

**Project Number: 16-014**

**Tuscola County  
Jail Window and Plumbing Modifications**

**420 Court St.  
Caro, MI 48723**

**Issue Date: January 20, 2017**

**Project Team**

**Architect:**

**Landmark Design Group, P.C.**  
3883 Linden Avenue, SE, Suite A  
Grand Rapids, Michigan 49548  
Ph: (616) 956-0606

**Engineering Consultants:**

**Mechanical / Electrical Engineer:**

**Morgan M. Landon P.E. LLC**  
3935 Lake Michigan Drive NW, Suite 4  
Grand Rapids, Michigan 49534  
Ph: (616) 226-6731



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ADVERTISEMENT FOR BIDS**

Owner: Tuscola County  
125 W. Lincoln Street  
Caro, MI. 48723

Architect: Landmark Design Group, P.C.  
3883 Linden, SE, Suite A  
Grand Rapids, Michigan 49548  
Telephone: (616) 956-0606

Issue Date: January 20, 2017

General Contractors are invited to submit a bid under seal to Tuscola County. Bids shall be delivered to:

Tuscola County Administration  
Attn. Michael Hoagland, Controller/Administrator  
125 W. Lincoln St.  
Caro, MI. 48723

Before 2:00 p.m. local time on Thursday, February 16, 2017 for a public bid opening.

The work is described as follows:

1. Remove and replace existing domestic water piping to existing plumbing fixtures. Remove and replace/finish existing construction (walls, floors, ceilings, etc.) as required to access the plumbing fixtures and leave ready for Owner occupancy.
2. **Alternate No. 1** – Electrical.
3. **Alternate No. 2** - Remove and replace existing windows (standard office and detention type). Patch/repair/finish masonry walls adjacent to the replacement windows.
4. **Alternate No. 3** – Remove and replace existing security plumbing fixtures.
5. **Alternate No. 4** – Remove metal pan security ceilings, framing and lighting. Install new gypsum board security ceiling, access panels and lighting.
6. **Alternate No. 5** – Install new shower control valves.

The project location is the Tuscola County Jail, 420 Court Street, Caro, MI 48723.

A pre-bid meeting is scheduled for 10:00 a.m. local time on Thursday, February 2, 2017 and shall be held at the Tuscola County Jail, 420 Court Street, Caro MI 48723. This meeting is not mandatory.

Bid Documents maybe obtained by contacting River City reproductions, 4039 40<sup>th</sup> Street, SE, Suite One, Grand Rapids, MI 49512. Phone 616-464-1220, email [copies@rivercityreproduction.com](mailto:copies@rivercityreproduction.com). Bid Documents can be reviewed at selected plan rooms located in Michigan and at the Tuscola County website.

Bid security shall accompany bid in the form of a bid bond, certified check, or cashiers check for no less than five (5%) percent of the Bid Price.

Refer to Instructions to Bidders in the Project Manual for full bidding requirements.

Your offer will be required to be submitted under a condition of irrevocability for a period of 90 days after submission.

Tuscola County reserves the right to reject any and all bids and choose the bid that is in the best interest of the County. Any party who bid under this policy does so at their own free will and without liability to the County. A bid may be awarded to a higher bidder for reasons such as but not limited to: quality, service, reliability, convenience, dependability, etc.

By submitting a bid, the bidder is acknowledging that there will be no contractual relationship between the County and the bidder until both parties have formally approved and signed a written contract to be developed by County's legal counsel.

END OF DOCUMENT

## **DOCUMENT 00100 INSTRUCTIONS TO BIDDERS**

### **1.01 DEFINITIONS**

- A. Bid Documents include the Bidding Requirements and the Contract Documents. The Bidding Requirements consist of the Advertisement for Bids, Instructions to Bidders, Information Available to Bidders, the Bid Form, and Supplements to Bid Form. The Contract Documents consist of the Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, and all Addenda issued prior to execution of the Contract. The Bidding Requirements are intended to form part of the Contract Documents and shall be enumerated in the Agreement between the Owner and Contractor.
- B. Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bid Documents.
- C. Addenda are written or graphic instruments issued by the Architect/Engineer prior to the execution of the Contract which modify or interpret the Bid Documents by additions, deletions, clarifications or corrections.
- D. A Bid is a complete, properly signed and sealed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bid Documents.
- E. The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bid Documents as the base, to which work may be added or from which work may be deleted for sums stated in Alternate Bids.
- F. An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bid Documents, is accepted.
- G. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, services, or a portion of the work as described in the Bid Documents.
- H. A Bidder is a person or entity who submits a Bid.
- I. A Sub-bidder is a person or entity who submits a bid to a Bidder for materials or labor for a portion of the Work.

### **1.02 BIDDER'S REPRESENTATION**

- A. The Bidder by making a Bid represents that:
  - 1. The Bidder has read and understands the Bid Documents and the Bid is made in accordance therewith.
  - 2. The Bidder has read and understands the Bid Documents and Contract Documents, to the extent that such documentation related to the Work for which the Bid is submitted, for other portions of the Project, if any, being bid concurrently or presently under construction.
  - 3. The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the Contract Documents.

4. The Bid is based upon the materials, equipment, and systems required in the Bid Documents without exception.

### 1.03 AVAILABILITY OF DOCUMENTS

- A. Bid Documents are made available only for the purpose of obtaining offers for this project. Their use does not grant a license for other purposes.
- B. Bid Documents are interrelated and cross-referenced; bids must be made on a complete review of all information. No partial sets will be available.
- C. Bid Documents may not be obtained by bidders from the owner.
- D. Bid Documents can be obtained by general contract and subcontract Bidders as described in the Advertisement for Bids.
- E. Bid Documents are on display at the following plan rooms:

#### Builders Exchange of Michigan:

Grand Rapids & West Michigan  
678 Front Ave NW, Suite 330  
P.O. Box 2031  
Grand Rapids, Michigan 49501-2031  
Telephone: (616) 949-8650  
Fax: (616) 949-6831

Lansing & Central Michigan  
1240 E. Saginaw Street  
Lansing, Michigan 48906  
Telephone: (517) 372-8930  
Fax: (517) 372-5022

Northwest Michigan  
1373 Barlow Street, Suite #4  
Traverse City, Michigan 49686  
Telephone: (231) 946-5531  
Fax: (231) 947-5344

Kalamazoo  
3431 East Kilgore Road  
Kalamazoo, Michigan 49001-5513  
Telephone: (269) 349-2507  
Fax: (269) 349-9306

Tri-City  
334 South Water Street  
Saginaw, Michigan 48607  
Telephone: (989) 754-4872  
Fax: (989) 752-7109

Construction News Service (CNS)  
1793 R.W. Berends Drive, SW  
Wyoming, MI 49519-4993  
Telephone: (616) 530-3940  
Fax: (616) 530-3945

McGraw Hill Construction / Repromax  
401 Hall Street S.W. Suite 431  
Grand Rapids, MI 49503  
Telephone: (866) 480-6203

McGraw Hill Construction / Repromax  
914 East Vine Street  
Kalamazoo, MI 49001  
Telephone: (800) 522-0541

- F. Copies of the Agreement and General Conditions of the Contract are available for review at the office of the Architect/Engineer. Copies can also be purchased by contacting the Michigan American Institute of Architects (AIA).



#### 1.04 EXAMINATION OF DOCUMENTS, SITE AND LOCAL CONDITIONS

- A. Before submitting bids, bidders shall carefully examine all Drawings, read the entire Project Manual, and all Contract Documents, including all Addenda. Bidders shall visit the site in order to inform themselves of all conditions, which can affect the work or the cost thereof. Failure or omission of bidder to receive or examine any form, instrument, Addendum or other document, or to visit the site and acquaint himself with existing conditions shall in no way relieve any bidder from obligation with respect to his bid.
- B. Upon receipt of Bid Documents verify that documents are complete. Notify Architect/Engineer should the documents be incomplete.
- C. Immediately notify the Architect/Engineer upon finding discrepancies or omissions in the Bid Documents.
- D. The project location is the Tuscola County Jail which can be examined during the prebid meeting. Additional site visits can be arranged with Tuscola County, contact Mike Miller, Tuscola County Building/Grounds (989) 672-3756.

#### 1.05 INTERPRETATION DURING BIDDING

- A. Direct all questions in writing to Landmark Design Group, P.C. by email at [steve@landmark.us.com](mailto:steve@landmark.us.com) or by mail to 3883 Linden, SE, Suite A, Grand Rapids, Michigan 49548. Include with all questions, name of project, return name, and contact information. Use the Request for Information form contained in Section 01040 – Coordination of the Project Manual.
- B. Addenda may be issued during the Bidding period, a copy of which will be forwarded to each known General Contract Bidder and each Plan Room. General Contract Bidders shall verify that each subcontract bidder is informed of all Addenda at the time sub-bid information is received. All Addenda become part of the Contract Documents. Include resultant costs in the Bid Sum.
- C. If any bidder is in doubt as to the true meaning, spirit, and intent of the Drawings, Project Manual or any part of the Contract Documents, bidder may request an interpretation. Any interpretation of Contract Documents, if made, will be by addendum only. The Owner and the Architect/Engineer are not responsible for any other explanations or interpretations made prior to closing time for receipt of bids. No explanations or interpretations made orally will be considered binding.
- D. Clarification requests from Bidders must be made in writing not less than 7 calendar days before date set for receipt of Bids. The reply will be in the form of an Addendum.
- E. Figures given on the Drawings govern scale measurements. Discrepancies shall be brought to the attention of the Architect/Engineer for interpretation and the Architect/Engineer's decision, in writing, shall govern.
- F. If the Drawings and Project Manual disagree in themselves or with each other, estimate on and furnish the greater quantity or better quality unless otherwise instructed in writing by the Architect/Engineer.
- G. Color selections for any product will be selected (by the Architect) from a full range of all standard and premium colors and shall not be limited in the number of different colors selected, unless specifically indicated otherwise in the specification sections for each product. The Contractor is required to submit a full range of product samples for the Architect's selection.

#### 1.06 PRODUCT/SYSTEM SUBSTITUTIONS

- A. Refer to Section 01600.
- B. The Architect/Engineer will consider substitutions up to 10 days before receipt of Bids.
- C. Bidders shall include in their Bid any change in the Work, in the Contract Time and in the Contract Sum required to use substitute materials, products, and equipment. A later claim by the Bidder for an addition to the Contract Time or Contract Sum because of changes in Work necessitated by use of substitute materials, products, and equipment shall not be considered.
- D. The Architect/Engineer will issue an Addendum for accepted substitute materials, products, and equipment to the plan rooms, known general contract bidders, and known subcontractors and suppliers including those requesting substitutions.

#### 1.07 BASIS OF BID

- A. The intent of this Bid request is to obtain a stipulated sum offer to perform Work to complete construction for the Project of these documents.

#### 1.08 PREPARATION OF BIDS

- A. Bids shall be submitted on forms identical to the form included with the Bid Documents.
- B. Fill out Bid Form completely, type or print date of submission, organization's name and mailing address.
- C. Where so indicated by the makeup of the Bid Form, sums shall be expressed in both words and figures, and in case of discrepancy between the two, the amount written in words shall govern.
- D. Indicate in United States currency dollar amounts the stipulated sum.
- E. Indicate in United States currency dollar amounts the alternate amounts. For Alternate bid amounts to add to the base Bid, blacken out the word deduct so that only ADD remains readable. For alternate bid amounts to deduct from the base bid, blacken out the word add so that only the word DEDUCT remains readable. Refer to Section 01019 – Contact Considerations for description of Alternate items.
- F. Indicate in United States currency dollar amounts the unit pricing amounts. Unit prices are to assist in determining cost of changes to Work and for future Work. Unit pricing shall not be considered a portion of the Work indicated in the Contract Documents and shall not affect the stipulated sum Bid. Indicate in the unit column the price for a single unit, and in the total price column indicate the total cost based on the estimated quantity. Refer to Section 01026 – Unit Prices and Drawings for additional information on unit price items.
- G. Indicate the number of calendar days required from notice to proceed until date of substantial completion. This should be carefully estimated according to present-day deliveries and conditions, in order that no extension of time will be necessary. The construction period is subject to review and approval by the Owner.
- H. Indicate the percent for overhead and profit combined which will be added to material and labor cost and included in the total cost to the Owner for changes in the Work. Refer to Document 00800 – Supplementary Conditions for limits on the percent of combined overhead and profit for changes in the Work.

- I. Record Addenda numerically and indicate the date for each.
  - J. The Bid Form shall be signed and sealed by the Bidder, as follows:
    - 1. Sole Proprietorship: Signature of sole proprietor in the presence of a witness who will also sign. Insert the words "Sole Proprietor" under the signature.
    - 2. Partnership: Signature of all partners in the presence of a witness who will also sign. Insert the word "Partner" under each signature.
    - 3. Corporation: Signature of a duly authorized signing officer(s) in their normal signatures. Insert the officer's capacity in which the signing officer acts, under each signature. If the Bid is signed by officials other than the President and Secretary of the company, or the President/Secretary/Treasurer of the company, a copy of the by-law resolution of the Board of Directors authorizing them to do so, must also be submitted with the Bid Form in the Bid envelope.
    - 4. Joint Venture: Each party of the joint venture shall execute the Bid Form in a manner appropriate to such party as described above, similar to the requirements of a Partnership.
  - K. The signer of the Bid must initial alterations and erasures.
  - L. The Bidder shall make no additional stipulations on the bid form nor qualify the Bid in any other manner.
  - M. Fill out, sign and seal the Supplements to Bid Form.
  - N. Submit two (2) copies of the executed offer on the Bid Form provided and the Supplement to Bid Form.
  - O. Include bid security deposit and agreement to provide construction performance and payment bond in the envelope with the bid forms and supplements.
  - P. By submitting a bid, the bidder is acknowledging that there will be no contractual relationship between the Owner and bidder until both parties have formally approved and signed the AIA Document A101, AIA Document A201, and Document 00800 Supplementary Conditions.
- 1.09 REQUIREMENTS FOR BID SECURITY
- A. Bids shall be accompanied by a security deposit in the form of a Bid Bond, certified check, or cashiers check in the amount of a sum no less than 5 percent of the Bid Sum for a duration of 90 days.
  - B. The Bidder shall endorse the Bid Bond in the name of the Owner as obligee, signed and sealed by the Bidder as principal and the Surety.
  - C. The Surety Company writing the Bid Bond must be listed in the Federal Register as published by the U.S. Department of Treasury, in the most recently revised Circular 570. In addition, the Surety Company must be licensed and admitted to do business in the State of Michigan. The Bidder shall provide the Owner with evidence that the Surety Company is listed in the current U.S. Department of Treasury Circular 570 and is licensed and admitted to do business in the State of Michigan.
  - D. After a Bid has been accepted, securities will be returned to all respective unsuccessful Bidders.

- E. The security deposit of successful bidder will be returned after signing of the Owner-Contractor Agreement. If bidder is unable to execute the Agreement, the bidder's security shall be forfeited.
- F. If no contract is awarded, all security deposits will be returned within ten days after the expiration of offer duration period of 90 days.

1.10 REQUIREMENTS FOR CONSTRUCTION PERFORMANCE BOND AND CONSTRUCTION PAYMENT BOND

- A. Submit with the Bid an Agreement that if awarded the contract, Bidder will provide in addition to the required Bid Bond a Construction Performance Bond and Construction Payment Bond, which meet the following requirements.
- B. The accepted Bidder shall provide a Construction Performance Bond by a surety company satisfactory to the Owner, in an amount equal to one hundred percent (100%) of the total sum of the contract as security for faithful performance of the contract.
- C. The accepted Bidder shall provide a Construction Payment Bond by a surety company satisfactory to the Owner, in an amount equal to one hundred percent (100%) of the total sum of the contract as security for the payment of all persons performing labor and/or furnishing materials.
- D. The Bidder shall endorse the Construction Performance Bond and Construction Payment Bond in the name of the Owner as obligee, signed and sealed by the Bidder as principal and the Surety.
- E. The Surety Company writing the Performance and Payment Bonds must be listed in the Federal Register as published by the U.S. Department of Treasury, in the most recently revised Circular 570. In addition, the Surety Company must be licensed and admitted to do business in the State of Michigan. The Bidder shall provide the Owner with evidence that the Surety Company is listed in the current U.S. Department of Treasury Circular 570 and is licensed and admitted to do business in the State of Michigan.
- F. Construction Performance Bond and Construction Payment Bond shall be held until time of substantial completion, receipt by the Owner of all required certifications and occupancy approvals from authorities having jurisdiction over the work, and acceptance of the Project by the Owner.

1.11 ADDITIONAL CONTRACTOR INFORMATION

- A. The low Bidders may be requested to complete, within 48 hours after receipt of the written request, the Supplemental Forms and Appendices identified below:

Appendix A – Bid Breakdown.

Appendix B – Qualification Statement: Include the names, description and contract amounts for similar projects. Provide the name and telephone number of the Owner / Client contact persons.

Appendix C – Subcontractors: Include the names of all Subcontractors and the portions of the Work they will perform.

- B. The selected Bidders shall submit a detailed cost or pricing breakdown by trades and/or suppliers within 10 calendar days of receipt of notice of acceptance and prior to execution of agreement.

#### 1.12 IDENTIFICATION AND SUBMISSION OF BIDS

- A. Submit two (2) copies of the executed offer on the Bid Forms provided, signed with the required security in a closed opaque envelope, clearly identified on the outside of the envelope:

Project name: Tuscola County Jail, Window and Plumbing Modifications

Owner's name: Tuscola County

Bidder's name:

- B. Bidders shall be solely responsible for the delivery of their Bids in the manner and time prescribed.

- C. Bids signed, executed, and dated will be received by:

Tuscola County  
Attn.: Michael Hoagland, Controller/Administrator  
125 W. Lincoln St.  
Caro, MI. 48723

Before: 2:00 p.m., local time on Thursday, February 16, 2017.

- D. Offers submitted after the above time will be returned to the Bidder unopened.

#### 1.13 MODIFICATION OR WITHDRAWAL OF BIDS

- A. Bid changes or withdrawal shall be permitted until the time of the bid opening without penalty.
- B. Amendments to the submitted offer will be permitted and will require a written request for modification or withdrawal endorsed by the same party or parties who signed the offer. One copy of request shall be submitted to each the Owner and to the Architect/Engineer.

#### 1.14 DISQUALIFICATION OF BIDDERS

Bids that are unsigned, improperly signed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, will at the discretion of the Owner, be declared unacceptable.

- A. Bid Forms, Appendices, and enclosures which are improperly prepared will at the discretion of the Owner, be declared unacceptable.
- B. Failure to provide security deposit, bonding or insurance requirements will at the discretion of the Owner invalidate the Bid.
- C. Improperly completed information, irregularities in bid bond, and/or failure to provide agreement to bond may be cause the Bid invalid.

1.15 PRE-BID CONFERENCE

- A. A Bidders conference is scheduled for 10:00 a.m. local time on Thursday, February 2, 2017 and shall be held at the Tuscola County Jail located at 420 Court Street, Caro, MI. 48723.
- B. All general contract and major subcontract Bidders and Suppliers are invited. Attendance is advised but not mandatory for general contractors interested in bidding.
- C. Representatives of the Owner will be in attendance.
- D. Information relevant to the Bid Documents will be recorded in an Addendum, issued to Bid Document recipients.
- E. Copies of the sign-in sheet for the pre-bid conference will be made available..

1.16 OPENING OF BIDS

- A. Bids are to be delivered to:

Tuscola County  
Attn. Michael Hoagland, Controller/Administrator  
125 W. Lincoln St.  
Caro, MI. 48723

Before 2:00 p.m. local time Thursday, February 16, 2017.

- B. A public bid opening will occur shortly after close of bidding.

1.17 EVALUATION AND CONSIDERATION OF BIDS

- A. Owner reserves time to tabulate, review, and evaluate the bids.
- B. Tuscola County reserves the right to reject any and all bids and choose the bid that is in the best interest of the County. Any party who bid under this policy does so at their own free will and without liability to the County. A bid may be awarded to a higher bidder for reasons such as but not limited to: quality, service, reliability, convenience, dependability, etc.
- C. By submitting a bid, the bidder is acknowledging that there will be no contractual relationship between the County and the bidder until both parties have formally approved and signed a written contract to be developed by County's legal counsel
- D. Considerations or factors that are important to the Project are as follows:
  - 1. Amount of the bid, however, low bid alone will not necessitate award.
  - 2. Contract time.
  - 3. Percent of overhead and fee combined for changes in the work by change orders.
  - 4. Experience and qualifications in completing projects of similar type, size, and scope.
  - 5. References.

- E. After acceptance by the Owner, the Owner will issue to the successful Bidder, a written Bid Acceptance or Notice to Proceed. The successful Bidder shall commence work within ten calendar days after Notice to Proceed is issued.

1.18 EXECUTION OF CONTRACT

- A. The Owner reserves the right to make changes to AIA Document A101 – Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum (2007 Edition), AIA Document A201 – General Conditions of the Contract for Construction (2007 Edition), and Document 00800 Supplementary Conditions up until the time they are presented for execution by the parties.
- B. Contractors shall commence work within ten calendar days after the Owner shall have given his written notice to commence construction, and shall diligently prosecute such construction.

END OF DOCUMENT

**DOCUMENT 00200**  
**INFORMATION AVAILABLE TO BIDDERS**

1.01 SUMMARY

- A. Documents contained within this Section are information made available to the Architect/Engineer for purposes of design. The Documents were prepared by others. The Architect/Engineer does not warrant the accuracy or completeness of the Documents.
- B. Additional Documents listed in this Section are indicated for the Contractor's consideration and the information may be requested by the General Contractor.

1.02 INFORMATION FROM THE ARCHITECT

- A. Existing Drawings:
  - 1. No representation as to the accuracy of the existing drawings is offered. Bidders are to use their own judgment and field inspection.

END OF DOCUMENT





**Alternate No. 4 – Remove security ceiling/lighting. Replace with new security ceiling/lighting**

ADD/DEDUCT \_\_\_\_\_ dollars

(\$ \_\_\_\_\_ )

**Alternate No. 5 – Remove and replace existing shower controls**

ADD/DEDUCT \_\_\_\_\_ dollars

(\$ \_\_\_\_\_ )

**3. CONTRACT TIME**

If this Bid is accepted, we will:

Complete the Work within \_\_\_\_\_ Calendar days of notice to proceed.

**4. CHANGES IN THE WORK**

The percent of \_\_\_\_\_ for overhead and fee combined will be added to material and labor cost for changes in the work by change orders.

**5. ADDENDA**

The following Addenda have been received. The modifications to the Bid Documents noted therein have been considered and all costs thereto are included in the Bid Sum.

Addendum # \_\_\_\_\_ Dated \_\_\_\_\_

Addendum # \_\_\_\_\_ Dated \_\_\_\_\_

Addendum # \_\_\_\_\_ Dated \_\_\_\_\_

**6. ACCEPTANCE**

This offer shall be open to acceptance and is irrevocable for the period stated in the advertisement for bid from the bid closing date.

By submitting a bid, the bidder is acknowledging that there will be no contractual relationship between the Owner and bidder until both parties have formally approved and signed the AIA Document A101, AIA Document A201, and Document 00800 Supplementary Conditions.

If the Owner accepts this Bid within the time period stated above, we will:

- a. Execute the Agreement within ten days of receipt of Notice of Award.
- b. Furnish the required bonds within ten days of receipt of Notice of Award in the form described in the Instructions to Bidders.
- c. Commence work within ten calendar days after written Notice to Proceed.

If this Bid is accepted within the time stated, and we fail to execute the agreement or we fail to provide the required Bonds, the security deposit shall be forfeited as damages to the Owner by reason of our failure, limited in amount to the lesser of the face value of the security deposit or the difference between this Bid and the Bid upon which the Contract is signed.

In the event our Bid is not accepted within the time stated above, the required security deposit shall be returned to the undersigned, in accordance with the provisions of the Instructions to Bidders; unless a mutually satisfactory arrangement is made for its retention and validity for an extended period.

**7. BID FORM SIGNATURE(S)**

---

(Bidder - please print the full name of your Proprietorship, Partnership, or Corporation)

---

(Authorized signing officer Title)

---

(Witness)

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

END OF DOCUMENT

**DOCUMENT 00400  
SUPPLEMENTS TO BID FORM**

To: Tuscola County  
125 W. Lincoln St.  
Caro, MI. 48723

Project: Tuscola County Jail, Window and Plumbing Modifications

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

Submitted by: \_\_\_\_\_  
(full name)

\_\_\_\_\_  
(full address)

In accordance with Instructions to Bidders and Bid Form, we include the Supplements to Bid Form Appendices listed below. The information provided shall be considered an integral part of the Bid Form.

These Appendices are as follows:

Appendix A – Bid Breakdown: Include separate amounts for the work as indicated that are included in the Base Bid.

Appendix B - Qualification Statement: Include the names, phone numbers, description and contract amounts for similar projects.

Appendix C – Subcontractors: Include the names of all Subcontractors and the portions of the Work they will perform.

**SUPPLEMENTS TO BID FORM SIGNATURE(S)**

\_\_\_\_\_  
(Bidder - please print the full name of your Proprietorship, Partnership, or Corporation)

\_\_\_\_\_  
(Authorized signing officer Title)

\_\_\_\_\_  
(Witness)

If the Bid is a joint venture or partnership, add additional forms of execution for each member of the joint venture in the appropriate form or forms as above.

END OF DOCUMENT

## APPENDIX A – BID BREAKDOWN

Not Used







**DOCUMENT 00500  
AGREEMENT**

**1. AGREEMENT**

American Institute of Architects (AIA) Document A101, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum (2007 Edition), forms the basis of Contract between the Owner and Contractor. All provisions, which are not so amended or supplemented, remain in full force and effect.

**2. SUPPLEMENTARY CONDITIONS**

Refer to Document 00800 for amendments to this portion of the Agreement.

The Owner reserves the right to make changes to these documents up until the time they are presented for execution by the parties.

END OF AGREEMENT

**DOCUMENT 00700  
GENERAL CONDITIONS**

**1. GENERAL CONDITIONS**

American Institute of Architects (AIA) Document A201, General Conditions of the Contract for Construction (2007 Edition), Articles 1 through 14 inclusive, is the General Conditions between the Owner and Contractor.

**2. SUPPLEMENTARY CONDITIONS**

Refer to Document 00800 for amendments to these General Conditions.

The Owner reserves the right to make changes to these documents up until the time they are presented for execution by the parties.

END OF GENERAL CONDITIONS

**DOCUMENT 00800  
SUPPLEMENTARY CONDITIONS**

The following supplements modify, change, delete from, or add to the Master Agreement, AIA Document A101, and General Conditions for the Contract for Construction, AIA document A201. Where any article or any paragraph, subparagraph or clause thereof is not modified or deleted, unaltered provisions of that article, paragraph, subparagraph or clause remain in effect.

The terms used in the Supplementary Conditions, which are defined in the General Conditions of the Contract for Construction (AIA Document A201 – 2007 Edition), have the meanings assigned to them in the General Conditions.

**AIA DOCUMENT A201 SUPPLEMENTS:**

**AMEND ARTICLE 1 AS FOLLOWS:**

Add Subparagraph 1.1.1 THE CONTRACT DOCUMENTS:

Division 1 – General Requirements governs the execution of all sections of the Specifications from Division 2 through Division 26.

Add Subparagraph 1.1.9 MISCELLANEOUS DEFINITIONS

The term "product" includes materials, systems and equipment. The term "Project Manual" includes the bidding requirements, Conditions of the Contract and the Specifications.

Revise Subparagraph 1.2.1:

Add to the end of first sentence: "and to make all working parts operational."

Add to the end of the paragraph: "Should conflicts, errors, or discrepancies remain unresolved within the final ten (10) days before bids are due, estimate on and furnish the greater quantity or better quality unless resolution is received in writing from the Architect/Engineer."

Add Subparagraph 1.2.4:

Should there be conflicts, errors, or discrepancies between or within the Contract Documents, that which requires the highest degree of performance (quality, quantity, strength, finish, completion, complexity, sophistication, etc.), will be required and shall be provided at no increase in the contract amount. All such conflicts shall be brought to the attention of the Architect/Engineer for their interpretation of the intent of the drawings and/or specifications.

**AMEND ARTICLE 2 AS FOLLOWS:**

Delete Subparagraph 2.1.2.

Revise Subparagraph 2.3

Insert at the end of Article 2.3 the following:

"This right shall be in addition to, and not in restriction of, the Owner's rights under Article 12.2."

Revise Subparagraph 2.4.:

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a seven-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Architect's additional services and expenses made necessary by such default, neglect or failure and legal fees. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

**AMEND ARTICLE 3 AS FOLLOW:**

Revise Subparagraph 3.3.2:

The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors, Subcontractors and their respective agents and employees, and other persons performing portions of the Work under a contact with the Contractor, a Subcontractor or a Subsubcontractor.

Add the following provision as a new Article 3.3.4:

"If any of the Work is required to be inspected or approved by any public authority, the Contractor shall cause such inspection or approval to be performed. No inspection performed or failed to be performed by the Owner hereunder shall be a waiver of any of the Contractor's obligations hereunder or be construed as an approval or acceptance of the Work or any part thereof."

Add the following provision as a new Article 3.3.5:

"The Contractor acknowledges that it is the Contractor's responsibility to hire all personnel for the proper and diligent prosecution of the Work and the Contractor shall use its best efforts to maintain labor peace for the duration of the Project. In the event of a labor dispute, the Contractor shall not be entitled to any increase in the Contract Sum."

**Add Subparagraphs 3.4.4: POLICIES OF EMPLOYMENT**

The Contractor shall maintain policies of employment as follows:

The Contractor and all Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, age, sex, or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, color, age, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

The Contractor and all Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, age, sex, or national origin.

The Contractor or his collective bargaining representative will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice advising the said labor union or worker's representative of the Contractor's commitments under this section.

Revise Subparagraph 3.6:

Add to the end of the paragraph: "including, but not limited to, all Sales Taxes, Use Taxes, Occupational Taxes, Excise Taxes, Social Security Benefits, Unemployment Compensation Taxes, or similar levies on all materials, labor, tools, and equipment furnished under this Agreement, as required by the Statutes of the State in which the project is located.

"(a) The Contractor's fee includes, and the Contractor shall be solely responsible for paying, any and all taxes, excises, duties and assessments ("Taxes") arising out of the Contractor's performance of the Work in any manner levied, assessed or imposed by any government or agency having jurisdiction.

(b) The Contractor shall promptly pay and discharge when due, unless the validity or application to the Work is being contested in good faith, any and all Taxes, together with any interest and penalties, the responsibility and liability for which is assumed by the Contractor pursuant to the preceding paragraph. If any such Taxes are levied, assessed or imposed upon the Owner, the Owner shall notify the Contractor and the Contractor shall promptly pay and discharge the Taxes, but upon the written request and at the expense of the Contractor, the Owner shall assist the Contractor in contesting the validity or application of such Taxes. If the Owner receives a refund of all or any part of the Taxes (including a refund of interest or penalties), the amount refunded to the Owner shall promptly be remitted to the Contractor, less any expenses of the Owner associated with contesting the Taxes not previously reimbursed by the Contractor to the Owner."

Add the following language at the end of Article 3.7.1:

"The Contractor shall procure all certificates of inspection, use, occupancy, permits and licenses, pay all charges and fees and give all notices necessary and incidental to the Work. Certificates of inspection, use and occupancy shall be delivered to the Owner upon completion of the Work in sufficient time for occupation of the project in accordance with the approved schedule for the Work. "

Revise Subparagraph 3.7.2:

Add to end of paragraph: "If the Contractor fails to give such notices, it shall be liable for and shall indemnify and hold harmless the Owner and the Architect, and their respective employees, officers and agents, against any resulting fines, penalties, judgments or damages, including reasonable attorneys' fees, imposed on or incurred by the parties indemnified hereunder."

Revise Article 3.7.3 and add the following language at the end of Article 3.7.3:

"It shall be the obligation of the Contractor to review to the best of its ability the Contract Documents to determine and to notify the Owner and the Architect of any discrepancy between building codes and regulations of which the Contractor has knowledge. The Contractor shall not violate any zoning, setback or other local requirements of applicable laws, codes and ordinances, or of any recorded covenants of which the Contractor has knowledge. If the Contractor observes that portions of the Contract Documents are at variance with applicable laws, statutes, ordinances, building codes, rules or regulations, the Contractor promptly shall notify the Owner and Architect in writing, and necessary changes shall be accomplished by appropriate Modification."

Add Subparagraph 3.7.6:

The General Contractor shall submit plans and Specifications to the Office of the Building Inspector and/or any other department having jurisdiction over work of this character and shall obtain and pay for examination fees, general building permits, and any other fees required by said departments. Unless otherwise specified, he shall also make all cash deposits required by State, County, or City authorities and pay for repairing of all walks, pavements, roadways, lawns, shrubs, trees, structures and utilities damaged by execution of his work.

The Electrical Contractor shall procure all necessary permits and certificates, pay for all fees, and arrange for all necessary inspections required by State, County, or City authorities for all electrical work, meters, lighting fixtures, and other electrical items and pay for repairing of all walks, pavements, roadways, lawns, shrubs, trees, structures and utilities damaged by execution of his work.

The Site Preparation, Plumbing, Heating, Air Conditioning, and Ventilating Contractors shall procure all necessary permits and certificates, pay all fees, and arrange for all necessary inspections required by State, County, or City authorities and pay for repairing of all walks, pavements, roadways, lawns, shrubs, trees, structures and utilities damaged by execution of their respective work.

Revise Subparagraph 3.9.1:

Revise first and second sentences to read: "The Contractor shall employ and maintain a competent superintendent and necessary assistants approved by the Architect/Engineer and Owner throughout the period of construction. The superintendent shall be deemed an Agent of the Contractor and any orders given him by the Architect/Engineer shall be binding upon the Contractor."

Add to the end of the paragraph: "The superintendent of the Contractor may not be removed from (or replaced on) the job during the period of construction without approval of the Architect/Engineer and Owner."

Add the following language at the end of Article 3.9.1:

"The superintendent shall be satisfactory to the Owner in all respects, and Owner shall have the right to require Contractor to dismiss from the Project any superintendent whose performance is not satisfactory to Owner, and to replace such superintendent with a superintendent satisfactory to Owner. The Contractor shall not replace the superintendent without the consent of the Owner except with another superintendent satisfactory to the Owner in all respects."

Add Subparagraph 3.9.4:

"As directed by the Architect / Engineer, there is to be held at the Contractor's field office a meeting of the representatives of the various trades engaged about the Work, for furthering the progress of the Work and given of clarifications by the Architect and Instructions by the Owner. Where the Contractor's Representatives fail in attendance or in executing the instructions given them, they shall on request of the Owner be dismissed from the Work and other representatives must be immediately substituted."

Add Subparagraph 3.9.5:

"A list of all supervisory personnel, including the project manager and superintendent, that the Contractor intends to use on the Project and a chain-of-command organizational chart shall be submitted to the Owner for approval. The Contractor shall not engage supervisory personnel or utilize an organization and chain-of-command other than as approved by Owner in writing, and shall not change such personnel or form of organization without the written approval of the Owner."

Add the following language at the end of 3.10.1:

“The Project construction schedule shall not exceed time limits current under the Contract Documents, shall be updated and revised by the Contractor at appropriate intervals as required by the conditions of the Work and Project, shall be related to the Project scope as defined by the Contract Documents, shall provide for expeditious and practicable execution of the Work of this Contract and shall not be modified or extended without the prior approval of the Owner in each instance.”

Revise Subparagraph 3.11:

In the first sentence, replace "and approved Shop Drawings, Product Data and Samples with the following: "and Contractor approved Shop Drawings, Product Data and Samples which have been reviewed by the Architect/Engineer."

Insert immediately after the word "Work as constructed" in the last sentence of Article 3.11 the following: "Signed by the Contractor, certifying that they show complete "as-built" conditions, stating sizes, kind of materials, vital piping, conduit locations and similar matters."

Revise Subparagraph to 3.12.5:

Add new sentence to the end of 3.12.5: Contractor shall indicate his review and approval by means of his stamp, with his initials and date of review, prior to submitting to the Architect/Engineer for review.

Add the following language at the end of 3.12.7:

"No portion of the work requiring submission of a Shop Drawing, Product Data or Sample shall be commenced until the submittal has been reviewed by the Architect/Engineer as provided in Subparagraph 4.2.7. All such portions of the Work shall be in accordance with submittal reviewed by the Architect/Engineer, and bearing his review stamp."

Revise 3.12.8 to read as follows:

The Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's review of Shop Drawings, Product Data, Samples or similar submittal unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved of responsibility for errors or omissions in the Shop Drawings, Product Data, Samples or similar submittal by the Architect's review thereof.

Add Subparagraph 3.12.11:

Shop drawings, which in the opinion of the Architect/Engineer have not been fully checked by the Contractor, will not be reviewed by the Architect/Engineer. They will be returned for proper checking by the Contractor. No extension of Contractor completion date will be allowed because of such action by the Architect/Engineer.

Add the following language at the end of 3.15.1:

It shall be the duty of the General Contractor and/or Subcontractor to keep the premises free of accumulations of surplus materials and rubbish caused by his operations and the operations of its subcontractors. Combustible rubbish and debris shall be removed immediately.

Add Subparagraph 3.15.3:

Each Friday afternoon, and more often if necessary, the General Contractor shall perform an overall cleanup of the entire site, including a broom cleaning of all appropriate surfaces. The trades shall remove their rubbish and debris from the building site to the rubbish collection location promptly upon its accumulation and in no event later than the regular Friday general clean up.

Burning of rubbish on site will not be permitted. Rubbish shall not be thrown through window openings or from any great heights, but shall be conducted to ground by means of approved chutes or other means of controlled conveyance.

The General Contractor shall provide a suitable location on the site with a sufficient quantity of rubbish bins, and shall be responsible for the removal of rubbish from the site.

If the Contractor fails to clean up, the Owner may do so, and the cost thereof shall be deducted from monies owed the Contractor.

Revise Subparagraph 3.18.1:

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, to the extent caused in whole or in part by negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Paragraph 3.18.

Add Subparagraphs 3.18.3 and 3.18.4:

3.18.3 "The Contractor agrees to indemnify, defend and hold harmless the Owner from and against any and all administrative and judicial actions (including reasonable attorneys' fees related to any such actions) and judgments incurred by the Owner in connection with any labor related activity arising from the Contractor's performance of the Work. As used in these Contract Documents, "labor related activity" includes, but is not limited to, strikes, walk-outs, informational or organizational picketing, use of placards, distribution of hand-outs, leaflets or other similar acts at or in the vicinity of the Project or in the vicinity of any other facility where the Owner conducts business. The Owner shall advise the Contractor if any labor related activity occurs and the Contractor shall arrange for the legal representation necessary to protect the Owner's interest, provided such representation is approved by the Owner in advance."

3.18.4 The Contractor shall indemnify, defend and hold harmless the Owner and the Architect, and their consultants, agents and employees, from and against claims, damages, losses, attorney's fees, and expenses arising out of, or resulting from, any breach, violation or infringement of patent rights, copyrights or other intellectual property rights in connection with the Work, and from any release of hazardous substances on or near the site, except to the extent caused by the Owner.



**AMEND ARTICLE 4 AS FOLLOWS:**

Add to Subparagraph 4.1.1:

The Architect is Landmark Design Group, P.C., 3883 Linden Avenue, SE, Suite A, Grand Rapids, Michigan 49548-3406; telephone (616) 956-0606, and is referred to throughout the Specifications as the A/E or Architect/Engineer and as Architect in AIA Document A101, AIA Document A201 and amendments and supplementary conditions to those documents.

**AMEND ARTICLE 5 AS FOLLOWS:**

Add the following at the end of Article 5.2.1:

“Notwithstanding the foregoing, Contractor may not substitute any Subcontractor for any of the subcontractors previously identified in the bid process without the express written consent of Owner.”

Add the following sentence at the end of Article 5.2.4:

“The Owner may require the Contractor to change any Subcontractor or Sub-subcontractor previously approved and, if at such time the Contractor is not in default hereunder, the Contract Sum shall be increased or decreased by the difference in cost occasioned by such change. The Owner shall document in writing the reasons for which this change is being made and will hold the Contractor harmless from any claim of the subcontractor arising solely from the Owner’s requirement to change the subcontractor.”

Add Subparagraph 5.2.5:

"Upon request, the Contractor shall provide to the Owner an executed copy of all subcontracts, purchase orders and other agreements relating to the Work."

Add the following new Article 5.3.1:

“Notwithstanding any provision of Article 5.3, any part of the Work performed for the Contractor by a Subcontractor or its Sub-subcontractor shall be pursuant to a written Subcontract between the Contractor and such Subcontractor (or the Subcontractor and its Sub-subcontractor at any tier), which shall be prepared on a form of subcontract satisfactory to the Owner in all respects. Each such subcontract shall, where the context so requires, contain provisions that:

- .1 Require that such Work be performed in accordance with the requirements of the Contract Documents;
- .2 Waive all rights the contracting parties may have against one another or that the Subcontractor may have against the Owner for damages caused by fire or other perils covered by the insurance described in the Contract Documents;
- .3 Require the Subcontractor to carry and maintain insurance coverage in accordance with the Contract Documents, and to file certificates of such coverage with the Contractor;
- .4 Require the Subcontractor to submit certificates and waivers of liens for work completed by it and by its Sub-subcontractors as a condition to the disbursement of the progress payment next due and owing;

- .5 Require submission to Contractor or Subcontractor, as the case may be, of applications for payment in a form approved by the Owner, together with clearly defined invoices and billings supporting all such applications under each subcontract to which the Contractor is a party;
- .6 Report, so far as practicable, unit prices and any other feasible formula for use in the determination of costs of changes in the Work;
- .7 Require each Subcontractor to furnish to the Contractor in a timely fashion all information necessary for the preparation and submission of the reports required herein;
- .8 Require that each Subcontractor continue to perform under its subcontract in the event the Contract is terminated and the Owner shall take an assignment of said subcontract and request such Subcontractor to continue such performance;
- .9 Require each Subcontractor to remove all debris created by its activities;
- .10 Require each Subcontractor to represent that it is an equal opportunity employer."

Add the following sentence at the end of Article 5.3:

"The Contractor shall not enter into any subcontract, contract, agreement, purchase order or other arrangement ("Arrangement") for the furnishing of any portion of the materials, services, equipment or Work with any party or entity without the approval of the Owner."

**AMEND ARTICLE 6 AS FOLLOWS:**

Delete Subparagraph 6.1.4.

**AMEND ARTICLE 7 AS FOLLOWS:**

Add Subparagraph 7.1.4:

Except as permitted in Paragraph 7.3 and 9.7 a change in the Contract sum or the Contract Time shall be accomplished only by Change Order. Accordingly, no course of conduct or dealings between the parties nor express or implied acceptance of alterations or additions to the work and no claim if the Owner has been unjustly enriched by an alteration or addition to the work, whether or not there is, in fact, any unjust enrichment to the work, shall be the basis of any claim to an increase of any amounts due under the contract documents or a change in any time period provided for in the Contract documents.

Add Subparagraph to 7.3.11:

"When either the Owner or the Contractor or both do not agree with the determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, such disagreement may be resolved by agreed upon arbitration or, in the absence of agreement, litigation as described in Article 15."

Add the following Article 7.5: OVERHEAD AND PROFIT LIMITS

7.5.1 Contractor shall provide its services under this Agreement in a timely fashion and on a schedule that will allow Substantial Completion of all portions of the Project on or before the agreed upon date in the Project Schedule, and final completion of the Project on or before

the agreed upon date in the Project Schedule. The parties agree that time is of the essence. The parties may mutually agree in writing to extend one or both of these dates.

7.5.2 For changes in the Work, the maximum allowable cost for the combined overhead and profit included in the total cost to the Owner shall not exceed 15 percent and shall be subject to the following maximums:

- .1 For the Contractor, for Work performed by the Contractor's own forces, 15 percent of the cost.
- .2 For the Contractor, for Work performed by the Contractor's Subcontractor, 5 percent of the amount due the Subcontractor.
- .3 For each Subcontractor involved, for Work performed by that Subcontractor's own forces, 10 percent of the cost.
- .4 For each Subcontractor involved, for Work performed by the Subcontractor's Sub-subcontractors, 5 percent of the amount due the Sub-subcontractor.
- .5 For each Sub-subcontractor involved, for Work performed by the Sub-subcontractors own forces, 5 percent of the cost.
- .6 All proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and Subcontracts. Labor and materials shall be itemized, and where major cost items are Subcontracts, they shall be itemized also. In no case will a change be approved without such itemization.

7.5.3 Contractor shall not be paid for work performed prior to the issuance of an applicable change order. Verbal approval of a change order is not permitted, and any work performed on the basis of purported verbal approval shall not be compensated except in the case of a documented emergency.

**AMEND ARTICLE 8 AS FOLLOWS:**

Add the following sentence at the end of Article 8.3.1:

“No such Change Order extending the Contract Time shall result in any increased payments to the Contractor for overhead or extended overhead; nor shall such Change Order result in any increased payments to the Contractor for any other amounts of any nature except if actual additional expenses are shown or if the scope and character of the Work is significantly changed.”

Add the following sentence at the end of Article 8.3.2:

“A copy of any claim for extension shall be delivered to the Owner, and the Contractor shall immediately take all steps reasonably possible to lessen the adverse impact of such delay on Owner.”

Add the following sentence at the end of Article 8.3.3:

“In no event shall Owner be liable for delay damages to the extent such delay was caused by or attributable to Contractor or any Subcontractor.”

**AMEND ARTICLE 9 AS FOLLOWS:**

Add the following language at the end of Article 9.1:

“Notwithstanding anything to the contrary contained in the Contract Documents, the Owner may withhold any payment to the Contractor hereunder if and for so long as the Contractor fails to perform any of its obligations hereunder or otherwise is in default under any of the Contract Documents; provided, however, that any such holdback shall be limited to an amount sufficient in the reasonable opinion of the Owner and the Architect to cure any such default or failure of performance by the Contractor.”

Add the following language at the end of Subparagraph 9.3.1:

The form of Application for Payment shall be AIA Document G702, APPLICATION AND CERTIFICATE FOR PAYMENT, supported by AIA Document G703, Continuation Sheet.

“Such Application for Payment shall be certified as correct by Contractor and shall be accompanied by waivers of liens and other documentation from Subcontractors and Sub-subcontractors as reasonably may be required by the Owner or title insurer. In addition, such Application for Payment shall contain a certification by the Contractor that there are no written claims submitted to the Contractor at the date of such Application for Payment.”

Revise Subparagraph 9.3.3:

The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

Add Subparagraph 9.5.4:

“If the Contractor disputes any determination by the Architect with regard to any Certificate of Payment, the Contractor nevertheless expeditiously shall continue to prosecute the Work.”

Add Subparagraph 9.5.5:

“The Owner shall not be deemed to be in breach of this Contract by reason of the withholding of any payment pursuant to any provision of the Contract Documents provided the Architect has approved the Owner’s action or the Work for which payment is being withheld shall have been rejected by any governmental authority.

Add the following language at the end of Article 9.7:

“Notwithstanding Article 9.7, in the event there is a dispute about the accuracy or sufficiency of the Contractor’s Application for Payment, Contractor shall not be entitled to stop the Work on account of failure of payment.”

Revise Article 9.8.1:

Insert after the words “intended use” in Article 9.8.1 the words “and when all required occupancy permits have been issued”.

Add the following provision at the end of Article 9.8.2:

“The Contractor is responsible for the warranty of all Work, whether performed by it or by its Subcontractors at any tier.”

Add Subparagraph 9.8.6:

The completed Work shall be without any outstanding or concurrent Work remaining, except as required to complete minor punch list items. The Owner has the sole discretion to determine whether punch list items are “minor”. Prerequisites for substantial completion include, (a) receipt by the Owner of all required operation and maintenance documentation, warranties, and completed record drawings; (b) receipt by the Owner of all required products, spare parts, maintenance and extra materials; (c) all systems have been successfully tested and demonstrated by the Contractor for their intended use; and (d) the Owner has received all required certifications and occupancy approvals from the state and local authorities having jurisdiction over the work. Receipt of all certificates and occupancy approvals in and of itself does not necessarily connote substantial completion.

Revise Subparagraph 9.10.2 to replace subclauses (2) and (3) thereof with the following:

“... (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled, modified or allowed to expire until at least 30 days’ prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents....”

Add new Paragraph 9.11:

9.11 RETENTION

9.11.1 Pursuant to Act 524 of the Michigan Public Acts of 1980, the following retention provisions shall apply: The Owner shall retain a portion of each progress payment otherwise due which shall be limited to the following.

- a. Not more than 10% of the dollar value of all work in place until work is 50% in place.
- b. After the work is 50% in place additional retainage shall not be withheld unless the Owner determines the contractor is not making satisfactory progress or for other specific cause relating to the contractor's performance under this contract.

9.11.2 The retained funds shall not be co-mingled with other funds of the Owner and shall be deposited in an interest-bearing account in a regulated financial institution in the State of Michigan wherein all retained funds are kept by the Owner which shall account for both retainage and interest on each construction contract separately.

9.11.3 Except as provided in subparagraphs 9.11.5 below, retainage and interest earned on retainage shall be released to the Contractor together with the final progress payment.

9.11.4 At any time after 94% of the work under this contract is in place and at the request of the original Contractor, the Owner shall release the retainage, plus interest to the original Contractor, only if the original Contractor provides to the Owner an irrevocable letter of credit in the amount of the retainage plus interest issued by a bank authorized to do business in the State of Michigan, containing terms mutually acceptable to the Contractor and the Owner.

9.11.5 If a dispute arises regarding the matter described in the paragraphs immediately above, the Contractor and the Owner agree to submit the dispute to the decision of an agent at the option of the Owner as follows:

- a. The Contractor and the Owner shall designate an agent who has background training and experience in the construction of facilities similar to that which is the subject of the contract as follows:
  - (1) In an agreement reached within ten (10) days after a dispute arises.
  - (2) If an agreement cannot be reached within ten (10) days after a dispute arises the Owner shall designate an agent who has background training and experience in the construction of facilities similar to that which is the subject of the contract and who is not an employee of the Owner.
- b. The Owner may request dispute resolution by the agent regarding the following:
  - (1) At any time during the term of the contract, to determine whether there has been a delay for reasons that were within the control of the contractor, and the period of time that day has been caused, continued or aggravated by actions of the Contractor.
  - (2) At any time after 94% of the work under the contract is in place, whether there has been an acceptable delay by the Contractor in performance of the remaining 6% of work under the contract. The agent shall consider the terms of the contract and the procedures normally followed in the industry and shall determine whether the delay was for failure to follow reasonable and prudent practices in the industry for completion of the project.
- c. This dispute resolution process shall be used only for the purpose of determining the rights of the parties of retain funds and interest earned on retained funds and is not intended to alter, abrogate or limit any rights with respect to remedies that are available to enforce or compel performance of the terms of the contract by either party.
- d. The agent may request and shall receive all pertinent information from the parties and shall provide an opportunity for an informal meeting to receive comments, documents and other relevant information in order to resolve the dispute. The agent shall determine the time, place and procedure for the informal meeting. A written decision and reasons for the decision shall be given to the parties within fourteen (14) days after the meeting.
- e. The decision of the agent shall be final and binding upon all parties. Upon application of either party, the decision of the agent may be vacated by order of the Circuit Court only upon a finding by the Court that the decision was procured by fraud, duress or other illegal means.
- f. If the dispute resolution results in a decision:
  - (1) That there has been a delay as described in subparagraph (b.1) above, all interest earned on the retained funds during the period of delay shall become the property of the Owner.
  - (2) That there has been an unacceptable delay as described in subparagraph (b.2) above, the Owner may contract with a subsequent Contractor to complete the remaining 6% of work under the contract, and interest earned on retained funds shall become the property of the Owner. A subsequent Contractor under this subdivision shall be paid by the Owner from the following sources until each source is depleted in the order listed below:
    - (i) The dollar value of the original contract less the dollar value of funds already paid to the original Contractor and the dollar value of the work in place for which the original Contractor has not received payment.
    - (ii) Retainage from the original Contractor or funds made available under a letter or credit provided in paragraph 9.11.4 above.
    - (iii) Interest earned on retainage from the original Contractor or funds made available under a letter of credit provided under paragraph 9.11.4 above.

- g. If the Owner contracts with a subsequent Contractor as provided in subparagraph (f.2), the final progress payment shall be payable to the original Contractor as provided for in the General and Supplementary Conditions. The amount of the final progress payment to the original Contractor shall not include interest earned on retained funds. The Owner may deduct from the final payment all expenses of contracting with the subsequent Contractor. These provisions shall not impair the right of the Owner to bring an action or to otherwise enforce a performance bond to complete work under this construction contract.
- 9.11.6 The aforementioned retention provisions shall not apply if the dollar value of this contract is: (a) less than \$30,000; or (b) if there will be three (3) or fewer payments.
- 9.11.7 Neither the final payment nor the remaining retained percentage shall become due until the Contractor submits to the Architect or the Owner (1) an affidavit that all payrolls, bills for materials and equipment and other indebtedness connected with the work for which the Owner might in any way be responsible, have been paid or otherwise satisfied, (2) consent of surety, if any, to final payment, and (3) if required by the Owner, other data establishing payment or satisfaction of all such obligations such as receipts, releases and waivers of liens arising out of the contract to the extent and in such form as may be designated by the Owner. If any subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorney's fees.
- 9.11.8 The making of final payment shall constitute a waiver of all claims by the Owner except those arising from (1) unsettled liens, (2) faulty or defective work appearing after substantial completion, (3) failure of the work to comply with the requirements of the Contract Documents, or (4) terms of any special warranties required by the Contract Documents.

**AMEND ARTICLE 10 AS FOLLOWS:**

Add the following language to the end of Article 10.1:

To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees arising out of or resulting from performance of the Work in the affected area if in fact the material is asbestos or polychlorinated biphenyl (PCB) and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property or death, or injury to or destruction of tangible property (other than the Work itself) including loss of use resulting therefrom, but only to the extent caused in whole or in part by negligent acts or omissions of the Owner, anyone directly or indirectly employed by the Owner or anyone for whose acts the Owner may be liable, and only to the extent not caused by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Subparagraph 10.1.2.

Add Subparagraph 10.2.9:

The Contractor shall notify the Owner and the Architect/Engineer in writing in advance of any hazardous chemical(s) and/or substance(s) that he brings onto the project site or within the existing facilities and shall state where, how, when and length of time said materials will be used.

Add Subparagraph 10.2.10:

Should any hazardous materials that were not anticipated be encountered during demolition or construction, the Contractor shall cease all work related to the hazardous materials. The Contractor shall then notify the Owner, who will determine the next course of action.

Add Subparagraph 10.2.11:

"If the Contractor fails to give such notices, or fails to comply with such laws, ordinances, rules, regulations and lawful orders, it shall be liable for and shall indemnify and hold harmless the Owner and the Architect, and their respective employees, officers and agents, against any resulting fines, penalties, judgments or damages, including reasonable attorneys' fees, imposed on or incurred by the parties indemnified hereunder."

**AMEND ARTICLE 11 AS FOLLOWS:**

Add to the end of Subparagraph 11.1.3:

"This Subparagraph 11.1.3 shall apply to all insurance required to be maintained by Contractor under the Contract Documents, and not apply to the insurance required under Paragraph 11.1. In addition, the insurance certificates shall be delivered along with a certificate from the agent for the insurer(s), including substantially the following:

This Certificate is being delivered in connection with the Contract between \_\_\_\_\_ as Owner, and \_\_\_\_\_, as Contractor, relating to the \_\_\_\_\_ Project.

The undersigned has been engaged by the Contractor to arrange for the insurance coverage required under Article 11 of the General Conditions to the Contract Documents. Pursuant thereto, the undersigned is providing, concurrently with this Certificate, the certificate of insurance attached hereto, and hereby represents and warrants to the Owner that the undersigned has reviewed the insurance requirements set forth in Article 11 of the General Conditions, as supplemented and amended, and that the policies of insurance evidenced on the certificates of insurance attached hereto contain all of the coverage, limitations and other provisions required by the Contract Documents."

Revise Article 11.1.4 "The Contractor shall cause the commercial liability coverage required by the Contract Documents to be endorsed to include....."

Add Subparagraph 11.1.5:

The insurance required by Section 11.1.1 shall be with insurance companies licensed and admitted to do business in the State of Michigan and have at a minimum an A.M. Best Company's Insurance Reports rating of A or A- (Excellent) and shall be of the types and limits of not less than the following:

1. Workmen's Compensation Insurance including Employers Liability Coverage in accordance with all applicable statutes of the State of Michigan.
2. Commercial General Liability Insurance on an "Occurrence Basis" with limits of liability not less than \$ 3,000,000.00 per occurrence and \$ 3,000,000.00 annual aggregate. Coverage shall include the following:



- .a Contractual Liability.
  - .b Products and Completes Operations.
  - .c Independent Contractors Coverage.
  - .d Broad Form General Liability Endorsement or Equivalent, if not already included.
  - .e Deletion of all Explosion, Collapse and Underground (SCU) Exclusions, if applicable.
3. Motor Vehicle Liability Insurance, including Michigan No Fault Coverage, with limits of liability of not less than \$ 3,000,000.00 per occurrence combined single limit Bodily Injury and Property Damage. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles.
  4. Owners' and Contractors' Protective Liability – The Contractor shall procure and maintain for the Project, a separate Owners' and Contractors' Protective Liability Insurance Policy of not less than \$ 3,000,000.00 per occurrence and aggregate. The Owner shall be "Named Insured" on said coverage. A thirty (30) days' Notice of Cancellation shall be endorsed into this policy.
  5. Umbrella Excess Liability Insurance – Liability limits over \$ 1,000,000.00 per occurrence may be obtained by using an Excess Liability (Umbrella) policy in addition to the primary liability policy.
  6. Deductibles – The Contractor shall be responsible for paying any deductibles in the insurance coverages required by this Section 11.1.5.
  7. Additional Insured - Commercial General Liability and Motor Vehicle Liability, as described above, shall include an endorsement stating the following shall be Additional Insured: Tuscola County, all elected and appointed officials, all employees and volunteers, agents, all boards, commissions, and/or authorities and boards members, including employees and volunteers thereof. It is understood and agreed by naming Tuscola County as additional insured, coverage afforded is considered to be primary and any other insurance Tuscola County may have in effect shall be considered secondary and/or excess.
  8. Proof of Insurance - The Contractor, at the time the Agreement is returned by it for execution, shall provide the Owner with a copy of the certificate of insurance as well as the required endorsements for each of the insurance coverages mentioned above. In lieu of required endorsements, if applicable, a copy of the policy sections where coverage is provided for additional insured and cancellation notice would be acceptable. If so requested, certified copies of all policies will be furnished.
  9. Cancellation Notice - It is expressly understood and agreed that the Contractor or the Contractor's insurer shall provide the Owner with thirty (30) days (ten (10) days for non-payment of premium) advanced written notice of cancellation, non-renewal, reduction and/or material change in the insurance coverages required by this Agreement. Such notice shall be sent to the Owner.
  10. Continuation of Coverage – If any of the above insurance coverages expire during the term of this Agreement, the Contractor shall deliver renewal certificates and/or policies to the Owner not less than ten (10) days prior to the expiration date.

Delete Article 11.3.1.4

Delete Subparagraph 11.3.4.

Delete Article 11.3.7 Waivers of Subrogation

Delete Subparagraph 11.3.9.

Revise Subparagraph 11.3.10:

The Owner as fiduciary shall have power to adjust and settle a loss with insurers.

Revise Subparagraph 11.4.1:

The Contractor shall furnish satisfactory payment and performance bonds, each in the amount of 100% of the contract price, as security for the faithful performance and payment of all of the Contractor's obligations under the Contract Documents. The bonds shall be issued by a corporate surety acceptable to the Owner, which is authorized to transact business in Michigan and listed in the current U.S. Department of Treasury Listing of Approved Sureties, Circular 570. All bonds signed by an agent must be accompanied by a certified copy of such agent's to act. If the surety on any bond so furnished is declared bankrupt or becomes insolvent or its right to do business is terminated in Michigan, or it ceases to meet the requirements of this Paragraph, the Contractor shall promptly, but within ten days thereafter, substitute another bond or bonds and surety, subject to the same qualifications as set forth herein.

**AMEND ARTICLE 12 AS FOLLOWS:**

Revise Subparagraph 12.1.2:

Insert after the word "Architect", the first time it appears in Article 12.1.2 the words, ", the Owner or any governmental authority".

Revise Subparagraph 12.2.1:

Insert after the word "Architect", the first time it appears in Article 12.2.1, the words ", the Owner or any governmental authority".

**AMEND ARTICLE 13 AS FOLLOWS:**

Revise the last sentence of Subparagraph 13.5.1 as follows:

"The Owner shall bear costs of tests, inspections or approvals which do not become requirements until after bids are received or negotiations concluded, except as provided in paragraph 13.5.3"

Add to Article 13.5.3, immediately after the word "expenses", the words:

", including the cost of retesting for verification of compliance if necessary, until the Architect certifies that the Work in question does comply with the requirements of the Contract Documents, and all such costs shall be at the Contractors expense".

Revise 13.6 Interest, following the phrase "from the date payment is due" as follows: "five percent (5%) per annum.

Add Paragraph 13.8: CONFLICTS IN AGREEMENTS

In the event there is any conflict between Supplementary Conditions and AIA Document A101 and / or AIA Document A201, the terms of the Supplementary Conditions shall govern.

Add Paragraph 13.9

Submission of Contractor's bid constitutes Contractor's representation that Contractor, as of the date of the Contractor's bid to Owner for the performance of the Work, and as of the date of the Contract, Contractor was not an "Iran linked business" as that term is identified in Act 517 of the Public Acts of Michigan of 2012.

**AMEND ARTICLE 14 AS FOLLOWS:**

Revise Subparagraph 14.1.3:

If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven additional days' written notice to the Owner and Architect without cure, terminate the Contract. If the reason in 14.1.1 or 14.1.2 exists, the Contractor may recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools and construction equipment and machinery, including reasonable overhead, profit and damages.

Revise Article 14.2:

14.2 TERMINATION BY THE OWNER FOR CAUSE

14.2.1 The Owner may, at any time, terminate the Contract in whole or in part for the Owner's convenience and without cause. Termination by the Owner under this Paragraph shall be binding by a notice of termination delivery to the Contractor specifying the extent of termination and the effective date.

14.2.2 Upon receipt of a notice of termination for convenience, the Contractor shall immediately, in accordance with instructions from the Owner, proceed with the following duties regardless of delay in determining or adjusting amounts due under this Paragraph:

- .1 Cease operation as specified in the notice;
- .2 Place no further orders and enter into no further subcontracts for materials, labor, services or facilities, except as necessary to complete the continued portions of the Contract;
- .3 Terminate all subcontracts and orders to the extent they relate to the work terminated;
- .4 Proceed to complete the performance of work not terminated; and
- .5 Seek actions that may be necessary, or that the Owner may direct, for the protection and preservation of the terminated work.

14.2.3 Upon such termination, the Contractor shall recover as its sole remedy, payment for work properly performed in connection with the terminated portions of the work prior to the effective date of termination and for items properly and timely fabricated off the project site, delivered and stored in accordance with the Owner's instructions. The Contractor hereby waives and forfeits all other claims for payment and damages, including, without limitation, anticipated profits.

- 14.2.4 The Owner shall be credited for (1) payments previously made to the Contractor for the terminated portion of the work; (2) claims which the Owner has against the Contractor under the Contract; and (3) the value of the materials, supplies, equipment or other items that are to be disposed of by the Contractor that are part of the Contract sum.

Add the following language as a new Article 14.5:

- 14.5 **TERMINATION BY OWNER** The Owner may, at its option, terminate any Contract Document which is an agreement for services, in whole or from time to time in part at any time by written notice thereof to the affected party(s). Upon any such termination, an affected party agrees to waive any claims for contract damages, including loss of anticipated profits, on account thereof, and as the sole right and remedy of the affected party, Owner shall pay the affected party in accordance with (c) and (d) below.

The provisions of the Contract, which by their nature survive final acceptance of the Work, shall remain in full force and effect after such termination to the extent provided in such provisions.

- (a) Upon receipt of any such notice, the affected party shall, unless the notice directs otherwise, immediately discontinue the Work on that date and to the extent specified in the notice; place no further orders or subcontracts for materials, equipment, services, or facilities, except as may be necessary for completion of such portion of the Work as is not discontinued; promptly make every reasonable effort to procure cancellation upon terms satisfactory to Owner of all orders and subcontracts to the extent they relate to the performance of the discontinued portion of the Work and shall thereafter do only such Work as may be necessary to preserve and protect work already in progress and to protect materials, plants and equipment on the Site or in transit thereto.
- (b) Upon such termination, the obligations of the Contract shall continue as to portions of the Work already performed and as to bona fide obligations assumed by the affected party prior to the date of termination.
- (c) Upon termination, the affected party shall be entitled to be paid the full cost of all Work properly done by the affected party to the date of termination not previously paid for, less sums already received by the affected party on account of the portion of the Work performed. If at the date of such termination the affected party has properly prepared or fabricated off the Site any goods for subsequent incorporation in the Work, and if the affected party delivers such goods to the Site or to such other place as the Owner shall reasonably direct, then the affected party shall be paid for such goods or materials.
- (d) The affected party shall be reimbursed for any charges incurred for preparation of their work such as preparation of shop drawings, mobilization costs, restocking charges, or retrieval of materials previously delivered to the site or acquired specifically for the Project but not yet incorporated into the Work.”

#### **AMEND ARTICLE 15 AS FOLLOWS:**

Delete 15.4 in its entirety and replace with the following:

#### 15.4 DISPUTE RESOLUTION

- 15.4.1 Controversies and Claim Subject to Litigation. Any controversy or Claim arising out of or related to the Contract, or the breach thereof shall be settled by a court of competent jurisdiction, unless otherwise agreed by the parties in writing.

- 15.4.2 Mediation Prior to Litigation. Except for injunctive relief, any claim, dispute or other matter in question arising out of or related to this Agreement shall be subject to mediation as a condition precedent to the institution of legal or equitable proceedings if requested by either party. If mutually agreed to in writing, the mediation shall be conducted by the American Arbitration Association in accordance with its Construction Industry Mediation Rules currently in effect. Request for mediation shall be filed in writing with the other party to this Agreement and with the American Arbitration Association. Mediation shall proceed in advance of legal or equitable proceedings, which shall be stayed pending mediation for a period of sixty (60) days from the date of filing, unless stayed for a longer period by agreement of the parties. The parties shall share the mediator's fee and any filing fees equally.
- 15.4.3 Continuing Performance. Notwithstanding any litigation, the parties in dispute shall continue to fulfill their responsibilities under the Contract.”

END OF SUPPLEMENTARY CONDITIONS

## SECTION 01010 SUMMARY OF WORK

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. Project Description.
- B. Building Construction Type and Use Classifications.
- C. Contracts.
- D. Completion of the Work Under this Contract.
- E. The Work.
- F. Work by Owner.
- G. Owner Occupancy.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.
- B. Provisions in Division 1 – General Requirements are applicable to all the Work and are therefore applicable to each section of the specifications.
- C. Additional provisions, which supplement provisions in Division 1 – General Requirements, may be found in Division 22 – Plumbing, Division 23 – Mechanical, and Division 26 – Electrical and apply to those divisions respectively.

#### 1.03 PROJECT DESCRIPTION

- A. The Project is the Tuscola County Jail, Window and Plumbing Modifications.
- B. The Project location is the Tuscola County Jail, 420 Court Street, Caro, MI. 48723.
- C. The Work:
  - 1. Remove and replace existing domestic water piping to existing plumbing fixtures. Remove and replace/finish existing construction (walls, floors, ceilings, etc.) as required to access the plumbing fixtures and leave ready for Owner occupancy.
  - 2. **Alternate No. 1** – Replace various electric panels as indicated on the drawings.
  - 3. **Alternate No. 2** – Remove and replace existing windows (standard office and detention type). Patch/repair/finish masonry walls adjacent to the replacement windows.
  - 4. **Alternate No. 3** – Remove and replace existing security plumbing fixtures.
  - 5. **Alternate No. 4** – Remove metal pan security ceilings, framing and lighting. Install new gypsum board security ceiling, access panels and lighting.
  - 6. **Alternate No. 5** – Install new shower control valves.

#### 1.04 BUILDING TYPE AND USE

- A. The proposed building is classified Type II B under the Michigan Building Code 2012
- B. The proposed building is Use Group I-3 Institutional.
- C. Type of Construction shall be Type IIB.

#### 1.05 CONTRACTS

- A. The Project will be performed under a single contract.

#### 1.06 COMPLETION OF THE WORK UNDER THIS CONTRACT

- A. Unless a particular item of work is specifically indicated to be incomplete or completed by others, all Work is to be completed under this Contract to achieve a totally finished and functioning facility in all aspects. Provide all items necessary (whether specifically indicated in the specifications/drawings or not) to make the Work complete. This includes providing all labor, materials, equipment and services.
- B. "Provide", "furnish", "install", and other similar words (used individually or together) means to execute the Work for the entire process of purchasing the products, transporting the products to the job site, installing the products, making necessary adjustments to the products; unless it is specifically indicated otherwise as "furnish, but do not install" or "install, but do not furnish".

#### 1.07 THE WORK

- A. The Contract Documents in their entirety describe the Work. No individual part or parts of the Contract Documents shall be removed from the context of the entire Contract Documents.
- B. The Work for All Trades: The Contractor shall perform all the Work required by the Contract Documents for All Trades. This generally includes the entire construction of a new facility.
- C. The building will remain occupied during all phases of construction. Coordinate all work with Owner. Install all necessary safety barricades and measures to protect the occupants at all times.

#### 1.08 WORK BY OWNER

- A. Work by Owner is work that the Owner will contract for separately: design, drawings, specifications, and work will be by others per separate contract. The following will be work by Owner:
  - 1. Furnishings – tables, chairs, etc.
  - 2. Telephone equipment.
- B. While this work is excluded from the contract, the Contractor shall coordinate work by Owner with Contractors.

#### 1.09 OWNER OCCUPANCY

- A. Contractor shall coordinate and cooperate with the Owner and Owner's personnel to minimize delay, minimize repetition or errors in layout, and to facilitate Owner's operations.

## **PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION



## **SECTION 01019 CONTRACT CONSIDERATIONS**

### **PART 1      GENERAL**

#### **1.01    SECTION INCLUDES**

- A. Project Phasing
- B. Inspection and Testing.
- C. Schedule of Values.
- D. Application for Payment.
- E. Alternates.
- F. Utility Charges and Permit Fees.
- G. Liquidated Damages

#### **1.02    RELATED WORK**

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### **1.03    PROJECT PHASING**

- A. The building will be occupied during construction.
- B. Contractor to coordinate all Work with the Owner.

#### **1.04    INSPECTION AND TESTING**

- A. Not Applicable

#### **1.05    SCHEDULE OF VALUES**

- A. Submit typed schedule of values on and AIA Form G703 – Application and Certification for Payment Continuation Sheet.
- B. The schedule of values shall list the completed value of component parts of the Work. Follow the table on contents as the format for listing the component parts, and list major items within a component part as separate line item value. Contractor's overhead and profit shall be a separate line item. The sum of all values listed in the schedule shall equal the total Contract sum.
- C. As support data, submit a separate list of all subcontractors indicating for each the name of the subcontractor, description of the subcontractor work, and amount of the subcontract.

#### **1.06    APPLICATIONS FOR PAYMENT**

- A. The payment period shall be 30 days.

- B. Submit a minimum of three copies of each application on AIA Form G702 - Application and Certificate for Payment and AIA Form G703 – Application and Certification for Payment Continuation Sheet.
- C. Utilize Schedule of Values for listing items in Application and Certification for Payment Continuation Sheet.
- D. Submit all partial and full waivers of lien with each application for the previous payment period.
- E. Retention provisions are listed in Document 00800 – Supplementary Conditions.

1.07 ALTERNATES

- A. **Alternate No. 1** – Replace various electric panels as indicated on the drawings.
- B. **Alternate No. 2** – Remove and replace existing windows (standard office and detention type). Patch/repair/finish masonry walls adjacent to the replacement windows.
- C. **Alternate No. 3** – Remove and replace existing security plumbing fixtures.
- D. **Alternate No 4** – Remove existing steel pan ceilings in Jail area. Install new security gypsum board ceiling, access panels and lighting.

1.08 UTILITY CHARGES AND PERMIT FEES

- A. Not Applicable

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01020 ALLOWANCES**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

A. Not Used.

#### 1.02 ACCOUNTING AND PAYMENT FOR ALLOWANCES

A. Not Used

#### 1.03 SCHEDULE OF ALLOWANCES

A. Not Used

### **PART 2 PRODUCTS**

Not Used

### **PART 3 EXECUTION**

Not Used

END OF SECTION

**SECTION 01026  
UNIT PRICES**

**PART 1 GENERAL**

1.01 SECTION INCLUDES

A. Not Used

1.02 RELATED WORK

A. Not Used

1.03 AUTHORIZATION TO PROCEED

A. Not Used

1.04 SCHEDULE OF UNIT PRICES

A. Not Used

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01028 CHANGE ORDER PROCEDURES**

### **PART 1      GENERAL**

#### 1.01    SECTION INCLUDES

- A. Documentation of Changes.
- B. Forms.
- C. Proposal Requests.
- D. Change Orders.
- E. Construction Change Directives.
- F. Architect's Supplemental Instructions.

#### 1.02    RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03    DOCUMENTATION OF CHANGES

- A. All directions and communication regarding changes in the Work shall be in writing only.
- B. It is the responsibility of the Contractor to see that properly executed written direction for each change in the Work is received before proceeding with any change.
- C. Changes can be issued only by the Architect and authorized only by the Owner.
- D. Proposed changes requested or recommended by the Contractor must be submitted in writing to the Architect, describing the proposed change in the Work, reason for the change, and its affect, if any, on the Contract Sum or Time. Proposed changes requested or recommended by the Contractor must be issued by the Architect and authorized by the Owner before the Contractor proceeds with any such changes.

#### 1.04    FORMS

- A. Forms to be used for the documentation of changes will be designated by Architect.
- B. The term "authorization" as it applies to these forms means the Owner's signature executed in the appropriate location on each complete form.

#### 1.05    PROPOSAL REQUESTS

- A. Proposal Requests will be issued for the purpose of obtaining itemized quotations for proposed changes in the Work which may affect the Contract Sum or Time. If the proposed changes are accepted, they must be issued and authorized in the form of a Change Order before proceeding with any changes.
- B. Contractor will prepare and submit itemized quotations with corresponding supporting documentation within 10 days.

- C. Form to be used for the documentation of proposed changes for the purpose of obtaining itemized quotations will be AIA Document G709 – Proposal Request (1993 Edition).

1.06 CHANGE ORDERS

- A. Change Orders will be issued for the purpose of ordering changes in the Work that may affect the Contract Sum or Time. Change Orders are not valid until authorization by the Owner. After authorization the Work shall proceed.
- B. Form to be used for the documentation of changes in the Work that affects the Contract Sum or Time will be AIA Document G701 – Change Order (1987 Edition).

1.07 CONSTRUCTION CHANGE DIRECTIVES

- A. Construction Change Directives will be issued for the purpose of ordering changes in the Work that may affect the Contract Sum or Time, but exact changes to the Contract Sum or Time may not be known at the time of issue. Construction Change Directives are not valid until authorized by the Owner. After authorization, the Work shall proceed and be included in a subsequent Change Order.
- B. Form to be used for the documentation of directed changes will be AIA Document G714 – Construction Change Directive (1987 Edition).

1.08 ARCHITECT'S SUPPLEMENTAL INSTRUCTIONS

- A. Architect's Supplemental Instructions will be issued for the purpose of ordering minor changes in the Work that do not affect the Contract Sum or Time. After acceptance by the Contractor the Work shall proceed. Architect's Supplemental Instructions do not require authorization by the Owner.
- B. Form to be used for the documentation of minor changes that do not affect the Contract Sum or Time will be AIA Document G710 – Architect's Supplemental Instructions (1992 Edition).

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01040 COORDINATION**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Project Coordination.
- B. Examination.
- C. Job Site Administration.
- D. Request for Information.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 PROJECT COORDINATION

- A. Coordinate scheduling of Work of the various Sections of Specifications to assure efficient and orderly sequence of installation of interdependent construction elements. Coordinate Work of various Sections with that of other Sections, which require attachment of components. Coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service.
- B. Coordinate submittals to assure efficient and orderly sequence of installation of interdependent construction elements.
- C. Verify that utility requirements of operating equipment are compatible with building utilities.
- D. Verify and coordinate placement of bearing support items.
- E. Coordinate space requirements and installation of mechanical and electrical work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with line of building. Use spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- F. In finished areas conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.
- G. Coordinate completion and cleanup of the Work of separate Sections in preparation for Substantial Completion.
- H. 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.

#### 1.04 EXAMINATION

- A. Verify that field conditions, surfaces, and prepared openings are acceptable and are ready to receive work.

- B. Verify that surfaces are smooth and flat within maximum variation recommended for installation of products and that surfaces are ready to receive Work.
- C. Verify that substrate, and adjacent materials are dry as required for products or adhesives.
- D. Verify items provided by other Sections of work are properly sized and located. Verify foundations, pads, pits, and position of anchor bolts and other anchoring devices are in the proper location and of proper size.
- E. Field measure to verify that dimensions are as shown on Drawings, shop drawings, and as instructed by product manufacturer.
- F. Verify that mechanical, electrical, telephone, plumbing and other building items affecting work are placed and ready to receive this work and that all substrate penetrations are complete.
- G. Confirm electrical power is available and of correct characteristics as required for installed equipment.
- H. Report defects of deficiencies in writing.
- I. Verify truss spaces are unobstructed to allow placement of blown-in insulation.
- J. Verify block cores are free of mortar to allow free flow of granular insulation. Verify holes and openings have been sealed to prevent escape of insulation.
- K. Beginning of installation means acceptance of existing conditions.

#### 1.05 JOB SITE ADMINISTRATION

- A. Contractor shall employ a superintendent as required by the General and Supplementary Conditions of the Contract between the Owner and Contractor.
- B. Provide the Architect/Engineer and Owner with written notification of the superintendent's name and job trailer telephone and fax numbers within 7 days of their determination.
- C. Contractor shall prepare a typewritten alphabetized list of subcontractors and suppliers to be used on the project. The list shall contain company name, company address, name of contact person, telephone and fax numbers, and the portion of the Work to perform.
- D. Provide the Architect/Engineer and Owner with a copy of the subcontractor and supplier list within 7 days of notice to start work and periodically update as required by changes to information in the list.

#### 1.06 REQUEST FOR INFORMATION

- A. Direct all questions in writing to Landmark Design Group, P.C. by US Mail or by email to [steve@landmark.us.com](mailto:steve@landmark.us.com).
- B. The Request for Information form following this Section of the Project Manual shall be used for all questions and required clarifications.
- C. Contractor shall be responsible for assigning Request for Information numbers, and maintaining and publishing once per month a log of all requests. Log shall include a listing of request numbers, request dates, response dates, and brief descriptions of the requests.



**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

**LANDMARK DESIGN GROUP, P.C.**

**REQUEST FOR INFORMATION**

Project Name: Tuscola County Jail  
Window and Plumbing Modifications \_\_\_\_\_ Project No.: 16-014 \_\_\_\_\_

Requested By: \_\_\_\_\_ Request No.: \_\_\_\_\_

Company: \_\_\_\_\_ Phone No.: \_\_\_\_\_

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

---

Requested Information: \_\_\_\_\_

---

Response: \_\_\_\_\_

---

cc: Project File \_\_\_\_\_ Answered By: \_\_\_\_\_

\_\_\_\_\_ Company: \_\_\_\_\_

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



## **SECTION 01045 CUTTING AND PATCHING**

### **PART 1      GENERAL**

#### 1.01    SECTION INCLUDES

- A. Procedure.
- B. Quality Control.

#### 1.02    RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03    PROCEDURE

- A. The Contractor shall coordinate all cutting and patching requirements among the Subcontractors.
- B. Subcontractors must have approval of the Contractor before all cutting.
- C. The Contractor must submit a written request and have approval of the Architect/Engineer before cutting or altering elements which affect:
  - 1. Structural integrity of element.
  - 2. Integrity of weather-exposed or moisture-resistant elements.
  - 3. Efficiency, maintenance, or safety of element.
  - 4. Visual qualities of sight-exposed elements.
  - 5. Work of Owner or separate contractor.
- D. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
  - 1. Fit the several parts together, to integrate with other Work.
  - 2. Uncover Work to install or correct ill-timed Work.
  - 3. Remove and replace defective and non-conforming Work.
  - 4. Remove samples of installed Work for testing.
  - 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- E. Execute Work by methods, which will avoid damage to other Work, and provide proper surfaces to receive patching and finishing.
- F. Cut rigid materials using masonry saw or core drill.
- G. Restore Work with new Products in accordance with requirements of Contract Documents.
- H. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.

- J. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection. For an assembly, refinish entire unit.
- K. Identify any hazardous substance or condition exposed during the Work to the Architect/Engineer for decision or remedy.

1.04 QUALITY CONTROL

- A. Patching must restore the cut area to original or better condition with no detectable evidence that the area has been patched.
- B. Cutting and patching must be done by personnel qualified in the execution of work for the appropriate affected trade. Wherever possible, patching of work shall be done by the original installer of that work, especially when cutting and patching will affect the terms of product warranties.

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01050 FIELD ENGINEERING**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Scope of Engineering Services.
- B. Qualifications.
- C. Certification.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 SCOPE OF ENGINEERING SERVICES

- A. Provide all engineering services necessary for the proper execution and completion of the Work and as otherwise required by the Contract Documents. Engineering services provided by the Contractor shall not be authorized to make any changes in the Contract Documents.
- B. Engineering services provided by the Contractor may generally include, but are not necessary limited to: building and site layout, design of temporary structures and facilities during construction; design for all construction field procedures; performance of monitoring, testing, and reports; design and preparation of shop drawings and pre-engineered items; design of construction programs, processes, and facilities to meet legal and safety requirements. (This general description specifically includes, but is not limited to, temporary shoring and bracing for excavation and for construction, temporary control of ground and surface water, temporary handrails and guardrails, and scaffolding.)
- C. The Contractor shall provide for the location and protection of survey control and reference points. Control datum for survey is indicated on Drawings.
- D. The Contractor shall provide for establishment of elevations, lines, and levels using recognized engineering survey practices.
- E. Submit a copy of registered site drawing and certificate signed by the Land Surveyor that the elevations and locations of the Work are in conformance with the Contract Documents.

#### 1.04 QUALIFICATIONS

- A. Engineers must be licensed to practice in the state in which the Project is being constructed as acceptable to the building official having jurisdiction over the Project.
- B. Engineers must be qualified and experienced in the discipline and scope of the Work required and acceptable to the Architect/Engineer.

#### 1.05 CERTIFICATION

- A. Where submittals are required to be prepared by, or under the direct supervision of, licensed personnel (Architect, Land Surveyor, Professional Engineer, etc.), each submittal shall bear the seal and signature of the licensed person in responsible charge.

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01060 REGULATORY REQUIREMENTS**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Applicable Requirements.
- B. Rated Construction.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 APPLICABLE REQUIREMENTS

- A. The Contractor shall comply with all laws, ordinances, rules, orders and regulations of local, state, federal and other authorities relating to the execution of the Work.

#### 1.04 RATED CONSTRUCTION

- A. For rated construction, provided appropriate products that are tested and labeled to assure compliance with system requirements for rating.
- B. Where specific assembly identification is given, use exact assembly indicated.
- C. Where specific assembly identification is not given, submit identification of assemblies to be used which meet the ratings and details required by the Contract Documents, and are acceptable to the review agency having jurisdiction.
- D. Provide labels, affidavits, and other such identification to verify compliance when requested.

### **PART 2 PRODUCTS**

Not Used

### **PART 3 EXECUTION**

Not Used

END OF SECTION



## SECTION 01090 REFERENCES

### PART 1 GENERAL

#### 1.01 SECTION INCLUDES

- A. Applicable Editions.
- B. List of Reference Standards.
- C. Federal Government Agencies.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 APPLICABLE EDITIONS

- A. Unless specifically indicated otherwise, comply with editions of referenced standards that are the most current, effective as of the date of the Contract Documents.
- B. References to methods of measurement or payment in reference standards are not applicable.
- C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference standards.
- D. Obtain copies of standards when required by Contract Documents and maintain a copy on site as required by individual Sections.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Architect/Engineer before proceeding.

#### 1.04 LIST OF REFERENCE STANDARDS

AA	Aluminum Association
AABC	Associated Air Balance Council
AAMA	American Architectural Manufacturer's Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACIL	American Council of Independent Laboratories
ACPA	American Concrete Pipe Association
ADC	Air Diffusion Council
AGA	American Gas Association
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ALI	Associated Laboratories
ALSC	American Lumber Standards Committee
AMCA	Air Movement and Control Association
ANSI	American National Standards Institute

APA	American Plywood Association
ARI	Air Conditioning and Refrigeration Institute
ARMA	Asphalt Roofing Manufacturers Association
ASA	Acoustical Society of America
ASC	Adhesive and Sealant Council
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning and Engineers
ASME	American Society of Mechanical Engineers
ASPE	American Society of Plumbing Engineers
ASSE	American Society of Sanitary Engineering
ASTM	ASTM
AWI	Architectural Woodwork Institute
AWPA	American Wood Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
BHMA	Builders' Hardware Manufacturers Association
BIA	Brick Institute of America
CISPI	Cast Iron Soil Pipe Institute
CRI	Carpet and Rug Institute
CRSI	Concrete Reinforcing Steel Institute
CTI	Ceramic Tile Institute of America
DHI	Door and Hardware Institute
DLPA	Decorative Laminate Products Association
EIA	Electronic Industries Association
ETL	ETL Testing Laboratories, Inc.
FGMA	Flat Glass Marketing Association
FM	Factory Mutual Engineering and Research
GA	Gypsum Association
HMA	Hardwood Manufacturers Association
IEEE	Institute of Electrical and Electronic Engineers
IGCC	Insulating Glass Certification Council
MBMA	Metal Building Manufacturers Association
MCAA	Mechanical Contractors Association of America
ML/SFA	Metal Lath/Steel Framing Association
NAAMM	National Association of Architectural Metal Manufacturers
NAPA	National Asphalt Pavement Association
NCMA	National Concrete Masonry Association
NEC	National Electric Code
NECA	National Electrical Contractors Association
NEII	National Elevator Industry, Inc.
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
N.F.P.A.	National Forest Products Association
NHLA	National Hardwood Lumber Association
NPA	National Particleboard Association
NPCA	National Paint and Coatings Association
NRCA	National Roofing Contractors Association
NSF	National Sanitation Foundation
NWWDA	National Wood Window and Door Association
PCI	Prestressed Concrete Institute
RFCI	Resilient Floor Covering Institute
SDI	Steel Deck Institute
S.D.I.	Steel Door Institute
SGCC	Safety Glazing Certification Council
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors National Association

SPRI Single Ply Roofing Institute  
UL Underwriters Laboratories  
WWPA Western Wood Products Association  
W.W.P.A. Woven Wire Products Association

1.05 FEDERAL GOVERNMENT AGENCIES

CE Corps of Engineers  
CS Commercial Standard  
DOC Department of Commerce  
DOT Department of Transportation  
EPA Environmental Protection Agency  
FHA Federal Housing Administration  
FS Federal Specification  
GSA General Service Administration  
MIL Military Standardization Documents  
NBS National Bureau of Standards  
OSHA Occupational Safety and Health Administration

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01200 PROJECT MEETINGS**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Attendance.
- B. Pre-construction Meeting.
- C. Progress Meetings.
- D. Pre-installation Conferences.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 ATTENDANCE

- A. The Contractor must attend all project meetings and be represented by the superintendent and any other personnel required to accomplish the purpose of the meetings.
- B. The Contractor shall arrange for the attendance of the Subcontractors and other interested parties as determined necessary or as requested by the Owner or the Architect.
- C. Each representative in attendance must have the authority to make binding decisions and obligations on behalf of their respective organizations.

#### 1.04 PRE-CONSTRUCTION MEETING

- A. A pre-construction meeting will be held after award of the Contract and before commencement of construction. Time and place of the meeting will be determined by the Architect.

#### 1.05 PROGRESS MEETINGS

- A. The Contractor shall schedule progress meetings at one month intervals to report to the Owner and the Architect the progress of the Work and to discuss pertinent issues relative to the proper and timely execution of the Work. Meeting schedule shall accommodate Owner and Architect's schedule.
- B. The Contractor shall provide an appropriate meeting place at the job site to accommodate the number of people attending.
- C. The Contractor shall conduct the progress meetings, prepare agenda with copies distributed in advance of the meetings, record and distribute the minutes of the meetings to the Owner and the Architect/Engineer. The Contractor shall also make copies of the minutes and distribute them to all Subcontractors and other interested parties as appropriate.
- D. The Contractor shall arrange for and conduct separate meetings on the same day to be attended by major Subcontractors, Suppliers and other interested parties as appropriate to agenda topics for each meeting. The Contractor shall prepare agenda with copies distributed

in advance for participants, record and distribute the minutes of the meetings to the Owner and Architect/Engineer, and Subcontractors and Suppliers affected by decisions made during the meeting.

1.06 PRE-INSTALLATION CONFERENCES

- A. When required due to the complexity of the Work, convene a pre-installation conference at the work site prior to commencing that work. Intent of the pre-installation conference is to review conditions of the installation, preparation and installation procedures, and coordination with related work.
- B. Require attendance of parties directly affecting, or affected by, such Work.
- C. Notify Architect/Engineer seven days in advance of meeting date.
- D. Prepare agenda, preside at conference, record minutes and distribute copies to participants and Architect/Engineer.

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01300 SUBMITTALS**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Information for Contractor's Use.
- B. Submittals.
- C. Submittal Identification.
- D. Time of Submittals.
- E. Content.
- F. Contractor's Review.
- G. Architect's Review.
- H. Shop Drawings.
- I. Product Data.
- J. Samples.
- K. Manufacturers' Certificates.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 INFORMATION FOR CONTRACTOR'S USE

- A. The Contractor shall obtain all shop drawings, product data, and samples necessary for the proper execution of the Work.
- B. The Contractor shall obtain all information available for each manufacturer/supplier for their respective products being used in the Work.
- C. The Contractor shall read all information to arrive at a clear understanding of how each product is to be incorporated into the Work. The Contractor shall obtain additional technical assistance from the manufacturer/supplier as necessary to achieve such understanding.
- D. The Contractor shall distribute appropriate information to other entities involved in the execution of their applicable portions of the Work.

#### 1.04 SUBMITTALS

- A. The Contractor shall submit to the Architect the shop drawings, product data, and samples which are requested for submittal.

- B. The Contractor shall submit to the Architect specific written notification of any item or portion of the Work proposed which varies from the Contract Documents, before such item is incorporated in the Work. The Architect will rely on the Contractor having complied with the Contract Documents in their entirety except where written notification of variance has been submitted to the Architect and the Architect has issue written notification to proceed with the proposed variance under change order procedures.
- C. Provide space for Contractor and Architect/Engineer review stamps.
- D. On revised and resubmitted submittals, identify all changes made since previous submittal.
- E. The Contractor shall retain one set of all submittals at the job trailer available to the Architect/Engineer, Owner, and Building Official until completion of the project.

#### 1.05 SUBMITTAL IDENTIFICATION

- A. All submittals shall be accompanied by a letter of transmittal stating the date, the project name, the Architect's project number, the Owner, the Contractor, the Subcontractor or supplier, the Architect, the item being submitted, the number of copies, the purpose of the submittal, the five digit specification section number, and any other pertinent information.

#### 1.06 TIME OF SUBMITTALS

- A. Schedule submittals to expedite the Project. Coordinate submittals of related items and for interfacing work.
- B. All submittals which are required for the selection of materials, finishes, colors, etc. shall be submitted at the same time. No selection will be made by the Architect for any one item until all items are available for concurrent review and coordination. Submittals shall be made no later than 30 days after the date of commencement of the Work.

#### 1.07 CONTENT

- A. Submittals shall contain sufficient detail so as to describe the item and show compliance with the Contract Documents, and to provide all additional information required to incorporate the item into the Work.
- B. Drawing shall be professionally drafted and presented in the most appropriate scale (sufficiently large enough) to clearly communicate the information therein.
- C. Samples shall be actual physical products in as large of size as is normally available for each item. For products which may have a range in color, or finish, or texture, submit adequate number of samples to show the entire range.

#### 1.08 CONTRACTOR'S REVIEW

- A. Apply Contractor's stamp and signature on each submittal certifying that review and 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.
- B. Submittals will not be reviewed by the Architect without prior review and verification stamp by the Contractor.

- C. Submittals rejected by the Contractor shall not be forwarded to the Architect except upon special request.

#### 1.09 ARCHITECT'S REVIEW

- A. Architect's review shall be verified on each submittal with a stamp and signature.
- B. Architect's stamp shall have the following choices to be selected as most appropriate:
  1. "REVIEWED" – Indicates that no corrections have been noted. No deviations from the Contract Documents are approved. Affected portions of the Work may commence in strict compliance with the Contract Documents.
  2. "REVIEWED AS NOTED" – Indicates that some corrections have been noted. No deviations from the Contract Documents are approved. Affected portions of the Work may commence in strict compliance with the Contract Documents.
  3. "REVISE AND RESUBMIT" – Indicates that some corrections have been noted which will require further review. Affected portions of the Work may not commence. Make all necessary revisions and resubmit.
  4. "REJECTED" – Indicates major non-commence. The Contractor shall contact the Architect to obtain a better understanding of the requirements of the Contract Documents. Affected portions of the Work may not commence. Make a new submittal that is in compliance with the Contract Documents.

#### 1.10 SHOP DRAWINGS

- A. Submit shop drawings in the form of one reproducible transparency and three opaque reproductions. The Architect/Engineer will return the reproducible transparency, retain two reproductions, and distribute one reproduction to the Owner.
- B. After review, reproduce and distribute in accordance with preceding procedures and for Record Documents described in Section 01700 – Contract Closeout.
- C. Structural shop drawings shall bear the seal of a Professional Engineer registered in the State of Michigan.
- D. Shop drawings shall include as appropriate for product:
  1. Members: Sizes, spacing, attachments and fasteners, cambers, loads, connections, design calculations, and locations and size of openings. Include erection drawings, elevations, and details where applicable. Indicate welded connections with AWS A2.0 welding symbols. Indicate net weld lengths.
  2. Fabrication: Profiles, sizes, dimensions, connections, attachments, anchorage, size and type of fasteners, and accessories. Include plans, elevations, and details as required to fully describe work.
  3. Finishes: Indicate finishes including decorative laminate, paint color, stain and sealer, and other finishes. Obtain approval for finishes before ordering.
  4. Hardware: Profiles, sizes, function, dimensions, grade, finish, and attachment.

#### 1.11 PRODUCT DATA

- A. For manufacturers standard printed literature and samples, submit five copies. The Architect/Engineer will return two copies, retain two copies, and distribute one copy to the Owner. Literature shall be nearly bound. Clearly mark each copy to identify applicable



products, models, options, and other data. Supplement the manufacturers' standard data to provide information unique to the Project.

- B. After review, distribute in accordance with preceding procedures and for Record Documents described in Section 01700 – Contract Closeout.

#### 1.12 SAMPLES

- A. For products requiring Architect/Engineer's approval submit three sets of samples. The Architect/Engineer will return one set of samples, retain one set of samples, and distribute one set of samples to the Owner.
- B. Submit four sets of samples for items specified as "finish selected by Architect/Engineer", samples shall indicate colors, textures and patterns available.
- C. Samples shall illustrate functional and aesthetic characteristics of the Product, with integral parts and attachment devices.
- D. Reviewed samples which may be used in the Work are indicated in individual specification Sections. None of these samples shall be retained by the Architect/Engineer.

#### 1.13 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturers' certificate to Architect/Engineer 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/Engineer.

### **PART 2 PRODUCTS**

Not Used

### **PART 3 EXECUTION**

Not used

END OF SECTION

## **SECTION 01310 PROGRESS SCHEDULES**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Progress Schedule.
- B. Progress Report.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 PROGRESS SCHEDULE

- A. Submit a detailed progress schedule which shows both projected and completed work. Form of schedule shall be either bar graph or CPM chart at the Contractor's option.
- B. The schedule shall show all of the work to be done divided into specific categories. Each category shall be narrow in scope so as to describe a single task with an identifiable time period in which that task is to be completed.
- C. The schedule shall be updated monthly and be submitted with each application for payment.
- D. The schedule shall be used to help evaluate the progress of the work toward timely completion. If the work falls behind schedule, the Contractor shall implement a plan to bring the progress of the work back up to schedule. All steps taken to maintain completion as scheduled (additional labor force, overtime, expedited material handling, substitutions, etc.) shall be at no additional cost to the Owner.

#### 1.04 PROGRESS REPORTS

- A. Prepare a monthly progress report to be submitted with each application for payment. Report shall indicate the work completed in the previous month to date and the work scheduled for the next month. State whether project is ahead of schedule, on schedule, or behind schedule, and a projected date of completion. Include any other specific items of concern related to the progress of the work.

### **PART 2 PRODUCTS**

Not Used

### **PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01400 QUALITY CONTROL**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Laying Out Work.
- B. Quality Assurance and Control of Installation.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 LAYING OUT THE WORK

- A. The General Contractor shall locate general reference points, lay out Work and be responsible for all lines, elevations and measurements of the building, utilities and other work executed by him under the Contract. He must exercise proper precaution to verify figures on the Drawings before laying out Work and will be held responsible for any error resulting from his failure to exercise such precaution.
- B. The General Contractor shall make provision to preserve property line stakes, bench marks or datum point. If any are lost, displaced, or disturbed through neglect of the Contractor, his agents or employees, he shall pay the cost of restoration.
- C. Each contractor before commencing work shall verify grades, lines, levels, locations, and dimensions and shall examine spaces, surfaces and areas indicated on Drawings to receive his work. Commencing work implies acceptance of existing conditions.
- D. Verify all dimensions shown on the Drawings and obtain all measurements required for proper execution of work. Verify before beginning construction in areas indicated to be barrier free that all dimensions and fixtures comply with requirements of Michigan Barrier Free Design Law and the Americans with Disabilities Act.
- E. Information pertaining to preliminary investigations such as the survey, location of utilities, existing structures, and existing grades appear on the Drawings. While such data has been collected with reasonable care, there is no expressed or implied guarantee that conditions so indicated are entirely representative of those actually existing or that unforeseen developments may not occur. Each contractor must put his own interpretation on results of such investigation and shall satisfy himself as to materials upon which his work may be placed. Where underground services, utilities, structures, etc. are located on the Drawings or given at the site they are based on the available records but are not guaranteed to be complete or correct. They are merely given to assist each contractor.

#### 1.04 QUALITY ASSURANCE AND CONTROL OF INSTALLATION

- A. The Contractor shall maintain a program of quality control monitoring for all the Work. Provide additional support personnel (such as manufacturers' representatives, consultants, recognized technical experts, etc.) who are required or requested to observe, direct, or evaluate the Work.

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

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01500 CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Temporary Utilities.
- B. Temporary Controls.
- C. Field Offices.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 SCOPE

- A. The Contractor shall provide all construction facilities and temporary controls which are necessary for the execution of the Work and as otherwise required by the Contract Documents.
- B. Remove all temporary items when not longer needed.

#### 1.04 EXISTING SITE UTILITIES

- A. Owner's utilities which currently exist at the site (which may include electric, gas, water) may be used for construction in reasonable amounts by the Contractor, and will be paid directly by the Owner to the utilities agency.

#### 1.05 TEMPORARY ELECTRICITY

- A. Provide and pay for electric service, distribution, and lighting.
- B. Use of electrical system which is part of the new Work is allowed, but shall be limited to small hand tools which will not trip breakers.

#### 1.06 TEMPORARY LIGHTING

- A. Provide and maintain lighting for construction operations.
- B. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.
- C. Maintain lighting and provide routine repairs.
- D. Permanent building lighting may not be utilized during construction.

#### 1.07 TEMPORARY HEATING, COOLING, AND VENTILATION

- A. Provide and pay for heating, cooling, and ventilating. Temperature and humidity must be appropriate for installation and protection of the materials being used.

- B. Maintain a constant temperature range (minimum 60 degrees, maximum 90 degrees, and more specific as required by individual materials) before, during, and after the installation of finish materials such as floor tile, carpet, paint, wall covering, ceilings, woodwork, etc.
- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- D. No part of the new building system may be used until after construction has progressed to the point where no dust, dirt, pollutants, contaminants, odors, etc. will be circulated through the system, and written permission is received from the Architect.

#### 1.08 TELEPHONE SERVICE

- A. Provide, maintain and pay for telephone and fax service to field office at time of project mobilization.

#### 1.09 TEMPORARY WATER SERVICE

- A. Provide, maintain and pay for potable water at the job site for drinking and construction purposes. Provide and remove temporary branch piping with outlets located so water is available by hoses with threaded connections as required for construction.

#### 1.10 TEMPORARY SANITARY FACILITIES

- A. Provide, maintain and pay for required facilities and enclosures at the job site. Coordinate placement of temporary facilities with Owner.

#### 1.11 TEMPORARY FIRE PROTECTION

- A. Provide, maintain and pay for fire protection at the job site.

#### 1.12 BARRIERS AND ENCLOSURES

- A. Provide and maintain appropriate barriers, e.g., a fence, around perimeter of Work to prevent unauthorized entry into construction and staging areas.
- B. Provide and maintain appropriate barricades for the protection of the site, stored materials, existing structures, adjacent properties, and vehicular traffic.

#### 1.13 SECURITY

- A. The construction site shall be kept secure at all time so as to allow only authorized personnel on to the site.

#### 1.14 ENVIRONMENTAL CONTROLS

- A. Provide for the control of dust, dirt, erosion, moisture (water, snow, ice, vapor), noise, pollution, and other potentially harmful or irritating conditions encountered during construction. Environmental control applies to the entire site: exterior, interior, new construction, and existing facilities.

#### 1.15 TRAFFIC CONTROLS

- A. Provide flagmen, signs, lights, and other temporary facilities required for the control of traffic.

- B. Parking and staging shall be within the construction limits unless otherwise authorized by the Owner.

#### 1.16 WATER CONTROL

- A. Maintain excavations free of water.
- B. Protect site from puddles or running water. Provide water barriers as required to protect site from soil erosion and to prevent damage to existing site unaffected by work of this contract.

#### 1.17 EXTERIOR ENCLOSURES

- A. Provide temporary weather-tight closure of exterior openings to accommodate acceptable working conditions and protection for Products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification Sections, and to prevent entry of unauthorized persons. Provide access doors with self-closing hardware and locks.

#### 1.18 PROTECTION OF INSTALLED WORK

- A. Protection of installed Work shall be the Contractors responsibility until the time of substantial completion.
- 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 installed materials that are susceptible to damage from sunlight or precipitation from prolonged exposure to these conditions until material is covered by successive work.
- E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- F. 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.
- G. Prohibit traffic from entering landscaped areas.

#### 1.19 SAFETY

- A. Provide easy access to the entire building for the public fire department and maintain unobstructed and free passage for egress from the building(s).
- B. Provide and maintain the required amount of fire extinguisher and familiarize all persons working on the project with their location and operation.
- C. Flammable liquids shall not be stored within the building. Paint thinners and gasoline should be handle inside the building only in approved safety containers.
- D. Provide and maintain shoring and bracing to prevent earth from caving or washing into the project excavations, and to protect existing underground utilities, sewers, etc., encountered during excavation work from collapse or other type of damage.

1.20 FIELD OFFICES

- A. Provide a field office at the job site to accommodate the Contractor's needs and obligation of the Contract Documents, and for use by the Owner and Architect while at the job site. Among other things, the field office must be suitable for the keeping of the project record copy documents and for the conducting of project meetings (conditioned space 65 degrees to 75 degrees, electrical power and lighting, telephone, desk and file space, table and chairs).

1.21 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary above grade or buried utilities, equipment, facilities, materials, prior to Final Application for Payment 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.

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION



## **SECTION 01600 MATERIAL AND EQUIPMENT**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Products.
- B. Transportation and Handling.
- C. Storage and Protection.
- D. Product Options.
- E. Items Not Specified.
- F. Substitutions.
- G. Color Selections.
- H. Installation.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 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. Products other than those specified by manufacturer made of recycled or reused materials must be approved by Architect/Engineer. Submit manufacturers or suppliers certification of performance with request for approval.

#### 1.04 TRANSPORTATION AND HANDLING

- A. Transport and handle Products in accordance with manufacturer's instructions.
- B. Deliver products wrapped and crated in manufacturer's original shipping packaging, complete with labels and instructions for handling, storing, unpacking, protecting, and installing, in a manner to prevent damage to components or marring of surfaces. Mark each package for installation location.
- C. Package hardware items individually; label and identify package with door opening code to match hardware schedule. Deliver keys to Owner by security shipment direct from hardware supplier.
- D. Transport products to prevent twisting warping or detrimental exposure to elements.

- E. Promptly inspect shipments to assure that Products comply with requirements, quantities are correct, and Products are undamaged.
- F. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage. Lifting or handling equipment shall be capable of supporting products in positions anticipated during storage, transportation, and erection.
- G. File required claims for Products damaged in transport.
- H. Take appropriate action to correct deficiencies in a timely fashion so as not to cause delay of the Work.

#### 1.05 STORAGE AND PROTECTION

- A. Store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible.
- B. Store temperature sensitive products for 24 hours prior to application within temperature range as recommended by the manufacturer for best workability.
- C. For exterior storage of fabricated Products, place on sloped supports, above ground.
- D. Store preformed and manufacturer finished material in a clean, dry area, stack flat, prevent twisting, bending, or abrasion, blocked off ground to prevent sagging, and to provide ventilation. Prevent contact during storage with materials which may cause discoloration, staining, or damage.
- E. Provide off-site storage and protection when site does not permit on-site storage or protection.
- F. Cover Products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation. Store organic and porous materials off ground in ventilated and protected manner to prevent deterioration from moisture.
- G. Store sensitive Products in weather-tight, climate controlled enclosures. Store loose granular materials on solid flat surfaces in a well-drained area; prevent mixing with foreign matter. Store cementitious materials and aggregates in manner to prevent wetting, deterioration or intrusion of foreign materials.
- H. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.
- I. Arrange storage of Products to permit access for inspection. Periodically inspect to assure Products are undamaged and are maintained under specified conditions.
- J. Store ferrous items off the ground and in a manner to prevent damage to the corrosion resistant coatings.
- K. Protection is to be all-inclusive and, among other things, includes protection against natural causes such as moisture (water, snow, ice, condensation, etc.), wind, temperature, sunlight, dirt, dust, etc., and protection against man-made causes.

#### 1.06 PRODUCT OPTIONS

- A. Design is generally based on product of first manufacturer named.

- B. Provide products from specific manufacturers as applicable. The naming of a manufacturer indicates that the general quality of work produced by that manufacturer is acceptable, but does not necessarily mean that each manufacturer's specific product meets all requirements of the Contract Documents. Select a manufacturer whose product does meet all requirements of the Contract Documents.
- C. Where no manufacturer is specified, use any manufacturer's product which meets or exceeds the requirements of the Contract Documents.
- D. Where one or more manufacturers is specified, use one of the specified manufacturer's products which meets or exceeds the requirements of the Contract Documents.
- E. If a manufacturer's standard product does not meet all the requirements of the Contract Documents, the product shall be modified and supplied as a custom made item by the manufacturer.
- F. Where one manufacturer's specified product is specified (by name, model number, series, etc.), the products of other listed manufacturers are acceptable only if they meet all the standard set by the products specified and the rest of the Contract Documents.
- G. Products specified (by name, model number, series, etc.) may still need additional modifications and/or options to comply with the Contract Documents. Provide products that include all these necessary adjustments.
- H. Within 10 days after the date of commencement of the Work, submit a list of all products to be used which identifies the names of the manufacturer, supplier, and installer.

#### 1.07 ITEMS NOT SPECIFIED

- A. For items which are not specified but are required to properly complete the Work, provide items of quality and scope appropriate for the Project.

#### 1.08 SUBSTITUTIONS

- A. The materials, products and equipment described in the Contract Documents establish a standard of required function, dimension, appearance and quality that may, in some cases, be met by a proposed substitute.
- B. No substitution will be considered prior to receipt of Bids unless written request from a Bidder for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Each such request shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitute including drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitute would require shall be included. The burden of proof of the merit of the proposed substitute is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.
- C. If the Architect approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum. Bidders shall not rely upon approvals made in any other manner.
- D. No substitutions will be considered after the Contract award unless specifically provided in the Contract Documents.

- E. Substitutions shall not alter the design intent of the Contract Documents.
- F. Substitutions shall be equal to or exceed the specified materials, products and equipment as determined by the Architect/Engineer.
- G. Alteration to the Work required by approved substitution shall be the responsibility of the Contractor.

1.09 COLOR SELECTIONS

- A. Color selections for any product will be selected (by the Architect) from a full range of all standard, and premium, and shall not be limited in the number of different colors selected, unless specifically indicated otherwise in the specification sections for each product.

1.10 INSTALLATION

- A. Installation of material and equipment shall be in accordance with the requirements of the Contract Documents and the manufacturer's requirements and recommendations for specific products.
- B. Inspect all work for proper installation and operation. Record inspections in written reports, and submit reports when requested.

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not used

END OF SECTION

## **SECTION 01650 FACILITY STARTUP/COMMISSIONING**

### **PART 1      GENERAL**

#### 1.01    SECTION INCLUDES

- A. General Procedures.
- B. Specific Procedures.
- C. Records.
- D. Starting Systems.
- E. Testing, Adjusting, and Balancing.
- F. Manufacturer's Instruction.

#### 1.02    RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03    GENERAL PROCEDURES

- A. Facility startup includes (but is not limited to) requirements for putting the Project in operating order such as starting systems, operating equipment, testing to ensure correct operation and function, demonstration, training, and verification.
- B. Schedule startups at least two weeks in advance with all parties involved. This may include representatives of the Owner, Architect, Engineer, Contractor, subcontractor, supplier, manufacturer, and others as appropriate.
- C. Where Owner's operating personnel are available, provide training to the level of expertise required to properly operate and maintain systems and equipment. Owner's operating personnel shall be assumed to be competent to operate the types of systems and equipment installed on this Project (Owner shall be notified if the Contractor has reason to believe otherwise).

#### 1.04    SPECIFIC PROCEDURES

- A. Comply with requirements for startup of specific item as indicated in their respective sections of the specifications.

#### 1.05    RECORDS

- A. Maintain records of startup activities in form of written reports. Report information shall include date, weather, personnel in attendance, procedures, results, and other pertinent information. Submit copies of written reports when requested.

#### 1.06    STARTING SYSTEMS

- A. 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.

- B. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.
- C. Verify wiring and support components for equipment are complete and tested.
- D. Execute startup in accordance with manufacturers' instructions.

1.07 TESTING, ADJUSTING, AND BALANCING

- A. Employ, and pay for services of an independent firm to perform testing, adjusting and balancing.
- B. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.08 MANUFACTURER'S INSTRUCTIONS

- A. Provide manufacturers' printed instructions for startup and adjusting include description of equipment, method of operation and control including motors, pump units, signals, and special or non-standard features provided.
- B. Provide parts catalogs with complete list of equipment replacement parts with equipment description and identifying numbers.
- C. Provide schematic diagrams covering electrical equipment installed, including changes made in final work, with symbols listed corresponding to identity of markings on equipment.
- D. Compile information as required by provisions of Section 01700.

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01700 CONTRACT CLOSEOUT**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Closeout Procedures.
- B. Adjusting.
- C. Operation and Maintenance Data.
- D. Warranties.
- E. Spare Parts and Maintenance Materials.
- F. Record Documents
- G. Instruction of Owner's Personnel.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 CLOSEOUT PROCEDURES

- A. Contractor shall 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/Engineer's inspection. The completed Work shall be without any outstanding or concurrent Work remaining.
- B. Contractor shall prepare and submit to the Architect/Engineer a comprehensive list of items to be completed or corrected prior to Architect/Engineer's inspection.
- C. Provide to the Architect/Engineer two (2) copies of all submittals required by governing or other authorities, prior to final Application for Payment.
- D. Provide to the Architect/Engineer two (2) copies of all required certifications and occupancy approvals from local and state authorities having jurisdiction over the Work, prior to final Application for Payment. Receipt of all certificates and occupancy approvals in and of itself does not necessarily connote substantial completion.
- E. Provide to the Architect/Engineer three (3) copies of all certificates of testing and inspection as specified in the individual specification Sections and as required by the conditions of the Contract, prior to final Application for Payment.
- F. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- G. Before issuance of a final Application for Payment, the Contractor shall submit evidence satisfactory to the Architect/Engineer that all payrolls, material bills, and other indebtedness connected with the Work and for which the Contractor is responsible, have been paid.

H. Submit final waivers of lien.

#### 1.04 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation, prior to final inspection.

#### 1.05 OPERATION AND MAINTENANCE DATA

A. Submit to the Architect/Engineer for review, two (2) copies of all required operation and maintenance manuals as specified in the individual specification Sections, prior to final inspection.

B. Submit sets bound in 8-1/2 x 11-inch text pages, three D side ring binders with durable plastic covers.

C. Prepare binder covers with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project.

D. Internally subdivide the binder contents with permanent page dividers, logically organized as described below with tab titling clearly printed under reinforced laminated plastic tabs.

E. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, type on 24-pound white paper.

F. Part 1: Directory, listing names, addresses, telephone and facsimile numbers, and contact persons of the Architect/Engineer, Contractor, Subcontractors, and suppliers.

G. Part 2: Operation and maintenance instructions arranged by system. For each category, identify names, addresses, telephone and facsimile numbers, and contact persons of the Subcontractors and suppliers. Identify the following:

1. Significant design criteria.

2. List of equipment.

3. Parts list for each component.

4. Operating instructions.

5. Maintenance instructions for equipment and systems.

6. Maintenance instructions for finishes including recommended cleaning methods and materials and special precautions identifying detrimental agents.

#### 1.06 WARRANTIES

A. Provide two (2) notarized copies of all required warranties as specified in the individual specification Sections.

B. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.

C. Provide Table of Contents and assemble in binder with durable plastic cover.

D. Submit to Architect/Engineer for review and approval, prior to final Application for Payment.

E. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.



- F. Architect shall forward warranties to Owner upon acceptance.

**1.07 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 obtain receipt, prior to final Application for Payment.

**1.08 RECORD DOCUMENTS**

- A. Contractor shall insure that an accurate, on-going record is kept of all deviations from the approved design Drawings and Specifications, which may occur as actually constructed.
- B. Upon completion of the Work, the Contractor shall submit to the Architect/Engineer for review, two (2) complete sets of the record ("as-built") drawings and specifications.
- C. Contractor shall obtain receipt for the record documents and submit said receipt with request for final payment of the Contract. Final payment due the Contractor will be withheld until this clause has been fulfilled.

**1.09 INSTRUCTION OF OWNER'S PERSONNEL**

- A. Before final inspection, schedule with Owner to instruct Owner's designated personnel in operation, adjustment and maintenance of products, equipment, and systems.
- B. For equipment requiring seasonal operation, perform instructions for other seasons within six months.
- C. Use operation and maintenance manuals as basis for instruction. Review contents of manual with personnel in detail to explain all aspects of operation and maintenance.
- D. Prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

**PART 2 PRODUCTS**

Not used

**PART 3 EXECUTION**

Not used

END OF SECTION

## **SECTION 01710 CLEANING**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Cleaning During Construction.
- B. Final Cleaning.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 SCOPE

- A. Provide all cleaning necessary for the proper execution and completion of the Work and as otherwise required by the Contract Documents.

#### 1.04 CLEANING DURING CONSTRUCTION

- A. The job site must at all times be kept clean of all obstructions so as to provide easy access for execution of the Work, inspection and observation. 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. Clean affected areas of the job site after removal of waste materials or rubbish.
- D. Clean portions of the Work as necessary between installation of different materials and trades.
- E. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- F. Remove waste materials, debris, and rubbish from site periodically and dispose off-site.

#### 1.05 FINAL CLEANING

- A. When all construction is complete (or before final inspection and the Owner takes occupancy under Substantial Completion), the area of the Work shall be professionally cleaned and presented to the Owner for acceptance. Cleaning shall include all items; interior, exterior exposed and concealed.
- B. All cleaning shall be in accordance with products manufacturer's recommendations.
- C. The Contractor is responsible for expediting the cleaning, washing, waxing and polishing required within the technical sections of the specifications.
- D. Remove all foreign matter, spots, oil, and construction dust so as to put the Project in a complete and finished condition ready for acceptance and use intended.

- E. Clean interior and exterior glass and surfaces exposed to view, remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- F. Clean equipment and fixtures to a sanitary condition.
- G. Clean filters of operating equipment.
- H. Clean debris from roofs, gutters, downspouts, and drainage systems.
- I. Clean site, sweep paved areas, rake clean landscaped surfaces.
- J. Remove waste and surplus materials, rubbish, and construction facilities from site.

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01720 PROJECT RECORD DOCUMENTS**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Contract Documents.
- B. Daily Log.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 CONTRACT DOCUMENTS

- A. Provide a new set of Contract Documents at the job site to be used only for the development of project record documents for the Owner. Record changes, dimensions for field located items, and other pertinent information required to show the Work in the condition it was completed. Information shall be neatly drawn and noted with red pencil or ink at the time which that part of the Work is being done.

#### 1.04 DAILY LOG

- A. The Contractor shall keep a daily log and provide a copy for the Owner and Architect at the job site each day. Log information shall include the date, weather conditions, time of day for start and finish of work, each trade and number of people working, description of work done that day, and other pertinent information to record the daily activities.

### **PART 2 PRODUCTS**

Not Used

### **PART 3 EXECUTION**

Not Used

END OF SECTION

## **SECTION 01740 WARRANTIES**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Correction of Warranted Work.
- B. General Project Warranty.
- C. Specific Product Warranty.
- D. Manufacturer's Standard Product Warranty.
- E. Countersigned Warranty.

#### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

#### 1.03 CORRECTION OF WARRANTED WORK

- A. Replace or repair items that are defective or have failed under the terms of a warranty. Work shall be restored to the intended original condition.
- B. When correcting warranted Work, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

#### 1.04 GENERAL PROJECT WARRANTY

- A. The Work, as a whole, is subject to warranty by the Contractor. All items shall be warranted for the full duration of time legally available to the Owner, in addition to any other warranties.

#### 1.05 SPECIFIC PRODUCT WARRANTY

- A. Specific product warranty items are in addition to the general project warranty from the Contractor, and give specific warranty requirements for selected products throughout the specification sections.
- B. Specific product warranties are from the Contractor and do not required submittal of a warranty form to be valid because they are a requirement of the Contract Documents and are validated by the execution (signature) of the Contract Documents/Agreement Form.

#### 1.06 MANUFACTURER'S STANDARD PRODUCT WARRANTY

- A. Manufacturer's standard product warranties are preprinted written warranties published by individual manufacturers for particular products. Many products come with manufacturer's standard product warranties, whether specified as such or not. It is the responsibility of the Contractor to pass along to the Owner all such warranties for the Owner's acceptance or refusal. These warranty submittals shall be submitted through the Architect along with other contract closeout submittals.

1.07 COUNTERSIGNED WARRANTY

- A. Countersigned warranties are warranties that require the signature of parties other than, or in addition to, the Contractor (such as a subcontractor, installer, supplier, manufacturer, etc.), and are therefore warrantable directly from the other parties to the Owner.
- B. Countersigned warranties require the submittal of a properly executed (signed) warranty form from the warrantor directly to the Owner.
- C. Countersigned warranties are incorporated into the project when requested by the Owner (presumably upon advise of their legal, insurance, or other counsel) and included the following warranty items: none.

**PART 2 PRODUCTS**

Not Used

**PART 3 EXECUTION**

Not Used

END OF SECTION

# **SECTION 02070 SELECTIVE DEMOLITION**

## **PART 1 GENERAL**

### 1.01 WORK INCLUDED

- A. Remove designated building equipment and fixtures. Cap and identify utilities.
- B. Remove designated building elements and building elements not designated as required for new work.
- C. Removal of all existing finishes including floor, wall, ceiling, etc, as required for proper installation of new materials.

### 1.02 RELATED WORK

- A. All parts of the Contract Documents relate to the Work specified in this section.

### 1.03 COORDINATION

- A. Conduct demolition to minimize interference with adjacent building areas. Maintain protected egress and access at all times.
- B. Provide, erect, and maintain temporary barriers and security devices.
- C. Coordinate extent of demolition with requirements of new construction.
- D. The demolition drawings are intended to indicate the bounds of work required. It is not expected that every item will be specifically called out in the documents. Contractor shall provide all demolition required for new construction regardless if shown on drawings or not.

## **PART 2 PRODUCTS**

Not Used

## **PART 3 EXECUTION**

### 3.01 EXAMINATION

- A. Examine area of work and drawings to gain a full understanding for the extent of work.
- B. Determine the extent and limits of items to be removed including but not limited to wall, ceiling, and floor materials and finishes; doors, windows, hardware and frames; plumbing, electrical, and mechanical items and accessories; furnishings and equipment.
- C. Coordinate all removal required to facilitate new construction.

### 3.02 PREPARATION

- A. Erect and maintain weatherproof closures for exterior openings.
- B. Protect existing items that are not scheduled for removal.

- C. Disconnect, remove, and cap affected utility services within demolition areas as required for work and in accordance with applicable codes.
- D. Mark location of disconnected utilities. Identify and indicate capping locations on Project Record Documents.

### 3.03 BUILDING DEMOLITION

- A. Maintain barriers necessary to protect public.
- B. Control dust from spreading to adjacent buildings and property.
- C. Cut and cap all utilities prior to demolition.
- D. Investigate the structure prior to demolition to fully understand the effort required to demolish the building.
- E. Use of explosives is forbidden.
- F. Building removal shall include but not limited to roof, walls, finishes, slabs, entire foundation / footings and connected utilities.
- G. Legally dispose of all debris.

### 3.04 GENERAL DEMOLITION

- A. Demolish in an orderly and careful manner. Protect existing structural members, interior partitions and exterior architectural elements. Utilize saw-cutting, torch-cutting, dismantle, and similar techniques as appropriate for new construction.
- B. Except for items indicated for reuse, remove demolished materials from site as work progresses. Do not burn or bury materials on site.
- C. Remove materials to be re-installed or retained in manner to prevent damage. Store materials and protect materials against damage from construction activities or exposure to weather.
- D. Remove and promptly dispose of contaminated, vermin infested, or dangerous materials encountered. Remove and dispose of materials in accordance with applicable environmental codes and requirements.
- E. Upon completion of demolition work, leave areas of work in clean condition, ready for new construction.

### 3.05 WALL, FLOOR, AND FRAME REMOVAL

- A. Remove masonry walls and frames where indicated in a manner to allow new jambs, and partitions to be toothed into existing wall.
- B. Remove masonry above new wall openings as required to provide new lintels.
- C. Remove masonry for new openings in a manner to allow installation of new bullnose masonry to be toothed into existing wall at jambs.



- D. Full height wall demolition and wall demolition indicated for new door openings shall be removed to or below floor line as required for new floor finish. Floor shall be level to within 1/8 inch in ten feet.
- E. Refer to structural drawing requirements when removing bearing walls.
- F. Saw-cut floor slabs as required for installation of new footings and utilities.

### 3.06 CEILING REMOVAL

- A. Remove ceilings as required for new construction and in areas indicated on demolition plan.
- B. Remove panels, suspended grid, trim, and hangers. Clean adjoining wall surfaces of fasteners that will affect final finish appearance.
- C. Remove plaster, lath, suspension, and trim materials.
- D. Remove suspended panel ceilings for re-installation after above ceiling work is complete in locations shown or where otherwise required.

### 3.07 FINISH REMOVAL

- A. Remove existing finishes where indicated on drawings and where existing finish material will be detrimental to application of new finish materials.

END OF SECTION

# SECTION 04220 CONCRETE UNIT MASONRY

## **PART 1      GENERAL**

### 1.01    SECTION INCLUDES

- A. Concrete Unit Masonry
- B. Mortar and Masonry Grout
- C. Masonry Accessories

### 1.02    REFERENCES

- A. NCMA-TEK 3-1, Cold Weather Concrete Masonry Construction.
- B. NCMA-TEK 9-1, Mortars for Concrete Masonry.
- C. NCMA-TEK 3-2, Grouting for Concrete Masonry Walls.
- D. NCMA-TEK 7-3, Fire Safety with Concrete Masonry.
- E. NCMA-TEK 19-4, Flashing Concrete Masonry.
- F. NCMA-TEK 3-1A, All Weather Concrete Masonry Construction
- G. ACI 530/ASCE 5/TMS 602 Building Code Requirements for Masonry Structures
- H. ACI 530.1/ASCE 6 /TMS 402 Specification for Masonry Structures

### 1.03    COORDINATION

- A. Construct all interior walls full height and seal tight to roof or floor structure except where noted otherwise on drawings. Security walls shall be reinforced and grouted solid.
- B. Fire and smoke walls shall be sealed with appropriate fire sealant.
- C. Review code data contained within construction documents for fire rating of interior walls, partitions and separations and exterior load bearing walls. Review structural drawings for location of load bearing walls. Use materials and techniques required for wall construction rating.
- D. Coordinate with structural steel for lintels.
- E. Coordinate with structural steel and joists for pockets to be built into walls.
- F. Coordinate with hollow metal work for installation of frames to be built into walls.
- G. Coordinate for installation of equipment (e.g. toilet accessories, fire extinguisher cabinets) to be built into walls.

- H. Coordinate for detention equipment and anchors to be built into walls.
- I. Coordinate with mechanical for duct, pipe and other wall penetrations. Coordinate for installation of security grilles at security perimeter.
- J. Coordinate with electrical and communications for installation of conduit and boxes.

#### 1.04 PROJECT RECORD DOCUMENTS

- A. Maintain and submit project record documents for concealed items built in or passing through masonry walls under provisions of the General Requirements.

#### 1.05 ENVIRONMENTAL REQUIREMENTS

- A. Provide cold weather protection complying with recommendations of NCMA-TEK 3-1.

## **PART 2 PRODUCTS**

### 2.01 CONCRETE MASONRY UNITS

- A. Standard concrete block units: ASTM C90, nominal 8 inches by 16 inches face size, depths as shown on drawings, hollow and solid units. Provide special shape units for bullnose jambs, double bullnose end walls, bond beams, lintels, caps, and control joints.
- B. Fire-resistant concrete block units: as specified for standard block, tested or calculated as described in NCMA Tek Manual Part 7 and as required for wall design or rating.

### 2.02 MORTARS AND GROUTS

- A. Mortars and grout materials as follows:
  - 1. Portland cement - ASTM C150, type required for mix.
  - 2. Masonry cement - ASTM C91
  - 3. Hydrated lime - ASTM C207, type required for mix.
  - 4. Aggregate - ASTM C144, natural sand.
  - 5. Water - clean, and free of deleterious acids, alkalis, or organic materials.
- B. Mortar mix: ASTM C270 Type S
- C. Grout mixes - ASTM C476 Coarse and Fine Grouts
- D. Glazed block joint grout: specified in Section 09300

### 2.03 REINFORCING

- A. Reinforcement bar: ASTM A615, grade 60; deformed billet steel bars, plain finish sized as shown on drawings.
- B. Single wythe joint reinforcement: welded two (2) wire ladder type joint reinforcing, No.9 side wires and No. 9 cross wires, ASTM A525 Class G60 galvanized.

- C. Brick veneer wall-tie/joint reinforcement system: ladder style: welded two (2) wire ladder type joint reinforcing with eyelets and pintels, No.9 side wires, No. 9 cross wires, and No. 9 pintel wires, ASTM A153 Class B2 hot dipped galvanized.
- D. Block veneer wall-tie/joint reinforcement system: ladder style: welded three (3) wire ladder type joint reinforcing, No.9 wires, No. 9 cross wires, ASTM A153 Class B2 hot dipped galvanized.

#### 2.04 ACCESSORIES

- A. Grout Stop: monofilament screen, non-corrosive, coated fiberglass or polypropylene.
- B. Manufactured Control Joints: ASTM D2287 type PVC 654-4, durometer hardness of 85±5.
- C. Sand: ASTM C144, natural sand; washed, free of silt, clay, loam, friable or soluble materials, or organic matter.
- D. Pea gravel: Natural stone; washed; free of clay, shale, and organic matter, graded in accordance with ANSI/ASTM C136 with all passing 5/8 inch screen and none passing 1/4 inch screen.
- E. Anchor bolts: ASTM A307.

### **PART 3 EXECUTION**

#### 3.01 COORDINATION

- A. Coordinate with mechanical, electrical trades and equipment for items to be built in masonry.

#### 3.02 MORTAR AND GROUT

- A. Proportion mortar mix as indicated in NCMA-TEK 9-1A for type required, mix thoroughly in quantities needed for immediate use in accordance with ASTM C270; mortar mix shall utilize portland cement/lime or mortar cement, not masonry cement or air entrained portland cement/lime. Grout mix proportions shall comply with ASTM C476. When batch mixing grout on the job site all materials shall be thoroughly mixed for a minimum of 5 minutes.
- B. Do not use anti-freeze compounds, retarders or calcium chloride admixtures. "Grouting aid" add mixtures are permitted. Do not use calcium chloride.
- C. Retemper mortars if water is lost by evaporation only within two hours of mixing.
- D. Use mortar within two hours after mixing at temperatures of 80 degrees F or two-and-one-half hours at temperatures under 50 degrees F. Grout not placed within 1-1/2 hours after water is first added shall be discarded.
- E. Install mortar in accordance with ASTM C780. Tool joints concave. Strike flush at walls to receive coatings.
- F. Utilize low-lift grouting, lifts not to exceed 5 feet in height. Do not displace reinforcement while placing grout. Vibrate grout during placement. Place grout stopping pour 2 inch

minimum below top of block where wall continues above grouting lift. Hold reinforcement securely in place during grouting. Revibrate grout after initial water loss.

- G. High lift grouting shall not be used without prior approval by Architect/Engineer.

### 3.03 COURSING

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

### 3.04 PLACING AND BONDING

- A. Lay hollow masonry units with face shell bedding on head and bed joints.
- B. Lay solid masonry units in full bed of mortar, with full head joints, uniformly jointed with other work.
- C. Buttering corners of joints or excessive furrowing of mortar joints are not permitted.
- D. Remove excess mortar as Work progresses.
- E. Interlock intersections and external corners.
- F. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment must be made, remove mortar and replace.
- G. Perform job site cutting of masonry units with proper tools to provide straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
- H. Isolate masonry partitions from vertical structural framing members with a control joint.
- I. Glazed block mortar joints shall be raked and tooled for grouting along with floor tile. Coordinate joint depth with requirements for grout.
- J. Provide bullnose block units at all exposed jambs, end walls, outside corners and other exposed corners.

### 3.05 JOINT REINFORCEMENT AND VERTICAL REINFORCEMENT

- A. Install horizontal joint reinforcement 16 inches on center. Coordinate for placement of double wythe reinforcement at wall to receive masonry veneer.
- B. Place masonry joint reinforcement in two horizontal joints above and below openings. Extend minimum 16 inches each side of opening.
- C. Place joint reinforcement continuous in first joint below top of walls.
- D. Place corner and intersecting wall joint reinforcing for continuity.

- E. Lap joint reinforcement ends minimum 6 inches.
- F. Do not continue joint reinforcing through control joints.
- G. Locate vertical reinforcement accurately in cores of block. Secure in place for each grouting lift. Extend minimum 1 lap length above top of grout lift to lap next level.

### 3.06 BUILT-IN WORK

- A. As work progresses, build in metal door frames, anchor bolts, plates, reglets and other items furnished by other Sections.
- B. Build in items plumb and level.
- C. Bed anchors of metal door frames in adjacent mortar joints. Fill frame voids solid with grout.
- D. Do not build in organic materials subject to deterioration.
- E. Build reglets into mortar joints where required for metal flashings.

### 3.07 CUTTING AND FITTING

- A. Cut and fit as coordinated with other Sections of work to provide correct size, shape, and location.

### 3.08 CLEANING

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

### 3.09 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provisions of the General Requirements.
- B. Without damaging completed work, provide protective boards at exposed external corners that may be damaged by construction activities.
- C. Touch-up prime lintels knicks or scratches that have occurred prior to complete installation.

END OF SECTION

# SECTION 07900 JOINT SEALERS

## PART 1 GENERAL

### 1.01 SECTION INCLUDES

- A. Sealants

### 1.02 SUBMITTALS

- A. Submit color samples for all sealant and fillers for selection.

### 1.03 COORDINATION

- A. Review room finishes schedule and finish plans for areas requiring security sealant at floor finish to wall joints

## PART 2 PRODUCTS

### 2.01 SEALANTS AND CAULKING

- A. Exterior sealant: Dymeric 511 as manufactured by Tremco, Inc., 3735 Green Rd., Beachwood, OH 44122, (800) 321-7906.
- B. Security sealant: DynaFlex SC as manufactured by Pecora Corporation, 165 Wambold road, Harleyville, PA 19438, (800) 523-6688

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that surfaces are ready to receive work and field measurements are as shown on Drawings and recommended by the manufacturer.
- B. Beginning of installation means installer accepts existing surfaces.
- C. Security sealant cannot receive paint. Security sealant color shall match adjacent surface color. Submit color selection charts from manufacturers full range of standard colors.

### 3.02 PREPARATION

- A. Clean and prime joints in accordance with manufacturer's instructions.
- B. Remove loose materials and foreign matter that might impair adhesion of sealant.
- C. Verify that joint backing and release tapes are compatible with sealant.
- D. Perform preparation in accordance with manufacturer's instructions for all sealants.
- E. Protect elements surrounding the work of this Section from damage or disfigurement.

### 3.03 INSTALLATION

- A. Provide security sealant at all locations indicated as inmate accessible.
- B. Seal control and construction joints, joints between dissimilar materials, equipment and fixtures with security sealant at all areas within security perimeter.
- C. Install sealant in accordance with manufacturer's instructions.
- D. Measure joint dimensions and size materials to achieve required width/depth ratios.
- E. Install joint backing to achieve a neck dimension no greater than 1/2 the joint width.
- F. Install bond breaker where joint backing is not used.
- G. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- H. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- I. Tool joints concave. At exterior masonry control joints tool sealant to match mortar joints.
- J. Compress rigid extrusion sealer prior to installation.

### 3.04 CLEANING AND REPAIRING

- A. Clean work under provisions of the General Requirements.
- B. Clean adjacent soiled surfaces.
- C. Repair or replace defaced or disfigured finishes caused by work of this Section.

### 3.05 PROTECTION OF FINISHED WORK

- A. Protect finished installation under provisions of the General Requirements.
- B. Protect sealant until cured.

End of Section



## **SECTION 08300 SPECIAL DOORS**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Access Panels

#### 1.02 RELATED SECTIONS

- A. Section 09250 Gypsum Board Systems

#### 1.03 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Section 01300.

#### 1.04 COORDINATION

- A. Coordinate door, frames and manufacturer supplied hardware with builder's hardware supplied by others.

### **PART 2 PRODUCTS**

#### 2.01 ACCESS DOORS

- A. Manufacturers

1. Nystrom Products Company, Div. Nystrom, Inc., 1701 Madison St, N E, Minneapolis, MN 55413, (612)781-7850.
2. Acudor Products, Inc., 371 Little Falls Rd., Cedar Grove, NJ 07009, (800) 722-0501.
3. J.L. Industries 4450 W. 78th St. Cir., Bloomington, MN 55435-5416.
4. Milcor, 1150 N. Cable Rd., Lima, OH 45805, (800) 441-6899.

- B. Detention access panel for gypsum board

1. Door: Fabricate from 12 gauge cold rolled sheet steel
2. Frame: Fabricate from 12 gauge cold rolled sheet steel of configuration to suit material application.
3. All surfaces - 1" flange at perimeter
4. Wallboard surfaces - 22 gauge galvanized drywall bead at perimeter
5. Hinge: Offset continuous concealed piano hinge
6. Latches: Cylinder lock equal to Schlage.
7. Keys and Keying: Key similar access doors alike, provide 3 copies of each key.

### **PART 3 EXECUTION**

### 3.01 INSPECTION

- A. Verify that openings are correctly dimensioned and prepared to receive doors and tolerances are within limits.

### 3.02 INSTALLATION

- A. Install access door unit assembly in accordance with manufacturer's instructions.
- B. Use anchorage devices to securely fasten assembly to ceiling construction without distortion or stress.
- C. Fit and align door assembly including hardware, level and plumb, to provide smooth operation.

### 3.03 ADJUSTING AND CLEANING

- A. Adjust access panel assembly and latching mechanism to operate smoothly.
- B. Leave work area clean and free of debris.
- C. Remove and replace panels or frames that are bowed warped or damaged.

## **SECTION 08500 ALUMINUM FRAMES AND DOORS**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Aluminum Windows

#### 1.02 RELATED SECTIONS

- A. Section 08700 Door Hardware. Coordinate with door hardware supplier for hardware items not included in this section.
- B. Section 08800 Glass and Glazing. Coordinate with glass supplier for accurate size and quantity of glass

#### 1.03 PERFORMANCE REQUIREMENTS

- A. Air infiltration per ASTM E283 < .06 CFM/sq.ft. @ 6.24 PSF.
- B. Water Resistance per ASTM E331 > 8 PSF with no water penetration.
- C. U factor per AAMA 1503.1 < .56.
- D. Condensation Resistance Factor (CRF) per AAMA 1502.7 > 57.
- E. Structural Performance per ASTM E330 limit deflection to the lesser of L/175 or 3/4 inch maximum with 1.65 safety factor.

#### 1.04 DESIGN REQUIREMENTS

- A. Permit installation of 1 inch glass unit.
- B. Frame design shall be for exterior glazing, center mounted, with horizontal and vertical face covers nominal 2 inches wide.
- C. Concealed perimeter anchoring.
- D. Exterior frames shall be of poured-and-debrided thermally broken design, designed and fabricated per AAMA TIR-A8-90.
- E. Framing system shall structurally support and adequately cushion the glass to prevent mechanical or thermal stresses on the glass.
- F. Frame system shall be screw applied pressure plate and cover plate design.

#### 1.05 SUBMITTALS

- A. Submit frame elevation and detail shop drawings and product data under provisions of Section 01300.

## 1.06 COORDINATION

- A. Coordinate door, frames and manufacturer supplied hardware with builder's hardware supplied by others.
- B. Provide required power supply, power converters and other required products to integrate system.
- C. Coordinate with electrician and security/control systems for installation and connection of electric hardware.

## **PART 2 PRODUCTS**

### 2.01 FRAME MATERIALS

- A. Aluminum: 6063-T5 extrusions.
- B. Aluminum finish: Architectural Class I anodized finish color as selected.
- C. Glazing gaskets: elastomeric extrusions, EPDM or other Architect approved material.
- D. Fasteners: aluminum, stainless steel, or zinc coated.
- E. Perimeter anchors: aluminum or steel, with steel isolated from aluminum.

### 2.02 WINDOWS

- A. Based on Kawneer 8450TL, Double Hung window framing system.
- B. Furnish removable insect screens.
- C. Furnish with all hardware.

### 2.03 FABRICATION

- A. Corner construction shall consist of mechanical clip fastening or deep penetration and fillet welds.
- B. Provide concealed weep holes at sills.

### 2.04 GLASS

- A. Glass: as scheduled and specified in Section 08800.

### 2.05 ACCESSORIES

- A. Exterior window sill flashing: Formed, Aluminum 3003, 0.032 inch thickness, smooth texture, finish matching window frames.

## **PART 3 EXECUTION**

### 3.01 INSPECTION

- A. Verify wall openings and adjoining materials are ready to receive work of this Section.
- B. Beginning of installation means acceptance of existing conditions.

### 3.02 INSTALLATION

- A. Install doors, frames, glazing and hardware in accordance with manufacturer's instructions.
- B. Use anchorage devices to securely attach frame assembly to structure.
- C. Align assembly plumb and level, free of warp or twist. Maintain assembly dimensional tolerances, aligning with adjacent work.
- D. Install sill and jamb flashings where shown on drawings.
- E. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.
- F. Maintain frame weeps free and open, do not obstruct drainage.
- G. Install hardware using templates provided
- H. Install glass and infill panels in accordance with door manufacturer's requirements.
- I. Install perimeter sealant, backing materials, and installation requirements in accordance with Section 07900.
- J. Adjust operating hardware and test hardware. Test and adjust hardware in conjunction with Testing of work of General Requirements.

### 3.03 CLEANING

- A. Remove protective material from pre-finished aluminum surfaces.
- B. Wash down exposed surfaces using a solution of mild detergent in warm water, applied with soft, clean wiping cloths. Take care to remove dirt from corners. Wipe surfaces clean.
- C. Remove excess sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

END OF SECTION

# **SECTION 08800 GLASS AND GLAZING**

## **PART 1      GENERAL**

### 1.01    SECTION INCLUDES

- A. Glass
- B. Glass Units
- C. Glazing Accessories

### 1.02    REFERENCES

- A. BOCA National Building Code 1993 Section 2405.0 Safety Glazing.

### 1.03    QUALITY ASSURANCE

- A. Conform to Flat Glass Marketing Association (FGMA) Glazing Manual Glazing Sealing Systems Manual for glazing installation methods.
- B. Label safety

### 1.04    DELIVERY, STORAGE, AND PROTECTION

- A. Deliver, store and protect products under provisions of the General Requirements.

### 1.05    WARRANTY

- A. Provide five year manufacturer's warranty under provisions of the General Requirements.
- B. Warranty: Include coverage of sealed glass units from seal failure, inner pane dusting or misting, and replacement of same.

## **PART 2      PRODUCTS**

### 2.01    GLASS

- A. Glass: Annealed; float glass; 1/4 inch thick minimum.
- B. Safety Glass: Fully tempered; 1/4 inch thick minimum.

### 2.02    GLASS UNITS

- A. 1 inch glass unit: Double pane units with total unit thickness of 1 inch, tempered and tinted units as scheduled.
- B. Tempered units shall have outer and inner panes of tempered glass.
- C. Tinted units shall have outer pane of tinted glass and inner pane of clear glass. Tint shall match existing glass units.

## 2.03 GLAZING ACCESSORIES

- A. Spacer: Aluminum with welded or soldered corners and desiccant fill. Finish of exposed edge to match aluminum frames.
- B. Primary Seal: Butyl tape or mastic, unvolcanized; 10 - 15 shore A hardness..
- C. Secondary Seal: Silicone; 40 - 50 shore A hardness
- D. Setting Blocks: Neoprene, EDPM, or silicone; Shore A hardness of 85 + 5, sized 0.1 inch length per square foot of glass area (4 inches minimum), 1/16 inch narrower than channel width, height to provide recommended nominal bite and minimum edge clearance, two identical blocks per glass unit,
- E. Anti-walk Spacer Blocks: Neoprene, EDPM, or silicone; 40-60 Shore A durometer hardness; 6 inch minimum length, 1/4 inch thick, width equal to unit thickness.

## **PART 3 EXECUTION**

### 3.01 INSPECTION

- A. Verify surfaces of glazing channels or recesses are clean, free of obstructions, and ready for work of this Section.
- B. Beginning of installation means acceptance of substrate.

### 3.02 PREPARATION

- A. Clean contact surfaces with solvent and wipe dry.
- B. Seal porous glazing channels or recesses.
- C. Prime surfaces scheduled to receive sealant.

### 3.03 GLAZING

- A. Install insulated glass units into aluminum frames using setting blocks, anti-walk spacer blocks and gaskets as recommended by aluminum frame manufacturer.
- B. Locate setting blocks at quarter points with their nearest edge no closer than 6 inches to the corner of the unit.
- C. Locate anti-walk spacers at mid-point of both jambs.

### 3.04 CLEANING

- A. After installation, mark pane with an "X" by using plastic tape or removable paste
- B. Remove labels after work is completed.

END OF SECTION

## SECTION 09250 GYPSUM BOARD SYSTEMS

**PART 1 GENERAL**

1.01 SECTION INCLUDES

- A. Framing.
- B. Gypsum board and sheathing
- C. Accessories

1.02 REFERENCES

- A. Gypsum Association GA-214, Levels of Gypsum Board Finish
- B. Gypsum Association GA-216-89, Application and Finishing of Gypsum Board

**PART 2 PRODUCTS**

2.01 FRAMING

- A. Standard metal studs: C profile; with runners of same material; unless otherwise indicated, studs based on size, spacing and height as follows:

Stud Size	Stud Spacing (inches)	Maximum Height**		
		18 mils (25 gage)	33 mils (20 gage)	43 mils (18 gage)
362 S 125-xx (3 5/8" deep)	12	13'-3"	15'-6"	16'-10"
	16	12'-4"	14'-3"	15'-6"
	24	11'-7"	12'-9"	13'-10"
400 S 125-xx (4" deep)	12	14'-4"	17'-4"	18'-3"
	16	13'-4"	15'-11"	16'-8"



	24	12'-4"	14'-3"	14'-8"
600 S 125-xx (6" deep) 0	12 16 24	19'-4" 17'-11" 16'-9"	23'-5" 21'-4" 18'-10"	26'-8" 24'-8" 22'-4"

Based on 33 ksi steel, full height gypsum board on each face, and deflection at mid span of h/360.

- B. Furring channels: 1 5/8 inches hat sections 25 gage metal
- C. Fasteners: Self-drilling, self-tapping, bugle head screws.
- D. Anchorage Devices: Power driven, drilled expansion bolts or screws with sleeves.

2.02 CEILING/BULKHEAD FRAMING

- A. Select from the following systems:
  - 1. Conventional framing system
    - a. Cross Furring: 3/4 inch rolled channel; 0.30 lb/ft.
    - b. Main Runners: 1 1/2 inches hot rolled channel; 1.12 lb/ft.
    - c. Hangers: 8 gage galvanized wire.
    - d. Galvanizing: ASTM A526 G60, minimum.
  - 2. Suspended T framing system: Drywall furring system by Armstrong Ceilings, Suspension System & Acoustical Walls, (888) 234-5464

2.03 GYPSUM BOARDS

- A. Regular gypsum board: ASTM C36; 5/8 inch thick, square cut ends, tapered edges
- B. Water Resistant Gypsum Board: ASTM C630; 5/8 inch thick, ends square cut, square edges
- C. Fire rated gypsum board: Type X gypsum board: ASTM C36; fire resistive type, UL rated; 5/8 inch thick, ends square cut, square edges.
- D. Impact resistant gypsum board:
  - 1. 5/8" Fiberock VHI by United States Gypsum Company, 125 South Franklin Street, P.O. Box 806278, Chicago, IL 60680-4124, (877) 874-6655

2. 5/8" Hi-Impact 3000 manufactured by National Gypsum Company, 2001 Rexford Road, Charlotte, NC 28211, (800) 252-1065

#### 2.04 ACCESSORIES

- A. Corner bead: ASTM C1047; preformed metal angle.
- B. Expansion joint: ASTM C1047; preformed metal 'V' with flanges.
- C. Vapor barrier: 6 mil, polyethylene sheet.
- D. Sound batt insulation: ASTM C665 Type I, 3 ½ inches thick, unfaced fiberglass.

### **PART 3 EXECUTION**

#### 3.01 COORDINATION

- A. Coordinate with other work for installation of blocking and anchors
- B. Coordinate with electrical and mechanical work for installation of bucks, anchors, and blocking to be placed in or behind stud framing.

#### 3.02 EXAMINATION

- A. Verify that conditions are ready to receive work.
- B. Verify field measurements are as shown on Drawings.
- C. Verify that rough-in utilities are properly located.
- D. Beginning of installation means installer accepts existing conditions.

#### 3.03 CEILING AND SOFFIT FRAMING

- A. Select from framing system options install suspended T system as recommended by manufacturer for anticipated loads. Install conventional system as listed below.
- B. Install hangers at 4 feet on center maximum both directions. Coordinate placement of hangers with structure and mechanical above.
- C. Install main runners parallel to line of building equally spaced at 4 feet on center maximum. Use

galvanized material at areas of high humidity.

- D. Install cross runners perpendicular to main runners spaced at 16 inches on center. Use galvanized material at areas of high humidity.
- E. Install perimeter J-bead at all location where ceilings abut walls maintain tight joint. Install control joints at not more than 30 feet on center both directions.

### 3.04 GYPSUM BOARD INSTALLATION

- A. Install gypsum board in accordance with manufacturer's instructions and GA - 216-89.
- B. Erect gypsum board perpendicular to framing with ends and edges occurring over firm bearing.
- C. Place corner beads at external corners. Use longest practical length. Place edge trim where gypsum board joint that will remain exposed abuts dissimilar materials.

### 3.05 JOINT TREATMENT

- A. Standard finish level of gypsum board shall be GA-214 level 4.
- B. Finish level of gypsum board above ceiling hidden to view shall be GA-214 level 1.
- C. Tape and as instructed by manufacturer.

END OF SECTION

## **SECTION 09900 PAINTING**

### **PART 1 GENERAL**

#### 1.01 SECTION INCLUDES

- A. Paint, Primer, Sealers for Interior and Exterior Applications

#### 1.02 COORDINATION

- A. All shop primed metal items (door, door and window frames, metal fabrications, manufactured items) shall be field painted, verify which materials are pre-finished and which are shop primed. Coordinate finishing.
- B. Refer to schedules and drawings for painting materials notes.
- C. Request color schedule from Architect indicating major building areas, components and paint color.
- D. Refer to finish schedule for location of accent color.
- E. Assume that all hollow metal frames will be an accent color.

#### 1.03 REGULATORY REQUIREMENTS

- A. All products used shall VOC compliant.

#### 1.04 SUBMITTALS

- A. Submit information indicated in the selected interior finishes table.
- B. Indicate various materials, styles where applicable and sub contractor.
- C. Color selections will be made from submitted information
- D. Submit paint schedule, provide manufacturer's product data for all materials to be used and list building areas and proposed paint materials.

#### 1.05 PROJECT RECORD DOCUMENTS

- E. Maintain and submit project record documents for paint bases and tinting used throughout

project under provisions of the General Requirements.

#### 1.06 OPERATION AND MAINTENANCE DATA

- A. Submit cleaning and maintenance data under provisions of the General Requirements.

### **PART 2 PRODUCTS**

#### 2.01 PAINTS, PRIMERS, SEALERS AND FILLERS

- A. Manufacturer: Sherwin Williams Co., 101 Prospect Ave. N.W., Cleveland, OH 44101, (800) 321-8194.
- B. Scheduled Paints
  - 1. P-1: (interior gypsum board walls)
    - a. 1 ct. PrepRite 200 Latex Primer
    - b. 2 cts. ProMar 200 Latex Low Sheen ES.
  - 2. P-2: (masonry walls)
    - a. 1ct. PrepRite 200 Latex Primer
    - b. 2 cts. Pro Industrial Water Based Catalyzed Epoxy
  - 3. P-3: (shop primed metals)
    - a. 2 cts. ProClassic Waterborn Acrylic Satin.

#### 2.02 PAINT SYSTEMS

- A. All paint materials shall be appropriate for substrate and topcoat material.
- B. Painting shall be done in one primer coat (primer/sealer for gypsum board, primer/filler for concrete, concrete plank and concrete block) and two finish coats.
- C. Painting shall include:
  - 1. All exposed surfaces such as walls, partitions, gypsum board, etc.
  - 2. Exposed structure or 6" above suspended acoustical ceiling - prime full height, finish to exposed height, prime and paint prior to ceiling installation.
  - 3. Hard ceilings - prime and paint exposed wall.
- D. All materials shall be applied to wet/dry film thickness using methods recommended by

manufacturer for substrate and materials used for moderate to severe wear conditions.

- E. Interior finish materials shall conform to ASTM E84 Class I.

## **PART 3 EXECUTION**

### 3.01 INSPECTION

- A. Verify that surfaces are ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content meets the recommendations of the manufacturer.
- D. Beginning of installation means acceptance of existing surfaces.

### 3.02 PREPARATION

- A. Remove electrical plates, hardware, light fixture trim, and fittings prior to preparing surfaces or finishing.
- B. Correct minor defects and clean surfaces which affect work of this Section.
- C. Shellac and seal marks which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Concrete Block - surface must be free of dirt, loose or excess mortar and thoroughly dry. Allow new block construction to dry 30 days minimum before painting.
- F. Galvanized Metal - surface should be weathered a minimum of 6 months then solvent or blast cleaned of all dirt, oils, and mill scale.
- G. Misc. Iron/Steel - surface must be cleaned of all oil, grease, mill scale, dirt, foreign matter, rust using solvent or blast methods.
- H. Gypsum Board - surface must be clean, dry, and free of dust.

### 3.03 PROTECTION

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

### 3.04 APPLICATION

- A. Apply products in accordance with manufacturer's instructions.
- B. Do not apply finishes to surfaces that are not dry.
- C. Apply one primer coat and two finish coats.
- D. Apply each coat to uniform finish.
- E. Sand lightly between coats to achieve required finish.
- F. Allow applied coat to dry before next coat is applied.
- G. Where clear finishes are required, tint fillers to match stained wood. Apply filler prior to finish coat.
- H. Prime back surfaces of interior and exterior woodwork with primer paint.
- I. Prime back surfaces of interior woodwork scheduled to receive stain or varnish finish with gloss varnish reduced 25 percent with mineral spirits.
- J. After security sealant is installed return to cut in finish paint to edge of sealant where materials remain exposed.

### 3.05 FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

- A. Paint unfinished equipment.
- B. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

- C. Prime and paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, except where items are pre-finished.
- D. Replace identification markings on mechanical or electrical equipment if painted over.
- E. Paint interior surfaces of air ducts, and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint, to limit of sight line. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.
- F. Paint exposed conduit and electrical equipment occurring in finished areas.
- G. Paint both sides and edges of plywood backboards for electrical and telephone equipment before installing equipment.
- H. Replace electrical plates, hardware, light fixture trim, and fittings removed prior to finishing.

### 3.06 CLEANING

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

END OF SECTION



# **SECTION 11190 DETENTION DOORS, WINDOWS AND HARDWARE**

## **PART 1 GENERAL**

### 1.01 SECTION INCLUDES

- A. Detention hollow metal awning window frames
- B. Detention glass unit

### 1.02 SUBMITTALS

- A. Submit shop drawings including frame drawings and product data, with glass. Submit shop drawings allowing 4 weeks for review from the date all information is received in Architect's office until the date shipped from the Architect's office.
- B. Submit product data containing significant dimensions, clearances, power and wiring requirements and other information as required to make a full review.
- C. Submit proof of compliance with test standards listed for products.
- D. Submit glass samples for all glass types, thickness', and compositions. Submit minimum of one (1) 12" x 12" glass sample for each.

### 1.03 OPERATION AND MAINTENANCE

- A. Provide operation and maintenance data, include cleaning methods and materials; operational instructions; owner servicing instructions, schedules, parts list and recommended lubrication; recommended maintenance schedule.
- B. Provide inspections at three months intervals during warranty period. Inspect equipment function, adjustment, and lubrication, make necessary adjustments and lubrication.
- C. Provide emergency service during warranty period. Response time shall be within 24 hours.

### 1.04 QUALITY ASSURANCE

- A. Manufacturer's Qualifications:
  - 1. Manufacturers of detention equipment shall have not less than five (5) years experience in the design and fabrication of detention equipment.
  - 2. Manufacturers shall refer to five (5) other installations that are comparable in size and similar construction.
- B. Installation and maintenance of the following equipment shall be performed by manufacturer approved personnel. Submit certification of manufacturer training with shop drawings.
  - 1. Detention hollow metal doors and frames installers
  - 2. Detention hardware installers
- C. Performance Requirements:

1. Air infiltration test, meets or exceeds ASTM E283, maximum air infiltration .37 CFM/Ft of crack length with air pressure differential across the window unit of 1.57 PSF.
2. Water penetration test, meets or exceeds ASTM E331, no water penetration for 15 minutes when window is subjected to a rate flow of 15 gal/hr/sq. ft. with differential pressure across the window unit of 2.86 PSF.
3. Tool-resisting steel meets or exceeds ASTM A627-02 and A629-02 Grade 4. Submit test reports.
4. Impact test, meets or exceeds ASTM F1592-01 "Standard Test Methods for Detention Hollow Metal Vision Systems. Submit test reports.

#### 1.05 COORDINATION

- A. Coordinate glass physical properties for requirements that affect frames.
- B. Coordinate with masonry and concrete contractors for built-in products and anchors.

#### 1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site. Arrange for Freight Company to notify contractor 24 hours in advance of product arrival to site.
- B. Deliver equipment to site in original shipping container, store and protect in manner to avoid damage to equipment until it can be installed.
- C. Verify completeness of shipment and inspect equipment for damage. Report damage to manufacturer and/or shipper as required by purchase agreement. Owner will refuse scratched or damaged equipment.

#### 1.07 WARRANTY

- A. Warrant materials and workmanship for one (1) year after date of substantial completion. Repair or replace any defective detention materials or work when given written notice during Warranty period.
- B. Manufacturer of detention hardware shall warrant that replacement parts for locking mechanisms shall be available for a minimum of twenty (20) years from date of equipment purchase.

## **PART 2 PRODUCTS**

#### 2.01 AWNING WINDOWS

- A. Window unit based on Hope's Specialty Windows and Doors.
  1. Material, formed from 12 gage steel.
  2. 7/8 inch diameter tool resistant steel bars and 1/4 inch flat tool resisting steel plate.
  3. Worm gear, self-locking manual operator.
- B. Detention Screens:
  1. Material, formed from 12 gage steel.
  2. Screen cloth: stainless steel 18/8 #304, woven 12 mesh from 0.028 inch diameter wire.

- C. Fasteners: tamper resistant.
- D. Finish: factory applied polyurethane selected from manufacturers full range of standard colors.

## 2.02 DETENTION GLASS

- A. Detention Glass standard: ASTM F-1592-95a and ASTM F-1915 Standard Test Methods for Detention Hollow Metal Vision Systems
- B. Detention Glass: Glass clad laminate, manufactured by one of the following:
  - 1. Sully North America, Inc., P.O. Box 70, Trumbauersville, PA 18970-0070, (215) 536-0333
  - 2. Guardian Industries, Corp., 14600 Romine Road, Carleton, MI 48117, (800) 521-9040
  - 3. Laminated Glass Corp., 375 E. Church Ave., Telford, PA 18969, (215)721-0400
  - 4. Insulgard Corporation, 5133 Lawrence Place, Hyattsville, MD 20781, (800) 638-6718
  - 5. Other manufacturer's submit product data and test reports.
- C. Security Levels: drawings and schedules indicate security level of glass.
  - 1. MED: performing to WMFL 30-minute physical attack.
- D. Provide glass tested to UL752 level III (SPSA) where bullet resistant glass is scheduled
- E. Glass unit: Detention glass, ½ inch air space, ¼ inch annealed float glass with frosted surface.
- F. Glazing Accessories:
  - 1. Spacer: Aluminum with welded or soldered corners and desiccant fill. Finish of exposed edge to match aluminum frames.
  - 2. Primary Seal: Butyl tape or mastic, unvolcanized; 10 - 15 shore A hardness.
  - 3. Secondary Seal: Silicone; 40 - 50 shore A hardness.
  - 4. Setting Blocks: Neoprene, EDPM, or silicone; Shore A hardness of 85 + 5, sized 0.1 inch length per square foot of glass area (4 inches minimum), 1/16 inch narrower than channel width, height to provide recommended nominal bite and minimum edge clearance, two identical blocks per glass unit.
  - 5. Anti-walk Spacer Blocks: Neoprene, EDPM, or silicone; 40-60 Shore A durometer hardness; 6 inch minimum length, 1/4 inch thick, width equal to unit thickness.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify that surfaces, openings, anchorage and rough-ins are in place, correctly sized and ready to receive work.
- B. Field verify existing opening sizes to receive new windows.
- C. Verify that frames are properly fabricated, that preps, and mortar boxes are correctly sized, located, and ready for installation.
- D. Verify field measurements are as shown on shop drawings.

- E. Beginning of installation means installer accepts conditions.

### 3.02 COORDINATION

- A. Coordinate with frame manufacturer to establish lead times for delivery. Should lead time require change in anchoring from masonry yokes to through bolt anchoring coordinate with manufacturer frames requiring these changes.
- B. Coordinate with manufacturer grout hole locations.
- C. Provide manufacturer with requirements for the detention glass and intercoms provided by selected manufacturers of those items.
- D. Coordinate frame anchors, grout holes, glazing and intercom requirements prior to preparation of shop drawings so that this information is incorporated into the shop drawings.

### 3.03 PREPARATION

- A. Protect elements surrounding the work of this Section and equipment from damage or disfigurement.
- B. Provide equipment and anchoring devices to appropriate contractors with required templates.
- C. Furnish setting drawings, diagrams, templates, instructions, and directions for installation. Distribute to other trades items required to be installed by other trades. Coordinate placement.
- D. Protect inside throat of each frame for grouting solid with a waterproof undercoating material minimum 7 mil dry thickness. Or as required by frame manufacturer for grouting frames solid.

### 3.04 INSTALLATION

- A. Do not install products that are observed to be defective.
- B. Handle and install in accordance with manufacturer's instructions. For conditions where printed instructions are not available or do not apply consult with manufacturer's technical representative.
- C. Install in alignment, free from warp, twist, or distortion, plumb level and true.
- D. Build frames into masonry walls. Dowel anchors with a vertical reinforcing rod passing through a hole in the anchor.
- E. Perform cutting, drilling, and fitting required for the installation complying with templates or detail drawings and project conditions.
- F. Grind exposed site welds smooth and finish holes, defects and other imperfections so surfaces will be smooth when painted.
- G. Metal assemblies to be set in concrete unit masonry shall be braced during installation.
- H. Hardware mounting heights from finished floor shall comply with applicable codes.

### 3.05 ADJUSTING

- A. Adjust, balance, and level equipment.
- B. Verify equipment functions properly and that keying is correct. Make any corrections that are required.
- C. Demonstrate equipment operations to Owner's personnel.

### 3.06 CLEANING

- A. Clean equipment with recommended products and surrounding area of debris, packing materials and other soil that occurred through installation.
- B. Remove non-permanent labels, non-permanent protective coatings, identifying marks, and foreign materials.
- C. Clean concealed work prior to enclosure.

END OF SECTION

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**PLUMBING**  
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22 45 00	Security Plumbing Fixtures

January 20, 2017

Landmark Design Group, PC  
Morgan M. Landon, PE, LLC

**END OF SECTION**

## **SECTION 22 00 50**

### **GENERAL PLUMBING REQUIREMENTS**

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## **PART 1 GENERAL**

### **1.01 APPLICABLE STANDARDS**

- A. Refer to specific specification sections for reference standard that are applied in this specification.
- B. Where referenced standards and code requirements both apply, the more stringent requirement shall be met.

### **1.02 COORDINATION**

- A. Coordinate work with all other Trades before installation to eliminate conflicts over available space. The plumbing systems shall not be laid out without benefit of coordination with the other trades of the project.
- B. Arrange with other Trades for the provision of all chases, slots, and openings necessary for the proper installation of the Plumbing Work.
- C. Coordinate the installation of all required supporting devices.
- D. Where electrical connections are required, confirm available electrical characteristics with the project Electrical Contractor before item is ordered.
- E. Where connections to Site Services are required, confirm location and elevation of same in the field before proceeding with the layout of the building systems.

### **1.03 DEFINITIONS**

- A. "Code", "Regulation", "Ordinance", "Law", and "Rule" are used interchangeably in this Specification to mean requirements of all authorities (local, State, Federal, or other) which may have jurisdiction over the construction of the work. Where one is used, all are implied.
- B. "Concealed Exterior Installations" refers to exterior Plumbing work that is protected from weather conditions and contact by building components, but is exposed to outdoor ambient temperatures.
- C. "Concealed Interior Installations" refers to interior Plumbing work that is concealed from physical contact by building components when the project is complete.
- D. "Exposed Exterior Installations" refers to exterior Plumbing work that is exposed to exterior ambient conditions and not protected from contact by permanent building components.
- E. "Exposed Interior Installations" refers to interior Plumbing work that is exposed to view in the final construction.
- F. "Finished Spaces" are spaces that are generally accessible to the building staff and general public.

#### 1.04 PROJECT RECORD DOCUMENTS

- A. Provide in accordance with the requirements of Division 1 and other portions of this Division.
- B. Maintain a “clean” set of project drawings for the sole purpose of recording deviations from the design. This set of drawings shall be maintained at the project site, with all modifications carefully marked-up as the work progresses.
- C. This set of drawings shall show all work as actually installed with accurate vertical and horizontal measurements of concealed and buried work.
- D. This set of Project Record Documents shall be certified as accurate by the Contractor and turned over to the Owner for future reference.
- E. **Additionally, the Contractor shall provide the Record Drawings in AutoCAD format to the Owner for his use. The AutoCad data shall be updated to reflect all of the actual conditions of installation for the entire project. The project design drawings will be made available to the Contractor by the design Engineer in AutoCAD 2010.**

#### 1.05 PROJECT / SITE CONDITIONS

- A. Visit the project site before bidding to determine the actual existing conditions imposed on the construction of the work. The Contractor retains sole responsibility for interpreting the impact of existing conditions on his work.

#### 1.06 QUALITY CONTROL

- A. All work shall be performed by Contractors skilled in the work required with a minimum of three (3) years experience.
- B. All materials shall be supplied by manufacturers having a minimum of three (3) years experience in the production of the item provided.

#### 1.07 REGULATORY REQUIREMENTS

- A. All work on this project shall be performed in accordance with all applicable codes, standards, and references.
- B. Applicable Codes: All references to codes, specifications, and standards in the specifications sections and on the drawings shall mean and are intended to be the edition, amendment, or revision of such standard in effect at the date of these contract documents.
- C. Obtain and pay for all required permits and inspections. Obtain certificates of such inspections, and provide copies of same to the Design Professional.

#### 1.08 RELATED DOCUMENTS

- A. The general conditions of the Contract, including Conditions of the Contract and Division 1 of the Specification.
- B. Construction Drawings, all Addenda, Bulletins and Change Orders.

#### 1.09 RESPONSIBILITY

- A. Submission of a bid is considered evidence that the Contractor has visited the site, examined the Drawings and Specifications of **all Trades**, and has fully informed himself as to all Project conditions.
- B. Submission of a bid implies the Contractor is proficient, experienced and knowledgeable of all regulations and conditions which may affect any portion of the Work included in his bid.
- C. The Contractor is responsible to comply with the requirements of **all** of the construction documents provided for this project.
- D. Where clarification is required with regard to which trade is responsible for a particular item of work, such clarification is to be requested of the design professional, in writing, in a timely manner.

#### 1.10 SCOPE OF WORK

- A. These specifications and the accompanying drawings describe the furnishing and installation of all material, equipment, supplies, labor and supervision required for the complete performance of all operations relating to the Plumbing Trades Work.
- B. The work provided shall be complete in all respects and shall result in satisfactorily operating systems that have been approved for occupancy by the authority(ies) having jurisdiction.
- C. This project consists generally of the replacement of the existing plumbing water piping systems with new in an existing county jail facility. The jail shall remain in operation during the entire course of construction. Special security procedures will be implemented at the discretion of Sheriff staff which may cause the Contractor loss of work efficiency. No claim for extra compensation will be allowed for this condition.
- D. Specific types of work to be accomplished under the Plumbing trades work include, but are not limited to:
  - 1. Hangers and Supports for Plumbing Piping and Equipment.
  - 2. Identification for Plumbing Piping and Equipment.
  - 3. Plumbing Insulation.
  - 4. Facility Water Distribution.
  - 5. Security Plumbing Fixtures.

### 1.11 STORAGE AND PROTECTION

- A. Refer to Division 1.
- B. Store all materials and equipment to protect against damage of all types.
- C. Provide appropriate barriers to maintain safe construction areas.

### 1.12 SUBMITTALS

- A. **Submittals for review, except color samples, shall be made to the engineer in pdf electronic format. The engineer will add his review stamp to the electronic format and return it to the contractor for his records.**
- B. Submittals for review shall be made prior to the purchase of materials. Submittal procedures shall be in accordance with Division 1 of these specifications, and the following:
  - 1. Submit copies for distribution with product data grouped to include complete submittals of related system, products, and accessories in a single submittal. Each submittal shall be clearly marked to indicate equipment number, specification section, etc., which the submittal describes.
  - 2. Mark dimensions and values in units to match those specified.
  - 3. Data must include job name, dimensions, capacities, construction characteristics, and installation instruction. Where applicable, submittal data must also include metal gauges, frame types, finish fan diameters, bearing types, lubrication system, motor types, insulation, velocities, pressure drops, pump curves, coil areas, filter types and areas, electrical characteristics, wiring and piping diagrams, and accessories required.
  - 4. Submittals must be thoroughly checked by the Contractor and must contain his stamp of approval before being sent to the Design Professional for review.
  - 5. Submittals not conforming to the above requirements will be returned without review.
- C. The Design Professional will **review** shop drawings for general conformance to the construction documents. This **review** is provided as a convenience to the Contractor by the Design Professional. The Design Professional will **review** submitted information with reasonable care, however, no responsibility accrues to the Design Professional for errors of omission in the **review** of submitted materials. The Contractor retains complete, sole responsibility for providing materials and equipment that are in conformance to the construction documents.

### 1.13 UTILITY CONNECTIONS

- A. Not Used.

## **PART 2 MATERIALS**

### **2.01 ACCESS PANELS**

- A. Provide access panels for all equipment which must be located in “inaccessible” locations (above fixed ceilings, behind walls, etc.). Access panels shall conform to the requirements of the General Trades Specifications. Turn panels over to the General Trades Contractor for installation. Provide fire rated access panel where such penetrations are through fire rated assemblies.

### **2.02 MOTORS AND STARTERS**

- A. Not Used.

### **2.03 SUBSTITUTIONS**

- A. In the Drawings and Specifications materials and equipment are generally noted as “based on”. The layout and arrangement of systems and equipment for this project are based on the size and arrangement of these manufacturers.
- B. For major items of equipment, other manufacturers may be listed who manufacture equipment deemed to be “equal” by the Engineer. These items may be used at the Contractor’s option. It remains the Contractor’s responsibility to determine which item manufactured by the “alternate” company is equivalent to the item listed as “based on”, and to obtain the approval of the Engineer for all such “substitutions”.
- C. In all cases where items other than those upon which the design is based are used, it is the Contractor’s responsibility to determine the impact of providing “alternate” equipment. Where “alternate” equipment is provided, the Contractor shall pay all charges, including design fees and charges by other Contractor’s, that may be necessary to accommodate the installation of the “alternate” equipment or materials.

## **PART 3 EXECUTION**

### **3.01 CUTTING AND PATCHING**

- A. Perform in accordance with the requirements of Division 1.
- B. Perform, or cause to be performed, all cutting and patching necessary for the installation of the work, unless specifically noted to the contrary elsewhere.
- C. No structural members shall be cut without written authorization from the Design Professional. All such cutting, when authorized, shall be done in strict accordance with the instructions of the Design Professional.
- D. In general, roof and wall openings required for Plumbing equipment and systems shall be provided by this Contractor. The size and location of these openings shall be the responsibility of this Contractor.

### 3.02 ELECTRICAL REQUIREMENTS

- A. Not Used.

### 3.03 ENGINEER'S FINAL PUNCH

- A. A final punch of the project will only be performed after the following documents are received for review:
  1. Copies of acceptance certificates from local inspecting offices.
  2. Copy of the General Contractor's punch list with written verification that all items have been completed.
  3. Copy of the project Record Drawings.

### 3.04 FINAL ADJUSTING

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

### 3.05 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces where materials have been deposited due to the work of this Contactor.
- C. Clean debris from site.
- D. Remove waste and surplus materials, rubbish, and construction facilities from the site.
- E. Fixtures and equipment: All fixtures and equipment shall be cleaned. Clean floor drains.
- F. All plates, polished, and bronzed surfaces shall be cleaned and polished.

### 3.06 PROGRESS CLEANING

- A. Maintain work areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition at all times.
- B. All openings in piping systems shall be protected during construction to prevent the entrance of foreign materials.

### 3.07 REMOVAL OF TEMPORARY UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary equipment, facilities, and materials prior to Substantial Completion.
- B. Clean and repair damage caused by installation or use of temporary work.

### 3.08 RIGGING AND HOISTING

- A. Provide all rigging and hoisting necessary for the installation of the materials and equipment provided under this Division of work.

### 3.09 TESTING OF SYSTEMS

- A. All systems fabricated on site shall be tested by the Contractor. Testing shall include the provision of all necessary equipment, labor, and fluids.
- B. Notify the Design Professional and other inspection authorities at least 48 hours before the scheduled test, or sampling time.
- C. Control devices, instrumentation, and similar items not designed to withstand the test pressures shall be removed, or otherwise protected prior to testing the systems.
- D. Valves, faucets, automatic valves, etc., shall be properly adjusted and shall be quiet operating.

### 3.10 TRANSPORTATION AND HANDLING

- A. Transport and handle all materials and equipment in accordance with the manufacturer's directions.

**END OF SECTION**

## **SECTION 22 05 53**

### **IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

- A. Section Includes:
  - 1. Nameplates.
  - 2. Tags.
  - 3. Stencils.
  - 4. Pipe markers.
  - 5. Ceiling tacks.
  - 6. Labels.

##### **1.02 SUBMITTALS**

- A. Submit in accordance with the requirements of Division 1, Section 22 00 50, and this section.
- B. Product Data: Submit manufacturers catalog literature for each product required.
- C. Shop Drawings: Submit list of wording, symbols, letter size, and color coding for mechanical identification and valve chart and schedule, including valve tag number, location, function, and valve manufacturer's name and model number.
- D. Manufacturer's Installation Instructions: Indicate installation instructions, special procedures, and installation.
- E. Project Record Documents: Record actual locations of tagged valves; include valve tag numbers.

##### **1.03 QUALITY ASSURANCE**

- A. Conform to ASME A13.1 for color scheme for identification of piping systems and accessories.

##### **1.04 FIELD MEASUREMENTS**

- A. Verify field measurements prior to fabrication.



## **PART 2 PRODUCTS**

### **2.01 NAMEPLATES**

- A. Product Description: Laminated three-layer plastic with engraved black letters on light contrasting background color.

### **2.02 TAGS**

- A. Plastic Tags:
- B. Laminated three-layer plastic with engraved black letters on light contrasting background color. Tag size minimum 1-1/2 inches diameter.
- C. Information Tags:
- D. Clear plastic with printed "Danger," "Caution," or "Warning" and message; size 3-1/4 x 5-5/8 inches with grommet and self-locking nylon ties.
- E. Tag Chart: Typewritten letter size list of applied tags and location in anodized aluminum frame.

### **2.03 STENCILS**

- A. Stencils: With clean cut symbols and letters of following size:
  - 1. Equipment: 1-3/4 inches high letters.
- B. Stencil Paint: Semi-gloss enamel; colors and lettering size conforming to ASME A13.1.

### **2.04 PIPE MARKERS**

- A. Color and Lettering: Conform to ASME A13.1.
- B. Plastic Pipe Markers:
  - 1. Factory fabricated, flexible, semi-rigid plastic, preformed to fit around pipe or pipe covering. Larger sizes may have maximum sheet size with spring fastener.
- C. Plastic Underground Pipe Markers:
  - 1. Bright colored continuously printed plastic ribbon tape, minimum 6 inches wide by 4 mil thick, manufactured for direct burial service.
- D. CEILING TACKS
  - 1. Description: Steel with 3/4 inch diameter color-coded head.
  - 2. Color code as follows:
    - a. Plumbing valves: Green.

### **2.05 LABELS**

- A. Description: Laminated Mylar, size 1.9 x 0.75 inches, adhesive backed with printed identification.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Degrease and clean surfaces to receive adhesive for identification materials.
  - 1. INSTALLATION
    - a. Install identifying devices after completion of coverings and painting.
    - b. Install plastic nameplates with corrosive-resistant mechanical fasteners, or adhesive.
    - c. Install labels with sufficient adhesive for permanent adhesion and seal with clear lacquer. For unfinished canvas covering, apply paint primer before applying labels.
    - d. Install tags using corrosion resistant chain. Number tags in sequence as approved by the Owner.
    - e. Identify valves in main and branch piping with tags.
    - f. Identify piping, concealed or exposed, with plastic pipe markers. Use tags on piping 3/4 inch diameter and smaller. Identify service, flow direction, and pressure. Install in clear view and align with axis of piping. Locate identification not to exceed 10 feet on straight runs including risers and drops, adjacent to each valve and tee, at each side of penetration of structure or enclosure, and at each obstruction.
    - g. Provide ceiling tacks to locate valves above accessible panel ceilings. Locate in corner of panel closest to equipment.

January 20, 2017

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**END OF SECTION**

## **SECTION 22 07 00**

### **PLUMBING INSULATION**

#### **PART 1 GENERAL**

##### 1.01 SUMMARY

- A. Section Includes:
  - 1. Plumbing piping insulation, jackets and accessories.

##### 1.02 SUBMITTALS

- A. Submit in accordance with the requirements of Division 1, Section 22 00 50, and this section.
- B. Product Data: Submit product description, thermal characteristics and list of materials and thickness for each service, and location.
- C. Manufacturer's Installation Instructions: Submit manufacturers published literature indicating proper installation procedures.

##### 1.03 QUALITY ASSURANCE

- A. Test pipe insulation for maximum flame spread index of 25 and maximum smoke developed index of not exceeding 50 in accordance with ASTM E84.
- B. Pipe insulation manufactured in accordance with ASTM C585 for inner and outer diameters.
- C. Factory fabricated fitting covers manufactured in accordance with ASTM C450.

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

- A. Deliver, store, and handle in accordance with the requirements of Division 1, Section 22 00 50, and this Section.
- B. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.
- C. Protect insulation from weather and construction traffic, dirt, water, chemical, and damage, by storing in original wrapping.

##### 1.05 ENVIRONMENTAL REQUIREMENTS

- A. Install insulation only when ambient temperature and humidity conditions are within range recommended by manufacturer.
- B. Maintain recommended temperature for the time period recommended by the manufacturer.

## 1.06 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

## PART 2 PRODUCTS

### 2.01 PIPE INSULATION

- A. TYPE P-1: ASTM C547, molded glass fiber pipe insulation.
  - 1. Thermal Conductivity: 0.23 at 75 degrees F.
  - 2. Operating Temperature Range: 0 to 850 degrees F.
  - 3. Vapor Barrier Jacket: ASTM C1136, Type I, factory applied reinforced foil kraft with self-sealing adhesive joints.
  - 4. Jacket Temperature Limit: minus 20 to 150 degrees F.
- B. TYPE P-2: ASTM C547, molded glass fiber pipe insulation.
  - 1. Thermal Conductivity: 0.23 at 75 degrees F.
  - 2. Operating Temperature Range: 0 to 850 degrees F.
- C. TYPE P-7: ASTM C534, Type I, flexible, non-halogen, closed cell elastomeric insulation, tubular.
  - 1. Thermal Conductivity: 0.27 at 75 degrees F.
  - 2. Maximum Service Temperature: 250 degrees F.
  - 3. Operating Temperature Range: Range: Minus 58 to 250 degrees F.
- D. TYPE P-11: ASTM C533; Type I, hydrous calcium silicate pipe insulation, rigid molded white; asbestos free.
  - 1. Thermal Conductivity: 0.45 at 200 degrees F.
  - 2. Operating Temperature Range: 140 to 1200 degrees F.

### 2.02 PIPE INSULATION JACKETS – NOT USED

### 2.03 PIPE INSULATION ACCESSORIES

- A. Vapor Retarder Lap Adhesive: Compatible with insulation.
- B. Covering Adhesive Mastic: Compatible with insulation.
- C. Piping 1-1/2 inches diameter and smaller: Galvanized steel insulation protection shield. MSS SP-69, Type 40. Length: Based on pipe size and insulation thickness.
- D. Piping 2 inches diameter and larger: Wood insulation saddle, hard maple. Inserts length: not less than 6 inches long, matching thickness and contour of adjoining insulation.
- E. Closed Cell Elastomeric Insulation Pipe Hanger: Polyurethane insert with aluminum single piece construction with self-adhesive closure. Thickness to match pipe insulation.
- F. Tie Wire: 0.048-inch stainless steel with twisted ends on maximum 12 inch centers.

- G. Mineral Fiber Hydraulic-Setting Thermal Insulating and Finishing Cement: ASTM C449/C449M.
- H. Insulating Cement: ASTM C195; hydraulic setting on mineral wool.
- I. Adhesives: Compatible with insulation.

2.04 EQUIPMENT INSULATION – NOT USED

2.05 EQUIPMENT INSULATION JACKETS – NOT USED

2.06 EQUIPMENT INSULATION ACCESSORIES – NOT USED

**PART 3 EXECUTION**

3.01 EXAMINATION

- A. Verify piping has been tested before applying insulation materials.
- B. Verify surfaces are clean and dry, with foreign material removed.

3.02 INSTALLATION - PIPING SYSTEMS

- A. Piping Exposed to View in Finished Spaces: Locate insulation and cover seams in least visible locations.
- B. Continue insulation through penetrations of building assemblies or portions of assemblies having fire resistance rating of one hour or less. Provide intumescent fire-stopping when continuing insulation through fire rated assembly. Finish at supports, protrusions, and interruptions.
- C. Piping Systems Conveying Fluids Below Ambient Temperature:
  - 1. Insulate entire system including fittings, valves, unions, flanges, strainers, flexible connections, pump bodies, and expansion joints.
  - 2. Furnish factory-applied or field-applied vapor retarder jackets. Secure factory-applied jackets with pressure sensitive adhesive self-sealing longitudinal laps and butt strips. Secure field-applied jackets with outward clinch expanding staples and seal staple penetrations with vapor retarder mastic.
  - 3. Insulate fittings, joints, and valves with molded insulation of like material and thickness as adjacent pipe. Finish with glass cloth and vapor retarder adhesive or PVC fitting covers.
- D. Hot Piping Systems:
  - 1. Furnish factory-applied or field-applied standard jackets. Secure with outward clinch expanding staples or pressure sensitive adhesive system on standard factory-applied jacket and butt strips or both.
  - 2. Insulate fittings, joints, and valves with insulation of like material and thickness as adjoining pipe. Finish with glass cloth and adhesive or PVC fitting covers.
  - 3. Insulate flanges and unions at equipment.

- E. Inserts and Shields:
  - 1. Piping Conveying Fluids Below Ambient Temperature: Install galvanized steel shield between pipe hanger and insulation.
  
- F. Closed Cell Elastomeric Insulation:
  - 1. Push insulation on to piping.
  - 2. Miter joints at elbows.
  - 3. Seal seams and butt joints with manufacturer’s recommended adhesive.
  - 4. When application requires multiple layers, apply with joints staggered.
  - 5. Insulate fittings and valves with insulation of like material and thickness as adjacent pipe.
  
- G. Heat Traced Piping: Insulate fittings, joints, and valves with insulation of like material, thickness, and finish as adjoining pipe. Size large enough to enclose pipe and heat tracer.

3.03 INSTALLATION – EQUIPMENT – NOT USED

3.04 SCHEDULES

Water Supply Services Piping Insulation Schedule:

PIPING SYSTEM	INSULATION TYPE	PIPE SIZE (inches)	INSULATION THICKNESS (inches)
Domestic Water, All	P-1	1-1/4 and smaller 1-1/2 and larger	1/2 1

**END OF SECTION**

## **SECTION 22 11 00**

### **FACILITY WATER DISTRIBUTION SYSTEM**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

- A. Section Includes:
  - 1. Domestic water piping, above grade.
  - 2. Unions and flanges.
  - 3. Valves.
  - 4. Pipe hangers and supports.
  - 5. Hose bibs.
  - 6. Backflow preventers.
  - 7. Water hammer arrestors.

##### **1.02 SUBMITTALS**

- A. Submit in accordance with the requirements of Division 1, Section 22 00 50, and this section.
- B. Product Data:
  - 1. Piping: Submit data on pipe materials, fittings, and accessories. Submit manufacturer's catalog information.
  - 2. Valves: Submit manufacturers catalog information with valve data and ratings for each service.
  - 3. Hangers and Supports: Submit manufacturers catalog information including load capacity.
  - 4. Domestic Water Specialties: Submit manufacturers catalog information, component sizes, rough-in requirements, service sizes, and finishes.
  - 5. Pumps: Submit pump type, capacity, certified pump curves showing pump performance characteristics with pump and system operating point plotted. Include NPSH curve when applicable. Include electrical characteristics and connection requirements.
- C. Manufacturer's Installation Instructions: Submit installation instructions for pumps, valves and accessories.
- D. Project Record Documents: Record actual locations of piping, valves, and equipment.
- E. Operation and Maintenance Data: Submit spare parts list, exploded assembly views and recommended maintenance intervals.

##### **1.03 QUALITY ASSURANCE**

- A. For drinking water service, provide valves complying with NSF 61.



#### 1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle in accordance with the requirements of Division 1, Section 22 00 50, and this Section.
- B. Accept valves and equipment on site in shipping containers with labeling in place. Inspect for damage.
- C. Provide temporary protective coating on cast iron and steel valves.
- D. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- E. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the Work, and isolating parts of completed system.

#### 1.05 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

### **PART 2 PRODUCTS**

#### 2.01 DOMESTIC WATER PIPING, ABOVE GRADE

- A. PEX PIPING manufactured in accordance with code requirements, provide different color for cold water, hot water and hot water return.

#### 2.02 UNIONS AND FLANGES

- A. Unions for Pipe 2 inches and Smaller:
  - 1. Ferrous Piping: Class 150, malleable iron, threaded.
  - 2. Copper Piping: Class 150, bronze unions with soldered.
  - 3. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.
  - 4. PVC Piping: PVC.
- B. Flanges for Pipe 2-1/2 inches and Larger:
  - 1. Ferrous Piping: Class 150, forged steel, slip-on flanges.
  - 2. Copper Piping: Class 150, slip-on bronze flanges.
  - 3. PVC Piping: PVC flanges.
  - 4. Gaskets: 1/16-inch-thick preformed neoprene gaskets.
- C. PVC Pipe Materials: For connections to equipment and valves with threaded connections, furnish solvent-weld socket to screwed joint adapters and unions, or ASTM D2464, Schedule 80, threaded, PVC pipe.

#### 2.03 VALVES

- A. GATE VALVES
  - 1. 2 inches and Smaller: MSS SP 80, Class 125, bronze body, bronze trim, threaded bonnet, non-rising stem, hand-wheel, inside screw with back-seating

- stem, solid wedge disc, alloy seat rings, solder ends.
2. 2-1/2 inches and Larger: MSS SP 70, Class 125, cast iron body, bronze trim, bolted bonnet, rising stem, hand-wheel, outside screw and yoke, solid wedge disc with bronze seat rings, flanged ends. Furnish chain-wheel operators for valves 6 inches and larger mounted over 8 feet above floor.

B. GLOBE VALVES

1. 2 inches and Smaller: MSS SP 80, Class 125, bronze body, bronze trim, threaded bonnet, hand wheel, Buna-N composition disc, solder ends.
2. 2-1/2 inches and Larger: MSS SP 85, Class 125, cast iron body, bronze trim, hand wheel, outside screw and yoke, flanged ends. Furnish chain-wheel operators for valves 6 inches and larger mounted over 8 feet above floor.

C. BALL VALVES

- D. 2-1/2 inches and Smaller: MSS SP 110, 400 psi WOG, two-piece bronze body, chrome plated brass ball, full port, Teflon seats, blow-out proof stem, solder ends with union, lever handle.

E. CHECK VALVES

1. Horizontal Swing Check Valves:
  - a. 2 inches and Smaller: MSS SP 80, Class 150, bronze body and cap, bronze seat, Buna-N disc, solder ends.
  - b. 2-1/2 inches and Larger: MSS SP 71, Class 125, cast iron body, bolted cap, bronze or cast iron disc, renewable disc seal and seat, flanged ends.

2.04 PIPE HANGERS AND SUPPORTS

- A. Plumbing Piping: Conform to ASME B31.9.
- B. Hangers for Pipe Sizes 1/2 to 1-1/2 inch: Malleable iron, adjustable swivel, split ring.
- C. Hangers for Cold Pipe Sizes 2 inches and Larger: Carbon steel, adjustable, clevis.
- D. Hangers for Hot Pipe, Sizes 2 to 4 inches: Carbon steel, adjustable, clevis.
- E. Multiple or Trapeze Hangers: Steel channels with welded supports or spacers and hanger rods.
- F. Vertical Support: Steel riser clamp.
- G. Floor Support: Cast iron adjustable pipe saddle, lock nut, nipple, floor flange, and concrete pier or steel support.
- H. Copper Pipe Support: Carbon steel ring, adjustable, copper plate.

2.05 BACKFLOW PREVENTERS

- A. Reduced Pressure Backflow Preventers:
  1. Comply with ASSE 1013.

2. Bronze body, with bronze internal parts and stainless steel springs.
  3. Two independently operating, spring loaded check valves; diaphragm type differential pressure relief valve located between check valves; third check valve opening under back pressure in case of diaphragm failure; non-threaded vent outlet; assembled with two gate valves, strainer, and four test cocks.
- B. Double Check Valve Assemblies: Comply with ASSE ASSE 1015 or AWWA C510; Bronze body with corrosion resistant internal parts and stainless steel springs; two independently operating check valves with intermediate atmospheric vent.

## 2.06 WATER HAMMER ARRESTORS

- A. ASSE 1010; stainless steel construction, bellows type sized in accordance with PDI WH-201.
- B. Pre-charged suitable for operation in temperature range -100 to 300 degrees F and maximum 250 psi working pressure.

## PART 3 EXECUTION

### 3.01 EXAMINATION

- A. Verify excavations are to required grade, dry, and not over-excavated.

### 3.02 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt, on inside and outside, before assembly.

### 3.03 INSTALLATION - HANGERS AND SUPPORTS

- A. Inserts:
1. Provide inserts for placement in concrete forms.
  2. Provide inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
  3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe 4 inches and larger.
  4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
  5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.
- B. Pipe Hangers and Supports:
1. Install in accordance with ASME B31.9.
  2. Support horizontal piping as schedule.
  3. Install hangers to provide minimum 1/2 inch space between finished covering and adjacent work.
  4. Place hangers within 12 inches of each horizontal elbow.

5. Use hangers with 1-1/2 inch minimum vertical adjustment. Design hangers for pipe movement without disengagement of supported pipe.
6. Support vertical piping at every floor. Support riser piping independently of connected horizontal piping.
7. Where piping is installed in parallel and at same elevation, provide multiple pipe or trapeze hangers.
8. Provide copper plated hangers and supports for copper piping where piping is in direct contact with pipe.
9. Prime coat exposed steel hangers and supports. Hangers and supports located in crawl spaces, pipe shafts, and suspended ceiling spaces are not considered exposed.
10. Provide hangers adjacent to motor driven equipment with vibration isolation.

### 3.04 INSTALLATION - ABOVE GROUND PIPING

- A. Install non-conducting dielectric connections wherever jointing dissimilar metals.
- B. Route piping in orderly manner and maintain gradient. Route parallel and perpendicular to walls.
- C. Install piping to maintain headroom without interfering with use of space or taking more space than necessary.
- D. Group piping whenever practical at common elevations.
- E. Slope piping and arrange systems to drain at low points.
- F. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment.
- G. Provide clearance in hangers and from structure and other equipment for installation of insulation and access to valves and fittings.
- H. Where items requiring maintenance have been installed behind inaccessible surfaces (walls, hard ceilings, etc.), provide appropriately sized access panels. Access panel shall be fire rated where they are installed in fire rated assemblies.
- I. Where pipe support members are welded to structural building framing, scrape, brush clean, and apply one coat of zinc rich primer to welding.
- J. Provide support for utility meters in accordance with requirements of utility companies.
- K. Prepare exposed, unfinished pipe, fittings, supports, and accessories ready for finish painting.
- L. Install domestic water piping in accordance with ASME B31.9.
- M. Sleeve pipes passing through partitions, walls and floors.
- N. Install fire-stopping at penetrations through fire rated construction.
- O. Install unions downstream of valves and at equipment or apparatus connections.

- P. Install valves with stems in, or above, an horizontal plane passing through the center of the valve.
- Q. Install brass male adapters each side of valves in copper piped system. Solder adapters to pipe.
- R. Install ball valves for shut-off and to isolate equipment, part of systems, or vertical risers.
- S. Install ball valves for throttling, bypass, or manual flow control services.
- T. Install potable water protection devices on plumbing lines where contamination of domestic water may occur. include on boiler feed water lines, janitor rooms, fire sprinkler systems, premise isolation, irrigation systems, flush valves, interior, and exterior hose bibs, and all other similar locations.
- U. Pipe relief from valves, back-flow preventers and drains to nearest floor drain.
- V. Test backflow preventers in accordance with ASSE 5013.
- W. Install water hammer arrestors complete with accessible isolation valve on hot and cold water supply piping wherever quick closing valves might cause water hammer.

### 3.05 FIELD QUALITY CONTROL

- A. Test domestic water piping system in accordance with applicable code.

### 3.06 CLEANING

- A. Prior to starting work, verify system is complete, flushed and clean.
- B. Verify pH of water to be treated is between 7.4 and 7.6 by adding alkali (caustic soda or soda ash) or acid (hydrochloric).
- C. Inject disinfectant, free chlorine in liquid, powder and tablet or gas form, throughout system to obtain residual from 50 to 80 mg/L.
- D. Bleed water from outlets to obtain distribution and test for disinfectant residual at minimum 15 percent of outlets.
- E. Maintain disinfectant in system for 24 hours.
- F. When final disinfectant residual tests less than 25 mg/L, repeat treatment.
- G. Flush disinfectant from system until residual concentration is equal to incoming water or 1.0 mg/L.
- H. Take samples no sooner than 24 hours after flushing, from 5 percent of outlets and from water entry, and analyze in accordance with AWWA C651.

## END OF SECTION

## **SECTION 22 45 00**

### **SECURITY PLUMBING FIXTURES**

#### **PART 1 GENERAL**

##### 1.01 SUMMARY

- A. Section Includes:
  - 1. Water closets.
  - 2. Lavatories.
  - 3. Showers.
  - 4. Combination Units.

##### 1.02 SUBMITTALS

- A. Submit in accordance with the requirements of Division 1, Section 22 00 50, and this section.
- B. Product Data: Submit catalog illustrations of fixtures, sizes, rough-in dimensions, utility sizes, trim, and finishes.
- C. Manufacturer's Installation Instructions: Submit installation methods and procedures.
- D. Operation and Maintenance Data: Submit fixture, trim, exploded view and replacement parts lists.

##### 1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle in accordance with the requirements of Division 1, Section 22 00 50, and this Section
- B. Accept fixtures on site in factory packaging. Inspect for damage.
- C. Protect installed fixtures from damage from any cause.

##### 1.04 WARRANTY

- A. Furnish five-year manufacturer warranty for security fixtures provided for this project.

#### **PART 2 PRODUCTS**

##### 2.01 WATER CLOSET, FLOOR MOUNT, FRONT ACCESS, SWC-1

- A. Manufacturers:
  - 1. Willoughby Model ETF-1490-FM-FA-TS-T4-HPS.
  - 2. Bradley.
  - 3. Acorn.
  - 4. Metcraft.

5. Substitutions: Permitted in accordance with the requirements of Division 1, Section 22 00 50, and this section.
- B. Blowout, elongated bowl with contoured seat, highly polished. Integral, crevice free, self-draining flushing rim. Fully enclosed 3 inch O.D. trap, minimum 3-1/2-inch water seal.
- C. 14-gauge type 304 stainless steel, all welded, all exposed surfaces polished to a #4 satin finish.
- D. Back spud water connection, standard height, overflow preventer, wall outlet waste connection, 4 inch PVC cleanout with pin.
- E. Sloan Regal #9603 Hydraulic flush valve, 1.6 gal/flush, with manual reset anti-flood device, trap primer for associated floor drain (see plans for locations).
- F. Wall sleeve, floor mounted fixture with anti-suicide skirt.

2.02 WATER CLOSET, FLOOR MOUNT, FRONT ACCESS, BARRIER FREE (SWC-1H)

- A. Manufacturers:
  1. Same as SWC-1H, except barrier free height.
  2. Bradley.
  3. Acorn.
  4. Metcraft.
  5. Substitutions: Permitted in accordance with the requirements of Division 1, Section 22 00 50, and this section.
- B. Blowout, elongated bowl with contoured seat, highly polished. Integral, crevice free, self-draining flushing rim. Fully enclosed 3 inch O.D. trap, minimum 3-1/2-inch water seal.
- C. 14-gauge type 304 stainless steel, all welded, all exposed surfaces polished to a #4 satin finish.
- D. Back spud water connection, barrier free height, overflow preventer, wall outlet waste connection, 4 inch PVC cleanout with pin.
- E. Sloan Regal #9603 hydraulic flush valve, 1.6 gal/flush, with manual reset anti-flood device, trap primer for associated floor drain (see plans for locations).
- F. Wall sleeve, floor mounted fixture with anti-suicide skirt.

2.03 LAVATORY, WALL MOUNT, CHASE ACCESS (SL-1)

- A. Manufacturers:
  1. Willoughby Model HS-1013-46-HC-FA-SBPH-PML2-PBH-PSL1-DMBH.
  2. Bradley.
  3. Acorn.
  4. Metcraft.
  5. Substitutions: Permitted in accordance with the requirements of Division 1,

Section 22 00 50, and this section.

- B. Nominal 18 inches wide, 14-gauge type 304 stainless steel, all welded, all exposed surfaces polished to a #4 satin finish.
- C. Nominal 13x 9 x 6 deep bowl, cast brass union P-trap, dual temperature factory mounted pneumatic valve assembly, self-draining soap dishes, wall sleeve and hardware to secure unit in chase wall.
- D. Anti-suicide security penal bubbler and push buttons, fast drain.

2.04 LAVATORY, WALL MOUNT, CHASE ACCESS, BARRIER FREE (SL-1H)

- A. Manufacturers:
  - 1. Same as SL-1.
  - 2. Bradley.
  - 3. Acorn.
  - 4. Metcraft.
  - 5. Substitutions: Permitted in accordance with the requirements of Division 1, Section 22 00 50, and this section.
- B. Nominal 18 inches wide, 14-gauge type 304 stainless steel, all welded, all exposed surfaces polished to a #4 satin finish.
- C. Nominal 13 x 9 x 6 deep bowl, cast brass union P-trap, dual temperature factory mounted pneumatic valve assembly, self-draining soap dishes, wall sleeve and hardware to secure unit in chase wall.
- D. Anti-suicide security penal bubbler and push buttons, fast drain.
- E. Construction and mounting to comply with current barrier free requirements.
- F. Provide ASSE 1070 tempering valve.

2.05 SHOWER, SURFACE MOUNTED (SSH-1)

- A. Manufacturers
  - 1. Willoughby Model WRS-PML2-PPB-2.0-NPS-RD-WS-MT.
  - 2. Bradley.
  - 3. Acorn.
  - 4. Metcraft.
  - 5. Substitutions: Permitted in accordance with the requirements of Division 1, Section 22 00 50, and this section.
- B. Shower panel to be 14-gauge type 304 stainless steel, polished to a #4 satin finish. Mounting frame to be 18-gauge galvanized steel.
- C. Single temperature pneumatic metering valve, non-adjustable, anti-suicide, penal shower head, anti-suicide push-button, recessed soap dish.



2.06 SHOWER, SURFACE MOUNTED (SSH-2)

- A. Manufacturers
  1. Willoughby Model CWSMS-PML2-PBH-2.0-CSH-RD-PS.
  2. Bradley.
  3. Acorn.
  4. Metcraft.
  5. Substitutions: Permitted in accordance with the requirements of Division 1, Section 22 00 50, and this section.
- B. Shower panel to be 14-gauge type 304 stainless steel, polished to a #4 satin finish. Mounting frame to be 18-gauge galvanized steel.
- C. Single temperature pneumatic metering valve, non-adjustable, anti-suicide, penal shower head, anti-suicide push-button, recessed soap dish.

2.07 SHOWER, SURFACE MOUNTED, BARRIER FREE (SSH-2H)

- A. Manufacturers
  1. Willoughby Model CWSMSHCA-PML2-PBH-2.0-2HD-RDS.
  2. Bradley.
  3. Acorn.
  4. Metcraft.
  5. Substitutions: Permitted in accordance with the requirements of Division 1, Section 22 00 50, and this section.
- B. Shower panel to be 14-gauge type 304 stainless steel, polished to a #4 satin finish. Mounting frame to be 18-gauge galvanized steel.
- C. Single temperature pneumatic metering valve, (2) non-adjustable, anti-suicide, penal shower heads, (2) anti-suicide push-button, recessed soap dish.
- D. Construction and mounting to comply with current barrier free requirements.
- E. Provide ASSE 1070 tempering valve.

2.08 COMBINATION UNIT, FLOOR MOUNT, CHASE ACCESS (SCU-1)

- A. Manufacturers
  1. Willoughby Model ECF-1846-L/R/C-ON-BPH-1.6-PML2-PBH-T4-HPS-RTH.
  2. Bradley.
  3. Acorn.
  4. Metcraft.
  5. Substitutions: Permitted in accordance with the requirements of Division 1, Section 22 00 50, and this section.
- B. 14-gauge type 304 stainless steel, all welded, all exposed surfaces polished to a #4 satin finish.
- C. Blowout water closet with elongated bowl, with highly polished contoured seat, integral crevice free self-draining flushing rim, fully enclosed 3 inch O.D. trap (passes a 2-5/8

inch ball), anti-flood device with manual reset, Sloan Regal #9603 hydraulic flush valve, 1.6 gal/flush.

- D. Oval lavatory nominal 13 x 9 x 6 deep, anti-suicide penal filler/bubbler and push buttons, fast drain with air vent, dual temperature pneumatic metering valve, self-draining soap dishes.
- E. Anti-suicide skirt, wall sleeve, toilet paper holder. Anchoring shall be by standard 6-point system: ½ inch threaded rods, nuts, and washers. Unit shall require chase area for installation and maintenance.

### **PART 3 EXECUTION**

#### **3.01 EXAMINATION**

- A. Verify walls and floor finishes are prepared and ready for installation of fixtures.

#### **3.02 PREPARATION**

- A. Rough-in fixture piping connections in accordance with minimum sizes indicated in fixture rough-in schedule for particular fixtures and as required by manufactures installation instructions.

#### **3.03 INSTALLATION**

- A. Install each fixture with trap, easily removable for servicing and cleaning.
- B. Install components level and plumb.
- C. Install and secure fixtures in place with in accordance with manufacturers installation instructions.
- D. Seal fixtures to wall and floor surfaces with security caulk, color to be selected.

#### **3.04 ADJUSTING**

- A. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.

#### **3.05 CLEANING**

- A. Clean plumbing fixtures and equipment.

#### **3.06 PROTECTION OF INSTALLED CONSTRUCTION**

- A. Do not permit use of fixtures before final acceptance.

#### **3.07 SWC-1, SWC-1H**

- A. Insure that wall sleeve is flush and plumb with wall construction.

- B. Anti-suicide skirt shall fit tight to floor.
- C. Adjust water supply to fixture to provide proper flushing action.
- D. Operating valves will be provided with unit, provide all necessary connections and accessories to complete properly operating installation.

3.08 SL-1

- A. Insure that wall sleeve is flush and plumb with wall construction.
- B. Adjust water supply to fixture to provide proper flow to filler/bubbler.
- C. Operating valves will be provided with unit, provide all necessary connections and accessories to complete properly operating installation.

3.09 SL-1H

- A. Insure that wall sleeve is flush and plumb with wall construction.
- B. Adjust water supply to fixture to provide proper flow to filler/bubbler.
- C. Operating valves will be provided with unit, provide all necessary connections and accessories to complete properly operating installation.
- D. Mount unit at height to comply with current barrier free requirements.

3.10 SSH-1

- A. Insure that wall sleeve is flush and plumb with wall construction.
- B. Adjust water supply to fixture to provide proper flow to shower head.
- C. Mount shower head 6'-0" above finished floor.
- D. Operating valves will be provided with unit, provide all necessary connections and accessories to complete properly operating installation.

3.11 SSH-1H

- A. Insure that wall sleeve is flush and plumb with wall construction.
- B. Adjust water supply to fixture to provide proper flow to shower heads.
- C. Operating valves will be provided with unit, provide all necessary connections and accessories to complete properly operating installation.
- D. Mounting height to comply with current barrier free requirements.

3.12 SCU-1

- A. Coordinate installation of connecting piping to properly connect to unit in accordance

with the manufacturer's recommendations.

- B. Insure that wall sleeve is flush and plumb with wall construction.
- C. Adjust water supply to fixture to provide proper flow to filler/bubbler.
- D. Adjust water supply to fixture to provide proper flushing action.
- E. Operating valves will be provided with unit, provide all necessary connections and accessories to complete properly operating installation.

### 3.13 SCU-1H

- A. Coordinate installation of connecting piping to properly connect to unit in accordance with the manufacturer's recommendations.
- B. Insure that wall sleeve is flush and plumb with wall construction.
- C. Adjust water supply to fixture to provide proper flow to filler/bubbler.
- D. Adjust water supply to fixture to provide proper flushing action.
- E. Operating valves will be provided with unit, provide all necessary connections and accessories to complete properly operating installation.

January 20, 2017

Landmark Design Group, PC  
Morgan M. Landon, PE, LLC

**END OF SECTION**

**DIVISION 26 00 00**  
**ELECTRICAL**  
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26 24 16	Panelboards

January 20, 2017

Landmark Design Group, PC  
Morgan M. Landon, PE, LLC

**END OF SECTION**

## **SECTION 26 00 50**

### **BASIC ELECTRICAL REQUIREMENTS**

#### **PART 1 GENERAL**

##### **1.01 RELATED DOCUMENTS**

- A. This section is a part of the entire set of Contract Documents and shall be coordinated with the applicable provisions of the other parts.
- B. The following requirements are intended as clarification of, or additions to the requirements set forth under General Conditions, Supplementary Conditions and Division 1 of these Specifications. Should there be any conflict between these requirements and those in the General Conditions, Supplementary Conditions and Division 1, the Contractor shall make written request for clarification of same by Addendum prior to bid opening or abide by the decision of the Engineer without resource.

##### **1.02 SCOPE OF WORK**

- A. Description of Work
  - 1. The work to be executed under this Section includes the furnishing of all labor; equipment and incidental services required to complete and leave ready for operation, the equipment and systems as indicated on the drawings and hereinafter specified. All material, supervision, etc. required for a complete system, will be furnished by this Contractor.
  - 2. Materials and installation methods shall adhere to the provisions of the Americans with Disabilities Act (ADA).
- B. Work Specified Elsewhere
  - 1. The Contractor shall review the drawings and specifications of all trades concerning this project to correlate equipment installation and connections.

##### **1.03 DRAWINGS**

- A. The drawings indicate the location and general arrangement of all electrical work and shall be followed as closely as actual building construction and work of other trades will permit. The Electrical Trades shall examine the drawings of other trades and shall verify the conditions governing his work at the job site. He shall arrange his work accordingly. No changes shall be made without the prior written approval of the Engineer.



- B. Field Measurements
  - 1. Verify the dimensions (scaled) governing this work at the building site. No extra compensation will be claimed or allowed on account of differences between actual dimensions and those indicated on the drawings. Examine adjoining work, on which this work is dependent for perfect efficiency and report any work, which must be corrected. No waiver of responsibility for defective work shall be claimed or allowed due to the failure to report unfavorable conditions affecting this work.
  - 2. Generally, the Engineering drawings take precedence in all matters pertaining to the building structure; electrical drawings in all matters pertaining to electrical trades take precedence in electrical installation. However, all conflicts shall be reported to the Engineer for his review.
- C. Coordination
  - 1. Before any work is installed, and before any equipment is fabricated or purchased, the Electrical Trades shall carefully check the general drawings, and all other mechanical and electrical drawings, and all job conditions and any lack of coordination between the work and drawings or job conditions shall be immediately reported to the Engineer in writing.
- D. Inspection of Site
  - 1. The Electrical Trades shall visit the site, examine and verify the conditions under which his work must be conducted before submitting a bid.

#### 1.04 CODES AND STANDARDS

- A. The following documents are a part of this specification and shall indicate minimum safety provisions. All work called for in these specifications and on the plans that exceed minimum safety provisions shall take precedence.
  - 1. Michigan Building Code – latest edition.
  - 2. State Electrical Code.
  - 3. National Fire Protection Association.
  - 4. NESC (National Electric Safety Code).
  - 5. ADA (Americans with Disabilities Act).
  - 6. AEIC (Association of Edison Illuminating Companies).
  - 7. ANSI (American National Standards Institute).
  - 8. ASTM (American Society for Testing and Materials).
  - 9. ICEA (Insulated Cable Engineers Association).
  - 10. IEEE (Institute of Electrical and Electronics Engineers).
  - 11. IES (Illuminating Engineers Society).
  - 12. NEMA (National Electrical Manufacturers Association).
  - 13. NETA (National Electrical Testing Association Inc.).
  - 14. OSHA (Occupational Safety and Health Act).
  - 15. UL (Underwriter's Laboratories).
- B. Where reference is made to the National Electric Code, the 2005 version is to be used.

#### 1.05 MANUFACTURER'S DIRECTIONS

- A. Install all equipment in strict accordance with all directions and recommendations furnished by the manufacturer. Where such directions are in conflict with the plans and specifications, report such conflicts to the Engineer who shall make such compromises, as he deems necessary and desirable.

#### 1.06 EXISTING ELECTRICAL, COMMUNICATION, EQUIPMENT AND DISTRIBUTION SYSTEMS

- A. Carefully examine the drawings and specifications, visit the project site, and be fully informed as to all existing conditions, dimensions and limitations before starting the work.
- B. Notify all authorities having jurisdiction over conduits, wires, pipes or other equipment, which are not needed or which interfere in any manner with the execution of this work, to remove or protect such systems or equipment as required.
- C. If existing active or non-active systems (which are not indicated on plans) are encountered that require relocation or disconnecting, make written request for decision on proper handling of these systems, and do not proceed with the work until so authorized by the Engineer. Contractor shall visit the site and verify site conditions on existing services.

#### 1.07 CUTTING AND PATCHING

- A. No cutting shall be done which is likely to impair the strength of the building.
- B. All openings in walls, ceilings, or floors required by the Contractor shall be in accordance with Division 1.
- C. All measures necessary for the proper installation of materials or apparatus shall be taken in the field, and cutting and patching shall be provided where necessary.
- D. Where such cutting becomes necessary, employ the trade, which installed the work originally to do the cutting and to restore such cutwork and close openings. Before any cutting or drilling of holes is attempted, notify the Engineer for approval.

#### 1.08 SUBMITTALS

- A. Submittals for review, except color samples, shall be made to the engineer in pdf electronic format. The engineer will add his review stamp to the electronic format and return it to the contractor for his records.
- B. Submittals for review shall be made prior to the purchase of materials. Submittal procedures shall be in accordance with Division 1 of these specifications, and the following:
  - 1. Submit copies for distribution with product data grouped to include complete submittals of related system, products, and accessories in a single submittal. Each submittal shall be clearly marked to indicate equipment number, specification section, etc., which the submittal describes.
  - 2. Mark dimensions and values in units to match those specified.

3. Data must include job name, dimensions, capacities, construction characteristics, and installation instruction. Where applicable, submittal data must also include metal gauges, frame types, finish fan diameters, bearing types, lubrication system, motor types, insulation, velocities, pressure drops, pump curves, coil areas, filter types and areas, electrical characteristics, wiring and piping diagrams, and accessories required.
  4. Submittals must be thoroughly checked by the Contractor and must contain his stamp of approval before being sent to the Design Professional for review.
  5. Submittals not conforming to the above requirements will be returned without review.
- C. The Design Professional will **review** shop drawings for general conformance to the construction documents. This **review** is provided as a convenience to the Contractor by the Design Professional. The Design Professional will **review** submitted information with reasonable care, however, no responsibility accrues to the Design Professional for errors of omission in the **review** of submitted materials. The Contractor retains complete, sole responsibility for providing materials and equipment that are in conformance to the construction documents.

#### 1.09 OPERATIONS AND MAINTENANCE DATA

- A. Refer to General Requirements – Project Closeout, for procedures and requirements for preparation and submittal of material manuals.
- B. In addition to the information required by Division 1 for maintenance data, include the following information:
1. Provide indicated number of sets of operating/maintenance manuals.
  2. Description of function, normal operating characteristics and limitations, performance curves, engineering data and tests, and complete nomenclature and commercial numbers of all replaceable parts.
  3. Manufacturer's printed operation procedures to include start-up, break-in, routine and normal operating instructions; regulations, control, stopping, shut-down, and emergency instructions.
  4. Maintenance procedures for routine preventative maintenance and troubleshooting; disassembly, repair, and reassembly; aligning and adjusting instructions.
  5. Servicing instructions and lubrication charts and schedules.

#### 1.10 TEMPORARY POWER

- A. Provide temporary power and lighting as required for all trades for this project. Include temporary power service from the utility. Pay all costs associated with temporary power as a part of the base bid for the project.

## PART 2 MATERIALS

### 2.01 BASIC MATERIALS AND METHODS:

- A. In all instances where drawings or specifications indicate materials or methods of higher quality than the required minimum by the referenced codes, the drawings and specification shall govern. All electrical equipment shall be UL listed (or equal testing agency) where applicable.

### 2.02 PENETRATIONS OF ROOFING

- A. Penetrations by conduits, electrical equipment supports or other work of this trade, shall be run through prefabricated equipment supports having special fabricated flashing. The appropriate trade shall do this work and the Electrical Contractor shall coordinate same.

### 2.03 FIRE-STOPPING

#### A. DEFINITIONS

- 1. Fire-stopping (Through-Penetration Protection System): Sealing or stuffing material or assembly placed in spaces between and penetrations through building materials to arrest movement of fire, smoke, heat, and hot gases through fire rated construction.

#### B. SYSTEM DESCRIPTION

- 1. Fire-stopping Materials: ASTM E119 to achieve fire ratings as noted on Drawings for adjacent construction, but not less than 1-hour fire rating.
  - a. Fire-stopping Materials: ASTM E119, to achieve fire ratings of adjacent construction.
  - b. Fire-stop interruptions to fire rated assemblies, materials, and components.

#### C. QUALITY ASSURANCE

- 1. Through Penetration Fire-stopping of Fire Rated Assemblies: UL 1479 or ASTM E814 with 0.10-inch water gage minimum positive pressure differential to achieve fire F-Ratings and temperature T-Ratings as indicated on Drawings, but not less than 1-hour.
- 2. Through Penetration Fire-stopping of Non-Fire Rated Floor and Roof Assemblies: Materials to resist free passage of flame and products of combustion.
  - a. Noncombustible Penetrating Items: Noncombustible materials for penetrating items connecting maximum of three stories.
  - b. Penetrating Items: Materials approved by authorities having jurisdiction for penetrating items connecting maximum of two stories.
- 3. Surface Burning Characteristics: Maximum 25 flame spread/smoke developed index when tested in accordance with ASTM E84.

D. ENVIRONMENTAL REQUIREMENTS

1. Apply fire-stopping materials only when temperature of substrate material and ambient air is in accordance with the manufacturer's recommendations.
2. Maintain recommended temperatures for recommended periods of time before, during, and after installation of fire-stopping materials.
3. Provide ventilation in areas to receive solvent cured materials as recommended by the manufacturer.

E. PERFORMANCE REQUIREMENTS

1. Fire-stopping: Conform to applicable codes for fire resistance ratings and surface burning characteristics.
2. Fire-stopping: Provide certificate of compliance from authority having jurisdiction indicating approval of materials used.

F. Product Description: Different types of products by multiple manufacturers are acceptable as required to meet specified system description and performance requirements; provide only one type for each similar application.

1. Silicone Fire-stopping Elastomeric Fire-stopping: Single component silicone elastomeric compound and compatible silicone sealant.
2. Foam Fire-stopping Compounds: Single component foam compound.
3. Formulated Fire-stopping Compound of Incombustible Fibers: Formulated compound mixed with incombustible non-asbestos fibers.
4. Fiber Stuffing and Sealant Fire-stopping: Composite of mineral fiber stuffing insulation with silicone elastomer for smoke stopping.
5. Mechanical Fire-stopping Device with Fillers: Mechanical device with incombustible fillers and silicone elastomer, covered with sheet stainless steel jacket, joined with collars, penetration sealed with flanged stops.
6. Intumescent Fire-stopping: Intumescent putty compound which expands on exposure to surface heat gain.
7. Fire-stop Pillows: Formed mineral fiber pillows.
8. Color: As selected from manufacturer's full range of colors.

G. FIRE-STOPPING ACCESSORIES

1. Primer: Type recommended by fire-stopping manufacturer for specific substrate surfaces and suitable for required fire ratings.
2. Dam Material: Permanent:
  - a. Mineral fiberboard.
3. Installation Accessories: Provide clips, collars, fasteners, temporary stops or dams, and other devices required to position and retain materials in place.
4. General:
  - a. Furnish UL listed products.
  - b. Select products with rating not less than rating of wall or floor being penetrated.

5. Non-Rated Surfaces:
  - a. Stamped steel, chrome plated, hinged, split ring escutcheons or floor plates or ceiling plates for covering openings in occupied areas where conduit is exposed.
  - b. For exterior wall openings below grade, furnish modular mechanical type seal consisting of interlocking synthetic rubber links shaped to continuously fill annular space between conduit and cored opening or water-stop type wall sleeve.

## **PART 3 EXECUTION**

### **3.01 COORDINATION**

- A. Many areas of this building will have limited ceiling space available for the installation of all trades work. The Electrical Contractor shall carefully coordinate the installation of his work with all other trades before any fabrication or installation of materials takes place.
- B. Provide to the Mechanical Contractor a list of the power characteristics that will be available at each item of his equipment (a note that says "as specified" is not acceptable). No electrical work associated with connection to equipment provided by others until the required information has been properly coordinated between the Contractors.
- C. Review the lighting plans against the Architectural reflected ceiling plans and report any discrepancies to the Design Professional before materials are ordered.
- D. Review the power plans against the final furniture plans before rough-in, and report any discrepancies to the Design Professional.

### **3.02 CONDITIONS OF COMPLETION**

- A. As conditions for the final inspection by the engineer and final payment, the Electrical Contractor shall turn over the following items to the Owner:
  1. All panel and cabinet keys, spare parts, operating instructions, maintenance instructions, schematics, wiring diagrams, etc.
  2. A certificate of final inspection indicating approval by the inspecting authority.
  3. Operating and maintenance manuals.
  4. Final as-built record drawings provided per requirements as follows:
    - a. Electronic file on CD, AutoCAD 2005, or later.

### **3.03 PAINTING**

- A. The Electrical Contractor shall cooperate with the Architectural Trade responsible for painting and identifying all exposed electrical equipment in finished areas. Care shall be taken to ensure that all nameplates of electrical equipment shall not be painted.
- B. The Contractor shall paint or touch-up any electrical equipment damaged or scratched in handling or installation or shipping from the factory

### 3.04 GUARANTEE

- A. Provide general guarantee for one (1) year on all labor and material in approved form. Provide and special guarantees as required under the sections of the specification. Refer to guarantee requirements in General Conditions.

### 3.05 PERMITS

- A. The Contractor shall secure and pay for all permits and inspections required for the electrical work. All permits and certificates of inspection, approval signed by the controlling building department, shall be furnished in duplicate to the Engineer and shall become the property of the Owner. The Contractor shall pay any fees and inspection costs.

### 3.06 ELECTRICAL REQUIREMENTS

- A. The electrical characteristics available for each item of Mechanical equipment shall be confirmed with the project Mechanical Contractor before the equipment is ordered.

### 3.07 FINAL ADJUSTING

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

### 3.08 FINAL CLEANING

- A. Execute final cleaning prior to final inspection.
- B. Clean interior and exterior surfaces exposed to view. Vacuum carpeted and soft surfaces where materials have been deposited due to work of this Contractor.
- C. Clean debris from site.
- D. Remove waste and surplus materials, rubbish, and construction facilities from the site.

### 3.09 PROGRESS CLEANING

- A. Maintain work areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition at all times.
- B. All openings in conduit systems shall be protected during construction to prevent the entrance of foreign materials.

### 3.10 REMOVAL OF TEMPORARY UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary equipment, facilities, and materials prior to Substantial Completion.
- B. Clean and repair damage caused by installation or use of temporary work.

### 3.11 RIGGING, HOISTING, AND HANDLING

- A. Provide all rigging and hoisting necessary for the installation of the materials and equipment provided under this Division of work. Handle all materials in accordance with manufacturer's instructions.

### 3.12 DAMAGE TO OTHER WORK

- A. This Contractor will be held responsible for damage to work caused by his work or through the negligence of his workman. The trade, which originally installed the work, as directed by the Engineer will do all patching and repairing of damaged work, but the cost of same shall be paid by this Contractor.

### 3.13 INSPECTION AND TESTS

- A. Authorized representatives of the Engineer shall have access to and the privilege of inspecting all work and materials as the work progresses. These representatives will have authority to approve or reject any work with the drawings, installation instructions, specifications, codes, and good engineering practice as a basis for any actions taken.
- B. Circuits shall be phased out and connected to the panels in proper manner before equipment is energized. Loads shall be distributed as evenly as possible on all phases. All wires shall be entirely free from grounds and short circuits.
- C. Refer to additional testing/adjusting to meet requirements specified within Division 16.



January 20, 2017

Landmark Design Group, PC  
Morgan M. Landon, PE, LLC

**END OF SECTION**

## **SECTION 26 05 19**

# **LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES**

### **PART 1 GENERAL**

#### **1.01 SUMMARY**

- A. Section includes:
  - 1. Building wire and cable.
  - 2. Nonmetallic-sheathed cable.
  - 3. Direct burial cable.
  - 4. Service entrance cable.
  - 5. Armored cable.
  - 6. Metal clad cable.
  - 7. Wiring connectors and connections.

#### **1.02 DESIGN REQUIREMENTS**

- A. Conductor sizes shown on the plans, or in the specifications, are based on copper.
- B. The base bid for this project shall be based on copper conductors throughout. The Contractor, at his option, may submit a voluntary alternate with his bid noting the change in price offered using aluminum conductors in lieu of copper.

#### **1.03 SUBMITTALS**

- A. Submit in accordance with the requirements of Division 1, Section 26 00 50, and this section.
- B. Product Data: Submit for building wire and each cable assembly type.
- C. Design Data: Indicate voltage drop and ampacity calculations for aluminum conductors substituted for copper conductors.
- D. Test Reports: Indicate procedures and values obtained.
- E. Project Record Documents: Record actual locations of components and circuits.

#### **1.04 QUALITY ASSURANCE**

- A. Wiring materials located in air handling plenums shall conform to the following:
  - 1. Peak optical density not greater than 0.5.
  - 2. Average optical density not greater than 0.15.
  - 3. Flame spread not greater than 5 feet when tested in accordance with NFPA 262.

1.05 FIELD MEASUREMENTS

- A. Verify field measurements are as indicated on Drawings.

1.06 COORDINATION

- A. Where wire and cable destination is indicated and routing is not shown, determine routing and lengths required.
- B. Wire and cable routing indicated is approximate unless dimensioned.

**PART 2 PRODUCTS**

A. BUILDING WIRE

- 1. Provide products as follows:
  - a. Stranded conductor for feeders and branch circuits 10 AWG and smaller.
  - b. Stranded conductors for control circuits.
  - c. Conductor not smaller than 12 AWG for power and lighting circuits.
  - d. Conductor not smaller than 14 AWG for control circuits.
  - e. Increase wire size in branch circuits to limit voltage drop to a maximum of 3 percent.

- B. Product Description: Single conductor insulated wire.

- C. Conductor: Copper.

- D. Insulation Voltage Rating: 600 volts.

- E. Insulation Temperature Rating: 60 degrees C.

- F. Insulation Material: Thermoplastic.

2.02 NONMETALLIC-SHEATHED CABLE

- A. Conductor: Copper.

- B. Insulation Voltage Rating: 600 volts.

2.03 DIRECT BURIAL CABLE

- A. Conductor: Copper.

- B. Insulation Voltage Rating: 600 volts.

- C. Insulation Temperature Rating: 90 degrees C.

2.04 SERVICE ENTRANCE CABLE

- A. Conductor: Copper.

B. Insulation Voltage Rating: 600 volts.

C. Insulation: Type USE.

#### 2.05 ARMORED CABLE

A. Conductor: Copper.

B. Insulation Voltage Rating: 600 volts.

C. Insulation Temperature Rating: 60 degrees C.

D. Insulation Material: Thermoplastic.

E. Armor Material: Steel.

F. Armor Design: Interlocked metal tape.

#### 2.06 METAL CLAD CABLE

A. Conductor: Copper.

B. Insulation Voltage Rating: 600 volts.

C. Insulation Temperature Rating: 60 degrees C.

D. Insulation Material: Thermoplastic.

E. Armor Material: Steel.

F. Armor Design: Interlocked metal tape.

G. Jacket: None.

#### 2.07 TRAY CABLE

A. Product Description: Multi-conductor power and control cable NFPA 70 Type TC.

B. Conductor: Copper.

C. Insulation: Flame-retardant cross-linked polyethylene.

D. Overall Jacket: Polyvinyl Chlorine (PVC) in accordance with UL 1277.

E. Insulation Voltage Rating: 600 volts.

F. Insulation Temperature Rating: 90 degrees C.

G. Listings: Finished cable UL listed as Type TC, and sunlight resistant.

## 2.08 WIRING CONNECTORS

- A. Split Bolt Connectors:
- B. Solder-less Pressure Connectors:
- C. Spring Wire Connectors:
- D. Compression Connectors:

## 2.09 TERMINATIONS

- A. Terminal Lugs for Wires 6 AWG and Smaller: Solder-less, compression type copper.
- B. Lugs for Wires 4 AWG and Larger: Color keyed, compression type copper, with insulating sealing collars.

## **PART 3 EXECUTION**

### 3.01 EXAMINATION

- A. Verify interior of building has been protected from weather.
- B. Verify mechanical work likely to damage wire and cable has been completed.
- C. Verify raceway installation is complete and supported.

### 3.02 PREPARATION

- A. Completely and thoroughly swab raceway before installing wire.

### 3.03 EXISTING WORK

- A. Remove exposed abandoned wire and cable, including abandoned wire and cable above ceilings where new work is to take place. Patch surfaces where removed cables pass through building finishes.
- B. Disconnect abandoned circuits and remove circuit wire and cable. Remove abandoned boxes when wire and cable servicing boxes is abandoned and removed. Install blank cover for abandoned boxes not removed.
- C. Provide access to existing wiring connections remaining active and requiring access. Modify installation or install access panel.
- D. Extend existing circuits using materials and methods compatible with existing electrical installations, and as specified.
- E. Clean and repair existing wire and cable remaining or wire and cable to be reinstalled.

### 3.04 SYSTEM DESCRIPTION

- A. Wiring Methods: Provide the following wiring methods:
1. Concealed Interior Locations: Building wire, Type THHN/THWN insulation, in raceway.
  2. Exposed Interior Locations: Building wire, Type THHN/THWN insulation, in raceway.
  3. Exterior, Above Grade Locations: Building wire, Type THHN/THWN insulation, in raceway.
  4. Underground Locations: Building wire, Type THHN/THWN insulation, in raceway.
  5. Cable Tray Locations: Tray cable Type TC.

### 3.05 INSTALLATION

- A. Route wire and cable to meet Project conditions.
- B. Neatly train and lace wiring inside boxes, equipment, and panelboards.
- C. Identify and color code wire and cable under provisions of Section 26 05 53. Identify each conductor with its circuit number or other designation indicated.
- D. Special Techniques - Building Wire in Raceway:
1. Pull conductors into raceway at same time.
  2. Install building wire 4 AWG and larger with pulling equipment.
- E. Special Techniques - Cable:
1. Protect exposed cable from damage.
  2. Support cables above accessible ceiling, using spring metal clips or [metal] [plastic] cable ties to support cables from structure [or ceiling suspension system]. Do not rest cable on ceiling panels.
  3. Use suitable cable fittings and connectors.
- F. Special Techniques - Direct Burial Cable:
1. Trench and backfill for direct burial cable installation. Install warning tape along entire length of direct burial cable, within 3 inches of grade.
  2. Use suitable direct burial cable fittings and connectors.
- G. Special Techniques - Wiring Connections:
1. Clean conductor surfaces before installing lugs and connectors.
  2. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.
  3. Tape un-insulated conductors and connectors with electrical tape to 150 percent of insulation rating of conductor.
  4. Install split bolt connectors for copper conductor splices and taps, 6 AWG and larger.
  5. Install solder-less pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.
  6. Install insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

- 7. Install suitable reducing connectors or mechanical connector adaptors for connecting aluminum conductors to copper conductors.
- H. Install stranded conductors for branch circuits 10 AWG and smaller. Install crimp on fork terminals for device terminations. Do not place bare stranded conductors directly under screws.
- I. Install terminal lugs on ends of 600 volt wires unless lugs are furnished on connected device, such as circuit breakers.
- J. Size lugs in accordance with manufacturer's recommendations terminating wire sizes. Install 2-hole type lugs to connect wires 4 AWG and larger to copper bus bars.
- K. For terminal lugs fastened together such as on motors, transformers, and other apparatus, or when space between studs is small enough that lugs can turn and touch each other, insulate for dielectric strength of 2-1/2 times normal potential of circuit.

### 3.06 WIRE COLOR

- A. General: Match color standard already in use, or:
  - 1. For all wire sizes, install wire colors in accordance with the following:
    - a. Black and red for single phase circuits at 120/240 volts.
    - b. Black, red, and blue for circuits at 120/208 volts single or three phase.
    - c. Orange, brown, and yellow for circuits at 277/480 volts single or three phase.
- B. Neutral Conductors: White. When two or more neutrals are located in one conduit, individually identify each with proper circuit number.
- C. Branch Circuit Conductors: Install three or four wire home runs with each phase uniquely color coded.
- D. Feeder Circuit Conductors: Uniquely color code each phase.
- E. Ground Conductors:
  - 1. For 6 AWG and smaller: Green.
  - 2. For 4 AWG and larger: Identify with green tape at both ends and visible points including junction boxes.

### 3.07 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Perform inspections and tests listed in NETA ATS, Section 7.3.1.

## END OF SECTION

## **SECTION 26 05 29**

### **HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS**

#### **PART 1 GENERAL**

##### **1.01 SUMMARY**

- A. Section Includes:
  - 1. Conduit supports.
  - 2. Formed steel channel.
  - 3. Spring steel clips.
  - 4. Sleeves.
  - 5. Mechanical sleeve seals.
  - 6. Equipment bases and supports.

##### **1.02 SUBMITTALS**

- A. Submit in accordance with the requirements of Division 1, Section 26 00 50, and this section.
- B. Shop Drawings: Indicate system layout with location and detail of trapeze hangers.
- C. Product Data:
  - 1. Hangers and Supports: Submit manufacturers catalog data including load capacity.
  - 2. Fire-stopping: Submit data on product characteristics, performance and limitation criteria.
- D. Fire-stopping Schedule: Submit schedule of opening locations and sizes, penetrating items, and required listed design numbers to seal openings to maintain fire resistance rating of adjacent assembly.
- E. Design Data: Indicate load carrying capacity of hangers and supports.
- F. Manufacturer's Installation Instructions:
  - 1. Hangers and Supports: Submit special procedures and assembly of components.
  - 2. Fire-stopping: Submit preparation and installation instructions.

##### **1.03 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, and handle in accordance with the requirements of Division 1, Section 26 00 50, and this Section.
- B. Accept materials on site in original factory packaging, labeled with manufacturer's identification.
- C. Protect from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original packaging.



## **PART 2 PRODUCTS**

### **2.01 CONDUIT SUPPORTS**

- A. Hanger Rods: Threaded high tensile strength galvanized carbon steel with free running threads.
- B. Beam Clamps: Malleable Iron, with tapered hole in base and back to accept either bolt or hanger rod. Set screw: hardened steel.
- C. Conduit clamps for trapeze hangers: Galvanized steel, notched to fit trapeze with single bolt to tighten.
- D. Conduit clamps - general purpose: One hole, malleable iron for surface mounted conduits.
- E. Cable Ties: High strength nylon temperature rated to 185 degrees F. Self-locking.

### **2.02 FORMED STEEL CHANNEL**

- A. Product Description: Galvanized 12 gage) thick steel. With holes 1-1/2 inches on center.

### **2.03 SPRING STEEL CLIPS**

- A. Product Description: Mounting hole and screw closure.

### **2.04 SLEEVES**

- A. Sleeves for Non-Fire Rated Floors: 18 gage galvanized steel.
- B. Sleeves for Non-Fire Rated Beams, Walls, Footings, and Potentially Wet Floors: Steel pipe or 18 gage galvanized steel.
- C. Sleeves for Fire Rated and Fire Resistive Floors and Walls, and Fire Proofing: Prefabricated fire rated sleeves including seals, UL listed.

### **2.05 MECHANICAL SLEEVE SEALS**

- A. Product Description: Modular mechanical type, consisting of interlocking synthetic rubber links shaped to continuously fill annular space between object and sleeve, connected with bolts and pressure plates causing rubber sealing elements to expand when tightened, providing watertight seal and electrical insulation.

### **2.06 EQUIPMENT BASES AND SUPPORTS**

- A. Provide housekeeping pads of concrete, minimum 3-1/2 inches thick and extending 6 inches beyond supported equipment.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify openings are ready to receive sleeves.

### **3.02 PREPARATION**

- A. Obtain permission from Architect/Engineer before using powder-actuated anchors.
- B. Obtain permission from Architect/Engineer before drilling or cutting structural members.

### **3.03 INSTALLATION - HANGERS AND SUPPORTS**

#### **A. Anchors and Fasteners:**

1. Concrete Structural Elements: Provide precast inserts, expansion anchors, powder actuated anchors or preset inserts.
2. Steel Structural Elements: Provide beam clamps, spring steel clips, or welded fasteners.
3. Concrete Surfaces: Provide self-drilling anchors and expansion anchors.
4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Provide toggle bolts or hollow wall fasteners.
5. Solid Masonry Walls: Provide expansion anchors or preset inserts.
6. Sheet Metal: Provide sheet metal screws.
7. Wood Elements: Provide wood screws.

#### **B. Inserts:**

1. Install inserts for placement in concrete forms.
2. Install inserts for suspending hangers from reinforced concrete slabs and sides of reinforced concrete beams.
3. Provide hooked rod to concrete reinforcement section for inserts carrying pipe over 4 inches.
4. Where concrete slabs form finished ceiling, locate inserts flush with slab surface.
5. Where inserts are omitted, drill through concrete slab from below and provide through-bolt with recessed square steel plate and nut recessed into and grouted flush with slab.

- C. Install conduit and raceway support and spacing in accordance with NEC.

- D. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.

- E. Install multiple conduit runs on common hangers.

#### **F. Supports:**

1. Fabricate supports from structural steel or formed steel channel. Install hexagon head bolts to present neat appearance with adequate strength and rigidity. Install spring lock washers under nuts.
2. Install surface mounted cabinets and panelboards with minimum of four anchors.

3. In wet and damp locations install steel channel supports to stand cabinets and panelboards 1 inch off wall.
4. Support vertical conduit at every floor.

#### 3.04 INSTALLATION - SLEEVES

- A. Exterior watertight entries: Seal with adjustable interlocking rubber links.
- B. Conduit penetrations not required to be watertight: Sleeve and fill with silicon foam.
- C. Set sleeves in position in forms. Provide reinforcing around sleeves.
- D. Size sleeves large enough to allow for movement due to expansion and contraction. Provide for continuous insulation wrapping.
- E. Extend sleeves through floors 1 inch above finished floor level. Caulk sleeves.
- F. Where conduit or raceway penetrates floor, ceiling, or wall, close off space between conduit or raceway and adjacent work with stuffing insulation and caulk. Provide close fitting metal collar or escutcheon covers at both sides of penetration.
- G. Install chrome plated steel escutcheons at penetrations of finished surfaces.

#### 3.05 INSTALLATION - EQUIPMENT BASES AND SUPPORTS

- A. Using templates furnished with equipment, install anchor bolts, and accessories for mounting and anchoring equipment.
- B. Construct supports of steel members. Brace and fasten with flanges bolted to structure.

#### 3.06 PROTECTION OF FINISHED WORK

- A. Protect adjacent surfaces from damage by material installation.

**END OF SECTION**

## **SECTION 26 05 53**

### **IDENTIFICATION FOR ELECTRICAL SYSTEMS**

#### **PART 1 GENERAL**

##### 1.01 SUMMARY

- A. Section Includes:
  - 1. Nameplates.
  - 2. Labels.
  - 3. Wire markers.
  - 4. Conduit markers.
  - 5. Stencils.
  - 6. Underground Warning Tape.

##### 1.02 SUBMITTALS

- A. Submit in accordance with the requirements of Division 1, Section 26 00 50, and this section.
- B. Product Data:
  - 1. Submit manufacturer's catalog literature for each product required.
  - 2. Submit electrical identification schedule including list of wording, symbols, letter size, color coding, tag number, location, and function.
- C. Manufacturer's Installation Instructions: Indicate installation instructions, special procedures, and installation.
- D. Project Record Documents: Record actual locations of tagged devices; include tag numbers.

##### 1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle in accordance with the requirements of Division 1, Section 26 00 50, and this Section.
- B. Accept identification products on site in original containers. Inspect for damage.
- C. Accept materials on site in original factory packaging, labeled with manufacturer's identification, including product density and thickness.
- D. Protect insulation from weather and construction traffic, dirt, water, chemical, and mechanical damage, by storing in original wrapping.

##### 1.04 ENVIRONMENTAL REQUIREMENTS

- A. Install identification only when ambient temperature and humidity conditions are within range recommended by manufacturer. Maintain conditions for time periods recommended by manufacturer.

## **PART 2 PRODUCTS**

### **2.01 NAMEPLATES**

- A. Product Description: Laminated three-layer plastic with engraved black letters on light contrasting background color.
- B. Letter Size:
  - 1. 1/8-inch-high letters for identifying individual equipment and loads.
  - 2. 1/4-inch-high letters for identifying grouped equipment and loads.
- C. Minimum nameplate thickness: 1/8 inch.

### **2.02 LABELS**

- A. Labels: Embossed adhesive tape, with 3/16 inch white letters on black background.

### **2.03 WIRE MARKERS**

- A. Description: Cloth tape, type wire markers.
- B. Legend:
  - 1. Power and Lighting Circuits: Branch circuit or feeder number to indicate connection as actually installed.
  - 2. Control Circuits: Control wire number to indicate connection as actually installed.

### **2.04 CONDUIT AND RACEWAY MARKERS**

- A. Description: Nameplate fastened with straps, or stencils.
- B. Color:
  - 1. 480 Volt System: Black lettering on white background.
  - 2. 208 Volt System: Black lettering on white background.
- C. Legend:
  - 1. 480 Volt System: 480 VOLTS.
  - 2. 208 Volt System: 208 VOLTS.

### **2.05 STENCILS**

- A. Stencils: With clean cut symbols and letters of following size:
  - 1. Up to 2 inches Outside Diameter of Raceway: 1/2-inch-high letters.
  - 2. 2-1/2 to 6 inches Outside Diameter of Raceway: 1-inch-high letters.
- B. Stencil Paint: Semi-gloss enamel, colors to match existing color code, or if no existing code is in place, conform:
  - 1. Blue lettering on white background.

## 2.06 UNDERGROUND WARNING TAPE

- A. Description: 4-inch-wide plastic tape, detectable type, colored yellow with suitable warning legend describing buried electrical lines.

## PART 3 EXECUTION

### 3.01 PREPARATION

- A. Degrease and clean surfaces to receive adhesive for identification materials.
- B. Prepare surfaces in accordance with manufacturer's recommendations for stencil painting.

### 3.02 EXISTING WORK

- A. Where existing components are modified in any way as a part of this project, install identification in accordance with this section.

### 3.03 INSTALLATION

- A. Install identifying devices after completion of General Trades painting.
- B. Nameplate Installation:
  - 1. Install nameplate parallel to equipment lines.
  - 2. Install nameplate for each electrical distribution and control equipment enclosure with corrosive-resistant mechanical fasteners, or adhesive.
  - 3. Install nameplates for each control panel and major control components located outside panel with corrosive-resistant mechanical fasteners, or adhesive.
  - 4. Secure nameplate to equipment front using screws.
  - 5. Secure nameplate to inside surface of door on recessed panelboard in finished locations.
  - 6. Install nameplates for the following:
    - a. Switchboards.
    - b. Panelboards.
    - c. Transformers.
    - d. Service Disconnects.
- C. Label Installation:
  - 1. Install label parallel to equipment lines.
  - 2. Install label for identification of individual control device stations, and.
  - 3. Install labels for permanent adhesion and seal with clear lacquer.
- D. Wire Marker Installation:
  - 1. Install wire marker for each conductor at panelboard gutters, pull boxes, outlet and junction boxes, and each load connection.
  - 2. Mark data cabling (installed as a part of Contractor's work) at each end. Install additional marking at accessible locations along the cable run.
  - 3. Install labels at data outlets (installed as a part of Contractor's work) identifying patch panel and port designation.

- E. Conduit and Raceway Marker Installation:
  - 1. Install conduit and raceway marker for each conduit and raceway larger than 2 inches diameter, and longer than 6 feet.
    - a. Marker Spacing: 20 feet on center.
    - b. Identify using field painting.
      - 1) Paint colored band on each conduit or raceway.
        - a) 480 Volt System: Blue.
        - b) 208 Volt System: Yellow.
- F. Stencil Installation:
  - 1. Apply stencil painting in accordance manufacturer's recommendations.
- G. Underground Warning Tape Installation:
  - 1. Install underground warning tape along length of each underground conduit, raceway, or cable 6 to 8 inches below finished grade, directly above buried conduit, raceway, or cable.

**END OF SECTION**

## **SECTION 26 24 16**

### **PANELBOARDS**

#### **PART 1 GENERAL**

##### 1.01 SUMMARY

- A. Section includes distribution and branch circuit panelboards.

##### 1.02 SUBMITTALS

- A. Submit in accordance with the requirements of Division 1, Section 26 00 50, and this section.
- B. Shop Drawings: Indicate outline and support point dimensions, voltage, main bus ampacity, integrated short circuit ampere rating, circuit breaker and fusible switch arrangement and sizes.
- C. Product Data: Submit catalog data showing specified features of standard products.
- D. Project Record Documents: Record actual locations of panelboards and record actual circuiting arrangements.
- E. Operation and Maintenance Data: Submit spare parts listing; source and current prices of replacement parts and supplies; and recommended maintenance procedures and intervals.

#### **PART 2 PRODUCTS**

##### 2.01 DISTRIBUTION PANELBOARDS

- A. Manufacturers:
  - 1. GE Electrical.
  - 2. Siemens.
  - 3. Square D.
  - 4. Substitutions: Permitted in accordance with Division 1, Section 23 00 50, and this section.
- B. Product Description: NEMA PB 1, circuit breaker type panelboard.
- C. Panelboard Bus: Copper, current carrying components, ratings as indicated on Drawings. Furnish copper ground bus in each panelboard.
- D. Minimum integrated short circuit rating: As indicated on the plans.



- E. Fusible Switch Assemblies: NEMA KS 1, quick-make, quick-break, load interrupter enclosed knife switch with externally operable handle. Furnish interlock to prevent opening front cover with switch in ON position. Handle lockable in OFF position. Fuse clips: Designed to accommodate NEMA FU 1, Class R fuses.
- F. Molded Case Circuit Breakers: NEMA AB 1, circuit breakers with integral thermal and instantaneous magnetic trip in each pole. Furnish circuit breakers UL listed as Type HACR for air conditioning equipment branch circuits.
- G. Circuit Breaker Accessories: Trip units and auxiliary switches as indicated on Drawings.
- H. Enclosure: NEMA PB 1, Type 1.
- I. Cabinet Front: Surface door-in-door type, fastened with concealed trim clamps, hinged door with flush lock, metal directory frame, finished in manufacturer's standard enamel.

## 2.02 BRANCH CIRCUIT PANELBOARDS

- A. Manufacturers:
  - 1. GE Electrical.
  - 2. Siemens.
  - 3. Square D.
- B. Substitutions: Permitted in accordance with Division 1, Section 26 00 50, and this section.
- C. Product Description: NEMA PB1, circuit breaker type, lighting and appliance branch circuit panelboard.
- D. Panelboard Bus: Copper, current carrying components, ratings as indicated on Drawings. Furnish copper ground bus in each panelboard.
- E. Minimum Integrated Short Circuit Rating: As indicated on Drawings.
- F. Molded Case Circuit Breakers: NEMA AB 1, bolt-on type thermal magnetic trip circuit breakers, with common trip handle for all poles, listed as Type SWD for lighting circuits, Type HACR for air conditioning equipment circuits, Class A ground fault interrupter circuit breakers as indicated on Drawings. Do not use tandem circuit breakers.
- G. Enclosure: NEMA PB 1, Type 1.
- H. Cabinet Front: Flush cabinet front with concealed trim clamps, concealed hinge, metal directory frame, and flush lock keyed alike. Finish in manufacturer's standard enamel.

## 2.03 LOAD CENTERS

- A. Manufacturers:
  - 1. GE Electrical.
  - 2. Siemens.
  - 3. Square D.
  - 4. Substitutions: Permitted in accordance with Division 1, Section 26 00 50, and this section.
- B. Product Description: Circuit breaker load center, with bus ratings as indicated on Drawings.
- C. Minimum Integrated Short Circuit Rating: 10,000 amperes rms symmetrical, or as indicated on the plans.
- D. Molded Case Circuit Breakers: NEMA AB 1, plug-on type thermal magnetic trip circuit breakers, with common trip handle for poles, listed as Type SWD for lighting circuits, Class A ground fault interrupter circuit breakers. Do not use tandem circuit breakers.
- E. Enclosure: General Purpose.

## PART 3 EXECUTION

### 3.01 EXISTING WORK

- A. Disconnect abandoned panelboards and load centers as may be indicated on the plans. Remove abandoned panelboards and load centers.
- B. Maintain access to existing panelboards and load centers to remain in service. Modify installation or provide necessary access.
- C. Clean and repair existing panelboards and load centers to remain or to be reinstalled.

### 3.02 INSTALLATION

- A. Install panelboards and load centers in accordance with NEMA PB 1.1.
- B. Install panelboards and load centers plumb.
- C. Install recessed panelboards and load centers flush with wall finishes.
- D. Height: 6 feet to top of panelboards and load centers; install panelboards taller than 6 feet with bottom no more than 4 inches above floor.
- E. Install filler plates for unused spaces in panelboards.
- F. Provide typed circuit directory for each panelboard and load center. Directory to reflect actual, final circuiting.
- G. Install engraved plastic nameplates panelboards and load centers.

- H. Install spare conduits out of each recessed panelboard to accessible location. Minimum spare conduits: 5 empty 1 inch. Identify each as SPARE.
- I. Ground and bond panelboard enclosure according to the requirements of the NEC and other applicable portions of this specification. Connect equipment ground bars of panels in accordance with NFPA 70.

### 3.03 FIELD QUALITY CONTROL

- A. Inspect and test in accordance with NETA ATS, except Section 4.
- B. Perform circuit breaker inspections and tests listed in NETA ATS, Section 7.6.
- C. Perform switch inspections and tests listed in NETA ATS, Section 7.5.
- D. Perform controller inspections and tests listed in NETA ATS, Section 7.16.1.

### 3.04 ADJUSTING

- A. Measure steady state load currents at each panelboard feeder; rearrange circuits in panelboard to balance phase loads to within 20 percent of each other. Maintain proper phasing for multi-wire branch circuits.

**END OF SECTION**