Location of sample or test in the project.
  - 10. Type of inspection or test.
  - 11. Results of tests and compliance with Contract Documents.
  - 12. Interpretation of test results, when requested by Architect.
- D. The Testing Laboratory is not authorized to:
  - 1. Release, revoke, alter or enlarge on requirements of Contract Documents.
  - 2. Approve or accept any portion of the Work.
  - 3. Perform any duties of the Contractor.
- E. Contractor's Responsibilities:
  - 1. Cooperate with laboratory personnel, provide access to Work, to manufacturer's operations.
  - 2. Secure and deliver to the laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.
  - 3. Provide to the laboratory the preliminary design mix proposed to be used for concrete, and other material mixes which require control by the testing laboratory.
  - 4. Furnish copies of products test reports as required.
  - 5. Furnish incidental labor and facilities:
    - a. To provide access to work to be tested.
    - b. To obtain and handle samples at the Project site or at the source of the product to be tested.
    - c. To facilitate inspections and tests.
    - d. For storage and curing of test samples.

6. Notify laboratory sufficiently in advance of operations to allow for laboratory assignment of personnel and scheduling of tests.
  - a. When tests or inspections cannot be performed after such notice, reimburse Owner for laboratory personnel and travel expenses incurred due to Contractors negligence.
7. Make arrangements with laboratory and pay for additional samples and tests required for Contractor's convenience.
8. Employ and pay for the services of a separate, qualified, independent testing laboratory to perform additional inspections, sampling and testing required when initial tests indicate work does not comply with Contract Documents.

#### 1.06 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust, and balance of equipment as applicable, and to initiate instructions when necessary.
- B. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- C. Submit report in triplicate within 30 days of observation to Architect for review.

END OF SECTION

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## SECTION 01 5000

### CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

#### 1.01 GENERAL

- A. Each Prime Contractor shall be responsible for arranging for and providing all construction facilities and temporary controls as specified herein and as required for the proper and expeditious prosecution of the Work. Each Prime Contractor shall pay all costs for such facilities and controls unless otherwise specified, until date of substantial completion of project.
- B. Construction operations at the building site shall be in accordance with "The Manual for Accident Prevention" (AGC) and shall be subject to all applicable laws, governmental rules and regulations.
- C. Project Safety: Each employer, whether he be a Prime Contractor or a Subcontractor shall be separately responsible for all specific safety requirements promulgated by any governmental authority, including, without limitation, the requirements of the Occupational Safety and Health Act of 1970, the Construction Safety Act and Health Act of 1970, the Construction Safety Act of 1969, and all standards and regulations which have been or shall be promulgated by parties or agencies which administer such acts. In respect to the requirements of OSHA, each Contractor and Subcontractor shall be responsible for the acts of his employees and for appropriate recordkeeping and reporting.

#### 1.02 TELEPHONE SERVICE

- A. The General Contractor shall provide cell phone accessibility for their onsite Project Manager.

#### 1.03 TEMPORARY SANITARY FACILITIES

- A. The Contractor may use the existing toilet facilities.

#### 1.04 TEMPORARY FIRE PROTECTION

- A. The Contractor, or each Contractor in the event of separate Contracts, shall prohibit all lighting of fires about the premises and all smoking in restricted areas where posted with "NO SMOKING" signs and shall use due diligence to see that such prohibition is enforced. "NO SMOKING" signs shall be furnished and posted by the Contractor, or in the event of separate Contracts, by the General Contractor in locations subject to Architect's approval.
- B. The General Contractor will provide the general temporary fire protection requirements. Subcontractors will be responsible for their own specialty requirements. Permanent fire protection equipment used for fire protection during construction shall be the responsibility of the installing contractor.
- C. No debris or waste materials shall be burned at the construction site.
- D. Stove heaters in temporary offices and sheds shall be properly installed to protect combustible walls, floors and roof.

- E. Salamander heaters or similar forms of uncontrolled heaters shall not be used except with the special permission of the Architect and then only when each salamander is maintained under constant supervision.
- F. Gasoline shall be kept and handled from approved safety cans.

#### 1.05 CONSTRUCTION AIDS

- A. Each Contractor and Subcontractor shall provide all their own temporary ladders, ramps, runways, stairs, scaffolding, staging, temporary enclosures, hoists, rubbish chutes, etc., as may be required for performance of the Work.
- B. All construction aids shall comply with Federal, State and local laws and regulations.
- C. Temporary Hoists: Each Prime Contractor shall provide his own cranes, hoists, towers, and other lifting devices necessary for the proper and efficient movement of his materials. Provide operating personnel for equipment as required. Provide equipment with proper guys for bracing and other safety devices as required by Federal, Local and State codes. Remove towers and hoisting equipment when they are no longer needed, or as directed.
- D. Trash: Each Prime Contractor will be responsible for providing trash dumpsters and/or receptacles. Each Contractor or subcontractor will be responsible for collecting and depositing his debris in such trash receptacles. The General Contractor will be overall responsible for the removal of debris from the job site. Trash and debris shall not be allowed to accumulate. Subcontractors, at the direction of the General Contractor, shall collect and remove their own liquid waste and solid waste from the job site at periodic intervals so as not to hinder the overall progress of construction.

#### 1.06 TEMPORARY CONTROLS

- A. Each Prime Contractor shall conform to the requirements of Federal, State and local codes and authorities with regard to noise, dust, pest and pollution control.
- B. Materials and equipment shall be properly stored in accordance with the manufacturer's recommendations and in limited quantities so as not to overload the construction.
- C. Materials shall be adequately covered, protected, and secured to avoid being blown around.

#### 1.07 TRAFFIC REGULATIONS

- A. Each Prime Contractor shall be responsible for conforming to local regulations governing load limits of vehicles.
- B. Each Prime Contractor shall be responsible for regulating his traffic around the site in accordance with local regulations including parking and flagmen.

## 1.08 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification Sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. If traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

## 1.09 SECURITY

- A. Provide security and facilities to protect work, and existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

## 1.10 PARKING

- A. Parking areas shall be designated by the Owner or Architect.

## 1.11 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Remove waste materials, debris, and rubbish from site and dispose off-site

## 1.12 SITE SIGNAGE

- A. Unless specified otherwise, there will be no signs posted at the job site except as called for on the drawings or in the specifications or as required by applicable codes and regulations. Placement of contractor signage shall only be allowed at the review and discretion of the Owner.

END OF SECTION

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## SECTION 01 6600

### PRODUCT STORAGE AND HANDLING REQUIREMENTS

#### 1.01 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.
- C. Provide interchangeable components of the same manufacturer, for similar components.

#### 1.02 TRANSPORTATION AND HANDLING

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to assure that products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

#### 1.03 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight, climate controlled enclosures.
- B. For exterior storage of fabricated products, place on sloped supports, above ground.
- C. Provide off-site storage and protection when site does not permit on-site storage or protection.
- D. Cover all products to be installed within building with impervious sheet covering. Provide ventilation to avoid condensation.
- E. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- F. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- G. Arrange storage of products to permit access for inspection. Periodically inspect to assure products are undamaged and are maintained under specified conditions.

#### 1.04 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.

- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
  
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: For approval of products other than those specified, Bidders must submit a request in writing at least ten (10) days prior to Bid date and hour. Requests received after this time will not be reviewed or considered regardless of cause. Clearly define requests to describe the product for which approval is desired. Accompany all requests with manufacturer's literature, specifications, drawings, cuts, performance data, and list of references or other information necessary to completely describe the item. All requests must indicate in detail all deviations of proposed products from those specified. Approval by the Architect will come in the form of an Addendum to the Specifications issued to all bidders on record. The Addendum will indicate the additional products which are acceptable for this Project.

All additional costs associated with the acceptance of an alternate in order to accommodate such alternate into the design must be borne by the contractor proposing such alternate, regardless of the type of trade or construction affected.

END OF SECTION

## SECTION 01 7400

### CLEANING AND WASTE MANAGEMENT

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION

- A. Work includes: The following is required of each contractor unless otherwise specified.
  - 1. Each contractor:
    - a. Maintain premises and adjacent properties free of waste, debris and rubbish caused by construction operations.
    - b. At completion of work, or at such other times as directed by the Architect, remove all waste, debris, rubbish, tools, equipment, machinery and surplus materials. Clean all sight-exposed surfaces; leave work clean and ready for occupancy.
    - c. At the completion of his work, each Contractor must remove all his own tools, scaffoldings, and surplus materials and must leave work area "broom clean". In the case of dispute over who does the cleaning, the Owner may remove the rubbish and charge the cost to the several Contractors as the Architect determines to be just.
- B. When any work is completed and prior to final cleaning, the respective equipment manufacturers or Contractors shall carefully adjust all parts of their equipment and systems.

##### 1.02 SAFETY REQUIREMENTS

- A. Standards: Maintain project in accordance with established safety and insurance standards.
- B. Hazards Control:
  - 1. Store volatile wastes in covered metal containers and remove from premises daily.
  - 2. Prevent accumulation of wastes which create hazardous conditions.
  - 3. Provide adequate ventilation during use of volatile or noxious substances.
- C. Conduct cleaning and disposal operations to comply with Federal, State and local anti-pollution laws.
  - 1. Rubbish and waste materials shall not be burned or buried on project site.
  - 2. Volatile wastes such as mineral spirits, oil or paint thinner shall not be disposed of into storm or sanitary drains.
  - 3. Wastes shall not be disposed of into streams or waterways.

### 1.03 SUBMITTALS

- A. Manufacturer's recommendations for cleaning specified products.
- B. Proposed cleaning agents for those products whose manufacturers do not recommend a cleaning agent.

## PART 2 - PRODUCTS

### 2.01 MATERIALS

- A. Select and use all cleaning materials and equipment with care to avoid scratching, marring, defacing, staining or discoloring surfaces cleaned.
- B. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

## PART 3 - EXECUTION

### 3.01 GENERAL

- A. Execute cleaning to ensure that building(s), grounds and public properties are maintained free from accumulations of waste materials and rubbish.
- B. Wet down material and rubbish to lay dust and to prevent blowing dust.
- C. Twice weekly, during progress of work, clean site and public properties and dispose of waste materials, debris and rubbish.
- D. Provide on-site transportable cart containers for collection of waste, materials, debris and rubbish as required.
- E. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off Owner's property.
- F. Handle materials in a controlled manner with as few handlings as possible. Materials shall not be thrown from heights.

END OF SECTION

## SECTION 01 7700

### CLOSEOUT PROCEDURES

#### PART 1 GENERAL

##### 1.01 USE OF COMPLETED PORTIONS OF THE WORK

- A. Upon completion of the entire work the Owner may take over the buildings for occupancy and occupy and use same thereafter. Furthermore, if any spaces in the buildings are sufficiently completed that they can be occupied and used by the Owner in advance of completion of other unfinished work on the buildings and the Owner's occupancy or use of such spaces would not unduly interfere with the Contractor's subsequent work of the job, the Owner shall be allowed to occupy and use such space or spaces pending completion of the entire work.
- B. It shall be understood however, that the Owner's occupancy or use of such spaces in the buildings shall not constitute the Owner's acceptance of any work or materials nor to relieve the Contractor from his obligations or responsibilities under the contract.
- C. In the event the Owner occupies space or spaces in the buildings pending completion of the entire work as provided, the Contractor shall cooperate with the Owner in making available for the Owner's use such building services as heating, lighting, telephone, etc., for the space or spaces so occupied and if the equipment required to furnish such services not entirely completed at the time the Owner desires to occupy the aforesaid space or spaces the Contractor shall make every effort to complete same as soon as possible to the extent that the necessary equipment can be put into operation or use. In each case where the Owner takes over space in the buildings for occupancy or use, the Owner shall give the Contractor notice in writing of his taking over the space of spaces involved.

##### 1.02 CLOSEOUT PROCEDURES

- A. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect's inspection.
- B. Provide submittals to Architect that are required by governing or other authorities.
- C. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- D. Apply for and secure an occupancy certificate from the local governing body and submit to the Owner.

##### 1.03 ADJUSTING

- A. Adjust operating Products and equipment to ensure smooth and unhindered operation.

##### 1.04 PROJECT RECORD DOCUMENTS

- A. Maintain on site, one set of the following record documents; record actual revisions to the Work:

1. Contract Drawings.
  2. Specifications.
  3. Addenda.
  4. Change Orders and other Modifications to the Contract.
  5. Reviewed shop drawings, product data, and samples.
- B. Store Record Documents separate from documents used for construction.
- C. Record information concurrent with construction progress. Progress payments will not be approved if the Record Documents are not kept current with construction.
- D. Specifications: Legibly mark and record at each Product section description of actual Products installed, including the following:
1. Manufacturer's name and product model and number.
  2. Product substitutions or alternates utilized.
  3. Changes made by Addenda and Modifications.
- E. Record Documents and Shop Drawings: Legibly mark each item to record actual construction including:
1. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  2. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  3. Field changes of dimension and detail.
  4. Details not on original Contract Drawings.
- F. Delete Architect title block and seal from all documents.
- G. Submit one (1) set of prints to Architect with claim for final Application for Payment.
- H. The contractor shall provide Record Drawings on disc in current AutoCad format for the entire project.
- I. Contractor must maintain Record Drawings current with the construction process in order to receive monthly progress payments.

#### 1.05 OPERATION AND MAINTENANCE DATA

- A. Submit one (1) set prior to final inspection, bound in 8-1/2 x 11 inch text pages, three D side ring capacity expansion binders with durable plastic covers. Provide an electronic copy on a flash drive as well.
- B. Prepare binder covers with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.
- C. Internally subdivide the binder contents with permanent page dividers, and logically organized.

#### 1.06 SPARE PARTS AND MAINTENANCE MATERIALS

- A. Provide products, spare parts, maintenance and extra materials in quantities specified in individual specification Sections.

- B. Deliver to Project site and place in location as directed; obtain receipt prior to final payment.

END OF SECTION

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SECTION 02 4116

STRUCTURE DEMOLITION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Demolish all existing construction that is necessary to complete the project.
- B. Remove materials from site.

1.02 SUBMITTALS

- A. Submit demolition and removal procedures and schedule under provisions of Division 1.
- B. Submit record documents under provisions of Division 1.
- C. Secure all required permits for work.

1.03 EXISTING CONDITIONS

- A. Conduct demolition to minimize interference with adjacent surfaces.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.01 PREPARATION

- A. Prevent movement or settlement of adjacent structures. Provide bracing and shoring.

3.02 EXECUTION

- A. The use of gas powered tools is not permitted.**
- B. Demolish appurtenances in an orderly and careful manner.
- C. All items and systems noted on the drawings to be removed shall be removed in their entirety including all caulking, hangers and fasteners.
- D. All surfaces exposed by the demolition process that will be left exposed shall be cleaned, patched and finished.
- E. Cease operations and notify Architect immediately if adjacent surfaces appear to be endangered. Do not resume operations until corrective measures have been taken.
- F. Except where noted otherwise, immediately remove demolished material from site.
- G. Relics, antiques, and similar objects remain the property of the Owner. Notify Architect immediately prior to removal and obtain acceptance regarding method of removal.

- H. Remove materials to be re-installed or retained in manner to prevent damage. Store and protect under provisions of Division 1.
- I. Remove and promptly dispose of contaminated, vermin infested, or dangerous materials encountered. Comply with governing regulations.
- J. Do not burn or bury materials on site.
- K. Storage or sale of removed materials will not be permitted on the site.
- L. Owner has the right to claim any salvageable materials or equipment. Contractor will take possession of all salvageable materials and equipment which the Owner refuses and remove from the site.

END OF SECTION

## SECTION 03 1000

### CONCRETE

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Formwork, shoring, bracing, and anchorage.
- B. Concrete reinforcement and accessories.
- C. Cast-in-place concrete.
- D. Cooperate with other trades in allowing them reasonable time and convenience to set sleeves, inserts and other accessories which must be in a position before concrete is placed.

##### 1.02 QUALITY ASSURANCE

- A. Standard Specifications, listed below, latest editions, shall govern concrete work of this project, and are made a part of this Specification by reference.
  - 1. Recommended Practice for Hot Weather Concreting (ACI-305).
  - 2. Recommended Practice for Winter Concreting (ACI-306).
  - 3. Building Code Requirements for Reinforcing Concrete (ACI-318).
  - 4. Recommended Practice for Field Evaluation of Compressive Test Results of Field Concrete (ACI-214).
  - 5. Specifications for Structural Concrete for Buildings (ACI-301).
  - 6. Concrete Reinforcing Steel Institute (CRSI).
  - 7. Recommended practice for Concrete Form Work (ACI-347).
- B. ASTM Standards, (latest editions), shall apply to specified materials, as listed herein.
- C. When the outside temperature is below 40 degrees F., all work shall be in accordance with "Recommended Practice for Cold Weather Concreting," ACI 306. When the outdoor temperature is above 80 degrees F., work shall be in accordance with "Recommended Practice for Hot Weather Concreting," ACI 305.
- D. Walks and curbs on public property shall comply with all laws, rules and regulations of governmental authorities having jurisdiction over such work.

##### 1.03 TESTS

- A. To facilitate testing, the Contractor shall:
  - 1. Furnish necessary labor to assist testing agency in obtaining and handling samples at job site.
  - 2. Advise the testing agency in advance of operations to allow for the assignment of testing personnel and testing.
- B. ASTM Standards, (latest editions), shall apply to testing and analysis of concrete.
- C. Testing laboratory shall make the following inspections and test:

1. Test materials for compliance or review available test reports.
  2. Verify Contractor's mix designs in accordance with ACI 318.
  3. Perform tests on placed concrete in accordance with ACI 301 and following:
    - a. Perform compression strength test for each 100 cubic yards of concrete, or fraction thereof on specimens taken at point of a discharge from the truck immediately before placing. Make a minimum of one strength test for concrete placed in one day. A set of specimens for a test shall consist of three standard 6 x 12 cylinders. Test one cylinder at 7 days and two cylinders at 28 days. The set of cylinders shall be picked up 24 hours after casting and shall be delivered to testing laboratory for further curing and for testing.
    - b. Three additional concrete cylinders shall be made during a placement, which requires temporary heating. These cylinders shall be left in the enclosure in same environment as concrete placed. One cylinder shall be tested at 3 days, one at 7 days and the third at 28 days to verify adequacy of temporary heating system.
    - c. Perform slump tests in accordance with ASTM C143. Furnish slump cone at the site. Perform a minimum of one slump test for each strength test.
    - d. Test of air content for normal weight concrete in accordance with ASTM C 173, or ASTM C 231. Furnish and maintain equipment for testing air content at the site. Perform a minimum of one air content test for each strength test.
- D. If foregoing tests indicate concrete strength below that required or visual defects indicate concrete of poor quality has been placed, additional tests shall be made and concrete repaired as directed by the Architect at the expense of the Contractor.

#### 1.04 SUBMITTALS

- A. Submit shop drawings of reinforcing steel under provisions of Division 1.
- B. Indicate reinforcement sizes, spacings, locations and quantities of reinforcing steel, and wire fabric, bending and cutting schedules, splicing, and supporting and spacing devices. Conforming to "Manual of Standard Practice for Detailing Reinforced Concrete Structures", ACI 318.
- C. Submit Manufacturer's Literature: Material description and application or installation instructions for forming compound, curing compound, vapor barrier, grout, floor hardener, and sealer.
- D. Submit for every truckload of transit mixed concrete the manufacturer's delivery receipt. Receipt to include the following:
  1. Customer's name.
  2. Customer's order, job no.
  3. Ticket no.
  4. Job name and address.
  5. Date.
  6. Truck no.
  7. Times, loaded, arrived, emptied.
  8. Slump.
  9. Quantity.
  10. Mix no.

11. Description.
12. Yards ordered.
13. Yards shipped.
14. Identify concrete test cylinders by serial number.

E. Submit concrete mix data

#### 1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver, handle and store material at the job site in such a manner as to prevent damage. Packaged material shall be in original containers with seals unbroken and labels intact until time of use. Wrapped or bundled material shall bear the name of the manufacturer and the product. All damaged or otherwise unsuitable material when so ascertained shall be immediately removed from the job site.
- B. Properly label all bars with weatherproof tags to facilitate identification.
- C. Store reinforcing steel on supports above ground level. Keep covered with tarpaulins if there is any delay in use.

### PART 2 PRODUCTS

#### 2.01 FORM MATERIALS

- A. Conform to ACI 301.
- B. Plywood Forms: Douglas Fir species; solid one side; sound undamaged sheets with inconspicuous joints. Use on unfinished surfaces.
- C. Lumber: #2 common lumber, tongue and groove, min. 3/4" thickness. Use on surfaces to be backfilled.
- D. Steel Forms: Stiffened to support weight of concrete with minimum deflection and present a smooth surface and not discolor concrete. Use on unfinished surface.
- E. Form Oil: Non-staining and subject to approval.

#### 2.02 REINFORCING STEEL

- A. Welded Steel Wire Fabric: Plain type, ANSI/ASTM A185; in flat sheets; uncoated finish.

#### 2.03 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150 for normal Portland cement Type 1, and high early strength Portland cement Type III, if approved by Architect. Use the same brand of Portland cement throughout the entire job unless a change is authorized in writing.
- B. Fly Ash: ASTM C 350.
- C. Air-Entraining Portland Cement: ASTM C 260.  
For normal air-entraining - Type 1A  
For high-early strength - Type IIIA

D. Aggregate: ASTM C 33, for use in stone concrete, except as specified below:

1. All aggregates when subjected to the magnesium sulfate soundness tests (ASTM C 88) shall not lose more than 15% by weight.
2. Fine Aggregate: Shall be either natural or artificial hard, clean sand and when tested by laboratory sieves shall meet the following requirements:

<u>Sieve Size</u> (Cumulative)	<u>Percent Retained</u>
No. 4	0 to 5
No. 8	10 to 20
No. 16	20 to 40
No. 30	40 to 70
No. 50	70 to 80
No. 100	92 to 98

The fineness modulus shall vary between 2-1/2 and 3.

3. Course Aggregate: Crushed stone or gravel, having clean, hard uncoated particles and when tested by laboratory sieves shall meet the following requirements:

- a. Maximum size 1-1/2" for footings, slabs on fill and reinforced slabs of 8" or greater thickness.

<u>Sieve Size</u> (Cumulative)	<u>Percent Passing</u>
1-1/2"	95 to 100
3/4"	35 to 70
3/8"	10 to 30
No. 4	20 to 50

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- b. Maximum size 3/4" for all other concrete. Aggregates used in Foundation walls, retaining walls, Spandrel Beams, to be sand blasted shall be Gap Graded.

4. Aggregates used in Architectural concrete shall come from the same source throughout the job, unless a change is approved in writing.

E. Mixing Water: Clean, free from oils or other injurious materials and subject to approval.

F. Furnish the manufacturer's certificates of mill tests for all cement.

## 2.04 ADMIXTURES

A. Water Vapor Reducing Admixture: For all new interior concrete slabs on grade provide concrete with one of the following approved products with a lifetime warranty:

- a. Vapor Lock 20/20 admixture manufactured by Specialty Products Group
- b. Barrier One High Performance Admixture manufactured by Barrier One, Inc.
- c. "ISELogik Industries, MVRA900.

- d. BONEdry Pro Admix manufactured by Bone Dry Products.
- e. Or approved equal products offered by Concure or Moxie International.

## 2.05 ACCESSORIES

- A. Bonding Agent: Film-forming, freeze-thaw resistant compound suitable for brush or spray application. Epoxy type, 100 percent solids "Euco Epoxy #452 (dry surface), #460 (dry or damp surface)", (The Euclid Chemical Company); "Sikadur Hi-Mod Mortar" (dry or damp surface), (Sika Chemical Co.) or approved equal.
- B. Patching and Surfacing Compound: Epoxy type, 100 percent solids, "Euco Epoxy #452 Mortar" (dry surface), #460 Mortar" (dry or damp surface), (The Euclid Chemical Company); "Sikadur Lo-Mod Mortar" (dry or damp surface), (Sika Chemical Co.) or approved equal.
- C. Floor Sealer: Sonneborn Son-o-sil: except under floors scheduled for terrazzo will be wet cured.
- D. Vapor Barrier: Per specification 07 2616 Below Grade Vapor Retarders
- E. Form Release Agent: Colorless material which will not stain concrete, absorb moisture or impair natural bonding or color characteristics of coating intended for use on concrete.

## 2.06 JOINTS

- A. Control Joints in Interior Slabs on Grade
  - 1. Control joints shall be produced by saw cuts 1" deep using power cutter as soon as concrete has cured sufficiently to carry the machine weight.
  - 2. Locations of all control joints shall conform to drawings and/or must be approved by the Architect.

## 2.07 CONCRETE MIX

- A. Mix concrete in accordance with ASTM C94 and ACI 211. Concrete mixing, measuring and delivery equipment shall be certified by the National Ready Mixed Concrete Association. Methods shall be subject to Architect's approval and in accordance with ACI 304:
  - 1. Site-Mixed Concrete: Used only if specifically approved by Architect.
- B. Furnish Architect with copy of mixing order for every delivery of concrete to job site.
- C. The concrete shall be adjusted to produce the required rate of hardening for varied climatic and job site conditions.
- D. Concrete:
  - 1. Interior slabs shall be five (5) bag cement mix with minimum compressive strength of 3000 psi in 28 days.
  - 2. Slump: 4"-6"

3. The Architect or testing laboratory shall have the right to reject any concrete which arrives at job site in excess of specified slump. No water shall be added to design mix unless approved by the architect. Slump shall be determined in accordance with ASTM 143.
- E. High-early-strength concrete: may be used for any portion of the work but only with prior written approval. The 7-day compressive strength of this type of concrete shall be at least equal to the minimum 20-day compressive strength of standard concrete made with normal Portland cement as specified herein. All provisions of these specifications except for curing shall be applicable to such concrete.

## PART 3 EXECUTION

### 3.01 FORMWORK ERECTION

- A. The design, engineering and construction of the formwork shall be the responsibility of the Contractor and shall be done in accordance with ACI 347.
- B. Forms shall conform to shape, lines and dimensions shown on the Drawings, be designed to resist the pressure and weight of the concrete, be properly tied and braced or shored so as to maintain position and shape and be sufficiently tight to prevent leakage of mortar. Forms shall be designed and constructed to facilitate easy removal without damage to exposed surfaces, and to provide smooth concrete surfaces free of off-sets.
- C. Before reinforcing steel is set, wood forms shall be coated with an approved non-staining form oil, or wet with water (except in freezing weather). Metal forms shall be coated with approved non-staining rust preventive form oil. Stained forms shall not be used.
- D. Positive means of adjustment (wedges or jacks) of shores and struts shall be provided and all settlement shall be taken up during concrete placing operations. Brace securely against lateral deflections.
- E. Do not apply form release agent to reinforcing steel or where concrete surfaces receive special finishes or applied coatings which may be affected by agent.
- F. Coordinate work of other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.
- G. Removal of forms and shoring shall be accordance with ACI 318.

### 3.02 REINFORCEMENT

- A. Reinforcing steel shall be cleaned of oil, grease, scale, rust, or other coatings which may impair the bond.
- B. Welded wire fabric reinforcement shall conform to ASTM A185. Fabric reinforcement shall have end and side laps of one mesh and wired together.
- C. Reinforcements shall be adjusted to fit the sleeves, inserts and openings, using additional bars where required around openings.
- D. Place, support, and secure reinforcement against displacement. Provide additional reinforcement at construction joints.

- E. Do not place concrete until the reinforcement has been approved by the Architect.

### 3.03 PLACING CONCRETE

- A. Install vapor barrier under interior floor slabs on fill. Lap joints minimum 6 inches. Do not disturb vapor barrier while placing reinforcement.
- B. Placing Concrete: Place immediately after mixing, and in no case more than 45 minutes after water has been added. Deposit in uniform, horizontal layers not more than 24" deep, work around all reinforcing and in corners of the forms. Properly spade and puddle by the use of rods, shovels and hand spades, and agitate by means of internal and external vibrations to obtain the densest possible concrete.
- C. All concrete work which does not conform to the requirements of the Contract Documents, including strength, tolerances and finishing, shall be corrected as directed by the Architect at the Contractor's expense, without extension of time therefore. The Contractor shall also be responsible for the cost of corrections to any other part of the work affected by or resulting from corrections to the concrete work.
- D. Chutes: Use chutes for placing concrete with a drop of more than 5 ft. Continue depositing of concrete until the completion of the section or unit and in no case suspend the pouring of a section, once started, for more than 30 minutes.
- E. When placing slab concrete from buggies: dump concrete into face of concrete in place.
- F. Roughen, clean, and moisten construction joints before placing concrete. Apply bonding compound and place new concrete after bonding compound becomes tacky.

### 3.04 FLOOR SLABS

- A. Finish surfaces as scheduled.

### 3.05 TOLERANCES

- A. Provide tolerance to floor slabs according to ACI 301. Pitch to drains ¼" per foot nominal.

### 3.06 SCHEDULE OF FINISHES

A.	Interior:	Finish	Hardener	Sealer
	Below Resilient Floor, Carpet, Painted	Hard Trowel	No	No
	Below "Thin Set" Ceramic & Quarry Tile	Hard Trowel	No	No

### 3.07 FINISHES

- A. Screeding: All slabs shall be struck off with a template worked off forms, screed strips or pipe, accurately set by instrument grade. Unless otherwise indicated, slabs shall be finished level to a tolerance not to exceed + 1/8" in ten feet (10'). Slabs to be crowned, cambered, or sloped to drains shall be finished with comparable precision. Templates used to strike off air-entrained concrete shall be metal, or metal shod, to prevent tearing off the surface. Light moistening of the concrete surface will be permitted only with air-entrained concrete to facilitate operation of finishing tools.

- B. Floating: One floating, closing all holes in the surface, will be considered sufficient where concrete is held down below finish floor level. Directly after screeding, while concrete is still plastic, slab surfaces shall be floated with wood, cork, or Kelly Float. High spots shall be cut down and low areas filled to produce a true grade with sufficient mortar brought to top for a final finish; overworking shall be avoided. Free water bleeding to surface during floating and after floating shall be removed before any finishing operations are continued.
- C. Float Finish: Second swirl floating after surface has partially hardened. Surface shall have coarse sandy texture but free of conspicuous welts and ridges. Tool joints on edges.
- D. Hard Trowel Finish: The initial troweling shall be delayed as long as practical to avoid troweling while concrete is too soft. All water sheet shall have disappeared from surface; dry cement and sand shall not be used to take up surface moisture. The first troweling shall be just sufficient to produce a smooth surface. Final troweling shall be done with a tilted trowel and heavy pressure after concrete has become hard enough to give a ringing sound under the trowel and shall produce a smooth, plane surface (unless cambered) free of defect. Troweling shall be accomplished with a mechanical trowel except in areas inaccessible to such tools where hand troweling shall be used.

### 3.08 CURING AND PROTECTION

- A. Cure and Protect Concrete in Accordance with ACI 301
- B. General: Protect freshly placed concrete from premature drying and maintain without drying at a relatively constant temperature for a period of time necessary for hydration of cement and proper hardening.
  - 1. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting; keep continuously moist for not less than 72 hours.
  - 2. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days and in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.
- C. Curing Methods: Perform curing of concrete by moist curing, by moisture-retaining cover curing, by membrane-forming curing, and by combinations thereof, as herein specified.
  - 1. Provide moisture curing by following methods:
    - a. Keep concrete surface continuously wet by covering with water.
    - b. Continuous water-fog spray.
    - c. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges with 4" lap over adjacent absorptive covers.
  - 2. Provide moisture-cover curing as follows:

- a. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Provide membrane curing to slabs as follows:
    - a. Apply membrane-forming curing compound to concrete surfaces as soon as final finishing operations are complete (within 2 hours). Apply uniformly in continuous operation by power-spray or roller in accordance with manufacturer's directions. Recoat areas, which are subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
    - b. Do not use membrane curing compounds on surfaces which are to receive concrete overlays and/or additional toppings.

END OF SECTION

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SECTION 04 0513

MASONRY MORTARING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Mortar for masonry.

1.02 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Division 1.
- B. Store and protect products under provisions of Division 1.
- C. Maintain packaged materials clean, dry, and protected against dampness, freezing, and foreign matter.

1.03 QUALITY ASSURANCE

- A. Comply with ASTM C270, proportion specifications.
- B. All mortar shall be tested in accordance with UBC Standard 24-22.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Portland Cement: ASTM C150, Type I.
- B. Masonry Cement: ASTM C91.
- C. Hydrated Lime: ASTM C207.
- D. Quicklime: ASTM C5, non-hydraulic type.
- E. Sand: ASTM C144, Clean, free from soluble salts and organic matter, graded from fine to coarse, compatible with the thickness of joints in which used.
- F. Water: Clean and potable.

2.02 ADMIXTURES

- A. Do not use admixtures of any kind or type without the written approval of the Architect.

2.03 MORTAR MIXES

- A. Mortar for Non-load Bearing Walls and Partitions: ASTM C270, Type N, utilizing the Proportion Method to achieve 750 psi strength in 28 days.

## 2.04 MORTAR MIXING

- A. Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C270.
- B. If water is lost by evaporation, retemper only within two hours of mixing.
- C. Use mortar within two hours after mixing at temperatures of 80 degrees F, or two-and-one-half hours at temperatures under 50 degrees F.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Install mortar in accordance with ASTM C780.

END OF SECTION

SECTION 04 2005  
UNIT MASONRY SYSTEM

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Concrete masonry units.
- B. Reinforcement, anchorage, and accessories.

1.02 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION

- A. Section 05 1200 - Structural Steel: Placement of anchor bolts, setting plates and bearing plates set in masonry. Steel lintels built into masonry work, which do not require bearing plates.

1.03 QUALITY ASSURANCE

- A. Wall Construction: It is the intent of this Contract that all masonry work, shall be sound, straight, true and first class and complete in every respect.

1.04 SUBMITTALS

- A. Submit product information for all masonry reinforcement and accessories.
- B. Submit mortar product information and test results.
- C. Submit CMU product information and test results.

1.05 QUALIFICATIONS

- A. Installer: Company specializing in performing the work of this Section with minimum 5 years documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Division 1.
- B. Store and protect products under provisions of Division 1.
- C. Accept units on site. Inspect for damage.

1.07 SEQUENCING AND SCHEDULING

- A. Coordinate work under provisions of Division 1.

PART 2 PRODUCTS

2.01 CONCRETE MASONRY UNITS

- A. Hollow Load Bearing Block Units: ASTM C90, Grade N, Type I - Moisture Controlled; normal weight.

- B. Solid Load Bearing Block Units: ASTM C145, Grade N, Type I - Moisture Controlled; normal weight.
- C. Hollow Non-Load Bearing Block Units: ASTM C129, Type I - Moisture Controlled; normal weight.
- D. Concrete Brick Units: ANSI/ASTM C55, Grade N, Type I - Moisture Controlled; normal weight of same Grade, Type, and Weight as block units.
- E. Masonry Units: Nominal modular size of 8" x 16" face dimensions in thickness as called for on the plans. Provide special units for 90 degree corners, bond beams, lintels and bullnosed corners.
- F. All concrete masonry units shall be manufactured in the same plant.
- G. All exposed corners of concrete block units shall be manufactured "bullnose" type. Grinding of corners will not be acceptable.
- H. All exterior concrete masonry shall be colored concrete block, color by Architect. Under no circumstance shall this block be "white". Contractors shall use colored mortar on colored block.
- I. All exposed exterior non-painted concrete block shall have 2 coats of HYDROZZO clear sealer.

## 2.02 REINFORCEMENT AND ANCHORAGE

- A. Single Wythe Joint Reinforcement: Ladder type; cold-drawn steel hot-dip galvanized after fabrication, No. 9 gauge side rods with No. 9 gauge cross ties; manufactured by "Dur-O-Wall" or approved equal; in widths suitable to wall thickness laid in every second block course or 16" o.c. vertically.
- B. Corrosion resistant wall ties shall be securely fastened to existing walls and shall be spaced not more than 24" horizontally and 16" vertically for securing masonry veneer to the existing building. New block walls shall be bonded to existing adjoining walls with corrosion resistant wall ties, spaced 16" on centers, securely fastened to the existing wall.

## 2.04 ACCESSORIES

- A. Cleaning Solutions: Non-acidic, not harmful to masonry work or adjacent materials.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Verify items provided by other Sections of work are properly sized and located.
- C. Verify that built-in items are in proper location, and ready for roughing into masonry work.
- D. Beginning of installation means installer accepts existing conditions.

### 3.02 PREPARATION

- A. Direct and coordinate placement of metal anchors supplied to other Sections.
- B. Provide temporary bracing during installation of masonry work. Maintain in place until building structure provides permanent bracing.

### 3.03 COURSING

- A. Establish lines, levels, and coursing indicated. Protect from displacement.
- B. Maintain masonry courses to uniform dimension. Form vertical and horizontal joints of uniform thickness.
- C. Lay concrete masonry units in running bond. Course one unit and one mortar joint to equal 8 inches. Form concave mortar joints.

### 3.04 PLACING AND BONDING

- A. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- B. Lay hollow masonry units with face shell bedding on head and bed joints.
- C. Buttering corners of joints or excessive furrowing of mortar joints are not permitted.
- D. Remove excess mortar as Work progresses.
- E. Interlock intersections and external corners.
- F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- G. Perform jobsite cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
- H. Cut mortar joints flush where ceramic or quarry wall tile is scheduled, cement parging is required, resilient base is scheduled, cavity insulation vapor barrier adhesive is applied, or bitumen dampproofing is applied.
- I. Isolate masonry partitions from vertical structural framing members with a control joint as indicated.
- J. Isolate top joint of masonry partitions from horizontal structural framing members and slabs or decks with compressible joint filler.
- K. Fill cores or cells of concrete blocks with concrete or cement grout, under structural bearing points. When not otherwise called for, fill cells of concrete block for three courses below and two block courses wide under all concentrated structural loads.
- L. The tops of walls and partitions shall be covered at the end of each day's work, using waterproof reinforced paper or canvas weighted down.

### 3.05 REINFORCEMENT AND ANCHORAGES

- A. Install horizontal joint reinforcement 16 inches o.c. vertically.
- B. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 24 inches each side of opening.
- C. Place joint reinforcement continuous in first and second joint below top of walls.
- D. Lap joint reinforcement ends minimum 6 inches. Extend minimum 16 inches each side of openings.

### 3.07 LINTELS

- A. Install lintels over window openings, door openings, duct openings and other openings as indicated on the Drawings.
- B. Install reinforced unit masonry lintels over openings where steel or precast concrete lintels are not scheduled.
- C. Use single piece reinforcing bars only.
- D. Support and secure reinforcing bars from displacement. Maintain position within 1/2 inch (13 mm) of dimensioned position.
- E. Place and consolidate grout fill without displacing reinforcing.
- F. Maintain minimum 4 inch bearing on each side of opening.

### 3.09 BUILT-IN WORK

- A. As work progresses, build in metal door and glazed frames, fabricated metal frames, wood nailing strips, anchor bolts, bearing plates, miscellaneous steel and all other items furnished by other Sections.
- B. Build in all steel lintels not requiring steel bearing plates. Steel lintels furnished under Section 05 1200.
- C. Build in items plumb and level or as required for proper bearing.
- D. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout. Fill adjacent masonry cores with grout minimum 12 inches from framed openings.
- E. Do not build in organic materials subject to deterioration.

### 3.11 TOLERANCES

- A. All work shall be laid plumb, level and true. The work shall be properly conducted for keeping the tools and mortar boards and other equipment in good order and free from unnecessary accumulation of mortar. The work shall be maintained level all around the building as far as practicable, but where necessary to run up part of the working advance of the remainder the courses shall be racked back; tothing will not be permitted.

1. The following specific requirements shall be closely followed:
  - a. All masonry shall be laid up in workmanlike manner in conformance with the best standards. Bed joints shall be properly filled to provide bearing to utilize the full structural value of each unit and with full head joints.
  - b. Unless otherwise shown or specified, all blockwork shall be laid up in standard running bond.
  - c. Except as otherwise specified, all masonry facing shall be bonded to back-up with wire mesh reinforcing.
  - d. Where indicated and where required, provide chases for pipes and conduits and grooves or reglets to receive flashing.

### 3.12 CUTTING AND FITTING

- A. Cut and fit for chases, pipes, conduit, sleeves and grounds. Coordinate with other Sections of work to provide correct size, shape, and location.
- B. Obtain Architect approval prior to cutting or fitting masonry work not indicated or where appearance or strength of masonry work may be impaired.

### 3.13 CLEANING

- A. Clean work area under provisions of Division 1.
- B. Remove excess mortar and mortar smears.
- C. Replace defective mortar. Match adjacent work.
- D. Clean soiled surfaces with cleaning solution.
- E. Use non-metallic tools in cleaning operations.

### 3.14 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provisions of Division 1.
- B. Without damaging completed work, provide protective boards at exposed external corners which may be damaged by construction activities.

END OF SECTION

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## SECTION 05 1201

### STRUCTURAL STEEL LINTELS

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. All structural steel lintels normally falling under definition of structural steel as set forth in latest edition of AISC Code of Standard Practice.

##### 1.02 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Steel lintels built into masonry work not requiring steel bearing plates.

##### 1.03 SUBMITTALS

- A. Submit under provisions of Division 1.
- B. Shop Drawings:
  - 1. Indicate profiles, sizes, spacing, and locations of structural members, openings, attachments, and fasteners.
- C. Shop Drawings shall have been thoroughly checked by fabricator before being submitted for review. Review is precautionary measure only and shall not relieve fabricator of full responsibility of correctness of all materials, sizes, dimensions and details.
- D. In case structural sections or details indicated on Drawings cannot be readily obtained, substitution of sections or details of equal strength which conform to requirements of design may be made only if approved.
- E. Fabrication shall not proceed until shop drawings have been reviewed. Fabrication, assembly and erection shall conform to reviewed shop drawings.

##### 1.04 QUALITY ASSURANCE

- A. Comply with AISC Manual, Ninth Edition, 1989.
  - 1. "Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings".
  - 2. "Code of Standard Practice for Steel Buildings and Bridges" including Commentary.
  - 3. "Specifications for Architecturally Exposed Structural Steel".
  - 4. "Specifications for Structural Joints Using ASTM A325 or A490 Bolts".
- B. "General Requirements for Delivery of Rolled Steel Plates, Shapes, and Bars for Structural Use", ASTM A6.
- C. "Specifications for Assembly of Structural Joints Using High Strength Steel Bolts" as approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.
- D. Perform work in accordance with A.W.S. Code for Arc and Gas Welding on building construction.

## 1.05 QUALIFICATIONS

- A. Fabricator: Company specializing in performing the work of this Section with minimum 5 years documented experience.

## 1.06 FIELD MEASUREMENTS

- A. Verify that field measurements are as shown on Drawings prior to fabrication.

## PART 2 PRODUCTS

### 2.01 MATERIALS

- A. Structural Steel Members: ASTM A992.
- B. Shop and Touch-Up Primer: FS TT-P-86, Type II, except for Architecturally Exposed Structural Steel which after Commercial Blast Cleaning, SSPC-SP6-63, shall receive one coat rust inhibitive primer compatible with finish coat.

### 2.02 FABRICATION

- A. General:
  - 1. Material shall be properly marked.
- B. Shop Painting:
  - 1. All steel shall be thoroughly cleaned, all rust and mill scale removed as outlined in the Structural Steel Painting Council Specification for Power Tool Cleaning (SSPC-SP3) and shall receive one shop coat of paint, 2-3 mil dry film thickness, except areas up to 2 in. of field welds and contact surfaces using high strength friction-type bolts. No unpainted areas shall be left to preserve shop marks.

### 2.03 FINISH

- A. Shop prime structural steel members except items to be galvanized.
- B. Provide hot dipped galvanized coating after fabrication for all steel exposed to the outside elements and all steel embedded in exterior masonry walls.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that field conditions are acceptable and are ready to receive work.
- B. Beginning of installation means erector accepts existing conditions.

END OF SECTION

## SECTION 06 2000

### FINISH CARPENTRY

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Finish carpentry, including but not limited to installation of all doors, frames and hardware, toilet accessories, casework, and counters.

##### 1.02 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver shop fabricated carpentry items until site conditions are adequate to receive the work. Protect items from weather while in transit.
- B. Store indoors, in ventilated areas with a constant, minimum temperature of 60 degrees F, maximum relative humidity of 25 to 55 percent.

#### PART 2 PRODUCTS

##### 2.01 CARPENTRY MATERIALS

- A. Nails, Spikes and Staples: Plain finish for interior locations; size and type to suit application.
- B. Fasteners: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolts or power activated type for anchorage to steel.

##### 2.02 FINISH CARPENTRY

- A. Nails: Size and type to suit application.
- B. Bolts, Nuts, Washers, Lags, Pins and Screws: Size and type to suit application.

##### 2.03 FABRICATION

- A. Fabricate finish carpentry items in accordance with recommendations of AWI. Shop fabricate items where possible.
- B. Use exposed fastening devices or nails only when unavoidable.

#### PART 3 EXECUTION

##### 3.01 INSTALLATION OF FINISH CARPENTRY ITEMS

- A. Set and secure finish carpentry items in place rigid, plumb, and square.
- B. Use purpose designed fixture attachments for mounted components.
- C. Workmanship in connection with all finished carpentry shall conform to the AWI standards and shall be acceptable to the Architect. Woodwork shall have a fine smooth finish and shall be free from machine or tool marks, abrasions, raised grain etc., on exposed surfaces.

- D. Joints shall be tight and so formed as to conceal shrinkage. Shop miters 4" or more from heel to point shall be glued and feathered, locked or splined. Tenons and dowels shall be made to a driving fit. Dowels shall be of hardwood and at least two shall be used in each joint. Shop joints shall be made with waterproof glue or hot glued under pressure as to avoid the use of nails as much as possible. Where nails and screws are necessary, they shall be concealed.
- E. Finish woodwork of every sort shall be put up plumb or level, straight and true, and shall not be installed until the building is dry as directed by the Architect. All work shall be fitted and scribed to other finished work in a careful manner so as not to injure the surface. All nailing shall be blind nailed wherever possible, but where not possible, the nailing shall be so located and driven as not to be conspicuous in the finish.
- F. For interpretation in this contract, the term "concealed surface" shall mean those surfaces facing a wall, floor or ceiling or an item of millwork permanently fixed in position where such surfaces are entirely enclosed and not subject to view under any conditions. All other surfaces, inside and outside cabinets, desks, etc., as well as all surfaces of removable cabinets (except bottom surfaces of cabinets without legs) shall be considered exposed.
- G. Install hardware, fixtures and accessories supplied under other Sections for installation. Install items in accordance with manufacturer's instructions.
- H. Ensure that mechanical and electrical items affecting this Section of work are properly placed, complete, and have been inspected by the Architect prior to commencement of installation.

END OF SECTION

## SECTION 07 9200

### JOINT SEALANTS

#### PART 1 - GENERAL

##### 1.01 SECTION INCLUDES

- A. Preparing substrate surfaces.
- B. Sealant.

##### 1.02 REFERENCES

- A. ASTM C790 - Use of Latex Sealing Compounds.
- B. ASTM C834 - Latex Sealing Compounds.

##### 1.03 SUBMITTALS

- A. Submit under provisions of Division 1.
- B. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, color availability.
- C. Samples: Submit two samples illustrating sealant colors for selection.
- D. Manufacturer's Installation Instructions: Indicate special procedures, surface preparation, perimeter conditions requiring special attention.

##### 1.04 QUALITY ASSURANCE

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform acoustical sealant application work in accordance with ASTM C919.

##### 1.05 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five years' experience.
- B. Applicator: Company specializing in performing the work of this section with minimum five years' experience approved by manufacturer.

##### 1.06 ENVIRONMENTAL REQUIREMENTS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.

##### 1.07 COORDINATION

- A. Coordinate work under provisions of Division 1.

- B. Coordinate the work with all sections referencing this section.

## 1.08 WARRANTY

- A. Provide five year warranty under provisions of Division 1.
- B. Warranty: Include coverage for installed sealants and accessories which fail to achieve air tight seal, water tight seal and exhibit loss of adhesion or cohesion, or do not cure.

## PART 2 - PRODUCTS

### 2.01 SEALANTS

- A. Acrylic Latex: ASTM C920; Single component, non-staining, non-bleeding, non-sagging; color as selected.
  - 1. AG-20 + Silicone manufactured by Pecora
  - 2. Acrylic Latex 834 manufactured by Tremco, Inc.
  - 3. Soliolac manufactured by Sonneborn.

## PART 3 – EXECUTION

### 3.01 INSTALLATION

- A. Install sealant in accordance with manufacturer's instructions.
- B. Measure joint dimensions and size materials to achieve required width/depth ratios.
- C. Install joint backing to achieve a neck dimension no greater than 1/3 of the joint width.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints concave unless otherwise detailed.

### 3.02 CLEANING

- A. Clean work under provisions of Division 1.
- B. Clean adjacent soiled surfaces.

### 3.03 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provisions of Division 1.
- B. Protect sealants until cured.

### 3.04 SCHEDULE

- A. Interior Painted Caulks

1. Door and window frame perimeters - architectural grade acrylic latex.
2. All joints and openings with dissimilar materials - architectural grade acrylic latex.

END OF SECTION

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## SECTION 08 1200

### STANDARD STEEL DOOR FRAMES

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Non-rated rolled steel door frames.

##### 1.02 QUALITY ASSURANCE

- A. Conform to requirements of SDI-100.

##### 1.03 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Division 1.
- B. Indicate frame configuration, anchor types and spacings, location of cutouts for hardware, reinforcement, and finish.
- C. Submit manufacturer's installation instructions under provisions of Division 1.

##### 1.04 DELIVERY, STORAGE AND PROTECTION

- A. Protect products under provisions of Division 1.

#### PART 2 PRODUCTS

##### 2.01 ACCEPTABLE MANUFACTURERS

- A. Curries
- B. Ceco
- C. Mesker
- D. Steelcraft
- E. Substitutions: Under provisions of Division 1

##### 2.02 INTERIOR FRAMES

- A. Frames shall be as manufactured by Curries Co., Mason City, Iowa. Frames to be fabricated of cold rolled steel.
- B. All joints to be die-mitered with integral tabs for reinforcement and interlocking of the jambs to the head. Frames shall be set-up and welded.
- C. Frames shall be thoroughly degreased and cleaned of all imperfections before painting. All frames shall receive a factory baked-on coat of rust inhibitive primer.
- D. Frames to be mortised, reinforced and drilled and tapped for all mortise finish hardware. Frames to be reinforced and drilled and mounted hardware with drilling

and tapping to be done in the field by the erection contractor. Provide metal plaster guards for all mortised cutouts.

- E. Minimum requirements for hardware reinforcement are to be as follows: Hinge Reinforcing-7 gauge X 1 5/8" X 10", Lock Strike Reinforcing-14 gauge X Template Requirements, Closer Reinforcing-12 gauge X contour of head X 16".

## 2.03 ACCESSORIES

- A. Rubber Silencers: Resilient rubber.

## 2.04 FABRICATION

- A. Fabricate frames as welded unit type. For application as shown on Drawings.
- B. Fabricate frames with hardware reinforcement plates welded in place.
- C. Prepare frame for silencers. Provide three single rubber silencers for single doors on strike side, and two single silencers on frame head at double doors without mullions.
- D. Fabricate frames for masonry wall coursing with 4 inch head member or as called for on Drawings.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Install door frames in accordance with SDI-105.
- B. Install door frames in accordance with manufacturer's specifications.
- C. Coordinate with wall construction for anchor placement.
- D. Coordinate installation of glass and glazing.

END OF SECTION

## SECTION 08 1400

### WOOD DOORS

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Furnish all labor, materials, tools, equipment and perform all work and services for all flush wood doors as shown on the Drawings and as herein specified.

##### 1.02 QUALITY ASSURANCE

- A. Conform to requirements of AWI Quality Standard per Division 1.

##### 1.03 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Division 1.
- B. Indicate door elevations, stile and rail reinforcement and internal blocking for hardware attachment.
- C. Submit samples under provisions of Division 1.
- D. Submit one sample 8" x 8" inch in size. For each type of wood door showing stile, rail, core construction, finish and veneers.
- E. Submit manufacturer's installation instructions under provisions of Division 1.
- F. Submit manufacturer's certificate under provisions of Division 1 that doors meet or exceed specified fire rated requirements.

##### 1.04 DELIVERY, STORAGE, AND PROTECTION

- A. Protect products under provisions of Division 1.
- B. Protect doors with resilient packaging.
- C. Package, deliver, and store doors in accordance with AWI requirements.

##### 1.05 GUARANTEE

- A. Provide guarantee under provisions of Division 1.
- B. Guarantee doors in writing for lifetime against defects in materials and workmanship, including: delamination, warp or twist of 1/4 inch (6 mm) or more when surface area of door is more than 10 SF (1 Sq Mtr) telegraphing of any part of core through face veneer to cause surface variation of 1/100 inch (.4 mm) or more in 3 inch (75 mm) span, any other defect which may impair or affect performance of door for purpose for which it is intended.
- C. Remove and replace defective doors at no additional expense to Owner. Guarantee to include cost of removal of defective units, rehangng and refinishing of replacement units.

## PART 2 PRODUCTS

### 2.01 ACCEPTABLE MANUFACTURERS

- A. Algoma Hardwoods, Inc.
- B. Marshfield
- C. Eggers Hardwood Products
- D. Graham Manufacturing Corporation
- E. Oshkosh Door
- F. Buell Door Company
- G. Substitutions: Under provisions of Division 1.

### 2.02 DOOR CONSTRUCTION

- A. Face Veneer: Match existing doors.
- B. Thickness:
  - 1. All doors 1-3/4 inch.
  - 2. Provide 1-3/8 inch doors where indicated.
- C. Doors (Solid Wood Core):
  - 1. AWI type SLC-5, SLC-7, SLC-HPDL glued block solid core. Type II water resistant adhesive. Hardwood veneer crossbandings, securely bonded to core. Use for doors with large glass areas.
- D. Doors (Solid Particle Core):
  - 1. AWI Type PC-5, PC-7, PC-HPDL particleboard solid core. Hardwood veneer crossbandings, securely bonded to core.
  - 2. Particle core doors may be used at Contractor's option provided he furnishes written approval from fire authority having jurisdiction, and as a minimum, 20 minute U/L label.

### 2.03 FABRICATION

- A. Fabricate non-rated doors in accordance with AWI Quality Standards requirements.
- B. Pre-machine doors for finish hardware.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions.
- B. Machine cut relief for hinges and closers and coring for handsets and cylinders.
- C. Condition doors to prevailing humidity prior to hanging.

- D. Pilot drill screw and bolt holes. Use threaded through bolts for half surface hinges.
- E. Prepare doors to receive finish hardware in accordance with AWI requirements.
- F. Conform to AWI requirements for fit tolerances.
- G. Coordinate installation of glass and glazing.

3.02 ADJUSTING AND CLEANING

- A. Adjust for smooth and balanced door movement.

END OF SECTION

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## SECTION 08 1400

### WOOD DOORS

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Furnish all labor, materials, tools, equipment and perform all work and services for all flush wood doors as shown on the Drawings and as herein specified.

##### 1.02 QUALITY ASSURANCE

- A. Conform to requirements of AWI Quality Standard per Division 1.

##### 1.03 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Division 1.
- B. Indicate door elevations, stile and rail reinforcement and internal blocking for hardware attachment.
- C. Submit samples under provisions of Division 1.
- D. Submit one sample 8" x 8" inch in size. For each type of wood door showing stile, rail, core construction, finish and veneers.
- E. Submit manufacturer's installation instructions under provisions of Division 1.
- F. Submit manufacturer's certificate under provisions of Division 1 that doors meet or exceed specified fire rated requirements.

##### 1.04 DELIVERY, STORAGE, AND PROTECTION

- A. Protect products under provisions of Division 1.
- B. Protect doors with resilient packaging.
- C. Package, deliver, and store doors in accordance with AWI requirements.

##### 1.05 GUARANTEE

- A. Provide guarantee under provisions of Division 1.
- B. Guarantee doors in writing for lifetime against defects in materials and workmanship, including: delamination, warp or twist of 1/4 inch (6 mm) or more when surface area of door is more than 10 SF (1 Sq Mtr) telegraphing of any part of core through face veneer to cause surface variation of 1/100 inch (.4 mm) or more in 3 inch (75 mm) span, any other defect which may impair or affect performance of door for purpose for which it is intended.
- C. Remove and replace defective doors at no additional expense to Owner. Guarantee to include cost of removal of defective units, rehangng and refinishing of replacement units.

## PART 2 PRODUCTS

### 2.01 ACCEPTABLE MANUFACTURERS

- A. Algoma Hardwoods, Inc.
- B. Marshfield
- C. Eggers Hardwood Products
- D. Graham Manufacturing Corporation
- E. Oshkosh Door
- F. Buell Door Company
- G. Substitutions: Under provisions of Division 1.

### 2.02 DOOR CONSTRUCTION

- A. Face Veneer: Provide doors having AWI Type I premium grade book-matched plain sliced Red Oak veneer on faces, with matching stile edges.
- B. Thickness:
  - 1. All doors 1-3/4 inch.
  - 2. Provide 1-3/8 inch doors where indicated.
- C. Doors (Solid Wood Core):
  - 1. AWI type SLC-5, SLC-7, SLC-HPDL glued block solid core. Type II water resistant adhesive. Hardwood veneer crossbandings, securely bonded to core. Use for doors with large glass areas.
- D. Doors (Solid Particle Core):
  - 1. AWI Type PC-5, PC-7, PC-HPDL particleboard solid core. Hardwood veneer crossbandings, securely bonded to core.
  - 2. Particle core doors may be used at Contractor's option provided he furnishes written approval from fire authority having jurisdiction, and as a minimum, 20 minute U/L label.

### 2.03 FABRICATION

- A. Fabricate non-rated doors in accordance with AWI Quality Standards requirements.
- B. Pre-machine doors for finish hardware.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Install doors in accordance with manufacturer's instructions.
- B. Machine cut relief for hinges and closers and coring for handsets and cylinders.
- C. Condition doors to prevailing humidity prior to hanging.

- D. Pilot drill screw and bolt holes. Use threaded through bolts for half surface hinges.
- E. Prepare doors to receive finish hardware in accordance with AWI requirements.
- F. Conform to AWI requirements for fit tolerances.
- G. Coordinate installation of glass and glazing.

3.02 ADJUSTING AND CLEANING

- A. Adjust for smooth and balanced door movement.

END OF SECTION

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SECTION 08 7100  
DOOR HARDWARE

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Hardware for wood doors.
- B. All hardware as specified on Door Schedule.

1.02 WORK FURNISHED BUT INSTALLED UNDER OTHER SECTIONS

- A. Furnish templates to door and frame fabricators.

1.03 COORDINATION

- A. Coordinate work of this Section with other directly affected Sections involving manufacturer of any internal reinforcement for door hardware.

1.04 QUALITY ASSURANCE

- A. Manufacturers: Companies specializing in manufacturing door hardware with minimum 5 years-experience.
- B. Hardware Supplier: Company specializing in supplying commercial door hardware with 5 years' experience.

1.05 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for requirements applicable to fire rated doors and frames.

1.06 SUBMITTALS

- A. Submit schedule, shop drawings, and product data under provisions of Division 1.
- B. Indicate locations and mounting heights of each type of hardware.
- C. Provide product data on specified hardware.
- D. Submit manufacturer's certificate under provisions of Division 1 that fire rated hardware meets or exceeds specified requirements.

1.07 OPERATION AND MAINTENANCE DATA

- A. Submit operation and maintenance data under provisions of Division 1.
- B. Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Division 1.

- B. Store and protect products under provisions of Division 1.
- C. Package hardware items individually. Label and identify package with door opening code to match hardware schedule.
- D. Deliver keys to Owner by security shipment direct from hardware supplier.
- E. Protect hardware from theft by cataloging and storing in secure area.

#### 1.09 WARRANTY

- A. Provide 1-year warranty under provisions of Division 1.
- B. Provide manufacturer's standard warranty under provisions of Division 1.

#### 1.10 MAINTENANCE MATERIALS

- A. Provide special wrenches and tools applicable to each different or special hardware component.
- B. Provide maintenance tools and accessories supplied by hardware component manufacturer.

### PART 2 PRODUCTS

#### 2.01 ACCEPTABLE SUPPLIERS - PER DOOR SCHEDULE ON PLANS

- A. Locksets – Sargent
- B. Closers – LCN
- C. Hinges - Stanley, McKinney, Hager
- D. Substitutions: Under provisions of Division 1.

#### 2.02 KEYING

- A. Door Locks: The Owner will provide Best cores and keys.

#### 2.03 FINISHES

- A. Finishes are identified in the Door Schedule on the Drawings.

### PART 3 EXECUTION

#### 3.01 INSPECTION

- A. Verify that doors and frames are ready to receive work and dimensions are as indicated on shop drawings.
- B. Verify that power supply is available to power operated devices.
- C. Beginning of installation means acceptance of existing conditions.

### 3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions.
- B. Use the templates provided by hardware item manufacturer.
- C. Conform to ANSI A117.1 for positioning requirements for the handicapped.

END OF SECTION

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## SECTION 09 2116

### GYPSUM BOARD SYSTEMS

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Furnish all materials, labor and equipment necessary to install all gypsum board system as shown on the Drawings and/or herein specified.

##### 1.02 QUALITY ASSURANCE

- A. Applicator: Company specializing in gypsum board work with 5 years experience.
- B. Perform work, except as otherwise specified, in accordance with applicable portions of the following publications:
  - 1. "Recommended Specifications for the Application and Finishing of Gypsum Board", GA-216.
  - 2. "Application and Finishing of Gypsum Board", ANSI/ASTM C840.
  - 3. "Building Materials List", Underwriters' Laboratories, Inc.
- C. Comply with the following criteria when tested in accordance with ASTM E-84.
  - 1. Flame Spread Rating: 0-25.
  - 2. Smoke Density: 0-450.

##### 1.03 REGULATORY REQUIREMENTS

- A. Conform to applicable codes and manufacturer's specs for fire rated assemblies called for on the Drawings.

##### 1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to site in manufacturer's original unopened, labeled containers or packages.
- B. Store and handle materials to prevent damage to materials or to work in place. Store cementitious materials in dry weathertight, ventilated spaces.

#### PART 2 PRODUCTS

##### 2.01 ACCEPTABLE MANUFACTURERS - GYPSUM BOARD

- A. United States Gypsum.
- B. Georgia Pacific.
- C. National Gypsum.
- D. Substitutions: Under provisions of Division 1.

##### 2.02 MATERIALS

- A. Fire Rated Gypsum Board: ANSI/ASTM C36; fire resistive type, UL rated; 5/8 inch thick, maximum permissible length; ends square cut, tapered edges, 4 sides, type X.
- B. Moisture Resistant Gypsum Wallboard: ASTM C630 fire resistive, UL rated 5/8" thick, moisture resistant wallboard.
- C. Joint Materials: ANSI/ASTM C475; reinforcing tape, joint compound, adhesive, water, and fasteners. As recommended by Gypsum Board Manufacturer and UL approved as required.
- D. Corner beads, tear away edge trim, edge trim and other accessories in size and type to suit application subject to Architect's approval.
- E. Steel Drill Screws: ASTM 646.

### PART 3 EXECUTION

#### 3.01 INSPECTION

- A. Verify that site conditions are ready to receive work.
- B. Beginning of installation means acceptance of existing surfaces and substrate.

#### 3.02 INSTALLATION

- A. Install gypsum board in accordance with manufacturer's instructions.
- B. Install moisture resistant gypsum wallboard at all walls with plumbing fixtures 4' off the floor and 24" past the sides of the plumbing fixtures. Install moisture resistant gypsum wallboard at all ceramic tiled wall surfaces and on returns abutting window frames. Extend 12" beyond edge of tile. Install and seal all joints per manufacturer's recommendations.
- C. Erect single layer board in vertical direction, with ends and edges occurring over firm bearing or as required for fire rated construction.
- D. Use screws when fastening gypsum board to metal or wood furring or framing.
- E. Place control joints consistent with lines of building spaces. Install vertical and horizontal control joints in walls and soffits at a maximum 30' o.c. or less regardless if shown on the drawings or not.

#### 3.03 JOINT TREATMENT

- A. Tape, fill, and sand exposed joints, edges, and corners to produce smooth surface ready to receive finishes.
- B. Feather coats onto adjoining surfaces.
- C. Erect in accordance with manufacturer's instructions.
- D. Seal joints in moisture resistant wallboard per manufacturer's specifications.

### 3.04 GYPSUM BOARD FINISH SCHEDULE

- A. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
1. Level 2 where gypsum board panels form substrates for ceramic tile.
  2. Level 3 for gypsum board surfaces indicated to receive medium or heavy textured finishes before painting.
  3. Level 4 for gypsum board surfaces indicated to receive light textured finishes and wallcovering.
  4. Level 5 for gypsum board surfaces indicated to receive paint and where another level is not specifically indicated.
- B. For level 4 gypsum board finish, embed tape in finishing compound plus two separate coats applied over joints, angles, fastener heads, and trim accessories using the following combination of joint compounds (not including prefill), and sand between coats and after last coat.
1. Embedding and First Coat: Setting type joint compound
  2. Fill (Second) Coat: Setting type joint compound.
  3. Finish (Third) Coat: Sandable, setting type joint compound
- Or
4. Finish (Third) Coat: Ready mixed, drying type, all purpose or topping compound.
- C. Where level 5 gypsum board finish is indicated, apply joint compound combination specified for level 4 plus a thin, uniform skim coat of joint compound over entire surface. Use joint compound specified for the finish (third coat) or a product specially formulated for this purpose and acceptable to gypsum board manufacturer. Produce surfaces free of tool marks and ridges ready for decoration of type indicated.
- D. Where level 3 gypsum board finish is indicated, apply joint compounds specified for first and second coat in addition to embedding coat.
- E. Where level 2 gypsum board finish is indicated, apply joint specified for first coat in addition to embedding coat.
- F. Where level 1 gypsum board finish is indicated, apply joint compound specified for embedding coat.

### 3.05 CLEAN UP

- A. Dispose of excess materials and debris away from site.

END OF SECTION

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## SECTION 09 2216

### NON-STRUCTURAL METAL STUD FRAMING

#### PART 1 GENERAL

##### 1.01 SUMMARY

- A. Section Includes
  - 1. Interior cold-formed metal framing for non-load-bearing walls.
- B. Related Sections
  - 1. Section 05 4000 – Cold Formed Metal Framing
  - 2. Section 06 1000 – Rough Carpentry
  - 3. Section 09 2900 – Gypsum Board Systems

##### 1.02 REFERENCES

- A. AISI -Standard for Cold-Formed Steel Framing General Provisions.
- B. AISI - North American Specification (NASPEC) for the Design of Cold-Formed Steel Structural Members.
- C. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvannealed) by the Hot-Dip Process.
- D. ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.
- E. ASTM A 1003 - Standard Specification for Steel Sheet, Carbon, Metallic- and Nonmetallic-Coated for Cold-Formed Framing Members.
- F. ASTM C 645 - Standard Specification for Nonstructural Steel Framing Members.
- G. ASTM C 754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products.
- H. ASTM C 1513 - Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.
- I. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
- J. ASTM E 90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements.
- K. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
- L. ASTM E 413 - Classification for Rating Sound Insulation.
- M. GA-600 - Fire Resistance Design Manual.

##### 1.03 SYSTEM DESCRIPTION

- A. Design Requirements
  - 1. Design steel in accordance with American Iron and Steel Institute Publication "Specification for the Design of Cold-Formed Steel Structural Members", except as otherwise shown or specified.

2. Design loads: As indicated on the Architectural Drawings. 5 PSF minimum design lateral load is required for interior walls by the building code. Shaftwall framing minimum design lateral load is typically 5 - 15 PSF.
3. Design framing systems to withstand design loads without deflections greater than the following:
  - a. Interior Non-Load Bearing Walls: Lateral deflection of: L/360.
  - b. Any walls to receive ceramic or porcelain tile shall be limited to a Lateral Deflection not to exceed L/600.
4. Design framing system to accommodate deflection of primary building structure and construction tolerances.
5. Fire-Test-Response Characteristics: For fire-resistance-rated assemblies that incorporate non-load-bearing steel framing, provides materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing laboratory. Products used in the assembly shall carry a classification label from the testing laboratory.
6. Sound Transmission Characteristics [STC]: For gypsum assemblies [wall/ceilings] with STC rated requirements, provide materials and construction methods that are identical to the requirements of either ASTM E 90, for laboratory tests, or ASTM E 336, for field tests. Testing or inspection agencies must be qualified independent organizations.

#### 1.04 SUBMITTALS

- A. Under provisions of Division 1.
- B. Product Data
  1. Submit manufacturer's product literature, data sheets and installation recommendations for each product to be used, including:
    - a. Preparation instructions and recommendations.
    - b. Storage and handling requirements and recommendations.
    - c. Installation methods.
- C. Quality Assurance/Control Submittals
  1. Certificates:
    - a. Manufacturer's certification of product compliance with codes and standards.

#### 1.05 QUALITY ASSURANCE

- A. Qualifications
  1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this Section with minimum five (5) years documented experience.
  2. Installer Qualifications: Use an experienced installer with minimum five (5) years documented experience who is thoroughly trained and experienced in the performance of the work of this Section.

3. Contractor shall provide effective, full time quality control over all fabrication and erection complying with the pertinent codes and regulations of government agencies having jurisdiction.

B. Regulatory Requirements

1. Conform to applicable codes and manufacturer's specifications for fire rated assemblies called for on the drawings.

C. Pre-Installation Meetings

1. Convene one week prior to installation of (product). Attendees to be as follows: - Architect, Engineer, General Contractor, Metal Stud Installer, and Metal Stud Manufacturer to discuss the application in detail.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Packing, Shipping, Handling and Unloading

1. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.

B. Acceptance at Site

1. Notify manufacturer of damaged materials received prior to installing.

C. Storage and Protection

1. Products to be handled per AISI's "Code of Standard Practice".

2. Store materials in a clean, dry area in accordance with manufacturer's instructions and ASTM C754 Section 8.

3. Protect materials during handling and application to prevent damage or contamination.

1.07 SEQUENCING

A. Sequence work with other work directly affected by this Section.

1.08 SCHEDULING

A. Coordinate work under provisions of Division 1.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. ClarkDietrich Building Systems, 9100 Centre Pointe Dr. Suite 210, West Chester, OH 45069. Tel: (513) 870-1100. Fax: (513) 870-1300. E-mail: [info@clarkdietrich.com](mailto:info@clarkdietrich.com); Web: [www.clarkdietrich.com](http://www.clarkdietrich.com).

B. MarinoWARE; 400 Metuchen Road, South Plainfield, NJ 07080. Tel: (800) 627-4661, (908) 757-9000. Fax: (908) 412-1442. E-Mail: [sales@MarinoWARE.com](mailto:sales@MarinoWARE.com). Web: <http://www.MarinoWARE.com>.

C. All products shall be manufactured by current members of the Steel Stud Manufacturers Association (SSMA).

D. Substitutions: Under provisions of Division 1.

2.02 MATERIALS

A. Steel: Galvanized Steel meeting or exceeding the requirements of ASTM A 1003.

1. Coating: Galvanized G40 (Z120) coating minimum or equivalent, complying with ASTM C 645.
2. Substitutions: Under provisions of Division 1.

## 2.03 COMPONENTS

- A. Nonstructural Studs: Cold-Formed galvanized steel C-studs. Material: Galvanized steel meeting or exceeding the requirements of ASTM A754 for conditions indicated below:
  1. Flange Length: 1 1/4 inch (32mm) 125 flange.
  2. Web Depth: As required or as indicated on drawings including sizes as follows:
    - a. Web Depth: 1 5/8 inch (41 mm) 162 depth.
    - b. Web Depth: 2 1/2 inch (64 mm) 250 depth.
    - c. Web Depth: 3 5/8 inch (92 mm) 362 depth.
    - d. Web Depth: 6 inch (152.4 mm) 600 depth.
  3. Minimum Material Thickness: Traditional 20ga or UltraSTEEL 20 EQ.
  4. Punch Outs: 24 inches (610 mm) from base and every 48 inches (1219mm) thereafter.
- B. Nonstructural Track: Cold-Formed galvanized steel runner tracks
  1. Flange Length: 1 1/4 inch (32 mm) T125 flange.
    - a. Web depth: Track web to match stud web size.
    - b. Minimum Material Thickness: Track thickness to match wall stud thickness.
- C. Deflection Track: Cold-Formed Deep Leg Runner Slip Track.
  1. Leg Length: 2 1/2 inch (63 mm) T250 flange or as required by design.
    - a. Web depth: Track web to match stud web size.
    - b. Minimum Material Thickness: Track thickness to match wall stud thickness.
    - c. Minimum Yield Strength: 33ksi (227 MPa).
- D. Furring Channel: Furring existing walls and suspended ceiling applications.
  1. Size: 150F125-30 1 1/2 inch (38mm) Furring Channel 30mils (20ga Drywall).
- E. Resilient Channel: Cold-Formed Resilient Channel System to decrease sound transmissions.
  1. Size: One Leg 1/2 inch x 2 1/4 inch Resilient Channel.
- F. Fire Rated Walls and Barriers: Lightweight non-load-bearing gypsum panel assembly designed to provide fire resistive protection at common walls. Complies with ASTM C 754 for the conditions indicated. Coordinate materials found in this section with applications and materials found in Section 09 2117.
- G. Accessories:

1. Drywall Trims: Cold-Formed galvanized steel trims.
  - a. L-Trim (Mudable) Size: 5/8 inch (15.9 mm).
  - b. U-Trim (Mudable) Size: 5/8 inch (15.9 mm).
  - c. Substitutions: Under provisions of Division 1.
2. Framing Accessories: Accessories required in this project.
  - a. Flat Strapping for Backing Strip: 20 gauge galvanized steel.
  - b. Flat Strapping and bridging for lateral bracing.
  - c. L-Angles.
  - d. SwiftClip Fixed Connection Angles.
3. Fasteners: Self-drilling, self-tapping screws; complying with ASTM C 1513 - Standard Specification for Steel Tapping Screws for Cold-Formed Steel Framing Connections.
4. Anchorage Devices: Power driven or expansion bolts or screws, size and type to suit application.
5. Touch-Up Paint: Complying with ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

#### 2.04 FABRICATION

- A. Fabricate cold-formed metal framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.
  1. Fabricate framing assemblies using jigs or templates.
  2. Cut framing members by sawing or shearing; do not torch cut.
  3. Fasten cold-formed metal framing members by screw fasteners, clinch fasteners, or rivets as standard with fabricator. Wire tying of framing members is not permitted.
    - a. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by not less than three exposed screw threads.
  4. Fasten other materials to cold-formed metal framing by bolting or screw fastening, according to Shop Drawings.
- B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.

### PART 3 EXECUTION

#### 3.01 EXAMINATION

- A. Site Verification of Conditions: Prior to installation, inspect supporting work of all other trades.
  1. Verify bearing surfaces and substrates are acceptable for construction work of this Section.

2. Verify that concealed wood blocking has been installed in the proper locations.
  3. Verify field measurements are as shown on Drawings, instructed by the manufacturer.
  4. Verify that rough-in utilities are in the proper location.
  5. Start of work implies contractor acceptance of existing conditions and previous contractors work.
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- 3.02 FASTENING
- A. Field Fastening: Minimum two (2) self-tapping metal screws per connection, unless otherwise indicated.
- 3.03 PREPARATION
- A. Prepare attachment surfaces so that they are plumb, level, and in proper alignment for accepting the cold-formed structural framing.
- 3.04 ERECTION
- A. General Erection Requirements:
1. Install cold-formed framing in accordance with requirements of ASTM C1007.
  2. Install in compliance with applicable sections of the AISI Standard for Cold-Formed Steel Framing General Provisions.
  3. Provide for erection stresses. Provide temporary bracing as construction activities progress.
- B. Wall Systems:
1. Handle and lift prefabricated panels in a manner so as not to cause distortion in any member.
  2. Anchor runner track securely to the supporting structure at a maximum 24" o.c. or as shown on the erection drawings. Install concrete anchors only after full compressive strength has been achieved. Provide a sill sealer or gasket barrier between all concrete and steel connections.
  3. Butt all track joints. Securely anchor abutting pieces of track to a common structural element, or butt-weld or splice together.
  4. Align and plumb studs, and securely attach to the flanges or webs of both upper and lower tracks except when vertical movement is specified.
  5. Install jack studs or cripples below window sills, above window and door heads, at freestanding stair rails and elsewhere to furnish support, securely attached to supporting members.
  6. Attach wall stud bridging in a manner to prevent stud rotation. Space bridging rows according to manufacturer's recommendations.
  7. Frame wall openings to include headers and supporting studs as shown in the drawings.

8. Place studs at maximum 16 inches on center; not more than 2 inches from abutting walls, and at each side of openings. Connect studs to tracks using mechanical fastener method.
9. Construct corners using minimum three (3) studs. Double studs at expansion joints in gypsum board, wall openings, doors, and window jambs, one (1) of which is full length unless indicated otherwise.
10. Use full length studs whenever possible. If necessary, splice studs with eight (8) inch nested lap. Secure each stud flange with flush head screw.
11. Coordinate placement of insulation in multiple stud spaces made inaccessible after erection.
12. Attach cross studs or furring channels to studs for attachment of fixtures anchored to walls.
13. Install framing between studs for attachment of mechanical and electrical items, and to prevent stud rotation.
14. Touch-up field welds and damaged galvanized and primed surfaces with primer.
15. Provide bridging (horizontal stiffeners) at 4 feet 0 inches on center maximum vertical spacing for exterior and load bearing metal stud walls.

### 3.05 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before substantial completion of final installation.

END OF SECTION

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## SECTION 09 3013

### CERAMIC TILE

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Furnish all materials, labor, and equipment necessary to install all ceramic floor tile as shown on the Drawings and herein specified.

##### 1.02 SUBMITTALS

- A. Submit samples under provisions of Division 1.
- B. Submit manufacturer's installation instructions under provisions of Division 1.
- C. Submit maintenance data under provisions of Division 1.
- D. Include recommended cleaning and stain removal methods, cleaning materials, and polishes and waxes.

##### 1.03 QUALITY ASSURANCE

- A. Perform work in accordance with applicable portions of the following publications:
  - 1. "Handbook of Ceramic Tile Installation", current edition, TCA.
  - 2. "American National Standard Specifications for Ceramic Tile", ANSI 137.1, current edition.
  - 3. "Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar", ANSI A108.5, current edition.
  - 4. "Latex-Portland Cement Mortar", ANSI A118.4, current edition.
  - 5. "Installation of Glazed Wall Tile, Ceramic Mosaic Tile, Quarry Tile and Pavers Tile with Portland Cement Mortar", ANSI A108.1, current edition.
- B. Source Quality Control.
  - 1. Tile manufacturer: Member of the Tile Council of American, Inc.
  - 2. Patented mortars and grouts manufacturer: licensed by the Tile Council of America, Inc.

##### 1.04 QUALIFICATIONS

- A. Manufacturer: Company specializing in the manufacture of products specified in this Section with minimum 5 years' experience.
- B. Installer: Company specializing in applying the work of this Section with minimum 5 years experience.

##### 1.05 PRE-INSTALLATION CONFERENCE

- A. Convene one week prior to commencing work of this Section, under provisions of Division 1.

## 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Division 1.
- B. Store and protect products under provisions of Division 1.
- C. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

## 1.07 ENVIRONMENTAL REQUIREMENTS

- A. Do not install adhesives in a closed, unventilated environment.
- B. Maintain 50 degrees F during installation of tile work and for 7 days after completion.
- C. Vent temporary heaters to outside to avoid carbon dioxide damage to new tile work.

## 1.08 EXTRA STOCK

- A. Supply one unopened carton of each color of tile used to Owner.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. Daltile
- B. Substitutions: Under provisions of Division 1.

### 2.02 TILE MATERIAL

- A. Glazed Ceramic Floor Tile: Daltile – Keystones - Color Group One - ANSI/TCA A137.1, impervious, glazed, 2 inch x 2 inch x 5/16 inch square edges, color by Architect.
- B. Glazed Ceramic Wall Trim:
  - 1. Furnish size, color, shape and characteristics to match glazed ceramic wall tile.
  - 2. Provide bullnose base.
- C. Setting Materials: Ceramic tile mortar.
- D. Grout: ANSI A118.6: Sanded floor grout, color by Architect.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means installer accepts condition of existing surfaces.

### 3.02 PREPARATION

- A. Protect surrounding work from damage or disfiguration.
- B. Vacuum clean existing surfaces and damp clean.
- C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.
- D. Apply sealer or conditioner to surfaces as recommended by adhesive manufacturer.

### 3.03 INSTALLATION

- A. Install mortar, tile and grout in accordance with manufacturer's instructions.
- B. Lay tile to pattern indicated on Drawings. Request tile pattern from Architect. Do not interrupt tile pattern through openings.
- C. Cut and fit tile tight to penetrations through tile. Form corners and bases neatly. Align floor, base, and wall joints.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar, or excess grout.
- E. Smooth all exposed cut tile edges.
- F. Sound tile after setting. Replace hollow sounding units.
- G. Apply sealant to junction of tile and dissimilar materials and at junction of dissimilar planes.
- H. Follow grout manufacturer's recommendations as to grouting procedures and precautions.
- I. Remove all grout haze, observing both tile and grout manufacturer's recommendations as to use of acid and chemical cleaners.
- J. Rinse tile work thoroughly with clean water before and after chemical cleaners.
- K. Polish surface of tile work with soft cloth.

### 3.04 CLEANING

- A. Clean work under provisions of Division 1.
- B. Clean tile surfaces.

### 3.05 PROTECTION

- A. Protect finished installation under provisions of Division 1.

END OF SECTION

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## SECTION 09 3014

### PORCELAIN TILE

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Furnish all materials, labor and equipment necessary to install all porcelain tile as shown on the Drawings and herein specified.

##### 1.02 SUBMITTALS

- A. Submit samples under provisions of Division 1.
- B. Submit manufacturer's installation instructions under provisions of Division 1.
- C. Submit maintenance data under provisions of Division 1.
- D. Include recommended cleaning and stain removal methods, cleaning materials, and polishes and waxes.

##### 1.03 QUALITY ASSURANCE

- A. Perform work in accordance with applicable portions of the following publications:
  - 1. "Handbook of Ceramic Tile Installation", current edition, TCA.
  - 2. "American National Standard Specifications for Ceramic Tile", ANSI 137.1, current edition.
  - 3. "Installation of Glazed Wall Tile, Ceramic Mosaic Tile, Quarry Tile, and Pavers Tile, with Portland Cement Mortar, ANSI A108.1", current edition.
- B. Source Quality Control.
  - 1. Tile manufacturer: Member of the Tile Council of American, Inc.
  - 2. Patented mortars and grouts manufacturer: licensed by the Tile Council of America, Inc.

##### 1.04 QUALIFICATIONS

- A. Manufacturer: Company specializing in the manufacture of products specified in this Section with minimum 5 years experience.
- B. Installer: Company specializing in applying the work of this Section with minimum 5 years experience.

##### 1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Division 1.
- B. Store and protect products under provisions of Division 1.
- C. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

## 1.07 EXTRA STOCK

- A. Supply one unopened carton of each color of tile used to Owner.

## PART 2 PRODUCTS

### 2.01 MANUFACTURERS

- A. American Olean
- B. Atlas
- C. Crossville

### 2.02 MATERIALS

- A. Wall Tile #1: American Olean - Colorstory Custom 8"X24" Straight Stack - Color: Devotion.
- B. Wall Tile #2: Atlas – Fray 12" X 24" 1/3 Offset - Color: Pearl.
- C. Wall Tile #3: Crossville – Nest 8" X 36" 1/3 Offset – Color: Joyous Olive.
- D. Adhesive: Mortar: ANSI A136.1 Organic Adhesive: Type II, AO 1200.
- E. Water: Clean and drinkable.
- F. Grout: ANSI A118.6; MAPEI Ultra color sanded grout polymer modified, color by Architect.

### 2.03 MORTAR MIX AND GROUT MIX

- A. Mix and proportion pre-mix mortar and grout materials in accordance with manufacturer's instructions.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means installer accepts condition of existing surfaces.

### 3.02 PREPARATION

- A. Protect surrounding work from damage or disfiguration.
- B. Vacuum clean existing surfaces and damp clean.

### 3.03 INSTALLATION

- A. Install mortar, tile and grout in accordance with manufacturer's instructions.
- B. Lay tile to pattern indicated on Drawings. Do not interrupt tile pattern through openings.

- C. Cut and fit tile tight to penetrations through tile. Form corners and bases neatly. Align floor, base and wall joints if possible.
- D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight without voids, cracks, excess mortar, or excess grout.
- E. Sound tile after setting. Replace hollow sounding units.
- F. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.
- G. Follow grout manufacturer's recommendations as to grouting procedures.
- H. Remove all grout haze, observing grout manufacturer's recommendations as to use of acid and chemical cleaners.
- I. Rinse tilework thoroughly with clean water before and after chemical cleaners.

#### 3.04 CLEANING

- A. Clean work under provisions of Division 1.
- B. Clean tile surfaces.

#### 3.05 PROTECTION

- A. Protect finished installation under provisions of Division 1.
- B. Do not permit traffic over finished floor surface.

END OF SECTION

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## SECTION 09 5300

### SUSPENDED ACOUSTICAL CEILINGS

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Furnish all materials, labor and equipment necessary to install all suspended acoustical ceilings as called for on the Drawings or herein specified.

##### 1.02 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacture of ceiling suspension system and ceiling tile with 5 years minimum experience.
- B. Installer: Company with 5 years minimum experience approved by manufacturer.

##### 1.03 SUBMITTALS

- A. Provide product data on metal grid system components, and acoustic units.
- B. Submit manufacturer's installation instructions under provisions of Division 1.

##### 1.04 ENVIRONMENTAL REQUIREMENTS

- A. Maintain uniform temperature of minimum 60 degrees F, and humidity of 20 to 40 percent prior to, during, and after installation.

##### 1.05 SEQUENCING/SCHEDULING

- A. Coordinate all work with the HVAC work above the new ceilings being performed by others.
- B. Do not install acoustical ceilings until dust generating activities have terminated, and overhead work is completed, tested, and approved.

##### 1.06 EXTRA STOCK

- A. Supply two unopened cartons of each tile used to the Owner.

#### PART 2 PRODUCTS

##### 2.01 ACCEPTABLE MANUFACTURERS - SUSPENSION SYSTEM

- A. Chicago Metallic.
- B. Armstrong.
- C. United States Gypsum.
- E. Substitutions: Under provisions of Division 1.

## 2.02 SUSPENSION SYSTEM MATERIALS

- A. Grid: ASTM C635, intermediate duty, fire rated to one hour assembly, exposed T, 15/16 inch wide, components die cut and interlocking.
- B. Accessories: Stabilizer bars, clips, splices and edge moldings required for suspended grid system.
- C. Grid Materials: Commercial quality cold rolled steel with a protective finish and steel cap, with a standard white factory applied finish.
- D. Support Channels and Hangers: Steel; size and type to suit application, to rigidly secure acoustic ceiling system including integral mechanical and electrical components with maximum deflection of 1/360.
- E. Angle Moldings: Match grid materials.

## 2.03 ACCEPTABLE MANUFACTURERS - ACOUSTIC UNITS

- A. As called for on drawings.
- B. Substitutions: Under provisions of Division 1.

## PART 3 EXECUTION

### 3.01 INSPECTION

- A. Verify that existing conditions are ready to receive work.
- B. Verify that layout of hangers will not interfere with other work.
- C. Beginning of installation means acceptance of existing conditions.

### 3.02 INSTALLATION

- A. Install system in accordance with ASTM C636 and manufacturer's instructions.
- B. Install system capable of supporting imposed loads to a deflection of 1/360 maximum.
- C. Install after major above ceiling work is complete. Coordinate the location of hangers with other work.
- D. Hang system independent of walls, columns, ducts, pipes and conduit. Where carrying members are spliced, avoid visible displacement of face plane of adjacent members.
- E. Where ducts or other equipment prevent the regular spacing of hangers, reinforce the nearest affected hangers and related carrying channels to span the extra distance.
- F. Center system on room axis leaving equal border units according to reflected ceiling plan.

- G. Do not support components on main runners or cross runners if weight causes total dead load to exceed deflection capability.
- H. Do not eccentrically load system, or produce rotation of runners.
- I. Install edge molding at intersection of ceiling and vertical surfaces, using longest practical lengths. Miter corners. Provide edge moldings at junctions with other interruptions. Field rabbet tile edge. Where bullnose concrete block corners and round obstructions occur, provide preformed closers to match edge molding.
- J. Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.
- K. Install acoustic units level, in uniform plane, and free from twist, warp and dents, or as shown on the Drawings.

### 3.03 CLEAN-UP

- A. Remove and dispose of all debris from work area and leave in clean workmanlike manner.

END OF SECTION

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## SECTION 09 6800

### CARPETING AND VINYL BASE

#### 1.01 SCOPE

- A. Furnish all labor, materials, and expendable equipment required to complete all floor preparation, carpeting and vinyl base work as called for on the plans and/or herein specified. Carpeting Contractor shall coordinate scheduling of his work directly with the General Contractor and the scheduling of the General Contractor's work.

#### 1.02 GENERAL TERMINOLOGY//INFORMATION STANDARD:

- A. Refer to current edition of "Carpet Specifier's Handbook" by The Carpet and Rug Institute: for definitions of terminology not otherwise defined herein, and for general recommendations and information.

#### 1.03 SUBMITTALS:

- A. Product Data: Submit manufacturer's complete technical product data for each type of carpet, cushion and accessory item required.
- B. Shop Drawings: Submit carpet layout and seaming drawings, clearly indicating carpet directions, locations and methods of joining seams, and locations and types of edge strips. Indicate columns, doorways, enclosing walls/partitions, built-in cabinets and locations where cut-outs are required in carpet.
- C. Samples: Submit samples of the carpet required and 6" long samples of each type of exposed edge stripping.
- D. Certification: Submit manufacturer's certification stating that carpet materials furnished comply with specified requirements. Include listing of mill register numbers for carpet furnished. All carpet of a given color shall be from the same dye lot, and shall bear documentation of same.
- E. Maintenance Data: Submit manufacturer's printed maintenance recommendations, including methods and frequency recommended for maintaining carpet in optimum conditions under anticipated traffic and use conditions.

#### 1.04 PRODUCT DELIVERY AND STORAGE:

- A. Deliver carpeting materials in original mill protective wrapping with mill register numbers and tags attached. Store inside, in well ventilated area, protected from the weather, moisture and soiling.

#### 1.05 WARRANTY:

- A. Contractor shall agree to return to the project after six (6) months to recheck the installation and re-stretch or re-glue any areas that are not correct at no cost to the Owner.

- B. Provide special project warranty, signed by Contractor, agreeing to repair or replace defective materials and workmanship of carpeting work at no cost to the Owner during 2-year warranty period following substantial completion.
- C. Manufacturer shall provide a warranty for a period of 10 years for texture retention, wear, static protection, edge ravel, run resistance strength, and full compliance with the carpet specifications.

#### 1.06 MATERIALS:

- A. Carpeting: Per the Room Finish Schedule on the drawings.
- B. Vinyl Base: Johnsonite Vinyl Base: 4" vinyl base. Colors by Owner.
- C. Carpeting shall have a flammability rating per ASTM E-648. Carpeting shall have anti-static features under 3.5 KV per 70/20 AATCC-134. Carpeting shall meet all state and local regulations for fuel contributed and any other requirements. Color shall be selected by the Architect.
- D. Carpet Edge Guard Vinyl Edging: 1" wide section for joining carpet to tile; extruded or molded heavy-duty vinyl; colors selected by the Architect from among standard colors available within the industry (any manufacturer).
- E. Installation Adhesive: Water-resistant, non-staining type as recommended by carpet manufacturer or cushion manufacturer, and which complies with flammability requirements for installed carpet.
- F. Seaming Cement: Hot-metal seaming adhesive or similar product recommended by carpet manufacturer, for taping seams and buttering cut edges at backing to form secure seams and prevent pile loss at seams.
- G. Miscellaneous Materials: As recommended by manufacturers of carpet and other carpeting products; and selected by Installer to meet project circumstance and requirements.

#### 1.07 INSTALLATION:

- A. Examine all substrates for moisture content and other conditions under which carpeting is to be installed. Repair minor holes, cracks, depressions and rough areas using material recommended by carpet or adhesive manufacturer. Notify Architect in writing of major conditions detrimental to proper completion of the work. Do not proceed until unsatisfactory conditions have been corrected.
- B. Clear away debris, and scrape up cementitious deposits from surfaces to receive carpet. Vacuum clean immediately before installation. Check surfaces to ensure no "dusting" through installed carpet; apply sealer where required to prevent dusting.
- C. Coordinate installation of carpet with construction phasing. Sequence carpeting with other work so as to minimize possibility of damage and soiling of carpet during remainder of construction period.
- D. Comply with manufacturer's instructions and recommendations for seam locations and direction of carpet; maintain uniformity of carpet direction and lay of pile. At

doors, center seams under doors; do not place seams in traffic direction at doorways.

- E. Extend carpet under open-bottomed obstructions and under removable flanges and furnishings, and into alcoves and closets of each space. Provide cut-outs where required, and blind cut edges properly where not concealed by protective edge guards or overlapping flanges. Install carpet edge guard where edge of carpet is exposed; anchor guards to substrate.
- F. Fit sections of carpet into each space prior to application of adhesive. Trim edges and butter cuts with seaming cement. Apply adhesive uniformly to substrate in accordance with manufacturer's instructions. Butt carpet edges tightly together to form seams without gaps. Remove adhesive promptly from face of carpet.
- G. Do not bridge building expansion joints with continuous carpeting; provide for movement.
- H. Install vinyl base per manufacturer's recommendations at all walls in all areas receiving new carpet tile or walk off floor tile.

#### 1.08 CLEANING AND PROTECTION:

- A. Remove and dispose of debris and unusable scraps. Vacuum carpet using commercial machine with face-beater element. Remove spots and replace carpet where spots cannot be removed. Remove any protruding face yarn using sharp scissors.
- B. Advise Contractor of protection methods and materials needed to ensure that carpeting will be without deterioration or damage at time of substantial completion.
- C. Maintenance Materials: Deliver specified overrun (if any) and usable scraps of carpet to Owner's designated storage space, properly packaged (paper wrapped) and identified. Usable scraps are defined to include roll ends to less than 9'0" length and pieces of more than 3 sq. ft. area and more than 8" wide. Dispose of smaller pieces as "construction waste".

END OF SECTION

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## SECTION 09 9100

### PAINTING

#### PART 1 GENERAL

##### 1.01 SCOPE OF WORK

- A. The following specifications cover the complete painting and finishing of all surfaces, interior and exterior, as shown on the Drawings and described in the specifications except as otherwise specified. Paint all existing painted surfaces.
- B. Work not included:
  - 1. Copper, bronze, chromium plate, nickel, stainless steel, aluminum, lead and bright metals.
  - 2. Factory applied finishes.
  - 3. Shop painting of structural and miscellaneous iron and steel.
  - 4. Others.
- C. The Painting Contractor shall supply all labor, materials, tools, ladders, scaffolding and equipment necessary for the completion of this work according to the Drawings and Specifications.
- D. The Painting Contractor shall refer to the Bidding Documents that form a part of the Contract and to the alternates that affect the work under this section. Examine the specifications under other divisions and thoroughly familiarize himself with all provisions regarding their painting.
- E. The Painting Contractor is responsible for inspecting the work of others prior to the application of any paint or finishing material. If any surface to be finished cannot be put in proper condition for finishing by customary cleaning, sanding and puttying operations, the Painting Contractor will immediately notify the General Contractor or the Architect in writing; or assume responsibility for and rectify any unsatisfactory finish resulting.

##### 1.02 DEFINITIONS

- A. Conform to ANSI/ASTM D16 for interpretation of terms used in this Section.

##### 1.03 QUALITY ASSURANCE

- A. Product Manufacturer: Company specializing in manufacturing quality paint and finish products with 10 years' experience.
- B. Applicator: Company specializing in commercial painting and finishing with 5 years' experience.

##### 1.04 REGULATORY REQUIREMENTS

- A. Conform to applicable codes for flame/fuel/smoke rating requirements for finishes.
- B. All paint shall be 100% Lead-Free.
- C. All products shall be VOC free.

## 1.05 SUBMITTALS

- A. Submit product data under provisions of Division 1.
- B. Provide product data on all finishing products.
- C. Submit samples under provisions of Division 1.
- D. Submit color schedule illustrating range of colors and textures available for each surface-finishing product scheduled, for selection by Architect.
- E. Submit manufacturer's application instructions under provisions of Division 1.

## 1.06 FIELD SAMPLES

- A. Provide samples under provisions of Division 1.
- B. Before proceeding with any painting, prepare and finish a sample room, complete or in part, as directed by the Architect, illustrating coating color, texture, and finish for approval by Architect. When approved this work shall serve as a standard for workmanship, appearance and materials approved for similar areas throughout the project.
- C. Locate where directed.
- D. Accepted sample may remain as part of the Work.

## 1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Division 1.
- B. Store and protect products under provisions of Division 1.
- C. Deliver products to site in sealed and labeled containers; inspect to verify acceptance.
- D. Container labeling to include manufacturer's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing.
- E. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in well ventilated area, unless required otherwise by manufacturer's instructions.
- F. Take precautionary measures to prevent fire hazards and spontaneous combustion.

## 1.08 EXTRA STOCK

- A. Supply one unopened carton of each color and type of paint used to the Owner.

## PART 2 PRODUCTS

### 2.01 ACCEPTABLE MANUFACTURERS

- A. Standard for this specification: PPG Paints  
1. Shawn Faulkner. 312.286.6082. shawn.faulkner@ppg.com

B. Other acceptable manufacturers offering equivalent products:

1. Sherwin-Williams.
2. Fuller-O-Brien.
3. MAB

C. Substitutions: Under provisions of Division 1.

## 2.02 MATERIALS

- A. No attempt will be made to define the physical properties or composition of the painting materials; however, provide manufacturer's "top-of-the-line brands".
- B. Coatings: Ready mixed. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
- C. Coatings: Good flow and brushing properties; capable of drying or curing free of streaks or sags.
- D. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality, acceptable to manufacturer.

## 2.03 FINISHES

- A. Refer to schedule at end of Section for surface finish schedule.

## PART 3 EXECUTION

### 3.01 INSPECTION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Beginning of installation means acceptance of existing surfaces.

### 3.02 PREPARATION

- A. Remove electrical plates, hardware, light fixture trim, and fittings prior to preparing surfaces or finishing.
- B. Correct minor defects and clean surfaces which affect work of this Section.
- C. Shellac and seal marks which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Gypsum Board Surfaces: Latex fill minor defects. Spot prime defects after repair.

- F. Concrete Masonry Units Scheduled to Receive Paint Finish: Remove dirt, loose mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry.
- G. Uncoated Steel and Iron Surfaces: Remove grease, scale, dirt, and rust. Where heavy coatings of scale are evident, remove by wire brushing or sandblasting; clean by washing with solvent. Apply a treatment of phosphoric acid solution, ensuring weld joints, bolts, and nuts are similarly cleaned. Spot prime paint after repairs.
- H. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces.
- I. Paint Wood and Metal Doors, Door Frames and Window Frames.
- J. Seal top and bottom edges of wood doors with primer.

### 3.03 PROTECTION

- A. Protect elements surrounding the work of this Section from damage or disfiguration.
- B. Repair damage to other surfaces caused by work of this Section.
- C. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.
- D. Remove empty paint containers from site.

### 3.04 APPLICATION

- A. Apply products in accordance with manufacturer's instructions.
- B. Do not apply finishes to surfaces that are not dry.
- C. Apply each coat to uniform finish.
- D. Apply each coat of paint slightly darker than preceding coat unless otherwise approved.
- E. Sand lightly between coats to achieve required finish.
- F. Allow applied coat to dry before next coat is applied.
- G. Where clear finishes are required, tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.
- H. Prime back surfaces of interior and exterior woodwork with primer paint.
- I. Prime back surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.

### 3.05 CLEANING

- A. As Work proceeds, promptly remove paint where spilled, splashed, or spattered.

- B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.
- C. Collect cotton waste, cloths, and material, which may constitute a fire hazard, place in closed metal containers and remove daily from site.

### 3.06 SCHEDULE - INTERIOR SURFACES

- A. Wood - Transparent
  - 1. One coat PPG Deft Interior Oil Wood Stain DFT400 Series
  - 2. One coat PPG Deft Sanding Sealer DFT61
  - 3. Two coats PPG Deft Polyurethane Interior WB Acrylic Satin DFT159 Series
  - 4. Lightly sand with steel wool between coats
- B. Existing Concrete and Concrete Block – Painted
  - 1. One coat primer compatible with existing base coat of paint and new topcoat
  - 2. Two coats PPG Speedhide Interior Latex Eggshell 6-411 Series
- C. Concrete and Concrete Block
  - 1. One coat PPG Speedhide Int/Ext Masonry Latex Block Filler 6-7
  - 2. Two coats PPG Speedhide Interior Latex Eggshell 6-411 Series
- D. Steel
  - 1. One coat PPG Pitt-Tech DTM Primer 90-712 Series
  - 1. Two coats PPG Pitt-Tech DTM Satin 90-474 Series
  - 2. Apply one coat of PPG Pitt-Tech DTM Primer 90-712 Series to all galvanized metal prior to above applications.
  - 3. All handrails shall be semi-gloss.
- E. Gypsum Board
  - 1. One coat PPG Speedhide Interior Latex Sealer Quick-Drying 6-2. Use PPG Perma-Crete Alkali Resistant Primer 4-603xi PermaCrete Alkali for new plaster.
  - 2. Two coats PPG Speedhide Interior Latex Eggshell 6-411 Series
  - 3. All cemented and taped joints shall be spot primed with PPG Speedhide Interior Latex Sealer Quick-Drying 6-2 before proceeding with the above specifications
  - 4. All ceilings and soffits shall be flat, PPG Speedhide Interior Latex Flat 6-70 Series
  - 5. All walls and ceilings in toilet rooms shall be semi-gloss, PPG Speedhide Interior Latex Semi-Gloss 6-500 Series

### 3.09 SCHEDULE

- A. The Architect will select and/or approve colors and determine the number of colors to be used on the job.
- B. Each room shall have up to two different colors for the walls. The Contractor shall include costs for such in their bid.
- C. Refer to Room Finish Schedule on the Drawings.

END OF SECTION

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## SECTION 12 3216

### PLASTIC LAMINATE CASEWORK & COUNTERS

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Furnish all materials, labor, and equipment necessary to furnish and install all production manufactured modular laminate casework and counters including all supports, shelving, and filler panels as shown on the Drawings and herein specified.

##### 1.02 STANDARD OF QUALITY

- A. All products shall meet or exceed products as specified and manufactured by Stevens Industries, Inc.
- B. All materials and workmanship shall be guaranteed for one year from the date of installation. Defects reported within the guarantee period will be corrected without charge.

##### 1.03 SUBMITTALS

- A. Comply with provision of Division 1.
- B. Product Data: Submit casework manufacturer's catalog showing casework construction details, and materials and hardware used.
- C. Submit one chip chains of casework manufacturer's standard decorative laminates.
- D. Submit one set of shop drawings showing plan views, elevations, cross-sections, service runs, and all required blocking by others.

##### 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver casework and counters only after submittal data is approved and field conditions have been verified.
- B. Deliver casework and counters only after building is secure and dry.
- C. Store materials in a ventilated place, protected from the weather with relative humidity of 60% or less at 75 degrees F.
- D. Protect finished surfaces from soil and damage during handling and installation.

#### PART 2 PRODUCTS

##### 2.01 ACCEPTABLE MANUFACTURERS

- A. Advanced Cabinet Systems, Marion, IN
- B. Boardworks, Valparaiso, Indiana
- C. Phil Konrad & Sons, Knox, Indiana
- D. Milestone Cabinetry & Millwork
- E. Precision Millwork & Plastics, South Bend, Indian

- F. Precision Wood Products, Mishawaka, Indiana
- G. Stevens Cabinet Co., Inc.
- H. Top Design
- I. Substitutions: Under provisions of Division 1.

## 2.02 MATERIALS

- A. Decorative laminate casework shall meet or exceed the minimum requirements established by Architectural Woodwork Institute (AWI) Quality Standard 1600/1600B for Reveal Overlay Modular Casework. Specific requirements set forth within this specification shall take precedence over the AWI Standard.
- B. All cabinetry shall be equal to Stevens 1200 Series cabinets as manufactured by Stevens Cabinet Co., 704 W. Main, Teutopolis, Illinois, 62467 featuring impact resistant 3mm PVC edged full-overlay doors and drawer fronts, cabinet members, and shelves and concealed hinges with wire pulls. Color by Architect – Aluminum Brushed.
- C. Cores shall be particleboard of at least 45-pound density and meet or exceed ANSI A20B.1, Grade 1-M-2. All shall be of balanced construction; that is: both faces are surfaced with a melamine laminating material. All particle board shall be of balanced construction (laminated both sides) inside of cabinets and shelves shall be surfaced with melamine laminating material all exterior surfaces shall be laminated with high pressure plastic laminate. Color by Architect.
- D. End Panels shall be 3/4" thick.
- E. Bottoms and Tops shall be:
  - 1. For base and tall cabinets 3/4", and
  - 2. Wall mounted cabinets 1" thick.
- F. Cabinet Backs if unexposed shall be 1/4" thick and if exposed 3/4" thick.
- G. Doors shall be 3/4" thick.
- H. Drawers shall be 5/8" thick 48# fiberboard on both sides and ends and 1/4" thick fiberboard bottom.
- I. Shelves under 36" long shall be 3/4" thick and over 36" long 1" thick except all bookcases and wall cabinets shall have 1" thick shelves. Shelves less than 36" shall have one adjustable shelf, over 36" high shall have one additional adjustable shelf for each additional one foot of height, i.e. 36" two adjustable shelves, 48" three adjustable shelves, etc.
- J. Frame Rails shall be 3/4" thick.
- K. Joiners - corners and edge joints shall be glued and clamped and reinforced using fluted dowels. This shall be typical for end panels, bottoms and tops, drawers, and frame rails.
- L. Drawer bottoms and cabinet backs shall be trapped in grooves cut into sides and ends or top and bottom. Drawers shall also incorporate mechanical fasteners.

- M. Wall mounted cabinets shall also be provided with a laminated support rail mechanically fastened to the upper back for hanging.
- N. End panels shall be one piece of material and for tall and base units shall extend fully to the floor for structural integrity. End panel construction as considered standard by LSI Corporation shall be acceptable.
- O. Sub-bases shall be 4" high and recessed from the front edge. They shall be mechanically fastened to the cabinetry bottom and ends.
- P. Counters: Plastic laminate counters shall be 1 1/2" solid particleboard with plastic laminate surfaces and melamine backer. Provide side and backsplashes as shown.
- Q. Surfaces shall be of the high-pressure plastic laminate type of suitable grade for the intended use. Plastic laminating material shall be equal to premium or standard laminates as manufactured by Wilsonart. Laminating material shall meet appropriate NEMA Standards for fabrication, durability, etc. Minimum thickness shall be .050" for horizontal surfaces and .030" for vertical surfaces. Bonding shall be accomplished by means of pressure and heat.

Interior and concealed faces shall be a neutral "putty" color and exterior and other exposed surfaces shall be selected from the cabinet manufacturer's standard available line. A minimum of three (3) colors plus putty shall be allowed with selection by Architect and Owner.

Edging shall be 3mm PVC edging as typical of the cabinet style. Color shall be selected from manufacturer's standard colors.

## 2.03 HARDWARE

- A. Hinges shall be fully concealed 165° hinges with self-closing spring feature, die cast bosses and 3-way adjustability.
- B. Latches shall be spring roller type mounted at the top or bottom edge of the door except doors 48" or more in height shall have latches at top and bottom. Strike plate and roller shall be molded nylon, delrin or similar engineering grade plastic.
- C. Locks shall be disc tumbler type. Lock shall be installed where shown on Drawings. Key locks per the drawings.
- D. Shelf support clips shall be molded nylon capable of engaging 2 holes for each clip. Shelves shall be adjustable at not less than one (1) nor more than two (2) inch intervals.
- E. Pulls shall be brushed aluminum wire pulls.
- F. Drawer Slides shall be steel with ball bearing nylon rollers. Slides shall be of 100-pound capacity. Provide full extension type slides on file, paper or lateral storage drawers.
- H. All cabinet bases shall receive vinyl base.

## 2.04 FABRICATION

- A. Fabricate casework to ensure durable and rigid unit and to permit plumb and level site installation.
- B. Align adjoining units for site assembly modules, to achieve tight hairline joints.
- C. Prepare units with anchor devices to permit ease of site assembly.
- D. Provide cutouts for plumbing fixtures, inserts, appliances, outlet boxes, and other fixtures and fittings. Verify locations of cutouts from on-site dimensions.

## PART 3 EXECUTION

### 3.01 INSTALLATION

- A. Set and secure casework in place rigid, plumb, and level ready to receive counters.
- B. Use purpose designed fixture attachments for wall-mounted components.
- C. Use threaded steel concealed joint fasteners to align and secure adjoining cabinet units.
- D. Carefully scribe casework which abuts other building materials, leaving gaps of 1/32 inch (one maximum). Do not use additional overlay trim for this purpose.
- E. Installers shall leave the casework properly adjusted and operable items shall work smoothly and freely.
- F. Installers shall leave area clean and free of all debris, trash, dust, and ready for occupancy without further attention.

END OF SECTION

## SECTION 21 1314

### WET-PIPE SPRINKLER SYSTEM

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Design and install modifications to existing wet-pipe sprinkler system to accommodate new conditions and new construction.
- B. Submit the design to the State of Indiana Department of Homeland Security for a Construction Design Release for the proposed work.

##### 1.02 RELATED WORK

- A. Section 22 0000 – Plumbing

##### 1.03 REFERENCES

- A. NFPA 13 - Installation of Sprinkler Systems.

##### 1.04 SYSTEM DESCRIPTION

- A. System to provide coverage zone affected in existing building.
- B. Provide system to NFPA 13 ordinary hazard occupancy requirements.

##### 1.05 QUALITY ASSURANCE

- A. Design and installation to conform to NFPA 13.
- B. Equipment and Components: Bear UL Label or marking.
- C. Specialist Firm: Company specializing in sprinkler systems with five (5) years' experience.

##### 1.06 REGULATORY REQUIREMENTS

- A. Hydraulic Calculations, Product Data, Shop Drawings, and Low Water Pressure Cut-in Controller: Bear stamp of approval of Fire Marshall.

##### 1.07 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Division 1.
- B. Indicate hydraulic calculations, detailed pipe layout, hangers and supports, components and accessories.
- C. Submit shop drawings, product data and hydraulic calculations to Fire Marshal for approval. Submit proof of approval to Architect/Engineer.

## 1.08 PROJECT RECORD DOCUMENTS

- A. Submit documents under provisions of Division 1.

## 1.09 OPERATION AND MAINTENANCE DATA

- A. Submit manufacturer's operation and maintenance data under provisions of Division 1.
- B. Include written maintenance data on components of system, servicing requirements, and Record Drawings.

## 1.10 DELIVERY, STORAGE, AND HANDLING

- A. Provide temporary inlet and outlet caps.
- B. Maintain caps in place until installation.

## 1.11 EXTRA STOCK

- A. Provide extra sprinkler heads under provisions of NFPA 13 and Division 1.
- B. Provide suitable wrenches for each head type.
- C. Provide metal storage cabinet in location designated.

## PART 2 PRODUCTS

### 2.01 PIPING MATERIALS

- A. Above Ground Inside Building Piping: As permitted by NFPA 13.

### 2.02 PIPING SPECIALTIES

- A. Automatic Sprinkler Valve: Flow detector with alarm circuits, pressure switch, pressure retard chamber.

### 2.03 ACCEPTABLE MANUFACTURERS - SPRINKLER HEADS

- A. Reliable
- B. Substitutions: Under provisions of Division 1.

### 2.04 SPRINKLER HEADS

- A. Finished Ceiling Type: Reliable Model G5 Concealed Quick Response pendant type with white finish cover plate.
- B. Exposed Ceiling Type: Reliable Model F1FR56 Quick Response with chrome plated finish. Provide upright or recessed horizontal sidewall type as required. Provide chrome plated escutcheon at recessed applications.
- C. Fusible Link: Temperature rated for specific area hazard.

## PART 3 EXECUTION

### 3.01 PREPARATION

- A. Coordinate work of the Section with other affected work. Sprinkler contractor shall accommodate ductwork and register locations in the routing of the pipes and heads so there is no interference with the mechanical system as designed.

### 3.02 INSTALLATION - PIPING

- A. Connect new runs to existing sprinkler system as required.
- B. Place pipe runs to minimize obstruction to other work.
- C. Place piping in concealed spaces above finished ceilings.
- D. Center heads in two directions in ceiling tile and provide piping offsets as required.
- E. Apply strippable tape or paper cover to ensure concealed sprinkler head cover plates do not receive field paint finish at painted ceilings.
- F. Balance of area shall remain active while portions are being modified.

### 3.03 CLEANING

- A. Flush entire piping system of foreign matter.

### 3.04 SYSTEM TESTS

- A. Hydrostatically test entire system.
- B. Test shall be witnessed by Fire Marshall.

END OF SECTION

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## SECTION 22 1000

### PLUMBING

#### PART 1 GENERAL

##### 1.01 WORK INCLUDED

- A. Furnish all labor materials and equipment necessary to furnish and install all plumbing work shown on the drawings.
- B. Whether specifically called for or not, all work and systems shall be complete in every respect with this Contractor furnishing all items required to complete the work and leaving same in first class working condition fully guaranteed against defective materials and workmanship.
- C. Whether specifically shown or not, all plumbing and sanitary work shall be done in strict accordance with the governing rules, regulations, building codes and/or rules of the affected utility companies.
- D. Furnish all permits and pay all fees as may be required including any excessive length charges and all federal or state taxes.

##### 1.02 QUALITY ASSURANCE

- A. All work shall be in full accordance with the Indiana Plumbing Code.
- B. All work shall be warranted for a period of one year from Date of Final Acceptance of building.

##### 1.03 DISINFECTION OF WATER DISTRIBUTION SYSTEM

- A. Upon completion of all testing and closure of leaks, water system shall be sterilized in accordance with the requirements of the State Board of Health. Furnish copy of Sterilization Test Results.

##### 1.04 PLUMBING PIPING

- A. Work Included
  - 1. Water pipe and pipe fittings
  - 2. Valves
  - 3. Sanitary sewer piping system
- B. Piping General
  - 1. All piping materials shall be new and or American manufacture. Full lengths of pipe shall be used as much as possible.
- C. Domestic Water Piping
  - 1. Above grade: Type L hard drawn copper sweated or flanged of sizes as shown of the plans except for water service pipe before meter.

D. Valves

1. All valves shall be equal to Watts – FBV Series ball valves bronze 2 piece.
2. All ball valves for plumbing piping system shall be Watts, NIBCO, Milwaukee.
3. All valves be full port, 100% flow of piping.
4. Each branch from the main piping shall have a valve.
5. Tag all valves for system type (i.e. Hot Water, etc.).

E. Sanitary Sewer Piping

1. Below grade:
  - a. Within building: all sanitary and waste piping within the building and to 5'-0" beyond the building exterior wall shall be PVC Schedule 40
  - b. Beyond building wall: all sanitary and waste piping beyond 5'-0" of the exterior walls shall be PVC Schedule 40 or as required by the local governing body.
2. Above grade: waste and vent lines above grade shall be PVC Schedule 40

1.05 EXCAVATION AND BACKFILLING

- A. This contractor shall do all necessary excavation, trenching and backfilling as required for this work.
- B. Bottom of excavations shall be true to grade so that pipes will be supported on a solid bed of undisturbed earth.
- C. The sides of all trenches shall be properly protected against cave-ins. Trenches shall be of proper width and depth for piping required.
- D. No clay material shall be used for backfilling within building or under any walks or paving.
- E. All backfilling within building or under any walks or paving shall be with clean sand in maximum 6" lifts properly compacted to 95% density and free from any frozen materials.
- F. No piping trenches shall be backfilled until all required tests have been performed and until all inspections have been made.
- G. Contractor shall provide and maintain any barricades or protective devices at any open excavations until properly backfilled to grade.

## 1.06 INSTALLATION OF PIPING AND EQUIPMENT

### A. Sanitary and Water Piping

1. Piping must be run so as not to interfere with work of other trades. Where offsets are necessary to avoid other work, same shall be made as directed by the Architect.
2. All changes in direction of soil and waste piping shall be made with long sweep fittings where space permits.
3. Off-sets to be made with 45 degree fittings making due allowance for expansion.
4. Horizontal sewer lines shall pitch a minimum of 1/8" per foot outside building.
5. Provide cleanouts with brass clean-out screw at every turn and angle on all soil and waste piping and install cleanouts every 50 to 60 feet in straight runs, depending on building conditions. Keep cleanouts out of passageways as much as possible.
6. Cleanouts shall also be installed at the base of all risers where they connect to horizontal runs.
7. The plans show the general arrangement of all pipes, ductwork, conduits, fixtures, etc. Contractor shall make all necessary adjustments.
8. The contractor shall examine the drawings and specifications very carefully and notify the Architect by letter of any discrepancies so same can be rectified at an early date.
9. Contractor shall follow the plans as closely as possible for installation of piping.
10. Use proper solvent, cleaner and sandpaper for all PVC fittings and connections, properly twisting all pipe to "set".
11. Furnish to General Contractor all sleeves one pipe size larger for all piping passing through walls or floors and locate height, width and location where sleeve should be placed.
12. Cleanouts
  - a. Cleanouts on sewers under floor shall be made with "Y's". Extension shall be brought up to floor level and capped with brass cleanout screw.
  - b. Cleanouts in finished floors shall be installed in brass cleanout boxes with flush covers of approved type. Use Wade #W-81 OOF., or equal of Zurn, Josam or J.R. Smith. All cleanouts shall be located in readily accessible locations for easy removal. In finished areas covers wall clean outs shall be chrome plated.

13. Pipe Hangers

- a. All pipe lines shall be supported on adjustable hangers on not over 8 ft. centers for 1/2" through 1" pipe, 10 ft. centers for 1-1/4" through 3" pipe, and 12 ft. centers for 4" pipe and up.
- b. All vertical pipes shall be supported at least once in each story height with clamps. Riser clamps to be Elcen Fig. #39.
- c. All pipe hangers for hot, cold piping to be insulated shall be Elcen Fig. #12 with Fig. #221 through #226 saddles as required for hot piping. For cold piping use Elcen Fig. #240A saddles.
- d. Beam clamps shall be Elcen Fig. #33.
- e. Size of pipe hanger rods shall be 1/4" pipes up to 2", 3/8" for pipes 2-1/2" to 3", and 1/2" for pipes 4" and larger.
- f. Where supporting copper piping use copper plated clamps, rods and hangers, same as above.
- g. Trapeze hangers shall be Crawford Fig. #45.
- h. Install inserts in concrete construction for each pipe hanger. Single inserts shall be Crawford Fig. #282, group inserts shall be Crawford Fig. #148.
- i. Hangers and inserts shall be as manufactured by Elcen, Crawford, Grinnell or Blaw Knox.

14. Plates

- a. Where pipes pass exposed through finished walls, partitions or ceilings provide chrome plated cover plates, Crane #20. Use Fee and Mason #2840 on pipes projecting above the floor.

15. Vent Lines and Flashing

- a. All vents to extend 12" above the roof line and be provided with regular roof connection to receive flashing made for this purpose.
- b. Flash properly down on roof using 6 lb. sheet lead extending 12" on all sides of pipe and make the connection watertight.
- c. Off-set pipes away from parapet wall to permit flashing 12" from wall.

16. Traps

- a. Each fixture, floor drain, and all pieces of equipment requiring trap except fixtures with integral traps shall be separately trapped.
- b. The traps shall be placed as near to the fixture as possible, and no fixture shall be double trapped.

17. Water Piping

- a. All hot and cold water piping shall pitch up from headers and be so arranged as to be drained in pipe chase. Provide threaded drainage plugs.
- b. Gate valves shall be installed in all branch connections from the hot and cold water mains.
- c. Unions to be installed at all connections to equipment and at all automatic valves.

18. Pipe Cleaning

- a. Water piping: Inside of all lines shall be blown out with compressed air and flushed with detergent solution and rinsed with clean water prior to testing for leaks.
- b. All sewer lines shall be flushed with water and shall flow freely.
- c. Outside of all lines inside of building shall be cleaned to remove all grease, oil, pipe compound, plaster, mortar, etc. after lines have been successfully tested so as to facilitate pipe covering and painting.

19. Pipe Testing

- a. Water piping shall be tested with compressed air at a pressure of 150% normal working pressure or at 100 psi, which-ever is greater.
- b. Waste, soil and vent piping shall be tested by capping opening and filling the entire system with water.
- c. All test shall be conducted for a period of 90 minutes or if system tightness is questionable, Architect may request an extended test period at no additional cost to the Owner.
- d. Any defects which develop during all piping test shall be remedied. Send letter in triplicate to the Engineer giving results of all tests.

1.07 PLUMBING FIXTURES

- A. Fixtures shall be new, free from defects and as listed in the Plumbing Fixture Schedule on the plans. All fixtures shall be set plumb, true and secure. Provide all chrome plated traps, supplies and hangers or carriers. Provide data to General contractor for location of all blocking within walls for supports.
- B. The Following Fixtures are as Listed Below
  - 1. Floor drains: Zurn ZN-415 cast iron floor drain. Provide nickel bronze drain in finished areas and rough brass drain and cleanout in unfinished areas (Janitor's Closets or Storage Rooms). Pitch floor to drains minimum 1/8" per foot. Provide 4" PVC trap below floor drain.
- C. Provide submittals as called for in Division 1.

#### 1.08 INSULATION

- A. Provide insulated pipe covers on exposed piping below all wall hung lavatories and sinks per code.
- B. Insulate all horizontal domestic cold water piping above suspended ceilings.
- B. Insulate all domestic hot water piping above concrete floors on grade
- C. Domestic water pipe insulation shall be ½" thick fiberglass with vapor barrier and PVC fittings for water piping ½" – 1 ½" in diameter.
- D. Domestic water pipe insulation shall be 1" thick fiberglass with vapor barrier and PVC fittings for water piping 2" in diameter and above.

#### 1.09 RECORD DRAWINGS

- A. Provide as-built piping layout to Architect for inclusion on his Record Drawings noting any deviations from plans. This must be provided before progress payments are made.

#### 1.10 WARRANTY

- A. Provide minimum 1 year full warranty from date of final acceptance of building.

#### 1.11 CLEAN-UP

- A. This contractor shall remove all debris and wrappings at the end of each day's work and shall keep the areas as neat as possible at all times. Remove all left over materials.

END OF SECTION

## SECTION 23 0010

### BASIC MECHANICAL REQUIREMENTS

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. This Contractor shall be responsible for all work in Division 23 and all mechanical work listed in the other Divisions.
- C. This Contractor shall be responsible for all work on the Mechanical drawings and all mechanical work described on drawings other than mechanical.

##### 1.02 SUMMARY

- A. Scope of the Work: The contract for mechanical work for this project shall include the furnishing, delivery, installation, testing and placing into proper operation, as intended and to the satisfaction of the Architect and the Owner, all equipment, materials, devices and all necessary and customary appurtenances required for the performance and completion of mechanical installations for all work shown on the drawings and in the Specifications for all trades, and in all sections of the General and Supplementary Conditions. Work required for other trades may not be repeated on the Mechanical Drawings or in the Mechanical Specifications, and the Bidders for Mechanical Work shall demand and examine drawings and specifications for other trades in order that he may include all such work in his bid for a complete mechanical system. Work stated as being provided by the Mechanical Contractor(s) in the Specifications for other trades shall be binding though repeated in the text of these specifications.
- B. General Requirements for Mechanical Work
  - 1. The Drawings and Specifications are intended to generally indicate only the type and method of operation of the various mechanical systems. It should be understood that each and every item required for delivery of systems to the Owner in an operable condition shall be provided, whether or not such items are specifically listed on the Drawings or in the Specifications.
  - 2. Electrical and Mechanical Drawings are diagrammatic only and shall not be scaled for purposes of equipment installation; all measurements shall be derived from the Architectural and/or System and/or Equipment Shop Drawings, and must be verified with job conditions so that all equipment is installed in a satisfactory and workmanlike manner. Where "typical" rooms, spaces, installation conditions, construction materials, etc., are repeated in several locations throughout the project, layout and details shown for one such location shall apply to all such similar cases whether or not repeated on the Drawings. All required systems outlets and devices shown on floor plans may not be repeated in respective system Riser or Schematic Diagrams and vice versa; outlets, devices, etc., of proper types shall be provided whether or not shown in either of these locations.
  - 3. Where performance or completion of work is rendered impossible due to discrepancies between drawings and Specifications, such discrepancies shall be called to the Architect's attention in writing before bid due date; failure or neglect in reporting discrepancies and obtaining written decisions prior to bid date will require correction of such discrepancies by the contractor at no additional cost to the Owner.
  - 4. Where the substitution of equipment or materials causes revision to building layout, to space allocated to other equipment, or to building finishes, any and all costs for such revisions in any trade shall be borne by the Contractor supplying such substitute equipment or material.

C. Work Included:

1. The work shall include, but is not limited to, the furnishing, installation, testing, and placing into satisfactory operation, the following systems and equipment, as shown on the Drawings, or specified hereinafter:
  - a. Ventilation:
    - 1) Furnish and install all labor and material required to perform all Ventilating Work shown on the drawings and hereinafter specified.

1.03 QUALITY ASSURANCE

- A. Standards contained in this section shall apply and form a part of each and every section of Specification Division 23.
- B. In addition to the requirements shown or specified in the Contract Documents, the work shall comply with the latest issues of the applicable Standards and Codes published by:
  1. ADA - American Disabilities Act
  2. ANSI - American National Standards Institute
  3. ASTM - American Society for Testing & Materials
  4. FIA - Factory Insurance Association
  5. FM - Factory Mutual
  6. NEC - National Electrical Code
  7. NEMA - National Electrical Manufacturers Association
  8. NFPA - National Fire Protection Association
  9. UL - Underwriters' Laboratories, Inc.
- C. All items of labor and material required to comply with such Standards and Codes in accordance with the requirements of the Contract Documents shall be included. Where quantities, sizes or other requirements indicated on the drawings or specified herein are in excess of the requirements of the Standards and Codes, the Specifications and/or the Drawings shall govern.
- D. Remodeling of and within existing construction is included.

1.04 PROJECT CONDITIONS

- A. Visit the site and determine all existing local conditions affecting the work. Work shown as "existing" is presumed to be in place and suitable for the alteration or reuse indicated; Mechanical Contractor(s) shall, by field inspection, verify the location condition and suitability of such existing work. Where field verification shows additional work to or preparation of existing work is required in order to permit proper execution of new work, such additional work or preparation shall be provided for by this contractor and included in his bid

1.05 CODES AND FEES

- A. All work installed under this Division shall be done so in strict accordance with Applicable Codes and requirements of the Authority Having Jurisdiction. Such rules and regulations shall take precedence in the event of conflict with Drawings or Specifications. This Contractor shall secure and pay for all fees, permits, licenses and inspections as required by the State Codes in the execution of this work.
- B. Utility companies and governmental agencies having jurisdiction and requirements for a safe and satisfactory installation shall have associated work installed in an approved manner, in accordance with their current standards, directives, and policies.

1.06 TEMPORARY SERVICES

- A. Fire Protection

B. Continuity of Owner's Operations

1.07 MATERIALS AND EQUIPMENT BASE BID

- A. All mechanical systems' materials and equipment listed in these Specifications and shown on the Drawings shall be bid as Base Bid.

PART 2 - PRODUCTS

2.01 INSTALLATION INSTRUCTIONS

- A. The Contractor shall keep a complete set of all installation instructions on site and available to inspectors, professionals and the Owner.

PART 3 - EXECUTION

3.01 STANDARDS OF WORK

- A. The installation of all work shall be done in a first class manner acceptable to the Architect of his representative. All work not meeting this standard shall be removed and the work done over.

3.02 COORDINATION

- A. The Mechanical Contractor shall confer with other contractors at the site, to avoid interferences so that the maximum of ease might be had by all in the installation of mechanical systems. Proper execution of the work will require installation studies and coordination of mechanical systems' work with that of other trades, to include verification of all locations for mechanical systems' equipment, and controls, operating and working space, service connections, etc. Conflicts shall be resolved prior to starting any installations; special precautions shall be taken to avoid piping runs, equipment enclosures, etc., in and through spaces, shafts and chases intended and reserved for the work of other trades. In the event interferences develop, the Architect's decision will be final and no additional compensation will be allowed for the moving of misplaced piping or other mechanical equipment. Damages resulting from interferences caused by the Mechanical Contractor's negligence shall be paid for by the Mechanical Contractor.

3.03 CONSTRUCTION RECORD DRAWINGS

- A. The Contractor shall record all changes and deviations, as they occur, on his designated set of prints, and shall use this set for no other purposes. Drawings that "Conform to Construction Records" shall show final locations for all systems' equipment; all piping runs as actually installed to include vertical segments; pipe sizes, media contained, and direction of flow. The requirements for drawings the "Conform to Construction Records" shall apply to addendum drawings, and to revision drawings issued subsequent to the start of the work.
- B. Upon completion of the work, drawings that "Conform to Construction Records" shall be delivered to the Architect in accordance with Division 1 requirements.

3.04 OWNER'S MANUAL

- A. The Mechanical Contractor shall prepare an Owner's Manual in accordance with Division 1 requirements and including all materials listed below:
1. Materials to be included:
    - a. Record copies ("Furnish as Submitted") of all shop drawings, cuts, and brochures.
    - b. Operating instructions - individual sheets or bound booklets as furnished with specific equipment.

- c. Specially written operating instructions where so specified.
- d. Copies of warranties, properly filled out, where specially furnished with specific equipment; copies of service contracts where so specified.
- e. Parts lists for all major items of equipment where available from the manufacturer.
- f. Specially prepared list (type) shown mailing address, telephone number, complete names of individuals for contact, for all servicing stations, manufacturer's representatives, repair parts depots, etc., for all specialty equipment and systems

### 3.05 CLEANING UP

- A. This contractor shall remove from the premises, at proper intervals, all rubbish, debris, and waste material resulting from the work specified herein.
- B. Boiler, fan and mechanical equipment rooms shall be left broom-clean. Construction dirt and debris shall be removed from inside fan plenums and housings, from inside air shafts and plenum chambers, from voids in equipment mounting frames or bases at housekeeping pads, and from the inside of all other equipment enclosures. Pumps, motors, equipment housings, cabinets and shrouds shall be wiped clean of accumulated construction dust, dirt, paint spatters, handwriting, etc. Unnecessary labels and tags shall be removed. Nameplates, data and/or instruction panels, warning labels, etc., shall be washed clean of fingerprints, dust, dirt, paint spatters, handwriting, etc., and left in a condition of maximum visibility. All equipment shall be in a clean, first-class condition before turning over to the Owner.

### 3.06 PROJECT CLOSE-OUT

- A. Refer to Division 1 "Closeout Procedures." The following additional conditions shall be met:
  - 1. All systems shall be complete and shall be delivered to the Owner in an operable condition and shall be demonstrated to the Owner and to the Architect, or their representatives, to perform satisfactorily and as intended.
  - 2. Equipment furnished under other contracts but connected under this contract shall be demonstrated to be operating properly, with performance within the limits set forth in these Specifications.
  - 3. Facilities Management (Building Automation), security, component monitoring and remote alarm annunciation, signal, communications, and similar systems provided solely under this contract shall be demonstrated (1) to the Architect as evidence of satisfactory performance, and (2) to the Owner as instructions in the proper use and maintenance of such systems. Included in these demonstrations shall be evidence of proper response at on-site monitoring points (Facilities Management Central/Work Station, etc) and at off site locations such as municipal fire alarm, central station vandal and burglar protection, central station facilities monitoring, etc., when such work is specified.
  - 4. Valve tags shall be attached, directories shall be properly posted, labels, nameplates, legends, diagrams, and other identification items as specified have been properly prepared and affixed.
  - 5. Owner's Manual shall be delivered to the Architect.

END OF SECTION

## SECTION 23 3100

### DUCTWORK AND ACCESSORIES

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION OF WORK:

- A. Furnish the labor, materials, equipment, appliances, services, and perform the operations in connection with the construction and installation of the work. Work to be as herein specified and as denoted on the accompanying drawings.
- B. This section of the work includes the furnishing and installing of steel ductwork, acoustic and thermal lining, and accessories and specialties incidental to the construction of the heating, ventilating, air conditioning, and exhaust systems, including plenums, and housing and the like, necessary and required by the systems.

##### 1.02 QUALITY ASSURANCE:

- A. Construction of heating, air conditioning, and general exhaust ductwork and duct liner application shall be in accordance with the recommendations of SMACNA's and ASHRAE's latest edition manuals.
- B. Duct coverings, duct lining, tapes, and core materials in panels; used in duct systems shall have flamespread rating not over 25 without evidence of continued progressive combustion and a smoke developed rating no higher than 50. If coverings and linings are to be applied with adhesives, they shall have a flamespread rating not over 25 and a smoke developed rating no higher than 50 when in the final dry state.
- C. Conflicts between ASHRAE and SMACNA duct construction recommendations shall be submitted for review.
- D. Installations of sheet metal ducts and related work shall comply with applicable local, state, and national codes, rules regulations, and ordinances.
- E. Ductwork shop drawings must be properly submitted. Ductwork installed prior to receipt of reviewed shop drawings may have to be removed.
- F. Comply with the enclosed specification in its entirety. If, on various walk-throughs and inspections, changes have been made without prior approval and the changes are not specified within, make the applicable changes to comply with this specification and the drawings.

#### PART 2 - PRODUCTS

##### 2.01 DUCTWORK:

- A. Low pressure ductwork (positive or negative) shall be designed for static pressure rating up to 2" wg, with nominal duct air velocities of 2,000 fpm or less. Class B seals shall be used in the construction of the ductwork to make duct joints and connections airtight (SMACNA 1985 Edition).
- B. Medium pressure ductwork (supply ductwork from variable air volume air handling units to VAV boxes) shall be designed for static pressure ratings up to 4" wg, with

nominal duct air velocities above 2,000 fpm. Class "A" seals shall be used in the construction of the ductwork to make duct joints and connections airtight (SMACNA 1985 Edition).

- C. Exposed round ducts and fittings shall be factory fabricated spiral lock seam duct with machine formed fittings as manufactured by United Sheet Metal or approved equal. Fittings shall be sealed with United Fire Retardant Duct Sealer or approved equal. Sections of duct shall spiral in the same direction.
- D. Concealed round ducts and fittings may be fabricated with longitudinal seams. Elbows to be segmented adjustable seam type.
- E. Round galvanized air ducts shall be constructed of the following gauges except where specifically noted otherwise on the drawings:

Duct Diameter	Gauge Spiral Seam	Gauge Longitudinal Seam
Low Pressure:		
3" to 8"	28	26
9" to 14"	28	24
15" to 26"	24	22
Medium Pressure:		
3" to 8"	26	24
9" to 14"	26	24
15" to 26"	24	22

- F. Rectangular ductwork (unless noted otherwise) shall be constructed of new prime grade galvanized sheet steel, manufactured in accordance with ASTM A525 G-90 standards for hot dip galvanized sheet. Coating weight shall not be less than 1.25 ounces per square foot where used in nominal applications. Sheets having coating that will flake or peel under forming operation will not be allowed. Ductwork shall be of the gauge and provided with the recommended reinforcement as outlined in the most current SMACNA "HVAC Duct Construction Standards" for the specified system operating pressure.
- G. Exposed round and rectangular ductwork shall have paint grip coating.. Be responsible for thoroughly cleaning exterior of exposed ductwork to ensure dirt and grease are removed and paint grip coating is properly applied, ready for final painting.

2.02 DUCTWORK JOINTS AND SEAMS:

- A. Transverse Joints:
  - 1. Rectangular Ducts:
    - a. For ducts with longest side 12" wide and over, construct ductwork using the Ductmate 35/25 slide on systems, per Ductmate Industries Duct Construction Standards, dated July, 1992 and Installation and Assembly Instructions, dated January, 1993 (1-800-245-3188).
    - 1. The SMACNA T-22 flanged connection may be used as defined on Page 1-25 and 137 of the 1985 SMACNA Manual, First Edition, or an approved equal.

2. The non-proprietary T-24 flange and proprietary T.D.C.rr.D.F. flanges, are acceptable.
  - b. For transverse joint construction, 11" wide and smaller, the above mentioned may be used, or refer to SMACNA's 1985 Manual, First Edition, for proper duct construction procedures.
  - c. Ductmate 440 butyl gasket, or an approved equal, shall be used between rectangular transverse flanged duct connections, Ductmate's 440 butyl gasket, will be used exclusively, with the Ductmate Systems.
  - d. For rectangular ductwork located outside, exposed to weather, construct ductwork per "Transverse Joints, Rectangula~' with one (1) exception. Use continuous metal cleat on top joints of ducts, for added weather protection, or other approved methods of sealing.
2. Round Ducts:
  - a. For round ducts of 12" diameter and larger, construct ductwork using the Ductmate "Spiralmate" system, installed per Ductmate Industries construction standards. Round ducts under 12" in diameter shall be constructed per SMACNA manual standards.
  - b. Spirosafe line of self-sealing round spiral duct and fittings as manufactured by Lindab, Inc. may be used in lieu of as specified above. The ductwork system is to have factory installed double-lipped gaskets rated to operate between -20 F. and 212 F. and that meets SMACNA Leakage Class 3 integrity from -20 in.WG to +12 in. WG without use of caulking or sealants. The ductwork system is to have rolled over edges. Where round ductwork is specified to be lined, the Spirosafe double wall ductwork and fittings with perforated inner liner is to be used. Spirosafe ductwork and fittings are to be cleaned by the contractor ready for painting in lieu of paint grip specified.

B. Longitudinal Seam:

1. The Pittsburgh Lock seam shall be used; no exception.

2.03 FLEXIBLE DUCT:

- A. Final connections to registers and diffusers may be made with insulated flexible ductwork equal to Thermaflex M-KE. Flexible duct shall be 5'-0" maximum in length and shall be properly supported to avoid sagging. Flexible ductwork shall not exceed long radius 90" bends. Flexible ductwork shall only be installed in a concealed ceiling space.
- B. Flexible Ducts shall be Factory-fabricated, insulated, round duct, with an outer jacket enclosing 1-1/2 inch-(38-mm) thick, glass-fiber insulation around a continuous inner liner and comply with UL 181, Class 1.
  1. Reinforcement: Steel-wire helix encapsulated in inner liner.
  2. Outer Jacket: Glass-reinforced, silver Mylar with a continuous hanging tab, integral fibrous glass tape, and nylon hanging cord.
  3. Outer Jacket: Polyethylene film.
  4. Inner Liner: Polyethylene film.
- C. Flexible ductwork shall have a rating of 6-inch wg (1500 Pal positive, 1/2-inch wg (125 Pal negative).

- D. Flexible ductwork is not permitted on the inlet side of variable air volume boxes.

#### 2.04 DUCTWORK LINING:

- A. Internal acoustic and thermal ductwork lining to be 1/2" thick flexible fiberglass liner with reinforced airside coating and antimicrobial protection.
- B. Ductwork liner shall be Johns Manville Linacoustic RC. Ductwork liner as manufactured by Knauf, Owens-Corning or Certain-Teed will be acceptable if equal. The product name is to be imprinted on the air stream surface.
- C. Ductwork Liner shall be installed in accordance with the Sheet Metal and Air Conditioning Contractor's National Association Duct Liner Application Standard, Second Edition, shall meet ASTM C1071 standards and liner facing must meet EPA registration requirements for antimicrobial protection.
- D. 1 1/2" thick liner to be 1-112 pcf density, shall have a minimum sound NRC of 0.85 based on a Type "A" mounting, and a "K" factor not exceeding 0.16 at 75" F mean temperature.
- E. Transfer air ductwork shall be 1/2" duct lining with reinforced air side coating and anti-microbial protection.
- F. Unless otherwise indicated, the duct dimensions given on the drawings are to be clear inside dimensions after insulation is applied.
- G. Round ductwork indicated to be lined shall be lined with 1" thick "Permacote Spiracoustic Plus" insulation manufactured by Johns Manville. Liner shall be installed per manufacturer's recommendations and requirements.

#### 2.05 BALANCING DAMPERS:

- A. Volume dampers to be opposed blade, or single blade type (splitter type dampers are not acceptable) designed for reduced volume control. Damper hardware must be durable and installed properly. Damper blades should be stiffened by forming or other method, as required for the duty. Damper to have locking device to hold damper in a fixed position without vibration. Dampers shall be equal to American Warming Model VC-8 (rectangular) and VC-9 (round) for installation in low pressure systems and Model VC-2 (rectangular) and VC-23 (round) for installation in medium pressure systems.
  - 1. Balancing Dampers to have lock type damper operator and linkage as best suits construction and access conditions.
  - 2. Dampers with accessible operators to be provided with locking damper quadrants complete with locking nuts and graduate scale.
  - 3. Dampers with nonaccessible operators provided with Young Series 300 concealed regulator and coverplate complete with worm gear or linkage as required for smooth damper operation.

#### 2.06 AUTOMATIC DAMPERS:

- A. Where denoted on the drawings, the automatically operated dampers in connection with the automatic temperature control system will be furnished by Division 15950 work; installed by this contractor. Other dampers to be furnished and installed by this contractor shall be as follows:

1. Dampers, unless otherwise specified, shall be "low-leakage" dampers and shall be designed for tight shut-off such that for a 1,500 fpm damper leakage does not exceed 1% at 6" wg. Silentclosing replaceable butyl and neoprene seals shall be provided on blades on all four (4) sides of the frame. Louver linkage to be concealed in frame channel outside of the air stream. Bearings to be nylon bushings and to be oil-impregnated sintered iron. Rigid blade construction of no lighter than double #22 gauge and 6" maximum blade width; frames to have welded corners and be diagonally braced.
2. Furnish dampers with 2-position, line voltage electric operators. Operators shall be of sufficient size to provide 100% shut-off.

## 2.07 FIRE DAMPERS and FIRE/SMOKE DAMPERS:

- A. Fire dampers shall be furnished and installed in supply, return, and exhaust ducts passing through fire rated ceilings and walls where noted on the drawings, and in compliance with applicable codes, local, state, insurance, and other authorities having jurisdiction. They shall comply with requirements outlined in the latest issue of NFPA Pamphlet 90A. Fire dampers shall be in compliance with U.L. Standard for Fire Dampers, UL 555, and shall be U.L. labeled, tested, and inspected. Fire dampers shall be Air Balance, Type B, horizontal (spring loaded) or vertical guillotine type as required. Fire damper shall provide 95% duct free area. Fusible links to be standard 165" F. unless otherwise required by code.
- B. Automatic fire/smoke dampers shall be furnished and installed in supply and return ducts passing through fire/smoke walls where noted on the drawings, and in compliance with applicable codes, City of Chicago, state, insurance and other authorities having jurisdiction. They shall comply with requirements outlined in the latest issue of NFPA Pamphlet 90A. Fire/smoke dampers shall be in compliance with U. L. Standard for Fire Dampers, (UL 555), standard for smoke dampers (UL 555) and shall be U. L. labeled, tested and inspected. Fire/smoke dampers shall be National Controlled Air, Model FSD AF-F/L-58 temperature class 250. Equivalent units by Air Balance or Nailor-Hart will be acceptable. Damper blades shall be of double-skinned streamlined ("Airfoil") construction for minimum pressure drop. Both blade edge and jamb seals shall be of the pressure sensitive type for low leakage. Leakage shall not exceed 8 cfm per square foot at 4.0" static pressure. Linkage shall be of the concealed type for maximum free area. Fusible links to be standard 165" F. unless otherwise required by code.
  1. Provide each fire/smoke damper with a 120 volt electric actuator. Actuator to be connected and controlled by fire alarm system.
- C. Install hinged access door at each fire and fire/smoke damper. Locate to permit release of fire damper catch and replace fusible link. Stencil "Fire Damper Access" on access doors. The access door shall be a minimum of 12" x 12", 26 gauge with rigid insulation and cam latches. Access doors shall be National Controlled Air Model ADR-1.
- D. Equivalent units as manufactured by American Warning, Air Balance, Greenheck, NCA, Nailor, or Ruskin will be acceptable.

## 2.08 TURNING VANES:

- A. Turning vanes shall be furnished and installed where denoted on drawings and in square elbows, designed to carry the air around the 90° bend without eddying or

pressure fluctuation in the turn. Vanes shall be formed blade type and of standard catalog product of reputable manufacturer. Manufacturer of the air turns shall recommend the number and size of blades. Air turns shall be the complete unit type installed along the diagonals of each square elbow.

- B. Vanes shall be constructed and installed to limit pressure loss to not more than 20% of the velocity pressure.

## 2.09 DIFFUSERS AND REGISTERS:

- A. Square and/or rectangular supply air diffusers and return air registers with neck dimensions, capacity, and style shall be as scheduled or denoted on drawings. Registers and diffusers shall be of steel construction with baked off white enamel finish (unless otherwise noted), equipped with necessary baffles to eliminate drafts and provide proper air distribution. Each register and diffuser shall be equipped with approved style opposed blade volume damper as noted on the drawings.
  1. Coordinate type of each ceiling diffuser, grille and register with the ceiling system into which it is to be installed.
  2. Approved manufacturers of air diffusers and return air grilles include the following: Carnes, Metalaire, Tulle & Bailey, Titus or Price.
  3. Supply diffusers shall be constructed of steel or aluminum as specified on the drawings and have a minimum of four louvered vane assemblies. The inner vane assembly shall be removable without the use of tools for access to accessories. The inner vane assembly shall be fixed to provide the proper air distribution characteristics required. No deflecting blades are to be used. Coordinate diffuser frame style with the ceiling system into which it is to be installed.
  4. Supply registers shall be constructed of steel, stainless steel or aluminum as specified on the drawings. Supply register shall be double deflection type. Each bar shall be adjustable for the desired air flow deflection without affecting the setting of other bars. Damper shall be of the opposed blade type and interlock to ensure the minimum of air leakage when closed.
  5. Linear supply air diffusers shall be adjustable slot type constructed of extruded aluminum with one or more parallel slots. Each slot shall contain pattern controls, adjustable from the face of the diffuser to deflect the discharge air along a selected axis within a semi-circle of 180 degrees. The same pattern controllers shall function as a volume damper without affecting the air discharge pattern. Coordinate diffuser frame style with the ceiling system into which it is to be installed. For continuous installations, butted units shall be provided with alignment spines. Screws or other fasteners shall not be visible. Finish shall consist of white anodized finish exterior and flat black interior components. Provide matching air supply plenums with extensions necessary for proper duct connections.
  6. Return air and exhaust air registers shall be constructed of steel, stainless steel or aluminum as specified on the drawings. Registers shall combine a curved hemmed edge blade with an opposed blade damper. Damper blades shall be the same as that of the supply register.
  7. Registers for direct mounting on spiral ducts shall be mounted without use of a rectangular register tap. Provide end caps for registers to conform to duct diameter. Round duct registers shall be manufactured by Lindab. Registers shall have double deflection blade with vacuum adjustable damper.

## 2.10 LOUVERS:

- A. Furnish and install wall mounted, 6" deep, high performance, drainable louvers of the size and type as indicated on the drawings. Frames and blades shall be .081" thick 6063-T5 alloy extruded aluminum. Blades shall be 350 drainable types. Jambes shall be constructed with integral downspouts for carrying water from the blades of the louver sill. Screens shall be provided on the interior of the louver and shall consist of 1/2" mesh .063" diameter aluminum wire mounted in an extruded aluminum frame. Screens shall be removable from the louver for cleaning. Louvers shall have anodized finish, color to match architectural aluminum.
  - 1. Louvers shall pass 1,100 fpm free area velocity with less than .25" w.g. pressure drop and shall carry less than .03 ounces of water per square foot during a 15 minute period when tested in accordance with AMCA Standard 500. Louvers shall bear the AMCA Certified Ratings Seal for both Air Performance and Water Penetration.
- B. Louvers and Penthouses shall be as manufactured by Pottorfi, Greenheck, NCA, Arrow-United or Ruskin.

## 2.11 FILTERS:

- A. Provide filters of number, size and capacity as required for air handling systems indicated on drawings and as stated in these specifications. Filters shall be as manufactured by American Air Filter, Farr, Cambridge or Continental.
  - 1. All dedicated rooftop and interior custom built-up air handling units shall be supplied with filter tracks to allow for 2" prefilters and 4" final filters. Size unit as required for 450 fpm maximum air velocity across filters.
    - a. Provide each unit with required number of 2" prefilters (30% - 35% per ASHRAE test standard 52 - 68), pleated, disposable filters and required number of 4" American Air Filter Varicell high efficiency (80%-85% per ASHRAE Test Standard 52068) final filters.
- B. In the original installation of filters and filtering equipment, provide filters of the types specified for each system. On completion of the work, furnish and deliver to the Owner, spare filters equal to the complete replacement of such filters provided in the original installation.
  - 1. Filter media installed in air handling systems used to provide temporary heating is not to be considered a part of the original installation.

## PART 3 • EXECUTION

### 3.01 GENERAL:

- A. Duct shall be installed substantially as indicated on the drawings. However, where conflicts occur with other trades, building structure, etc. make minor changes in duct locations without extra cost.
- B. Duct sizes indicated on the accompanying drawings are inside dimensions and where ductwork is acoustically lined the duct shall be oversized accordingly to provide the same minimum cross sectional area.
- C. Pack and caulk around ductwork passing through floors or walls where required to prevent sound transmission, using fiberglass packing and metal collar.

- D. Locate ductwork within walls, ceilings, utility or pipe spaces, chases, joist spaces, and the like, insofar as is practical and so that such work will be properly concealed.
1. Space sufficiently distant from other work and from adjacent lines, ducts, etc., to permit maintenance, replacement, insulation, etc., so not less than 1" space will exist in between completed finished surfaces.
  2. Space parallel runs of ductwork so that each individual run of duct can be separately insulated. Parallel runs of duct or piping, insulation as a bundle, will not be acceptable.
- E. This contractor shall clean the interior of ductwork and fittings, leaving area clean and free of loose insulation and/or other construction debris.

### 3.02 DUCTWORK LINER:

- A. Ductwork liner shall be applied to the following:
- Supply air ductwork.
  - Return air ductwork.
  - Exhaust ductwork within 10'-0" of fan.
  - Transfer air ductwork.
1. Duct liner shall be cut to assure overlapped and compressed longitudinal corner joints. Cut edges shall be properly sealed with mastic to assure no erosion of insulation.
  2. Fasteners shall start within 3" of the upstream transverse edges of the duct liner and 3" from the longitudinal joints and shall be spaced at a maximum of 12" o.c. except that they shall be placed not more than 6" from a longitudinal joint of the liner nor 12" from a corner break.
  3. Duct liner shall be adhered to the sheet metal (with 100% coverage) and edges coated with one (1) of the adhesives conforming to the Standard for Adhesives for Duct Liner, ASC-A-7001C 1972 of the Adhesive and Sealant Council, Inc.
  4. Duct liner shall be further secured with fasteners conforming to the Mechanical Fastener Standard, MF-1-1975 on Page 22 of the Duct Liner Application Standard, Second Edition, of the Sheet Metal and Air Conditioning Contractors National Association.
  5. Duct liner in medium pressure ductwork shall be installed per manufacturer's recommendations for velocities above 2,000 fpm.
    - a. The leading edge of duct liner joints (in direction of air flow) shall be provided with metal nosing or a hardening mastic to prevent lining from coming loose.
  6. Duct liner indicated is in addition to external ductwork insulation specified elsewhere. Some ductwork sections may be both internally lined and externally insulated.
  7. At contractors option, low pressure round supply ductwork located in a concealed ceiling more than 30 feet from the supply fan discharge that serves only one (1) diffuser or register may be externally insulated in lieu of duct lining specified above.

### 3.03 FITTINGS:

- A. Sheet metal elbows and fittings shall be constructed to comply with the following:
1. Curved elbows shall have a radius not less than 150% of duct width to the centerline of the duct. (RID = 1.5).

2. Where RID ratio is less than 1.5, use hollow vane (air foil) vanes or turn blades.
3. Elbows and other fittings shall be constructed the same as required for straight runs of ductwork. Round elbows shall be crimped and beaded on the downstream end. Square elbows must have turning vanes.
  - a. Using back to back 90° elbows should be avoided. Use 45° offset fittings for change in ductwork direction.
4. Failure to install square elbows with turning vanes will result in rejection of that portion of the work.
5. The dimensions of ducts shown on the drawings shall not be considered as absolute but change from same shall be subject to review.
  - a. Changes or transitions in shapes shall be done with long slants not to exceed 24° angle.
  - b. Equivalent areas shall be maintained for changes in shape of ductwork. In no case shall area be changed without special permission.
  - c. Branch duct take-off connections shall be made with enlarged entrance low loss fittings.
  - d. Changes in duct shape from round or oval duct to square or rectangular ductwork shall be made with smooth tapered transitions. Direct connection of round and square ductwork will not be accepted.

#### 3.04 FLASHING:

- A. Flash and counterflash wherever sheet metal ducts of other sheet metal construction passes through roof or outside walls. Flash and counterflash at roof fans. Flashing to be 18 gauge galvanized metal constructed so as to make watertight in a neat appearing manner (unless stated otherwise on the plans). Roof curbs and flashing provided by this Division shall be coordinated with the roofing contractor to avoid conflicts.

#### 3.05 BALANCING DAMPERS:

- A. Furnish and install balancing and adjusting dampers in low pressure ductwork at each low pressure supply air, return air and exhaust ductwork for each main and branch take-off including takeoffs to each air distribution device.

#### 3.06 FLEXIBLE CONNECTIONS:

- A. Furnish and install flexible joints at suction and discharge connections of sheet metal ductwork to supply and exhaust fans and/or other equipment employing such fans. Fabricate of 30 ounce "Ventglas" or equal neoprene coated fabric properly secured by bolted angles or band iron. No metal-to-metal contact will be allowed. Flexible connection fabric shall be approved by the Underwriters' Laboratories, Inc., and comply with UL-191-1967.

#### 3.07 ACCESS DOORS:

- A. Furnish and install airtight access doors in ducts where required for servicing and adjustment of damper, motors, cleaning of screens, etc. Doors shall be heavy gauge, constructed of the same material as duct, provided with heavy angle iron frames (protruding out from duct), and having continuous piano hinge, neoprene or airtight, felt gasket and cam lock.

- B. Minimum Size: 12" x 12", where duct is insulated fill doors with insulation to same thickness.

### 3.08 DUCTWORK SUPPORT:

- A. Galvanized ductwork 60" or smaller in maximum dimension shall be supported by 1" x 16 GA. galvanized band iron hangers secured to building structure. Ducts larger than 60" in maximum dimension shall be supported by 1-112" x 16 GA. galvanized band iron hangers. No hangers shall be secured to the underside of lightweight roof decking or lightweight floor slabs. Where required, trapeze hangers using adequate strength steel angles shall be used and rods shall be secured to the building structure. Maximum spacing for duct supports and hangers shall be 8'-0" on center. Duct hangers and supports shall be in accordance with SMACNA standards.
- B. Perforated strap iron hangers will not be permitted.
- C. Vertical ducts shall be supported by means of no less than two (2) galvanized structural angles secured to duct at the floor level.

### 3.09 DUCT SEALING AND LEAK TESTING:

- A. Joints and seams including longitudinal seams on plenums and ducts shall be airtight or sealed as required. Poorly made joints, splits, visible holes at corners, etc., shall be reworked or new pieces of ductwork installed as directed by the Engineer. Where excessive pulsating of ductwork or plenum housing is found, additional stiffeners shall be added as directed.
- B. Low Pressure Duct System: The corners of joints, openings, etc., shall be sealed as hereinbefore specified. Particular care shall be taken on ductwork on the suction side of fans. There shall be no audible leaks.
- C. Medium Pressure Duct System: Joints, openings, etc., on the leaving side of supply fans, shall be sealed with gasket material, sealant, pressure tape or welding or a combination of the same. Ductwork shall be tested in accordance with the SMACNA Leak Testing procedure. Leaks or imperfections that are detected, shall be properly remedied and the tests repeated until work is reasonably sound. Air leakage shall not exceed 2% of total system capacity and there shall be no audible leaks.
  - 1. A duct system need not be completed before tests are conducted. Sections may be temporarily blanked off or suitably capped, etc., and such sections individually tested as specified. Provide necessary equipment, portable blower, instruments, temporary connections, blank-offs, etc.

END OF SECTION

## SECTION 23 3713

### DIFFUSERS, REGISTERS, AND GRILLES

#### PART 1 - GENERAL

##### 1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract apply to this Section.

##### 1.02 SUMMARY

- A. This Section includes ceiling- and wall-mounted diffusers, registers, and grilles.

##### 1.03 SUBMITTALS

- A. Product Data: For each product indicated, include the following:
  - 1. Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.
  - 2. Diffuser, Register, and Grille Schedule: Indicate Drawing designation, room location, quantity, model number, size, and accessories furnished.
- B. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:
  - 1. Ceiling suspension assembly members.
  - 2. Method of attaching hangers to building structure.
  - 3. Size and location of initial access modules for acoustical tile.
  - 4. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
  - 5. Duct access panels.

#### PART 2 - PRODUCTS

##### 2.01 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

##### 2.02 DIFFUSERS, GRILLES AND REGISTERS

- A. Square Cone Diffuser:
  - 1. Manufacturers:
    - a. Price.
    - b. Carnes.
    - c. Titus.
  - 2. Material: Steel.
  - 3. Finish: Baked enamel, white.
  - 4. Face Blade Arrangement: 4 cone, full louvered 24"x24" face.

5. Fully adjustable air pattern.
6. Mounting Frame: As required.
7. Mounting: T-bar Lay in.
8. Square to round neck adapters are not acceptable.

B. Louvered Face Supply Register:

1. Manufacturers:
  - a. Price.
  - b. Carnes.
  - c. Titus.
2. Material: Steel.
3. Finish: Baked enamel, white.
4. Face Arrangement: Louvered, double deflection.
5. Opposed Blade Damper: Yes.
6. Frame: 1-1/4 inches (32 mm) wide.
7. Mounting Frame: As required.
8. Mounting: Surface mounted.

C. Linear Slot Diffuser

1. Manufacturers:
  - a. Price.
  - b. Carnes.
  - c. Titus.
2. Material:
3. Plenum: Yes.
4. Plenum Insulated: Yes.
5. Slot Size: 1".
6. Number of Slots: 4.
7. Diffuser Length: 60".
8. Mounting: Surface mounted.

D. Louvered Face Return Register:

1. Manufacturers:
  - a. Price.
  - b. Carnes.
  - c. Titus.
2. Material: Steel.
3. Finish: Baked enamel, white.
4. Face Arrangement: Louvered.
5. Opposed Blade Damper: Yes.
6. Frame: 1-1/4 inches (32 mm) wide.
7. Mounting Frame: As required.
8. Mounting: Surface mounted.

E. Louvered Face Return Register:

1. Manufacturers:
  - a. Price.
  - b. Carnes.
  - c. Titus.
2. Material: Steel.
3. Finish: Baked enamel, white.
4. Face Arrangement: Louvered, double deflection.
5. Opposed Blade Damper: Yes.
6. Frame: 1-1/4 inches (32 mm) wide.
7. Mounting Frame: As required.
8. Mounting: T-bat lay-in..

## 2.03 SOURCE QUALITY CONTROL

- A. Verification of Performance: Rate diffusers, registers, and grilles according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine areas where diffusers, registers, and grilles are to be installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

- A. Install diffusers, registers, and grilles level and plumb.
- B. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practicable. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.
- C. Install diffusers, registers, and grilles with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

### 3.03 ADJUSTING

- A. After installation, adjust diffusers, registers, and grilles to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION

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## SECTION 26 0000

### ELECTRICAL

#### 1.01 WORK INCLUDED

- A. This specification is designed to govern the furnishings and complete installation ready for satisfactory service, of all material and apparatus necessary to complete the lighting and power wiring and special systems indicated on the drawings and as described hereinafter.

#### 1.02 RULES AND REGULATIONS

- A. All work shall be installed in strict accordance with all applicable rules and regulations of local, state, and federal governments, or other authorities having lawful jurisdiction.
- B. This Contractor shall cooperate with and assist other Contractors on the job in conformity with all trade jurisdictions. He shall perform all work covered by the drawings and specifications which properly comes under the jurisdiction of the trade that he represents. Where jurisdictional rules require the assistance of electrical mechanics in the moving or setting of electrically powered equipment, the Contractor shall provide such assistance.
- C. The Contractors attention is called to the fact that it is not the intent of these specifications or accompanying drawings to interpret the meaning of, or show all requirements of the national or local codes. It shall be this contractor's responsibility to compile his bid to include such monies as may be necessary to complete said job in accordance with all codes.

#### 1.03 LOCAL CONDITIONS

- A. The Contractor shall visit the site and determine all existing local conditions affecting work in his contract. He shall examine the Bid Documents to familiarize himself with the type of construction to be used for all new work and how it will affect the installation work in his contract.
- B. Failure to determine existing conditions or the nature or new construction will not be considered a basis for the granting of additional compensation.

#### 1.04 APPROVAL OF MATERIALS

- A. Within 10 days of notification of contract, the contractor shall submit to the Architect for approval, a list of manufacturers of equipment proposed for the work.
- B. All equipment and materials shall be of the general type and quality herein specified. Wherever the words "or approved equal" appear in the specification, the Architect's decision as to quality and relative merit shall be final.
- C. Each item of equipment shall be a standard catalog product of a reputable manufacturer. Selection of major items of equipment shall be confined to manufacturers listed in the specifications. Should equipment of lesser cost than the herein specified be proposed by the Contractor and be acceptable to both the Architect and Owner, a Corresponding credit shall be granted by the Contractor to the Owner unless approved during bidding.

- D. Light fixtures may be substituted only if the request provided is approved by the Architect prior to bid.

#### 1.05 MINOR DEVIATIONS

- A. The dimensions and ratings of equipment herein specified or indicated on the drawings are intended to establish the outlines and characteristics of such equipment generally. Minor deviations will be permitted to allow the manufacturers specified to bid on their nearest stock equipment.
- B. Where manufacturers catalog numbers or types are mentioned in the specifications or indicated on the drawings, they are intended to be used as a guide only and shall not be interpreted as taking precedence over the basic rating and duty specified. In all cases manufacturers shall verify the duty specified with the particular characteristics of the equipment they intend to offer for approval.
- C. Product suppliers and bidders are required to verify all catalog numbers for specified items are current and accurate.

#### 1.06 SHOP DRAWINGS

- A. After receiving approval on the equipment manufacturers, the Contractor shall submit without delay five (5) copies each of drawings or cuts of all equipment for the approval of the Architect.
- B. Such submittals must contain outline dimensions, operation clearances and sufficient engineering data to indicate substantial compliance with the specifications and indicate deviation from those specified.
- C. The contract drawings contain information to a degree of detail which is considered to be both consistent with their scales and adequate to accomplish their purpose. Beyond this point they are diagrammatic.
- D. Where the equipment furnished differs materially from that indicated on the contract drawings essential to the proper fabrication or installation of equipment, such drawings shall be prepared with five (5) copies for approval.
- E. Approval granted on shop drawings is rendered as a service only and shall not be considered as a guarantee of measurements or building conditions and shall not be construed as relieving the Contractor of basic responsibilities under the Contract.
- F. Submit shop drawings for the following items:
  - 1. Lighting Fixtures
  - 2. Occupancy Sensors

#### 1.07 IDENTIFICATION

- A. Modify panel schedules as required.

## 1.08 INTERFERENCES

- A. The Contractor shall confer with other Contractors at the site to avoid interference, so that a minimum of head room and clearance may be obtained. In the event that interferences develop, the Architect's decision will be final and no additional compensation will be allowed for the moving of misplaced wiring, lighting fixtures, or equipment.
- B. The Contractor shall furnish all necessary scaffolding, staging, or cribbing required for the completion of the work. All such scaffolding, etc. shall be removed from the premises when its use is no longer required on the job.

## 1.09 SLEEVES

- A. Where conduits pass through concrete floors, galvanized sheet metal sleeves shall be set.
- B. Where conduits pass through concrete floors likely to become wetted with water occasionally, galvanized steel pipe sleeves shall be set. Tops of such sleeves shall project 1-1/2" above the surfaces of finished floors.

## 1.10 CUTTING AND PATCHING

- A. This Contractor shall do all cutting of building materials required for the installation of work herein specified. No structural members shall be cut without the approval of the Architect and all such cuttings shall be done in a manner directed by him.
- B. All patching shall be done in a neat and workmanlike manner meeting with the approval of the Architect, by mechanics of the particular trade involved.
- C. The Contractor shall employ current technology to locate existing conduits below slabs and exterior below grade buried conduits prior to saw cutting of floors or excavating.

## 1.11 HANGERS AND SUPPORTS

- A. All suspended conduits shall be rigidly supported from the construction by means of approved conduit hangers or clamps firmly anchored in place and spaced at intervals of not to exceed standard construction practices as called for in the National Electrical Code.

## 1.12 BRANCH LIGHTING WIRING

- A. From the branch circuit panelboard, provide wiring in conduit to each outlet indicated on the drawings and herein specified.

## 1.13 FIXTURES

- A. Electrical Contractor shall furnish all lighting fixtures in accordance with the fixture schedule.
- B. Contractor attention is called to the type of ceiling construction so that he can furnish proper and sufficient support for all fixtures and appropriate trim.

#### 1.14 BRANCH POWER WIRING

- A. Unless otherwise specified or indicated others will furnish and set certain motors in connection with equipment drives. Each such motor shall be furnished with a motor disconnect, a motor starter with thermal overcurrent protection, and a push button station or other pilot device and all requirements of the building automation system. All motor starters/disconnect switches required for equipment furnished by the Mechanical Contractor shall be furnished by the Mechanical Contractor and install by the Electrical Contractor.
- B. The Contractor shall cooperate and assist in the setting of motors in compliance with all jurisdictional rulings, mount all switches, starters and pilot devices and do all electrical wiring from motor to source of energy as indicated on the drawings.
- A. Where a feed is indicated for a piece of equipment provided by others. The contractor shall provide a feeder from the source of energy to the immediate vicinity of the motor equipment, terminating as required.
- D. In general all conduit shall be concealed in the construction. In certain unfinished areas, exposed conduit will be permitted.
- E. No conduit less than 3/4" shall be used. Branch circuit conduits shall one trade size larger than required by code for conductor fill.
- F. Exposed conduit work shall be neatly run parallel to the building walls in inconspicuous location generally on the bottom of structural members, and held in place with neat inconspicuous clamps.
- G. Conduit fittings shall be standard set screw cast type above floor.

#### 1.15 OUTLET BOXES

- A. Outlets in an interior location shall be provided with a galvanized stamped steel outlet box of a type and size suitable to the device or fixture with which it is to be used.
- B. Outlet boxes in locations exposed to moisture or to the weather shall be of galvanized cast iron with tapped openings for conduits, and watertight gasketed covers.
- C. Where necessary, outlet boxes shall be provided with covers or rings to bring them flush with the finished surface in which they are mounted. Where outlets are located in walls with glazed tile, concrete, brick or similar finished use special boxes manufactured for the purpose by Raco, Steel City and Identified as Graybar No. GS-135 single or gang as required, to permit close fitting of the wall material.
- D. All outlets shall be mounted a minimum of 15" above the floor.

#### 1.16 PULL BOXES AND JUNCTION BOXES

- A. Provide pull boxes or junction boxes in conduit runs where indicated or where required to facilitate the pulling of wires or the making of connections. All pull boxes and junction boxes shall be provided with plain blank removable covers held in place with screws. The covers of all shall be accessible.

## 1.17 CONDUIT

- A. All electric conductors shall be installed in appropriate raceways (Conduit). Raceways shall be installed in a neat and workmanlike manner. Raceways shall be installed parallel to or perpendicular to interior walls, exterior walls or other permanent partitions. Where possible, raceways shall be concealed in finished spaces and shall be plumb and level. Only the following types of raceways shall be used:
1. Electrical Metallic Tubing (EMT) shall be used for interior work not subject to mechanical damage and shall comply with Article 358 of the NEC. Minimum EMT size shall be 3/4". Conduit size shall be one trade size larger than that required by the NEC for the installed conductor fill. EMT shall be galvanized steel and shall conform to UL 797. Only conduit manufactured in the United States shall be used. EMT connectors and couplings shall be tightly attached to the EMT to assure ground connectivity.
  2. Intermediate Metallic Conduit (IMC) shall be used for Raceways 2" in diameter or larger and shall comply with Article 342 of the NEC. Where used in wet or corrosive locations all supports bolts, etc., shall be of corrosion resistant materials or protected against corrosion by corrosion resistant coating. IMC shall be threaded. Couplings and connectors shall be UL listed and threaded type. IMC shall be made using steel with protective coatings or stainless steel, shall be UL listed and shall be manufactured in the United States. Where conduit enters a box or other device a bushing shall be provided to protect the wires from abrasion.
  3. Flexible Metallic Conduit (FMC) may be used in lengths of 6 ft. or less for final connections to vibrating equipment in dry locations or lighting (luminaires) requiring connection or within existing wall cavities to provide a concealed raceway. Lengths exceeding 6 ft. shall be provided with appropriate sized, green jacketed grounding conductor to insure adequate equipment ground path. Liquid type flexible metallic conduit may be used in lengths of 6 ft. or less for final connections to vibrating equipment in wet locations or other devices in wet locations. Minimum flexible metallic conduit size shall be 3/4". Only conduit manufactured in the United States shall be used.
  4. PVC Conduit may be utilized where specified for a specific work. Minimum PVC size shall be minimum 3/4 in. Schedule 40. PVC may be utilized where conduit is not subjected to mechanical damage. Schedule 80 PVC shall be utilized where conduit may be subjected to physical damage or where installed underground. PVC conduit installed above ground shall be provided with expansion fittings as recommended by the manufacturer. PVC conduit and associated boxes and devices shall comply with applicable sections of the national electrical code. Only conduit manufactured in the United States shall be used.
- B. The use of Armored cable (AC or Bx), Metal Clad Cable (MC), Mineral Insulated Cable (MI), Non-Metallic (NM), Service Entrance (SE) , UF Cable, or TC Cable is prohibited and will not be accepted.
- C. The use of Wiremold or surface raceway is prohibited and shall not be used in any installation unless called for on the drawings or specifically approved in writing by the architect or owner. Where Wiremold is specifically authorized it shall be painted to match the wall upon which it is mounted.

- D. All conduit shall be as manufactured by N.E., Allied Tube, International Rue, Triangle or General Electric.
- E. Conduit for branch circuits shall be galvanized Electric Metallic Tubing, UL listed and shall be one trade size larger that required by code. Conduit connectors and couplings shall be "Steel" listed compression type or setscrew type. Where conduits terminate into a device or enclosure, compression connectors shall be utilized.
- F. Conduit for feeder circuits shall be threaded Intermediate metallic conduit, one trade size larger that require by code. Conduit shall be mounted on Unistrut utilizing listed mounting devices or as otherwise specified for the project. Minimum conduit size shall be 3/4".
- G. Rigid galvanized conduit shall be used where conduits are laid in concrete slabs or in damp locations, or for exposed work. PVC conduit is acceptable when conduit is laid in or below concrete floor on grade when it meets the approval of local Electrical Inspector. PVC conduit must have additional ground wire installed.
- H. Furnish all brackets, hangers and supports per National Electric Code.
- I. Where multiple conduits are grouped together, all offsets and transitions shall be "Equi-Angular" to ensure a uniform appearance. Conduit bends shall be "Field Formed" with approved electro-mechanical, hydraulic, or "Chicago" type bending equipment suitable for the application. Conduit greater than one inch in trade size shall be formed with either electro-mechanical or hydraulic means. The exception will be "Long Radius" ninety-degree elbows in either a 36", 48" or 60" radius.

1.18 WIRE

- A. In general, all wire and cable for use within the building shall be of code grade type nineteen strand, stranded THHN 600 volt insulated copper wire of sizes indicated on the drawings and per the National Electric Code. The following color code shall be followed:

<u>Conductor</u>	<u>120/208 Volt</u>	<u>277/480 Volt</u>
Phase A	Black	Brown
Phase B	Red	Orange
Phase C	Blue	Yellow
Neutral	White	Gray
Ground	Green	Green

Each wire and cable shall be color-coded at all terminal points.

- B. "Multi Wire" branch circuits that share a common "Neutral" conductor are prohibited. Each derived single-phase circuit will have individual supply and return conductors. These "Pairs" will be identified at the panelboard destination with an appropriate cable tie. The neutral return conductors will be equipped with a "Tracer" color that matches the "Phase" conductor color.

<u>Conductor</u>	<u>120 Volt</u>	<u>277 Volt</u>
Phase A Neutral	White / Black Stripe	Gray / Brown Stripe
Phase B Neutral	White / Red Stripe	Gray / Orange Stripe
Phase C Neutral	White / Blue Stripe	Gray / Yellow Stripe

- C. In general, all wire and cable for use within the building shall be of code grade type THHN 600 volt insulated copper wire of sizes indicated on the drawings and per the National Electric Code.
- D. No wire smaller than No. 12 shall be used for lighting or power wiring. Where the distance from the panel board to the load center of any lighting circuits exceeds 75 feet, No. 10 wire shall be used.

#### 1.19 Lighting Controls

- A. Occupancy Sensors shall be Sensorswitch type as called for on the drawings.

#### 1.20 RECEPTACLE PLATES

- A. All receptacle and blank cover plates shall consist of .040" thick stainless steel in a dull brushed finish.
- B. Provide cover plates at all J-boxes.
- C. Where groups of devices are set adjacent to each other they shall be mounted in single continuous gang plate.

#### 1.21 OUTLET LOCATIONS

- A. Before roughing in outlet boxes the Contractor shall verify the locations of all outlet with the Architectural plans and interior room elevations.
- B. In all cases ceiling outlets shall be coordinated with other devices or projections in the ceiling surfaces and with the work or other trades to the end that a symmetrical, neat appearing arrangement of ceiling outlets and fixtures result. Where discrepancies occur notify Architect before proceeding with the work. In general wall receptacles are intended to be mounted 15" above the floor. This Contractor shall install any outlet within 15 feet of location shown in plans at no extra charge by being notified previous to installing rough-in.

#### 1.22 CONDUCTOR INSTALLATION AND CONNECTIONS

- A. Joints in small branch circuit conductors, No. 10 and smaller, shall be twisted tight so as to be electrically continuous and mechanically secured with wire nuts. Joints and taps in conductors larger than No. 10 shall be made with approved pressure type connectors, T and B color keyed or Burndy Gydent. All joints shall be insulated with a wrapping of rubber equivalent to that on the original conductors.
- B. Feeder conductors shall be terminated with suitable compression connectors utilizing a circumferential crimp method that imprints the appropriate die identifier on the termination. The barrel of the lug and at least two inches of conductor material shall be covered with appropriate "Heat Shrink" tubing.
- C. All terminations at screw type compression terminals will utilize crimp type wire "Ferrules" as manufactured by "Phoenix Contact" or equivalent.
- D. All screw terminations, including circuit breakers, shall be tightened with torque wrench or driver to manufacturer's specification.

### 1.23 TEMPORARY POWER AND LIGHTING

- A. Provide temporary power and lighting as called for in Division I.

### 1.24 RECEPTACLES

- A. Duplex receptacles shall be as follows:
  - 1. Receptacles: 20 Amp Duplex Receptacle  
Specification Grade - Heavy Duty  
Hubbell Style Line 20 Amp 120 Volt  
Hubbell Cat. # SNAP2162IGL  
Nylon Face; Gray or Ivory; Pigtail Connector; Assembled in USA
- B. Circuit identification: The above receptacles have a flat face, a permanent label shall be affixed to each device in the center between the two receptacles, Black Letters on transparent film that shall state the Panel Board and Branch Circuit from which the receptacle is powered. Red, Orange and Blue devices shall have white letters on transparent film. Where indicated the information above shall be permanently engraved on the device.

### 1.25 GROUNDING

- A. The wiring system and the conduit system shall be permanently and effectively grounded in accordance with the requirements of the National Electric Code and the local inspecting authority having jurisdiction.

### 1.26 REMOVAL OF RUBBISH

- A. This Contractor shall remove all his rubbish as fast as it accumulates, keep the building and premises clean during progress of the work and the premises at completion in perfect condition as far as his work is concerned.
- B. In the case of disputes concerning the ownership of rubbish, the Architect will decide and his decision will be final. Should the Contractor refuse, neglect or otherwise fail to remove the rubbish, the Owner will do so and the cost of the work will be deducted from the amount due to the Contractor under his contract.

### 1.27 INSPECTIONS AND TESTS

- A. All work under this Contract shall be subject to the inspection and approval of the Architect whose decision shall be binding on all parties.
- B. The Contractor shall test all wiring and connections for continuity and grounds before any equipment and fixtures are connected, and when so directed by the Architect the Contractor shall demonstrate by meggar test the insulation resistance of any circuit or group of circuits. Where such insulation resistance test shall indicate the possibility of faulty insulation, he shall pull out the conductor at fault, replace same with new and all such work and replacement to be at the Contractor's sole expense.

## 1.28 DRAWINGS

- A. The drawings which accompany these specifications constitute a part of this Contract and indicate the general arrangement of circuits, feeders, location of switches, conduits and other work. The drawings and specifications are complementary to each other and what is called for by one shall be as binding as if called for by both.
- B. Data presented in these drawings are as accurate as preliminary surveys and planning can determine, but accuracy is not guaranteed, and field verification of all dimensions are directed.
- C. The specifications and drawings are for guidance, but the exact locations, distances and levels will be governed by actual field conditions. Deviation from the design is not permitted unless approved by the Architect.
- D. Electrical Contractor shall also review architectural, plumbing and mechanical trade drawings to pick up any equipment not shown on his drawings as well as to adjust his work to conform to all conditions shown thereon.
- E. Discrepancies shown on different plans or between drawings and actual field conditions or between plans and specifications shall be promptly brought to the attention of the Architect prior to submitting bid. These drawings may be superseded by later addenda or revisions as required by the construction and/or discrepancies, and the Contractor shall conform to all reasonable changes without extra cost to the Owner or Architect.

END OF SECTION

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## SECTION 31 2316

### EXCAVATION

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. All excavations as may be required for completion of project.

##### 1.02 FIELD MEASUREMENTS

- A. Verify that survey benchmark and intended elevations for the Work are as indicated.

#### PART 2 PRODUCTS

NOT USED

#### PART 3 EXECUTION

##### 3.01 PREPARATION

- A. Identify required lines, levels, contours, and datum.
- B. Protect above and below grade utilities which are to remain.

##### 3.02 EXCAVATION

- A. Hand trim excavation. Remove loose matter.
- B. Remove lumped subsoil, boulders, and rock up to 1/3 cu. yd. measured by volume.
- C. Notify Architect of unexpected subsurface conditions and discontinue affected work in area until notified to resume work.
- D. Correct unauthorized excavation at no extra cost to Owner.
- E. Correct areas over-excavated by error in accordance with Section 31 2316 - Backfilling, at no cost to the Owner.
- F. Stockpile excavated material and dispose of excavated material as per Section 31 2213 - Rough Grading.

##### 3.03 FIELD QUALITY CONTROL

- A. Field inspection will be performed under provisions of Division 1.
- B. Provide for visual inspection of bearing surfaces.

##### 3.04 PROTECTION

- A. Protect excavations by methods required to prevent cave-in or loose soil from falling into excavation.

END OF SECTION

## SECTION 31 2323

### BACKFILLING

#### PART 1 GENERAL

##### 1.01 SECTION INCLUDES

- A. Backfilling under concrete floors.
- B. All other backfilling as may be required for completion of the project.

#### PART 2 MATERIALS

##### 2.01 COMPACTED BACKFILL

- A. Under foundations, floors, walks, paving and against all walls where floor final elevation is below grade: Clean coarse sand, crushed stone or crushed concrete containing no vegetable or organic materials and no rocks larger than 1" diameter or any silts or lumps. All materials must be approved by an approved independent testing agency.

#### PART 3 EXECUTION

##### 3.01 COMPACTED BACKFILL

- A. Under all building floor slabs the backfill shall be compacted to at least 95% of the maximum dry density with reference to Standard Proctor ASTM D698. All compacted backfill shall be tested by an approved independent testing agency.
- B. Place fill materials in horizontal loose layers not exceeding 6" in thickness and spread, mix and place in such manner as to produce a uniform thickness of material. Placement shall start in the deepest area and progress approximately parallel to the finished grade. No fill material shall be placed when free water is standing in the area where fill is to be placed, or on frozen subsoil areas.
- C. Compact each layer of soil in the specified area with an approved roller as required to produce modified Proctor density. Obtain the Architect's or Testing Agency's approval before the next layer is started. The quantity of materials placed shall not exceed the capacity of the compaction equipment.
- D. Do not compact material when the moisture varies more than 2% from the optimum moisture content will be approximately 10% to 12%; however, the exact value shall be determined by the testing laboratory as the work progresses. A uniform moisture content will be required throughout the layers of fill material. Wetting or drying manipulation shall be required if necessary to accomplish this. Suspend compaction operations when, in the Architect's or testing agency's opinion, satisfactory results cannot be obtained because of rain or other unsatisfactory conditions.

END OF SECTION

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