



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

**CHILLER REPLACEMENTS at  
SALK ELEMENTARY SCHOOL and  
FIELER ELEMENTARY SCHOOL for the  
MERRILLVILLE COMMUNITY SCHOOL CORPORATION  
6701 DELAWARE STREET  
MERRILLVILLE, INDIANA 46410**

**MERRILLVILLE COMMUNITY SCHOOL CORPORATION**

**NICK BROWN, SUPERINTENDENT / BUSINESS  
MEGHAN DAMRON, CHIEF FINANCIAL OFFICER  
GREG GRIFFITH, DIRECTOR: MAINTENANCE SERVICES**

## **BOARD OF SCHOOL TRUSTEES**

**JUDY DUNLAP, PRESIDENT  
JAME DONOHUE, VICE PRESIDENT  
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**November 5, 2024**

**Architect's Project #24012**



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



**CERTIFICATION PAGE**

**Project:** **Chiller Replacement Projects at the  
Fieler Elementary School and  
Salk Elementary School for the  
Merrillville Community School Corporation  
6701 Delaware Street  
Merrillville, Indiana 46410**

**Owner:** **Merrillville Community School Corporation**  
Nick Brown, Superintendent / Business  
Meghan Damron, Chief Financial Officer  
Greg Griffith, Director: Maintenance Services

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

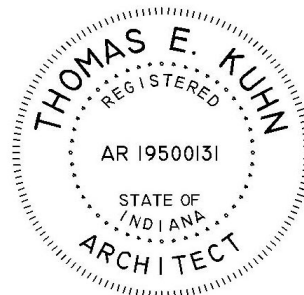
**Architect:** **CSK Architects, P.C.**  
6919 W. Lincoln Highway  
Crown Point, Indiana 46307  
(219) 322-5950

**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:** **24012**

**Dated:** **November 5, 2024**

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



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SECTION 00 1113

NOTICE TO BIDDERS  
#567

Chiller Replacement Projects at the  
Fieler Elementary School and  
Salk Elementary School for the  
Merrillville Community School Corporation  
6701 Delaware Street  
Merrillville, Indiana 46410

Sealed proposals for the Chiller Replacement Projects at the Fieler Elementary School and Salk Elementary School for the Merrillville Community School Corporation 6701 Delaware Street Merrillville, Indiana 46410 in accordance with Bid 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 3:00 PM on Monday November 25<sup>th</sup>, 2024, at which time they will be opened and publicly read aloud. Bids received after the above stated time and date as specified, shall be returned to the sender unopened and declared non-acceptable.

All Bidders are requested to attend the Pre-Bid Meeting. The Pre-Bid Meeting will start at the Salk Elementary School at the Main Entrance at 1:00 PM on Thursday November 14<sup>th</sup>, 2024 and then will move to Fieler Elementary School.

Work includes: Chiller Replacements

Prime Bids will be received per the Architect's Bid Form for Mechanical Work.

All Bidders must submit a satisfactory bid bond executed by the bidder and surety company or a certified check or bank draft, payable to the Merrillville Community School Corporation in an amount equal to five percent (5%) of their maximum bid, as provided by law.

The successful Bidder, within ten (10) days of acceptance of bids, will be required to execute a performance bond requiring one hundred percent (100%) performance and one hundred percent (100%) labor and material payment. In the event of failure of the successful bidder to execute said bond as stated above, the bidder shall forfeit its bid guaranty as liquidated damages. Bid guaranties of unsuccessful bidders shall be returned upon award of contracts.

Electronic copies of the Bid 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 Bid Documents will be made available at no cost via the Merrillville Community School Corporation website at [www.mvsc.k12.in.us/bid](http://www.mvsc.k12.in.us/bid). Hard copies of the Bid 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 bids shall be sealed and submitted on the Bid Proposal Form in the Project Manual obtained from the office of CSK Architects, P.C., 6919 W. Lincoln Highway, Crown Point, 46307. Bids shall be properly executed on Form 96 including the Non-collusion Affidavit and Contractor's Financial Statement, as prescribed by the Indiana State Board of Accounts and all other Bid Documents requested.

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

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

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

(First Publication: November 5, 2024) (Second Publication: November 12, 2024)

END OF SECTION

## SECTION 00 2113

### INSTRUCTIONS TO BIDDERS

#### 1.01 SPECIAL INVITATION TO BIDDERS

- A. The Owner reserves the right to reject any or all bids. Bidder's bid must comply with all requirements of Bid Documents. See Section 00 1115 Bid and Post Bid Submission Requirements.
- B. The attention of bidders is directed to the fact that bids are invited separately as itemized in the bid documents. Each bidder submitting a bid for a base bid is requested to bid all alternate bids for that bid category of work as listed in the specifications and the bid proposal.
- C. Bidders 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 bidding forms; these are for the convenience only of the bidders and are not to be detached from the Project Manual or filled or executed. Separate copies of bid forms are furnished for that purpose.
- E. All bidders are cautioned to carefully read and examine the complete set of Bid 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 bidder.
- 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. Bidders should also notice all cases where it is specified that certain work or materials, or both, is to be omitted by them, and is to be furnished by others or incorporated therein. It is understood that the various bidders have included such work in their bids even though the same is not specifically mentioned within various sections of the specifications upon which they are bidders.

#### 1.02 BID FORMS

- A. All bids must be submitted in conformity with and shall be based upon and submitted subject to all requirements of the Bid Documents.
- B. Bid documents shall be enclosed in two envelopes (outer and inner), both of which shall be sealed and clearly labeled "Bid Documents" so as to guard against opening prior to the time set therefore. The bidder shall be responsible for the placement of his firm name and number of the project on the outside of both of such bid envelopes.
- C. The Owner may consider as informal any bid on which there is an alteration of or departure from the Bid Form hereto attached.

- D. The Bid will be based upon the completion of the work according to the Bid Documents together with all Addenda thereto and any alternates which may be requested.
- E. Bidders may offer Voluntary Combination Bids on the Bid Form provided the Bidder also provides bids for all Base Bids included in Combination Bids.

#### 1.03 INTERPRETATIONS

- A. If any person contemplating submitting a bid for the proposed contract is in doubt as to the true meaning of any part of these proposed Bid Documents, he may submit to the Architect a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt and actual delivery. 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 bidder on record at the Architect's office as a plan 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 bids.

#### 1.04 CONDITIONS OF SITE AND WORK

- A. All bidders 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 bidder that is awarded a contract, shall not be allowed any extra compensation by reason of any matter or thing concerning which such bidder might have fully informed himself prior to the bidding. 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. Unless otherwise provided in the Bid 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 bidder 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 Bid Documents are in accordance with applicable laws, statutes, building codes and regulations. If the bidder observes that any of the Bid 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 bid should be signed or initialed by the bidder. No erasures, interpolation or other physical changes should be made by anyone in any bid after its submission.

## 1.08 TIME FOR RECEIVING BIDS

- A. Bids 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 bid received thereafter will be considered. No responsibility will attach to an officer for the premature opening of a bid not properly addressed and identified.
- B. Bidders are cautioned to allow ample time for transmittal of bids by mail or otherwise. Bidders should secure correction information relative to the provable time of arrival and distribution of mail at the place where bids are to be opened and, so far as practicable, make due allowance for possible delays.

## 1.09 WITHDRAWAL OF BIDS

- A. Bids may be withdrawn by written or facsimile request dispatched by the bidder 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 bidder within 48 hours thereafter. Negligence on the part of the bidder in preparing the bid confers no rights for the withdrawals of the bid after it has been opened.

## 1.10 AWARD OF CONTRACT - REJECTION OF BIDS

- A. The Contract will be awarded to the lowest responsive and responsible bidder complying with the conditions of the advertisement for bids, provided his bid is reasonable and to the interest of the Owner to accept it. The bidder to whom the award is made will be notified at the earliest possible date. The Owner also reserves the right to reject the bid of any bidders 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 bidder, the following elements in addition to those above mentioned will be considered: whether the bidder 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 Contract Documents.

## 1.11 TIME OF COMPLETION

- A. The work shall be commenced at the time stated in the notice to the Contractor to proceed or as stated in the contract and shall be completed in the number of days as proposed by the bidders on their Bid Form.

## 1.12 "OR EQUAL" CLAUSE

- A. Whenever in any of the Bid 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 bidders 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 Bid Proposal. Award of bid shall not be based on voluntary alternates.

## 1.13 PERFORMANCE BOND, LABOR AND MATERIAL PAYMENT BOND AND EXECUTION OF CONTRACT

- A. On Contracts \$200,000 and above the successful bidder shall furnish a performance bond and a labor and material payment bond in the sum of at least one hundred percent (100%) of the total amount payable by the terms of the contract. Cost of performance bond and labor and material payment bond shall be included in the bid.
- B. The successful bidder shall execute the contract with the Owner in the form of the contract included in the specifications in such number of counter-parts as the Owner may request.
- C. Such performances and payment bond shall be furnished and such contract shall be executed and delivered by the successful bidder within 10 days after the receipt by the successful bidder of notice of acceptance of his bid by the Owner.
- D. Address and Signature: Each bid should give the full business address of the bidder and should be signed by him with his usual signature. Bid by partnerships should be signed with the partnership name by one of the members of the partnership or by an authorized representative, followed by the signature and designation of the President, Secretary, or other person authorized to bid it in the matter. The names of all persons affixes to this signature the word "President", "Secretary", "Agent" or other designation, without disclosing his principal, may be held to the bid of the individual signing. When requested by the Owner, satisfactory evidence of the authority of the officer signing in behalf of the corporation should be furnished.

## 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, bidder shall remove from site. If Owner elects to keep removed materials, bidder shall store on site as directed by Owner, until Owner can remove at a later date if he wishes.

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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SECTION 00 4100

BID 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 Bid 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 Chiller Replacement Projects at the Fielier Elementary School and Salk Elementary School for the Merrillville Community School Corporation 6701 Delaware Street Merrillville, Indiana 46410, all in accordance with the Bid 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 BID #1 – Mechanical – Chiller Replacement at Fielier Elementary School**

To include any and all work associated with the Mechanical – Chiller Replacement at Fielier Elementary School Reroofing all in accordance with the Bid Documents as Base Bid #1.

\$ \_\_\_\_\_

**BASE BID #2 – Mechanical – Chiller Replacement at Salk Elementary School**

To include any and all work associated with the Mechanical – Chiller Replacement at Salk Elementary School Reroofing all in accordance with the Bid Documents as Base Bid #1.

\$ \_\_\_\_\_

**COMBINATION BASE BID #3 – Mechanical – Chiller Replacements at Fielier Elementary School and Salk Elementary School**

To include any and all work associated with the Mechanical – Chiller Replacement at Fielier Elementary School and Salk Elementary School all in accordance with the Bid Documents as Base Bid #3.

\$ \_\_\_\_\_

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

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

**THIS BID PROPOSAL MUST BE ACCOMPANIED BY ALL REQUIRED BID DOCUMENTS AS SPECIFIED IN THE PROJECT MANUAL AND LISTED IN SECTION 00 11 53 BID AND POST BID SUBMISSION REQUIREMENTS.**

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

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

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

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

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

\_\_\_\_\_

END OF SECTION

SECTION 00 4513

BIDDER'S QUALIFICATIONS

QUALIFICATIONS FOR BIDDERS

In order for a Bidder to submit a prime bid on this project, the Bidder 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.

Bidder's shall submit a statement with their bid acknowledging this and shall so list those projects in that statement.

The Bidder 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 bidder may add additional employees, as they need. The intention of this requirement is to attract bidders 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 A.I.A. Document A101-2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a stipulated sum, 2017 Edition shall be included as part of this Specification by reference, and all parties active on the project are bonded 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 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 at each Library 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 bids are acceptable to the Owner the Owner intends to award the contracts at their School Board meeting on November 27, 2024.
- B. Work may commence immediately after the execution of contracts along with the submission of the bidder's Certificate of Insurance and Bonds.
- C. The Owner expects the work to be completed as soon as possible.

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
  - Request for Quotes
  - Quote form
  - Contract
  - General Conditions
  - Instructions for Providing Quotes
  - 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, Bonds, 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 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.

## 1.03 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.

#### 1.04 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.

#### 1.05 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.

## 1.06 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.

#### 1.07 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.

#### 1.08 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

Disease, Each Employee
  - 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 wavier 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

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## SECTION 01 3100

### PROJECT MANAGEMENT AND COORDINATION

#### 1.01 COORDINATION

- A. The Mechanical 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 bids 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.

END OF SECTION

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## SECTION 01 3300

### SUBMITTALS

#### 1.01 GENERAL

- A. The contractors are required to provide all submittals electronically as much as possible

#### 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 data, 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 5000

### CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

#### 1.01 GENERAL

- A. The Mechanical 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 unless specified otherwise. The Roofing Contractor shall pay all costs for such facilities and controls unless otherwise specified, until date of substantial completion of project.

#### 1.02 TEMPORARY ELECTRICITY

- A. Electric service is existing: connect to existing power service. Power consumption shall not disrupt owner's need for continuous service. Owner will pay cost of energy used. Exercise measures to conserve energy.
- B. Provide temporary power distribution at 120/240 volt, single phase, 3-wire, 60 cycle, A.C. The termination of power distribution shall be at a central location on each floor of the building, as directed. Terminations shall be provided for each voltage supply complete with circuit breakers; disconnect switches and other devices as required to protect the existing power system. Convenience outlets for fractional horsepower tools such as saws, drills, etc., and extension cords shall be located at convenient points on each floor or in each working area in such quantity as to permit 50-foot maximum extension cords to be used. Each outlet shall have two 120 volt, 20 ampere, 3-wire grounded duplex receptacles.
- C. If subcontractors require special electric power for facilities beyond that provided for herein for such items as large pumps, welding machines, special hoists, etc., they shall arrange and pay for the installation of such facilities and arrange for the payment of any additional cost thereof.
- D. All temporary equipment and wiring for power and lighting shall be in accordance with the applicable provisions of the governing codes. All temporary wiring shall be maintained in a safe manner and utilized so as not to constitute a hazard to persons or property.

#### 1.03 TELEPHONE SERVICE

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

#### 1.04 TEMPORARY SANITARY FACILITIES

- A. The Roofing Contractor shall provide suitable and adequate temporary toilet facilities for entire work force of all contractors on site. The number and type of such facilities shall conform to labor work rules, governing codes and health requirements. Unless otherwise required, portable chemical toilets shall be serviced twice weekly, service to include emptying tanks, recharging with a germicidal and deodorizing solution and scrubbing entire interior with a germicidal solution.

#### 1.05 TEMPORARY FIRE PROTECTION

- A. The Contractor 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 Roofing Contractor in locations subject to Architect's approval.

- B. The Contractor will provide the 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. It shall be the responsibility of the Roofing Contractor to notify the Architect in advance of the work when welding or other fire hazardous work is to be performed so that proper precautionary measures may be taken to prevent fire.
- E. Stove heaters in temporary offices and sheds shall be properly installed to protect combustible walls, floors and roof.

#### 1.06 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 Enclosures:
  - 1. The Contractor shall provide temporary partitions and ceilings as required to separate work areas from Owner occupied areas, to prevent penetration of dust and moisture into Owner occupied areas, and to prevent damage to existing materials and equipment. Construction shall be of framing and plywood sheet materials and visqueen with closed joints and sealed edges at intersections with existing surfaces.
- D. Temporary Hoists: Each 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.
- E. Trash: The Contractor will be responsible for providing trash dumpsters and/or receptacles if required. The Roofing Contractor will be responsible for collecting and depositing his debris in such trash receptacles. The Roofing Contractor will be responsible for coordination of trash removal. Trash and debris shall not be allowed to accumulate. Subcontractors at the direction of the Roofing 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.

#### 1.07 BARRIERS

- A. Each Prime Contractor shall provide and maintain required barricades, protection and warning lights in good condition until the completion of the part of the Work requiring such protection and then remove same. Each Contractor shall be responsible for all acts and operations of his employees or subcontractors including the neglect or failure

to take proper safety precautions, and for all damages to persons or property in consequence of neglect or failure to take the necessary or required precautions.

- B. All barriers shall comply with Federal, State, and local laws and regulations.
- C. The Contractor shall limit his material and equipment storage, work preparation and management activities to area indicated on the Construction Documents, and he shall move his equipment and materials when so directed by Architect. No material or equipment shall be stored on adjoining or adjacent property.
- D. If it becomes necessary at any time during the execution of the work to move materials temporarily located and to be used in the final construction, the Contractor furnishing said materials, when so directed by the Architect, must move them or cause them to be moved. Include the cost of moving these materials in the Contract Sum for the work involved.
- E. The Roofing Contractor shall provide a 6' high chain link temporary construction fence with gates as needed around the entire project site.

#### 1.08 TEMPORARY CONTROLS

- A. The 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.

#### 1.09 TRAFFIC REGULATIONS AND TEMPORARY DRIVES

- A. The Contractor shall be responsible for conforming to local regulations governing load limits of vehicles.
- B. The Contractor shall be responsible for regulating his traffic around the site in accordance with local regulations including parking and flagmen.
- C. The Contractor shall provide and maintain all necessary temporary crushed stone drives and parking areas as required for construction.
- D. All temporary drives shall be removed by the Contractor upon project completion or as the Roofing Contractor deems necessary.

#### 1.11 PROTECTION OF INSTALLED WORK

- A. The installing contractor is responsible to provide protection for his/her work and shall 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.

#### 1.12 SECURITY

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

#### 1.13 PARKING

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

#### 1.14 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.

#### 1.15 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

#### 1.16 PROVISIONS FOR CONTRACTOR EMPLOYEES

- A. It is required that all construction employees comply with the following rules.
  - 1. Construction employees to use only their own toilet facilities.
  - 2. No employees are to eat in the occupied premises.
  - 3. There is to be no smoking within the building.
  - 4. All construction personnel will conduct themselves in an unimpeachable manner while on the construction site, including proper language, etc.
  - 5. No radios, TV's or musical instruments at site unless approved by owner.
  - 6. No drinking of alcoholic beverages.

#### 1.17 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, 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. Vacuum clean interior building areas when ready to receive finish painting, and continue vacuum cleaning on an as-needed basis until building is ready for Substantial Completion or occupancy.
- G. Handle materials in a controlled manner with as few handlings as possible. Materials shall not be thrown from heights.
- H. Schedule cleaning operation so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.
- I. Mechanical Contractor shall replace all filters upon final acceptance of building by Owner.
- J. Mechanical Contractor shall clean ducts, blowers and coils, if air handling units were operated during construction without proper filters or if ductwork became contaminated.

### 3.02 FINAL CLEANING

- A. Final cleaning shall be by General Contractor.
- B. Employ experienced workmen, or professional cleaners, for final cleaning.
- C. In preparation for Substantial Completion, or occupancy, conduct final inspection of sight-exposed interior or exterior surfaces, and of concealed spaces.
- D. Remove grease, dust, dirt, stains, labels, fingerprints and other foreign materials from sight-exposed interior and exterior finished surfaces; polish surfaces so designated to shine finish.
- E. Repair, patch and touch up marred surfaces to specified finish, to match adjacent surfaces.
- F. Broom clean paved surfaces; rake clean other surfaces on grounds.
- G. Remove snow and ice from access to building(s).
- H. Replace damaged glass, remove dirt, paint, excess putty, etc., from inside and outside of glass. Clean both sides of glass thoroughly. Take precaution not to damage glass during cleaning.
- I. Vacuum all carpeted areas and remove all stains.
- J. Mop clean all vinyl tile flooring and concrete floors to receive carpeting.
- K. Clean all vinyl and carpet type wallcoverings as required.
- L. Remove all weeds from disturbed soil caused by construction upon completion of project.

END OF SECTION

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## SECTION 01 7500

### STARTING OF SYSTEMS

#### 1.01 STARTING SYSTEMS

- A. Coordinate schedule for start-up of the chillers with the manufacturer.
- B. Notify Architect and Owner seven days prior to start-up of each item.
- C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, or other conditions which may cause damage.
- D. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- E. Verify wiring and support components for equipment are complete and tested.
- F. Execute start-up under supervision of responsible Contractors' personnel in accordance with manufacturers' instructions.
- G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

#### 1.02 DEMONSTRATION AND INSTRUCTIONS

- A. Demonstrate operation and maintenance of Products to Owner's personnel two weeks prior to date of Substantial Completion.
- B. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.
- C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owners' personnel in detail to explain all aspects of operation and maintenance.
- D. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at agreed-upon times, at equipment location.
- E. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

END OF SECTION

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## 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

### 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

##### 2.01 NOT USED

#### PART 3 EXECUTION

##### 3.01 EXECUTION

- A. Demolish appurtenances in an orderly and careful manner.
- B. All items and systems noted on the drawings to be removed shall be removed in their entirety including all caulking, hangers and fasteners.
- C. All surfaces exposed by the demolition process that will be left exposed shall be cleaned, patched and finished.
- D. Cease operations and notify Architect immediately if adjacent surfaces appear to be endangered. Do not resume operations until corrective measures have been taken.
- E. Except where noted otherwise, immediately remove demolished material from site.
- F. Relics, antiques, and similar objects remain the property of the Owner. Notify Architect immediately prior to removal and obtain acceptance regarding method of removal.
- G. Remove materials to be re-installed or retained in manner to prevent damage. Store and protect under provisions of Division 1.

- H. Remove and promptly dispose of contaminated, vermin infested, or dangerous materials encountered. Comply with governing regulations.
- I. Do not burn or bury materials on site.
- J. Storage or sale of removed materials will not be permitted on the site.
- K. 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. Excavation and backfilling as required to install slabs on grade.
- B. Formwork, shoring, bracing, and anchorage.
- C. Concrete reinforcement and accessories.
- D. Cast-in-place concrete.
- E. 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. Reinforcing Steel: ASTM A615, 60 KSI yield grade billet steel deformed bars; uncoated finish.
- B. Welded Steel Wire Fabric: Plain type, ANSI/ASTM A185; in flat sheets; uncoated finish.
- C. Bar Accessories: Provide bar supports and other accessories necessary to hold bars in proper position while concrete is being placed.

#### 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

vvvvvvvv

- 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. Air-Entrainment Admixture: ASTM C260. Air-Entraining agents to be added to normal Portland cement or to air-entraining Portland cement which do not meet

requirements specified for air content shall be subject to approval and shall not appear at the job site or at the batching plant until approval in writing has been given.

- B. Integral Waterproofing Agents: ASTM C494. Water proofing agents and other admixtures used to produce a better workability and density of concrete shall be the product of a reputable manufacturer used in strict accordance with the manufacturer's directions and shall be subject to approval.
- C. 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. Anti-spalling Compound: "Euco Linseed Oil Compound" (Euclid Chemical Co.).
- D. 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 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. All concrete shall be six (6) bag cement mix with a minimum compressive strength of 4000 psi in 28 days. All exterior concrete poured after October 1<sup>st</sup> and before April 1<sup>st</sup> shall be 7 bag cement mix with a minimum compressive strength of 5000 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.
  - F. Add air entraining agent to mix for concrete exposed to freeze-thaw cycling. Total air content shall be 6 percent plus or minus 1 percent.

## 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. Provide temporary openings to facilitate cleaning and inspection immediately before depositing concrete.
- E. 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.
- F. 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.
- G. Coordinate work of other Sections in forming and setting openings, slots, recesses, chases, sleeves, bolts, anchors, and other inserts.
- H. Removal of forms and shoring shall be accordance with ACI 318.

### 3.02 REINFORCEMENT

- A. It is the contractor's responsibility to provide proper clearances between the steel reinforcing and the concrete forms for proper placement of concrete and coverage of the steel. The absolute minimum clearance is 1½". If the**

**contractor feels that it is too difficult to accomplish this within the specified sizes of concrete piers, footings, walls, etc. they have at their discretion, upon approval of the Architect, to increase the size of the formwork.**

- B. Place reinforcement according to the approved placement drawings. Use sufficient bar supports, ties, anchors and other accessories to hold all bars securely in place.
- C. Reinforcing steel shall be cleaned of oil, grease, scale, rust, or other coatings which may impair the bond.
- D. Reinforcements shall be adjusted to fit the sleeves, inserts and openings, using additional bars where required around openings.
- E. Place, support, and secure reinforcement against displacement. Provide additional reinforcement at construction joints.
- F. Do not place concrete until the reinforcement has been approved by the Architect.

### 3.03 PLACING CONCRETE

- A. Notify Architect minimum 24 hours prior to completion of formwork and reinforcing steel to allow for visual observation of formwork and reinforcing.
- B. Contractor is subject to hourly back charges from the Architect if the formwork and reinforcing is not complete and ready for visual observation or is in substantial non-conformance with the contract documents causing additional visits to the project site by the Architect.
- C. 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.
- D. 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.
- E. Concrete shall not be placed until the forms and reinforcing for the whole unit to be placed have been completed, cleaned and approved by the Architect. No reinforcing shall be "floated into position". The formwork shall be free from debris, ice, snow and water. Concrete shall not be placed on frozen ground.
- F. 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.
- G. When placing slab concrete from buggies: dump concrete into face of concrete in place.
- H. Roughen, clean, and moisten construction joints before placing concrete. Apply bonding compound and place new concrete after bonding compound becomes tacky.

### 3.04 SLABS ON GRADE

- A. Treat slabs on grade with two coats of Anti-Spalling compound hereinbefore specified.

### 3.05 SCHEDULE OF FINISHES

A.	Exterior Slabs on Grade	Finish Brush Finish	Hardener No	Sealer Yes
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### 3.06 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.
- E. Brush Finish: Following outlines for hard trowel finish, areas so scheduled shall have surface lightly brushed each direction using a fine soft bristled brush.
- F. Tie holes shall be filled and pour joints, voids, honeycomb and other defective areas shall be patched in all formed concrete. All projections shall be removed, damages repaired and offsets leveled. Patching shall be done soon after forms are removed.

### 3.07 CURING AND PROTECTION

- A. Cure and Protect Concrete in Accordance with ACI 301

- B. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperature 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 23 0500

### MECHANICAL

#### PART 1 - GENERAL

##### 1.01 DESCRIPTION OF WORK:

- A. The Base Bids include the replacement of the existing chillers at each elementary school.
- B. The contractor shall remove and discard the existing chillers.
- C. The contractor shall unload and install the new chillers.
- D. Revise piping as required to match existing piping and connect piping to the new chillers
- E. Re-insulate piping to match existing including all heat tracing.
- F. Revise and extend existing temperature control wiring to the new chillers as required and provide all programming of the existing BAS to accommodate the new chillers.
- G. Treat water as required at completion of the project to match existing conditions prior to start of the project.
- H. Test, adjust, and balance piping systems.

##### 1.02 QUALITY ASSURANCE

- A. Work shall be in complete accordance with codes, rules, or ordinances and regulations of authorities, bodies, associations, governments, etc. having proper and/or legal jurisdiction. Specifically, the following requirements shall be met in their entirety:
  - 1. State, federal, and local rules, regulations, codes, statutes, Illinois Life Safety Code, and ordinances.
  - 2. National Fire Protection Association - all applicable requirements.
  - 3. National Board of Fire Underwriters (U.L., Inc., label).
  - 4. National Electric Code - all applicable requirements.
  - 5. Other codes and standards as specifically noted in each Section of the contract documents.

##### 1.03 TESTS AND INSPECTIONS:

- A. Conduct tests and inspections as specified and as required to assure proper installation and operation of systems. Do not allow work to be enclosed or concealed prior to required testing or observation. Where testing or inspections are required to be performed by others, cooperate fully therewith and provide safe access to components and systems as required.

#### 1.04 MATERIALS AND CHANGES:

- A. It is intended that materials or products specified by the name of the manufacturer or the brand or trade name or the catalog reference shall be the basis of the estimate and furnished under the contract unless changed by mutual agreement.
- B. Changes in the work from the contract documents shall not be made unless written authorization for the change has been provided. Claim for an addition to or deduction from the contract sum shall not be valid unless so ordered.
- C. The materials required for the performance of the work shall be new and the best of their respective kinds and of uniform pattern throughout the work.

#### 1.05 LAWS AND ORDINANCES:

- A. Work shall be executed and inspected in accordance with rules, regulations, laws, and ordinances of the local, federal, city, county, and state authorities, and the utility companies serving the area in which the installation is to be made.
- B. If there is a discrepancy between the codes and regulations having jurisdiction over the installation and these contract documents, the codes and regulations shall determine method of equipment used.
- C. If there is anything in the contract documents that will not strictly comply with the above laws, ordinances, and rules, a written request for a clarification shall be submitted before proceeding with that part of the work. No changes in the contract documents shall be made without written consent.
- D. All changes made after the letting of the contract, in order to comply with the applicable codes or requirements of the enforcing inspectors, shall be made without additional cost.

#### 1.06 CERTIFICATES AND FEES:

- A. Give all necessary notices, obtain all necessary permits, and pay all fees in order that the work hereinafter specified may be carried out. Furnish all certificates necessary as evidence that the work installed conforms with the laws and regulations of authorities having jurisdiction. Before final certificates are issued, make changes and alterations required by authorized inspector of an authority having jurisdiction.

#### 1.07 DRAWINGS:

- A. Consult architectural contract documents for necessary changes or additions to accommodate existing conditions. The location of pipes, ducts, and equipment shall be altered without charge before installation. Obtain written approval before making alteration.
- B. As the work progresses and before installing equipment, which may interfere with the interior treatment or use of the building, obtain drawings or instructions for the exact location of such equipment.
- C. The contract documents indicate the general location and route to be followed by the ductwork and piping which are to be installed. Ductwork, piping, and

equipment shall be installed in such a way as to conserve head room and interfere as little as possible with the free use of the space through which they pass. Prepare interference drawings where required or requested.

- D. Cooperate with other trades so that piping, ductwork, etc. will not interfere with the work.
- E. The contract documents are not intended to include work and material required for the full completion of the systems outlined. Contract documents are schematic and indicate the intended systems and their function. Materials, work, or details required for the proper execution and completion of the work described or shown and shall be furnished and installed as a part of this contract, without extra charge.

#### 1.08 COORDINATION:

- A. Layout work to be installed in coordination with each trade engaged on this project. Cooperate with trades in order to coordinate work and eliminate conflicts between this work and that of other trades. Cooperate with trades to coordinate work to maintain maximum accessibility and serviceability to equipment, dampers, valves, etc.
- B. Be fully responsible for conflicts between this work and that of other trades engaged on this project.
- C. Ductwork, grilles, diffusers, piping, or mechanical equipment which has been installed without checking for interferences and without maintaining maximum accessibility and serviceability shall be modified without additional expense.
- D. Supply, to other trades, equipment to be built-in by them or measurements to allow necessary openings to be left.
- E. Trade priority list shall be as follows unless directed otherwise:
  - 1. Electrical Conduit
  - 2. Piping Systems

#### 1.09 JURISDICTION OF WORK:

- A. When it becomes necessary for the complete fulfillment of this work or to furnish labor or materials other than that which is generally accepted by trade agreement or general practice to belong to a particular trade or branch of work, the contractor shall procure to a contractor engaged in the trade or branch of work involved to the end that there shall be no delay to or stoppage of work due to infringement of trade agreements as to jurisdiction.

#### 1.10 WORKMANSHIP:

- A. Only first class workmanship will be accepted - not only as regards to safety, efficiency, durability, etc. - but also as regards to the neatness of detail. Pipe work must be lined up paralleling or at right angles to the building walls. Equipment must be accurately set, plumbed, and leveled, and hanger rods must be in true vertical alignment. In general, the entire work throughout shall present a neat and clean appearance on completion.

#### 1.11 RECORD DRAWINGS:

- A. Provide Record Drawings per Division I.

1.12 SUBMITTALS:

- A. Submit submittals per Division I for the new Chillers.

1.13 EXISTING CONDITIONS:

- A. Visit site and become fully acquainted with the conditions at the building site, as contract for this work shall be based upon furnishing labor and materials required to complete each installation ready for continuous and satisfactory operation.
- B. Before commencing the work, examine the work of other trades and report at once defect or interference affecting the work under this Division or the guarantee of same.
- C. No extras will be allowed on account of a claim that the extent of the work of this Division was not fully understood.
- D. Verify in field exact location of existing piping, ductwork, equipment, etc. indicated on the contract documents as being demolished, reused or tied into. Adjust work as required to meet field conditions.
- E. Take measurements at the building and be responsible for the correctness of same and the proper fitting of work.
- F. Adjust work to fit actual job conditions.

1.14 DEMOLITION:

- A. Provide demolition of the existing systems as indicated on the contract documents and as required to complete the installation of the new work.
- B. Existing branch ductwork, piping, etc. to be removed shall be terminated at the main in an approved air and water tight manner.
- C. Unused ductwork, piping, diffusers, registers, fixtures, equipment, etc. not wanted by the Owner shall be removed from the site. Items requested by the Owner shall be stored on site as directed.
- D. Verify exact size, location and quantities of demolition work in field.
- E. The scheduling of the demolition work shall be coordinated, and temporary materials and/or equipment required to maintain building operation shall be provided at no additional cost.

1.15 OWNER'S OPERATION:

- A. The Owner presently is engaged in their normal business activities at this location and will continue their operations during the work. The necessity of the Owner maintaining the operation of his business shall be respected. Work, men, material storage, and equipment used shall be conducted so that it will minimize the interference with his operations of that business.

- B. Coordinate phasing of work and provide temporary services to maintain the desired space temperature for comfort including proper ventilation to all occupied areas. Provision shall be made to monitor CO<sub>2</sub> levels in the occupied areas during construction. Temporary services shall include but are not limited to providing equipment, ductwork, piping, controls, etc. as required for the implementation of work while maintaining services to portions of buildings that are to remain occupied. If necessary, provide temporary structures to house services and equipment complete as required. Include all such costs in bids associated with phasing. No additional cost will be allowed should contractor fail to do so.
- C. Provide a minimum of 48 hour notice and obtain authorization from Owner prior to shutdown of systems or service serving occupied portions of the facility.

#### 1.16 USE OF WORK BY OWNER:

- A. The Owner reserves the right of use, or caused to be used, previous to acceptance and final payment, portions of the work which have been observed or tested. The use of such work or equipment shall not be construed, deemed, assumed, or taken as an acceptance of the work in part or as whole.

### PART 2 - PRODUCTS

#### 2.01 EXPANSION JOINTS AND ANCHORS:

- A. Make provision for expansion and contraction of pipes installed under this Division by means of pipe compensators where indicated on contract documents and as required for proper system operation.
  - 1. Expansion compensators to be of the double ended, packless, externally pressurized type with a pressure rating of 175 psi at 750° F.
  - 2. Compensators to be all welded construction with male pipe thread. Weld end or flanged end connection.
  - 3. Compensators shall be constructed of multiple ply stainless steel bellows, carbon steel shroud, integral guide rings, and internal liner (threaded compensators to have anti-torque device).
  - 4. Compensators are to be sized to handle pipe expansion per manufacturers recommendation.
- B. Type of anchors and method of securing same to structural framing of the building shall be subject to review.
- C. Piping shall be installed free from building structure to allow for movement without noise. Install fire spread and smoke developed rating insulation as required by code and acceptable to local authorities around pipes when they pass through floor slabs or walls.

#### 2.02 SUPPORTS:

- A. Supply and erect special structural steel work required for the installation of equipment and other apparatus. Set apparatus at least 4" above floor or to a height indicated on the contract documents. Supply and install anchor bolts and other fastenings. Concrete bases and concrete floating pads, where called for, shall be provided. Concrete bases and pads shall be 4" larger than the base of the apparatus.

## 2.03 PIPE AND FITTINGS:

- A. Pipe for the services listed below shall comply with ASTM A53 and shall be Schedule 40 standard weight:  
  
Chilled water Victaulic (black steel)
- B. Pipes shall be straight, true, and parallel and supported at intervals specified above or as indicated on the contract documents. Run piping with proper slope to drain and vent. Branch pipes shall have greater slope.

## 2.04 PIPE SERVICE MARKING:

- A. Pipes shall be identified as to their service after application of insulation and/or final painting, by color code banding and stenciling. Marking shall indicate pipe content and direction of fluid flow to fully comply with requirements of schedule for the identification of piping system ANSI-A13.1 including the following minimum requirements:
  - 1. Markers shall be stenciled in positions visible to personnel. Marking shall conform to pipe service identification (abbreviations) as noted on the contract documents.
  - 2. Paint pipe content banding, legend and flow direction marker at each valve, at every point of pipe entry and exit where a line goes through a wall, on each riser and tee joint and at 50' intervals on long continuous runs of pipe. Arrows (flow direction markers) shall point away from content marking and in direction of flow. If flow can be in both directions, apply double-headed arrows.
  - 3. In lieu of stenciling, semi-rigid plastic identification markers equal to SETMARK Pipe Markers as manufactured by Seton Name Plate Corporation. Equivalent marker as manufactured by MSI or Brady will be acceptable. Each such marker shall be in full compliance with other requirements of the contract documents.

## 2.05 VIBRATION ISOLATORS:

- A. Flexible Pipe Connectors:
  - 1. **Type K Flexible Pipe Connectors: Flexible EPDM connectors** shall be manufactured of multiple plies of frictioned nylon tire cord with an EPDM cover and liner. No steel wire or rings shall be used as internal pressure reinforcement. Straight connectors shall have two (2) spheres with a centered molded-in external ductile iron ring to maintain the two (2) spherical shapes. 2" and smaller sizes may have threaded ends. Floating flanges shall have a recess to lock the bead wire in the raised face flanges. Tapered twin sphere connectors as described above shall be used where line size changes are required in straight piping runs.
    - a. Flanged equipment shall be directly connected to neoprene elbows in the size range 2-1/2" through 12", if the piping makes a 90" turn and flanges are equal sizes. Long radius reducing EPDM elbows shall be used in place of steel or cast iron elbows at pump connections.

- b. Twin sphere connectors shall be properly extended as recommended by the manufacturer to prevent additional elongation under pressure. Joints shall be designed for maximum elongation under pressure as follows:

Pipe Size	Pressure	Elongation
3"to 8"	250 psi	3/4"

- a. When the pressure would cause the connector to extend beyond it's rated elongation, control rods shall be employed using 1/2" thick bridge-bearing neoprene washer bushings designed for a maximum loading of 1,000 psi.
- b. Twin sphere connectors shall have a minimum rating of 250 psi at 170" F and 165 psi at 250" F. Elbows and reducing twin spheres shall have a minimum pressure rating of 220 psi at 170" and 145 psi at 220" F. Neoprene materials shall be limited to 220" F. Certified safety factors shall be a nominal 4 to 1 with a minimum acceptable test result of 3.6 to 1. Tests shall cover burst, flange leakage, extension without control rods and flange retention at 50% of burst pressure without control rods.
- c. Submittals shall include two (2) test reports by independent consultants showing minimum reduction of 20 dB in vibration accelerations and 10 dB in sound pressure levels at typical blade passage frequencies.
- d. Control rods shall be type ACR as manufactured by Mason Industries or approved equal.

- 2. Type L Braided Hose: Flexible stainless steel hose and braided cover with carbon steel fittings. 2-1/2" pipe size and smaller male nipples. 3" pipe size and larger 150 pound ASA flanges. Install horizontally wherever possible on the equipment side of shutoff valves. Hose connection equal to Mason industries Type BSS.

Pipe Size Up to and Including	Overall Length
2-1/2"	12"
3"	18"
6"	24"

- a. For refrigerant or other sweat connection end services, use braided bronze connection with copper tube ends. Hose connection equal to Mason Industries Type BBF.

2.06 CHILLERS

- A. Fieler Elementary School – 215 Ton York Chiller - Unit Tag: CH-1 Model: YVAA0233
- B. Salk Elementary School – 230 Ton York Chiller - Unit Tag: CH-2 Model: YVAA0248

## PART 3 - EXECUTION

### 3.01 CUTTING AND PATCHING:

- A. Provide cutting and patching of building materials, piping, etc., as required for the installation of this work, but no structural members shall be cut without approval and such cutting shall be done in an approved manner.
- B. Patching of, or repairing of damage to, the work in place shall be done in a neat and workmanlike manner, meeting approval. If operations require cutting of work in place or causes damage which entails repairs of such work, shall employ mechanics of the particular trade whose work must be cut or which is damaged and shall pay all costs of such cutting, patching or repairs.

### 3.02 PIPING INSTALLATION:

- A. Clearances: Give careful consideration to clearances under beams, joists, over windows, to provide maximum headroom and the locations of lines and type of fittings used to obtain these clearances.
- B. Ascertain from the contract documents the heights of suspended ceilings and the size of shafts in which piping is to be concealed and the location and size of structural members in and adjacent to pipe shafts.
- C. Coordinate the piping, ductwork, and lighting work with one another and with all other equipment. Where insufficient room is provided for piping above suspended ceilings or in vertical shafts, obtain clarification in writing before work is installed.
- D. Cutting: Cut pipe accurately to measurements established at the building, work into place without springing or forcing, and properly secure to structure in an approved manner.
- E. Cutting or other weakening of the building structure to facilitate piping installation will not be permitted, unless approved. Ream piping to remove burrs and install so as to permit free expansion and contraction without causing damage. Make changes in direction with fittings and changes in main sizes through eccentric reducing fittings.
- F. Piping at tanks and pumps shall be supported independently so that no weight will be supported by the equipment.
- G. Joints, Valves, Couplings: Provide swing joints, swing connects, valves, couplings, expansion loops, etc., at runouts to equipment, devices and other points requiring same to provide flexible piping systems.
- H. Provide shutoff valves and unions or flanges at each branch or in supply and return to each item of equipment. Valves and unions or flanges shall be suitably located to isolate each unit, branch circuit, or section of piping to facilitate maintenance and for removal of equipment and apparatus.
- I. Dielectric couplings or unions shall be provided at the junction of two (2) pipes or of pipe to equipment of two (2) different metals to eliminate electrolytic action.

- J. Piping conveying water shall be installed with a pitch, in the direction of flow of not less than 1" in 40'. In cases where branches are installed and connected into vertical risers, the branches shall pitch back to the respective risers. Horizontal branches from mains shall be taken off the top of respective risers. Horizontal branches from mains shall be taken off the top of the mains by means of 90" ells. It shall be possible to drain separately each part of the system; drain valves shall be provided in the systems wherever required for this purpose.
- K. Provide air vents in high points in the system to permit proper filling and venting.
- L. Before piping is installed, it shall be opened and pounded to remove foreign matter present. Ends of piping and tubing shall be sealed with caps or plugs during construction. Paper or rags will not be permitted. After installation and before final connections are made, piping systems shall be flushed with a material that is not injurious to either the pipe or material to be conveyed by the pipe.
- M. Threaded pipe shall be cut square and full threaded and shall be made with approved pipe thread compound, applied to the wall threads only, and shall be made up so that no more than two (2) threads will be exposed.

### 3.03 PIPE TESTS:

- A. Piping shall be tested with hydrostatic pressure or other means, as directed, and shall be proved tight, as hereinafter specified before it is enclosed or covered, and before insulation is applied. The piping shall be tested in sections.
- B. During these tests, pressure shall not be transferred to a tank, shell or other manufacturing or process equipment that may be connected to the line under test. Full physical disconnection shall be made at or near the final connection to the equipment and the line capped or plugged.
- C. Piping shall be tested with pressure equal to 1-1/2 times the normal working pressure, but not less than 100 pounds per square inch, except where specified otherwise. The duration of pressure tests shall be sufficient to permit observation of joints (minimum twelve (12) hours). Submit reports for review.
- D. Pinhole leaks which develop in welded joints shall be chipped out and rewelded. Caulking will not be permitted. A general sweating at joints shall be cause of rejection. It shall be completely removed and rewelded.
- E. Threaded joints which develop leaks shall be rejected. Either the thread, fitting, or both shall be removed and replaced. No caulking will be permitted.

### 3.04 CLEAN-UP:

- A. Exposed metal surfaces shall be free from grease, dirt, and other foreign material. Fixtures shall be properly protected from damage during the construction period.
- B. Debris resulting from execution of this contract, surplus and discarded material, shall be removed from the premises within three (3) days after the accumulation. Remove plaster from piping, radiation, etc.

- C. On completion of the work, tools, surplus, and waste materials shall be removed and the work left in a clean and perfect manner. During work progress, remove debris and excess materials as directed by the job superintendent.

### 3.05 FINAL COMPLETION:

- A. Clean equipment, restore damaged materials, remove grease, oil, chemicals, paint spots, and/or stains, and generally leave the work in new condition.
- B. Retouch and/or repaint factory painted prime and/or finish coats where scratched or damaged. Whenever retouching will not be satisfactory, complete repainting of equipment until the desired appearance is obtained may be required.
- C. On completion of work, remove from the site tools, equipment, surplus materials, and rubbish pertaining to operations for removal and disposition at no additional cost.

### 3.06 WARRANTY AND MAINTENANCE:

- A. During the warranty period, the entire system shall be adjusted to maintain the operating conditions specified in the contract documents. Equipment furnished shall be warranted in writing for one (1) year after Substantial Completion has been issued (unless noted otherwise). Warranty shall include equipment, system operation, workmanship and materials.
  - 1. Equipment or parts proving defective shall be replaced without cost.
  - 2. Visit the building at the 6-month and 11-month warranty period, and thoroughly inspect the complete system and make repairs or heating and cooling adjustments to obtain maximum operating economy. At the same time, instruct the maintenance supervisor in its care and operation.
- B. Five (5) copies of the warranty and maintenance site visit schedules shall be submitted for review. In addition to the above, perform two (2) regular service inspections, one (1) at the beginning of the heating season and one (1) at the beginning of the cooling season.
  - 1. During each inspection, provide labor and materials to check, clean, calibrate and lubricate components requiring same.
  - 2. Defective parts shall be replaced, including labor to remove and reinstall with no additional cost.
  - 3. When required, emergency or overtime service shall be provided without additional cost.
- C. Inspection reports shall be countersigned and filed after each inspection. Reports shall list every modification made during inspections.
- D. Provide five (5) year parts and labor warranty on every compressor.

### 3.07 OWNER INSTRUCTION AND SYSTEM DEMONSTRATION:

- A. Verify completed systems and arrange date agreeable with Owner for a demonstration of completed systems in the project. Demonstrate on a one (1) time basis, at time of completion, to the Owner, the essential features of the mechanical applied systems and their compliance with the contract documents.

Show Owner contract documents and relation to function of equipment and corresponding location in the project structure.

- B. Show by start/stop operation, the manner of control, resetting of protective devices, and the replacement of fuses.
- C. Demonstrate temperature control systems and devices, including sequence of controls.
- D. Instruct Owner in operation and maintenance of equipment and controls.
- E. Video tape the instruction/demonstration session, label this tape as such and submit three (3) copies for review.
- F. On completion of the work, furnish and deliver special tools that may be required for the proper servicing of equipment furnished for the project.

### 3.08 OPERATION AND MAINTENANCE MANUALS:

- A. Compile and submit, at completion of the work, two (2) neatly bound booklets containing operation and maintenance instructions for equipment and systems.
- B. The cover of each manual shall state the section of work covered (i.e: "heating, ventilating, and air conditioning," "air balance," etc.).
- C. Each manual shall contain the following information:
  - 1. Complete written operating and maintenance instructions for each equipment item.
  - 2. Complete parts list for each equipment item.
  - 3. Duplicate valve tag list.
  - 4. Blueprint, shop, and record documents.
  - 5. Certified equipment drawings and/or catalog data (clearly marked for equipment furnished).
  - 6. Emergency operating instructions and/or list of service organizations (including address and telephone numbers) capable of rendering emergency service on 24-hour call.
  - 7. Training session video tape.
  - 8. Copy of performance warranty.
  - 9. Copy of maintenance warranty.
  - 10. Copies of manufacturers' warranties for equipment.
  - 11. Test and balance reports.
  - 12. Temperature control record documents.
- D. A copy of the ASME certificates, temperature control schematic drawing, and other pertinent data as required by local, federal, state, and/or national agencies so governing and as herein specified shall be sealed in a plastic lamination and/or enclosed under a glass front framed panel, and mounted on the wall near each respective system.

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 replacement of the existing chillers as 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 PERMITS AND INSPECTIONS

- A. This Contractor shall make application for and pay for all permits and certificates of inspection required by local, state or federal governments, public utilities or other authorities having lawful jurisdictions.

#### 1.04 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.

#### 1.05 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.

#### 1.06 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.

#### 1.07 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.

#### 1.08 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.

#### 1.19 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.

#### 1.20 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.
- A. 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.

#### 1.21 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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