

PROJECT MANUAL

# John W. Boddie House Interior Renovations – Phase 1 (Rebid)

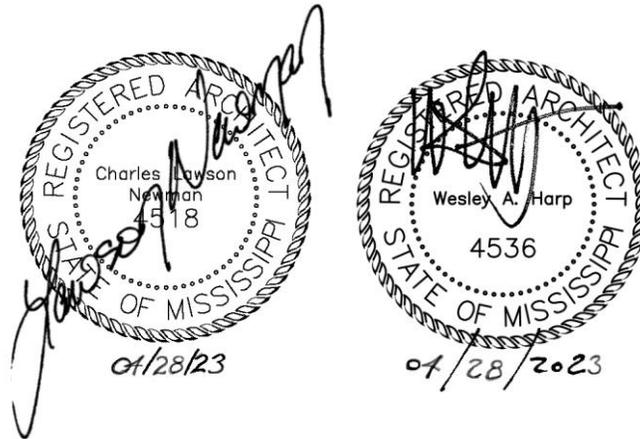
Owner

TOUGALOO COLLEGE

Additional Funding By

STATE OF MISSISSIPPI

NATIONAL PARK SERVICE



PROFESSIONAL:  
WFT ARCHITECTS, P.A.  
770 NORTH STATE STREET  
JACKSON, MISSISSIPPI 39202  
ARCHITECT'S PROJECT NUMBER: 1905

28 APRIL 2023

**BID DOCUMENTS**

## **ADVERTISEMENT FOR BIDS**

Tougaloo College hereby extends an invitation to qualified General Contractors to bid the construction project hereafter referred to as:

### **John W. Boddie House Interior Renovation – Phase 1 (Rebid)**

#### **Project Scope:**

Through competitive bids, Tougaloo College intends to contract services for the first phase of the interior renovation of the John W. Boddie House located on the campus of Tougaloo College in Tougaloo, Mississippi.

#### **Submission Deadline and Bid Opening:**

Sealed Bid Proposals shall be delivered to the Office of Facilities and Real Property Management located on the first floor of Galloway Hall on the Tougaloo College campus on Friday, June 23<sup>rd</sup>, 2023, until 2:00 pm, when they will be publicly opened.

Barring unforeseen circumstances, the Notice of Contract Award will be issued no later than 30 days after the Bid Date. No submitted bid may be withdrawn unless there is a delay in the award of the contract that exceeds sixty (60) calendar days following the bid opening. All bidders agree to be bound by their bids until the expiration of this stated time period.

#### **Submission Information:**

Each bidder shall submit two (2) copies of the Bid Proposal. The Bid Proposal includes the Bid Form, Unit Prices Form, Bid Bond Form, Insurance Certificate and Contractor Qualifications Submission. The Bid Form, Unit Prices Form, Bid Bond Form, and Insurance Certificate shall be submitted in a sealed envelope clearly addressed and labeled as described and illustrated in Section 002113 – Supplementary Instructions to Bidders in the Project Manual. The Contractor Qualifications Submission shall be submitted separately, as described in Section 004300. Bid Proposals may be mailed or hand delivered to Tougaloo College at the address provided below. Incomplete proposals or proposals submitted after the time due will not be considered. Oral, telephonic, electronic, or faxed proposals will not be accepted.

#### **Availability of Bid Documents:**

Bid Documents may be obtained through the online planroom of Jackson Blueprint & Supply, Inc. (601-353-5803; [www.jaxblue.com](http://www.jaxblue.com)). For a deposit of \$150.00, interested parties will receive one printed document set (Drawings and Project Manual) and a download of the set in PDF format. Contact Jackson Blueprint or WFT Architects, P.A. for instructions.

**Bid Proposals shall be hand delivered or mailed to:**

Office of Facilities and Real Property Management  
Attn: Erskine Brown, Asst. Vice President  
500 West County Line Road  
Tougaloo, MS 39174  
Phone: 601-977-7828

**Direct any questions to:**

Lawson Newman, AIA  
WFT Architects, P.A.  
770 North State Street  
Jackson, MS 39202  
Phone: (601) 352-4691  
Email: [lawson@wftarchitect.com](mailto:lawson@wftarchitect.com)

**Mandatory Pre-Bid Meeting:**

A Pre-Bid Meeting will be held on Wednesday, June 21<sup>st</sup>, 2023, at the Office of Facilities and Real Property Management on the campus of Tougaloo College at 9:00 am. A walkthrough of the site will follow immediately afterwards.

**Contractor Qualifications Submission:**

The John W. Boddie House, constructed in 1860, is a designated Mississippi Landmark, is listed on the National Register of Historic Places and is a contributing structure within the Tougaloo College Historic District. As specified in the Project Manual, Section 004300, Contractor Qualifications Submission, Bidders are required to submit, as part of their proposal, the specified documents to demonstrate that their personnel and those of the specified subcontractors are qualified to work on historic buildings similar to the Boddie House by presenting evidence that they possess, through experience and/or training, the required knowledge and skills.

**Rejection of Bids:**

Tougaloo College reserves the right to reject any or all bids and the right to waive any informalities or irregularities in any bid or in any bidding and to further award the project to the best, responsive and responsible qualified bidder whose bid complies with all the prescribed formalities, as it best serves the interest of Tougaloo College. Tougaloo College reserves the right to award the contract to the next most qualified contractor if the selected contractor does not execute a contract within thirty (30) days after the award of the proposal.

This solicitation does not obligate Tougaloo College to pay any cost incurred by respondents in the preparation and submission of a proposal. It also does not obligate Tougaloo College to accept or contract for any expressed or implied services.

**PROJECT MANUAL INDEX**

**Project Name: John W. Boddie House, Interior Renovations – Phase 1 (Rebid)**

**Date of Bid Documents: 28 April 2023**

**Owner: Tougaloo College, Tougaloo, Mississippi**

**Architect: WFT Architects, P.A.**

**Architect's Project No.: 1905**

This Index is for convenience only. Its accuracy and completeness are not guaranteed. It is not intended to be considered part of the Contract Documents. In case of a discrepancy between the Index and the Project Manual, the Project Manual shall govern.

Title Sheet  
Advertisement for Bids  
Project Manual Index  
List of Drawing Sheets

**DIVISION 00 PROCUREMENT & CONTRACTING REQUIREMENTS**

SECTION 002110 AIA A701 – 2018 Instructions to Bidders  
SECTION 002113 Supplementary Instructions to Bidders  
SECTION 004100 Bid Form  
SECTION 004200 Unit Prices Form  
SECTION 004300 Contractor Qualifications Submission  
SECTION 005000 Contracting Forms and Supplements  
SECTION 005200 Agreement Form  
AIA A105 – 2017 (Sample Exhibit)  
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Certificate of Insurance  
SECTION 007300 Supplementary Conditions  
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**SPECIFICATIONS**

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SECTION 011000 Summary  
SECTION 012000 Price and Payment Procedures  
SECTION 012050 Change Order Procedures

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SECTION 012200	Unit Prices
SECTION 012300	Alternates
SECTION 013000	Administrative Requirements
SECTION 013216	Construction Progress Schedule
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SECTION 014000	Quality Requirements
SECTION 014216	Definitions
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SECTION 017419	Construction Waste Management and Disposal
SECTION 017800	Closeout Submittals

**DIVISION 02 EXISTING CONDITIONS**

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SECTION 024296	Historic Removal and Dismantling

**DIVISION 03 CONCRETE**

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SECTION 032000	Concrete Reinforcement
SECTION 033000	Cast-In-Place Concrete

**DIVISION 04 MASONRY (DOES NOT APPLY)**

**DIVISION 05 METALS**

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**DIVISION 06 WOOD, PLASTICS AND COMPOSITES**

SECTION 061000	Rough Carpentry
SECTION 064013	Exterior Architectural Woodwork

**DIVISION 07 THERMAL AND MOISTURE PROTECTION**

SECTION 079200	Joint Sealants
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**DIVISION 08 OPENINGS (DOES NOT APPLY)**

**DIVISION 09 FINISHES**

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**DIVISION 11 EQUIPMENT (DOES NOT APPLY)**

**DIVISION 12 FURNISHINGS (DOES NOT APPLY)**

**DIVISION 13 SPECIAL CONSTRUCTION (DOES NOT APPLY)**

**DIVISION 14 CONVEYING EQUIPMENT (DOES NOT APPLY)**

**DIVISION 15 SECTION NOT USED**

**DIVISION 16 SECTION NOT USED**

**DIVISION 17 SECTION NOT USED**

**DIVISION 18 SECTION NOT USED**

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**DIVISION 20 SECTION NOT USED**

**DIVISION 21 FIRE SUPPRESSION**

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SECTION 220000 Plumbing

**DIVISION 23 HEATING, VENTILATING, AND AIR-CONDITIONING**

SECTION 230000 HEATING, VENTILATING, & AIR-CONDITIONING SYSTEMS

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SECTION 260512 Work in Existing Facilities

SECTION 260519 600V Conductors

SECTION 260526 Grounding and Bonding for Electrical Systems

SECTION 260533 Raceways, Outlet Boxes and Junction Boxes for Electrical Systems

SECTION 260923 Switches and Receptacles  
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**DIVISION 29 SECTION NOT USED**

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**END OF SECTION**

**LIST OF DRAWING SHEETS**

**Project Name: John W. Boddie House, Interior Renovations – Phase 1 (Rebid)**

**Date of Bid Documents: 28 April 2023**

**Owner: Tougaloo College, Tougaloo, Mississippi**

**Architect: WFT Architects, P.A.**

**Architect's Project No.: 1905**

This List of Drawing Sheets is for convenience only. Its accuracy and completeness are not guaranteed. It is not intended to be considered part of the Contract Documents. In case of a discrepancy between this List and the Drawings, the Drawings shall govern.

**LIST OF DRAWINGS**

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A1.1	FIRST FLOOR FRAMING PLAN & DETAILS
A1.2	FIRST FLOOR PLAN
A1.3	SECOND FLOOR PLAN
A1.4	ROOF & TOWER ROOM FLOOR PLAN
A2.0	ELEVATIONS & DETAILS
A2.1	ELEVATIONS & DETAILS
A3.0	BUILDING SECTION
A4.0	WEST ENTRANCE ELEVATION & DETAILS
S001	STRUCTURAL GENERAL NOTES
S111	ELEVATOR FOUNDATION & FIRST FLOOR FRAMING PLANS & DETAILS
S112	FIRST FLOOR MEZZANINE FRAMING PLANS & DETAILS
S113	SECOND FLOOR MEZZANINE FRAMING PLANS & DETAILS
P001	ABBREVIATIONS, LEGENDS, GENERAL NOTES
PS100	SITE PLAN-PLUMBING (BASE BID)
PS100A	SITE PLAN - PLUMBING (ALTERNATE#1)
P101	CRAWL SPACE BASEMENT, FIRST AND SECOND FLOOR PLANS - PLUMBING "SANITARY" (BASE BID)
P501	PLUMBING DETAILS & SCHEDULES

FP001	CRAWL SPACE FLOOR PLAN AND RISER DETAILS - FIRE PROTECTION (BASE BID)
FP001A	RISER DETAILS AND SCHEDULES (ALTERNATE #1)
FP101A	CRAWL SPACE, FIRST AND SECOND FLOOR PLANS - FIRE PROTECTION (BASE BID)
M001	MECHANICAL LEGEND AND ABBREVIATIONS
M101	CRAWL SPACE PLAN - HVAC (BASE BID)
M102	FIRST FLOOR PLAN - HVAC (BASE BID)
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M601	HVAC SCHEDULES (BASE BID)
E000	ELECTRICAL LEGEND, GENERAL NOTES & DIAGRAMS
E001	ELECTRICAL PANEL SCHEDULES & DETAILS
E002	SITE ELECTRICAL PLAN
E100	CRAWL SPACE LIGHTING PLAN
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E102	SECOND FLOOR LIGHTING PLAN
E200	CRAWL SPACE POWER PLAN
E201	FIRST FLOOR POWER PLAN
E202	SECOND FLOOR POWER PLAN
E203	TOWER POWER PLAN
E300	CRAWL SPACE MECHANICAL CONNECTIONS & AUXILIARY PLAN
E301	FIRST FLOOR MECHANICAL CONNECTIONS & AUXILIARY PLAN
E302	SECOND FLOOR MECHANICAL CONNECTIONS & AUXILIARY PLAN

**SECTION 002110  
INSTRUCTIONS TO BIDDERS**

**PART 1 GENERAL**

**1.01 INSTRUCTIONS TO BIDDERS**

- A. The Instructions to Bidders consists of AIA A701 - 2018 as follows and as modified at Section 002113 - Supplementary Instructions to Bidders.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF INSTRUCTIONS TO BIDDERS**



# AIA<sup>®</sup> Document A701<sup>™</sup> – 2018

## Instructions to Bidders

for the following Project:  
(Name, location, and detailed description)

John W. Boddie House, Interior Renovations - Phase 1 (Rebid)  
Tougaloo College  
First Phase of the interior renovation.

**THE OWNER:**  
(Name, legal status, address, and other information)

Tougaloo College, Other  
500 West County Line Road  
Tougaloo, MS  
39174  
Telephone Number: 601-977-7828

**THE ARCHITECT:**  
(Name, legal status, address, and other information)

WFT Architects, P.A., Subchapter S Corporation  
770 North State Street  
Jackson, MS 39202  
Telephone Number: 601-352-4691

### TABLE OF ARTICLES

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- 2 **BIDDER'S REPRESENTATIONS**
- 3 **BIDDING DOCUMENTS**
- 4 **BIDDING PROCEDURES**
- 5 **CONSIDERATION OF BIDS**
- 6 **POST-BID INFORMATION**
- 7 **PERFORMANCE BOND AND PAYMENT BOND**
- 8 **ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS**

### ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612<sup>™</sup>-2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

## ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

## ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 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 observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

## ARTICLE 3 BIDDING DOCUMENTS

### § 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall obtain Bidding Documents.)*

Contact Jackson Blueprint & Supply, Inc. for bid documents. Phone – 601-353-5803; Website: [www.jaxblue.com](http://www.jaxblue.com)

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

### § 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids.  
*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Bidders shall submit requests for clarification and interpretation.)*

Submit requests for clarification via email to [lawson@wftarchitect.com](mailto:lawson@wftarchitect.com).

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

### § 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

#### § 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

#### § 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

*(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)*

Addenda will be posted by Jackson Blueprint & Supply, Inc. in the project on their online planroom. Those who have acquired documents through the plan room will be automatically notified of any Addenda, other documents and updates related to the bid.

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

### ARTICLE 4 BIDDING PROCEDURES

#### § 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

#### § 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:

*(Insert the form and amount of bid security.)*

Five percent (5%) of the bid price. See the Supplemental Instructions to Bidders for detailed description.

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall

be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning sixty (60) days after the opening of Bids, withdraw its Bid and request the return of its bid security.

### § 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:

*(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)*

Submit Bids as described in the Advertisement for Bids and the Supplementary Instructions to Bidders

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

### § 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:

*(State the terms and conditions, such as Bid rank, for returning or retaining the bid security.)*

Should the requirements of this section be met, the bid security of the Bidder requesting withdrawal of its bid shall be returned. Bid security of Bidders requesting withdrawal of their bid but not complying with the requirements of this section shall forfeit their bid bond in the full amount.

## **ARTICLE 5 CONSIDERATION OF BIDS**

### **§ 5.1 Opening of Bids**

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

### **§ 5.2 Rejection of Bids**

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

### **§ 5.3 Acceptance of Bid (Award)**

**§ 5.3.1** It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

**§ 5.3.2** Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

## **ARTICLE 6 POST-BID INFORMATION**

### **§ 6.1 Contractor's Qualification Statement**

Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

### **§ 6.2 Owner's Financial Capability**

A Bidder to whom award of a Contract is under consideration may request in writing, fourteen days prior to the expiration of the time for withdrawal of Bids, that the Owner furnish to the Bidder reasonable evidence that financial arrangements have been made to fulfill the Owner's obligations under the Contract. The Owner shall then furnish such reasonable evidence to the Bidder no later than seven days prior to the expiration of the time for withdrawal of Bids. Unless such reasonable evidence is furnished within the allotted time, the Bidder will not be required to execute the Agreement between the Owner and Contractor.

### **§ 6.3 Submittals**

**§ 6.3.1** After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

**§ 6.3.2** The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

**§ 6.3.3** Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

**§ 6.3.4** Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

## ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

### § 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

*(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)*

### § 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

## ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.  
*(Insert the complete AIA Document number, including year, and Document title.)*

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds, unless otherwise stated below.  
*(Insert the complete AIA Document number, including year, and Document title.)*

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction, unless otherwise stated below.  
*(Insert the complete AIA Document number, including year, and Document title.)*

.5 Drawings as enumerated in the List of Drawings included in the Project Manual.

.6 Specifications

*(Paragraphs deleted)*

as enumerated in the Project Manual Index included in the Project Manual.

.7 Addenda issued during the bid period.

*(Paragraphs deleted)*

**SECTION 002113**  
**SUPPLEMENTARY INSTRUCTIONS TO BIDDERS**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. These Supplementary Instructions to Bidders are supplementary to AIA Document A701-2018 Instructions to Bidders, Articles 1 through 8, inclusive. Where contradictions exist, these Supplementary Instructions to Bidders shall govern in whole or in part, as the part is affected. Where any Article is modified or any Paragraph, Sub-paragraph or Clause thereof is modified, the unaltered provision of that Article, Paragraph, Sub-paragraph or Clause shall remain in effect.

**1.02 SITE EXAMINATION**

- A. Examine the project site before submitting a bid.
- B. A visit to the project site has been arranged for bidders following the prebid conference.

**1.03 MANDATORY PRE-BID CONFERENCE**

- A. A mandatory pre-bid conference will be held on Thursday, December 8, 2022, at the Office of Facilities and Real Property Management on the campus of Tougaloo College at 2:00pm.
- B. All qualified general contract bidders and suppliers intending to provide bids are required to attend.
- C. Representatives of Architect will be in attendance.
- D. Summarized minutes of this meeting will be circulated to attendees. These minutes will not form part of the Contract Documents.
- E. Information relevant to the Bid Documents will be recorded in an Addendum, issued to Bid Document recipients.

**1.04 BID SUBMISSION**

- A. Bid proposals, signed and under seal, executed, and dated, will be received at the Office of Facilities and Real Property Management on the first floor of Galloway Hall on the campus of Tougaloo College before 2:00 p.m. local standard time on Thursday, December 15, 2022. Bid proposals received will be opened and read publicly after the submission deadline.
- B. Bid proposals submitted after the above time shall be returned to the bidder unopened.
- C. Amendments to a submitted bid proposal will be permitted if received in writing prior to the submission deadline and if endorsed by the same party or parties who signed and sealed the offer.

**1.05 INTENT**

- A. The intent of this Bid request is to obtain an offer to perform work to complete the first phase of the interior renovation of the John W. Boddie House on the campus of Tougaloo College in

accordance with the Contract Documents. This price should include all Labor, Material, Taxes, Permits and applicable fees.

#### 1.06 WORK IDENTIFIED IN THE CONTRACT DOCUMENTS

- A. The Work of this proposed Contract includes that described and delineated in the Project Manual and Drawings comprising the Contract Documents.

#### 1.07 CONTRACT TIME

- A. The bidder, in submitting an offer, accepts the Contract Time period stated for performing the Work. The completion date in the Agreement shall be the Contract Time added to the commencement date.

#### 1.08 BID PROPOSAL

- A. The Bid Proposal submitted by the Bidder shall consist of the following:
  1. Bid Form included in the Project Manual in Section 004100.
  2. Unit Prices Form included in the Project Manual in Section 004200.
  3. Bid Security Form as described in the Project Manual in Section 004300
  4. Contractor Qualifications Submission as described in the Project Manual in Section
  5. Certificate of Insurance Form as described in the Project Manual in Section 006500.

### PART 2 QUALIFICATIONS

#### 2.01 QUALIFICATION OF BIDDERS

- A. The qualifications of each Bidder and their personnel as well as those of the subcontractors specified in Section 004300 shall be taken into consideration when determining the responsiveness of each bidder. Bidders whose qualifications are determined by the Owner and Architect to fail to meet the minimum requirements described in Section 004300 shall be deemed non-responsive and their bid shall be rejected. Bidders who fail to include in their Bid Proposal **all** the documents required to prove their qualifications shall be deemed non-responsive and their bid shall be rejected.

#### 2.02 SUBCONTRACTORS/SUPPLIERS/OTHERS

- A. Tougaloo College reserves the right to reject a proposed subcontractor for reasonable cause.
- B. Refer to conditions of the Agreement Form and modifications set forth in Section 007300 – Supplementary Conditions.

**PART 3 BID PROPOSAL ENVELOPE**

**3.01 BID PROPOSAL ENVELOPE DIAGRAM**

- A. Seal two (2) copies of the Bid Form, Unit Prices Form, Bid Bond Form, Certificate of Insurance Form and Qualifications Packet inside a 10"x13" opaque envelope, labeled as shown below:

<p><b>Name of Firm</b></p> <p><b>Address of Firm</b></p> <p>(BOTH AS RECORDED WITH THE MS STATE BOARD OF CONTRACTORS)</p>  <p><b>Office of Facilities and Real Property Management Attn: Erskine Brown, Asst. Vice President 500 West County Line Road Tougaloo, MS 39174</b></p>  <p><b>Sealed Bid for:</b></p> <p><b>JOHN W. BODDIE HOUSE, INTERIOR RENOVATIONS – PHASE 1 (Rebid)</b></p> <p><b>Certificate of Responsibility Number:</b> _____</p>
--

**END OF SECTION**

SECTION 004100  
BID FORM

**TO: TOUGALOO COLLEGE**  
C/O Erskine Brown, Asst. VP  
Office of Facilities and Real Property Management  
500 West County Line Road  
Tougaloo, MS 39174

**FOR: John W. Boddie House, Interior Renovations – Phase 1**  
**(Architect’s Project No. 1905)**

**DATE:** \_\_\_\_\_ (Bidder to enter date)

**SUBMITTED BY:** (Bidder to enter name and address)

Bidder's Full Name \_\_\_\_\_  
(as recorded with MS State Board of Contractors)

Certificate of Responsibility (COR)# \_\_\_\_\_

Address \_\_\_\_\_

City, State, Zip \_\_\_\_\_

**OFFER**

**1.01 BASE BID.** Having examined the Place of The Work and all matters referred to in the Instructions to Bidders and the Contract Documents prepared by WFT Architects, P.A. for the above mentioned project, we, the undersigned, hereby offer to enter into a Contract to perform the Work for the Sum stipulated in this bid form of:

All Work for the sum of \_\_\_\_\_  
\_\_\_\_\_ dollars (\$ \_\_\_\_\_),  
in lawful money of the United States of America.

**1.02 ALTERNATE NO. 1.** If I include the requirements of Specifications Section 012300 Alternates, Paragraph 1.04A, then to my Base Bid you may

ADD \_\_\_\_\_ dollars (\$ \_\_\_\_\_).

**1.03 ALTERNATE NO. 2.** If I include the requirements of Specifications Section 012300 Alternates, Paragraph 1.04B, then to my Base Bid you may

ADD \_\_\_\_\_ dollars (\$)\_\_\_\_\_).

**1.04 ALTERNATE NO. 3.** If I include the requirements of Specifications Section 012300 Alternates, Paragraph 1.04B, then to my Base Bid you may

ADD \_\_\_\_\_ dollars (\$)\_\_\_\_\_).

**1.05** All applicable Federal taxes and State of Mississippi taxes are included in the Bid Sum.

**1.06** All Cash and Contingency Allowances described in Section 012100 are included in the Base Bid Sum.

**2.01 ACCEPTANCE**

- A. This offer shall be open to acceptance and is irrevocable for thirty days from the bid closing date.
- B. If this bid is accepted by Tougaloo College within the time period stated above, we will:
  - 1. Execute the Agreement within seven days of receipt of Notice of Award.
  - 2. Furnish the required bonds within seven days of receipt of Notice of Award.
  - 3. Commence work within seven days after written Notice to Proceed of this bid.
- C. Alternate prices shall be held for 30 days from date of Notice to Proceed for Owner selection of any alternates that were not awarded with the original Contract.

**3.01 CONTRACT TIME**

- A. If this Bid is accepted, we will:
  - 1. Complete the Work in two hundred and seventy (270) calendar days from the Notice to Proceed.

**4.01 ADDENDA**

- A. The following Addenda have been received. The modifications to the Bid Documents noted below have been considered and all costs are included in the Bid Sum.
  - 1. Addendum # \_\_\_\_\_ Dated \_\_\_\_\_.
  - 2. Addendum # \_\_\_\_\_ Dated \_\_\_\_\_.
  - 3. Addendum # \_\_\_\_\_ Dated \_\_\_\_\_.
  - 4. Addendum # \_\_\_\_\_ Dated \_\_\_\_\_.
  - 5. Addendum # \_\_\_\_\_ Dated \_\_\_\_\_.

**5.01 PERFORMANCE AND PAYMENT BONDS AND INSURANCE**

- A. In signing and submitting this Proposal Form, we commit to provide Performance and Payment Bonds and Insurance as described in the Form of Agreement, the Supplementary Conditions Section 006000 - Bond Requirements and Section 006500 - Insurance requirements, included in the Bid Packet.

**6.01 BID FORM SIGNATURE(S)**

The Corporate Seal of

\_\_\_\_\_  
(Bidder - print the full name of your firm)

(Seal)

was hereunto affixed in the presence of:

_____	_____	_____
Authorized signing officer	Printed Name	Title

_____	_____	_____
Authorized signing officer	Printed Name	Title

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 BID FORM**

SECTION 004200  
UNIT PRICES FORM

PARTICULARS

1.01 The following is the list of Unit Prices referenced in the bid submitted by:

1.02 (Bidder) \_\_\_\_\_

1.03 TO: Tougaloo College

1.04 Dated \_\_\_\_\_ and which is an integral part of the Bid Form.

UNIT PRICE LIST

2.01 Should additional work be authorized under the descriptions at Section 012200- Part 3, the following costs of such work shall be used.

2.02 **Unit Price # 1:** Removal of existing and installation of new wood lap siding as shown in the Bid Documents, including caulking and painting.

\$ \_\_\_\_\_ per linear foot .

2.03 **Unit Price # 2:** Removal of existing and installation of new wood corner board as shown in the Bid Documents, including caulking and painting.

\$ \_\_\_\_\_ per linear foot .

2.04 **Unit Price # 3:** Removal of existing and installation of new tongue and groove porch flooring as shown in the Bid Documents.

\$ \_\_\_\_\_ per square foot .

2.05 **Unit Price # 4:** Removal of existing and installation of new wood porch apron and apron trim as shown in the Bid Documents.

\$ \_\_\_\_\_ per linear foot.

2.06 **Unit Price # 5:** Removal of existing and installation of new wood wall apron and apron trim as shown in the Bid Documents.

\$ \_\_\_\_\_ per linear foot.

.END OF UNIT PRICES FORM

SECTION 004300

CONTRACTOR QUALIFICATIONS SUBMISSION

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Each Bidder shall submit as part of their Proposal the following documentation to establish their qualifications according to the minimum standards listed below. Each submission shall contain the information described below, intended to demonstrate the qualifications of the Bidder and certain subcontractors to adequately perform the work included in this Contract. A minimum of 5 paper copies, each bound in a three-ring binder and tabbed as indicated herein, with an additional copy in digital format (CD or memory stick) shall be submitted. Incomplete submissions will be considered non-responsive and ineligible for consideration. A non-responsive submission shall be considered sufficient grounds for rejection of the associated bid. No supplementation or revision of the submittal shall be permitted after the bid date/time. See 1.3 SUBMISSION CONTENTS for detailed descriptions of the specific submission requirements.

1.2 QUALIFICATIONS REQUIREMENTS

- A. Qualifications Requirements – The Submission shall contain the qualifications for the General Contractor plus the following Subcontractors as described herein. The General Contractor may perform the Work of one or more of the listed Subcontractors but shall submit the qualifications required under that section in addition to those required for their role as the General Contractor.
1. Carpentry Subcontractor for the work described in Section 062000, Finish Carpentry
  2. HVAC Subcontractor for the work described in Division 23, Heating, Ventilating and Air Conditioning
  3. Plumbing Subcontractor for the work described in Division 22, Plumbing
  4. Automatic Fire Sprinkler Subcontractor for the work described in Division 21, Fire Suppression
  5. Electrical Subcontractor for the work described in Division 26, Electrical Systems; Division 27, Communications Systems and Division 28, Safety and Security Systems
- B. Work of Qualified Contractors - The General Contractor shall be contractually obligated to utilize the companies identified in the Contractor Qualifications Submission. Work falling under the requirements of the sections listed herein which is determined to have been performed by entities not identified in the Contractor Qualifications Submittal shall be subject to rejection by the Owner and shall, at no additional cost, be replaced by work of contractors that were included in the Submittal.

1.3 SUBMISSION CONTENTS

- A. Company Information
1. Company name, address, telephone number(s), and website (if applicable)
  2. Mississippi Secretary of State Business Listing Printout
  3. Mississippi Board of Contractors COR/ Classification Printout
- B. Key Personnel
1. Provide Resumes, References and Proposed Role(s) Provide the following documents describing the roles of company personnel who will be directly involved in this project.
    - a. At minimum, identify the Project Manager and Project Superintendent/Foreman proposed for this project. Provide references including current telephone contact information.

2. Provide documentation of a minimum of five (5) years of documented experience on projects of similar type, scale and/or complexity to the subject project performing the same role proposed for this project. Experience must include the successful completion of at least three (3) projects involving State or Federal designated historic buildings. If the individual's experience on designated historic projects involved work with a previous company, please note that fact.

**C. Project Portfolio**

1. The General Contractor and each proposed Subcontractor shall provide documentation of a minimum of five (5) projects involving State or Federal designated historic buildings of similar type, scale and/or complexity to this project which have been successfully completed within the past ten (10) years.
2. Identify the involvement of the proposed Key Personnel for this project in each completed project.
3. For each Project, provide the following written information:
  - a. Project name, location, historical designation, completion date, client name/contact, architect name/contact, contract amount and a detailed description of company's work. Describe in sufficient detail the materials and methods involved to allow comparison between its scope and complexity and that of this project. Testimonial letters are acceptable, but not required.
4. For each Project, provide the following photographic documentation:
  - a. Provide at least ten (10) high quality color images of each project illustrating company's work. Provide both images showing completed work and work in progress. Provide either captioned images or a written summary keyed to images highlighting the relevance to the work of this project.

**1.4 RESPONSIVENESS AND RESPONSIBILITY**

- A. All information required by Section 004300, Contractor Qualifications Submission shall be submitted, as described, by each Bidder with their Bid Proposal. Failure to comply will result in the Bidder being deemed Non-Responsive.
- B. The Bid Award will not be issued until the required information has been submitted and reviewed by the Owner. If, in the Owner's opinion, the Apparent Low Bidder fails to meet the minimum qualifications listed, his bid will be deemed to be Not Responsible.

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION – NOT USED**

**END OF SECTION**

**SECTION 005000**  
**CONTRACTING FORMS AND SUPPLEMENTS**

**PART 1 GENERAL**

**1.01 AGREEMENT AND CONDITIONS OF THE CONTRACT**

- A. The Agreement is based on AIA A105-2017 as included at Section 005200 and as modified at Section 007300 - Supplementary Conditions.

**1.02 FORMS**

- A. Use the following forms for the specified purposes unless otherwise indicated elsewhere in the Contract Documents.
- B. Bond Forms:
  - 1. Bid Bond: AIA A310-2010
  - 1. Performance and Payment Bond Form: AIA A312-2010.
- C. Post-Award Certificates and Other Forms:
  - 1. Certificate of Insurance Form: ACORD Certificate of Insurance 25.
    - a. Supplemental Attachment: AIA G715
  - 2. Schedule of Values Form: AIA G703.
  - 3. Application for Payment Forms: AIA G702 with AIA G703 (for Contractors).
- D. Clarification and Modification Forms:
  - 1. Architect's Supplemental Instructions Form: AIA G710.
  - 2. Construction Change Directive Form: AIA G714.
  - 3. Change Order Form: AIA G701.
- E. Closeout Forms:
  - 1. Certificate of Substantial Completion Form: AIA G704.

**1.03 REFERENCE STANDARDS**

- A. AIA A105 - Standard Short Form of Agreement Between Owner and Contractor; 2017.
- B. AIA A312 - Performance Bond and Payment Bond; 2010.
- C. AIA G701 - Change Order; 2017.
- D. AIA G702 - Application and Certificate for Payment; 1992.
- E. AIA G703 - Continuation Sheet; 1992.
- F. AIA G704 - Certificate of Substantial Completion; 2017.
- G. AIA G710 - Architect's Supplemental Instructions; 1917.
- H. AIA G714 - Construction Change Directive; 2017.
- I. AIA G715 - Supplemental Attachment for ACORD Certificate of Insurance 25; 2017.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 005200**  
**AGREEMENT FORM**

**PART 1 GENERAL**

**1.01 FORM OF AGREEMENT**

- A. The Agreement form shall be AIA A105-2017 as modified at Section 007300 - Supplementary Conditions.
- B. **The Agreement to be executed is attached following this page as part of the Contract Documents and provided as a sample in the Bid Documents.**

**1.02 RELATED REQUIREMENTS**

- A. Section 006000 - Bond Requirements.
- B. Section 006500 - Insurance Requirements.
- C. Section 007300 - Supplementary Conditions.
- D. Section 014216 - Definitions.

**PART 2 PRODUCTS (NOT USED)**

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**



# AIA<sup>®</sup> Document A105<sup>™</sup> – 2017

## Standard Short Form of Agreement Between Owner and Contractor

**AGREEMENT** made as of the \_\_\_\_\_ day of \_\_\_\_\_ in the year \_\_\_\_\_  
*(In words, indicate day, month and year.)*

**BETWEEN** the Owner:  
*(Name, legal status, address and other information)*

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

and the Contractor:  
*(Name, legal status, address and other information)*

for the following Project:  
*(Name, location and detailed description)*

The Architect:  
*(Name, legal status, address and other information)*

Sample

The Owner and Contractor agree as follows.

**TABLE OF ARTICLES**

- 1 THE CONTRACT DOCUMENTS
- 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
- 3 CONTRACT SUM
- 4 PAYMENTS
- 5 INSURANCE
- 6 GENERAL PROVISIONS
- 7 OWNER
- 8 CONTRACTOR
- 9 ARCHITECT
- 10 CHANGES IN THE WORK
- 11 TIME
- 12 PAYMENTS AND COMPLETION
- 13 PROTECTION OF PERSONS AND PROPERTY
- 14 CORRECTION OF WORK
- 15 MISCELLANEOUS PROVISIONS
- 16 TERMINATION OF THE CONTRACT
- 17 OTHER TERMS AND CONDITIONS

**ARTICLE 1 THE CONTRACT DOCUMENTS**

The Contractor shall complete the Work described in the Contract Documents for the Project. The Contract Documents consist of

- .1 this Agreement signed by the Owner and Contractor;
- .2 the drawings and specifications prepared by the Architect, dated \_\_\_\_\_, and enumerated as follows:

Drawings:  
**Number**

**Title**

**Date**

Specifications:  
**Section**

**Title**

**Pages**

.3 addenda prepared by the Architect as follows:

Number	Date	Pages
--------	------	-------

.4 written orders for changes in the Work, pursuant to Article 10, issued after execution of this Agreement; and

.5 other documents, if any, identified as follows:

## ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The Contract Time is the number of calendar days available to the Contractor to substantially complete the Work.

### § 2.2 Date of Commencement:

Unless otherwise set forth below, the date of commencement shall be the date of this Agreement.  
(Insert the date of commencement if other than the date of this Agreement.)

### § 2.3 Substantial Completion:

Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion, as defined in Section 12.5, of the entire Work:  
(Check the appropriate box and complete the necessary information.)

Not later than ( ) calendar days from the date of commencement.

By the following date:

## ARTICLE 3 CONTRACT SUM

§ 3.1 The Contract Sum shall include all items and services necessary for the proper execution and completion of the Work. Subject to additions and deductions in accordance with Article 10, the Contract Sum is: (\$ )

§ 3.2 For purposes of payment, the Contract Sum includes the following values related to portions of the Work:  
(Itemize the Contract Sum among the major portions of the Work.)

Portion of the Work	Value
---------------------	-------

§ 3.3 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and hereby accepted by the Owner:

(Identify the accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 3.4 Allowances, if any, included in the Contract Sum are as follows:  
(Identify each allowance.)

Item	Price
------	-------

§ 3.5 Unit prices, if any, are as follows:  
(Identify the item and state the unit price and quantity limitations, if any, to which the unit price will be applicable.)

Item	Units and Limitations	Price per Unit (\$0.00)
------	-----------------------	-------------------------

#### ARTICLE 4 PAYMENTS

§ 4.1 Based on Contractor's Applications for Payment certified by the Architect, the Owner shall pay the Contractor, in accordance with Article 12, as follows:  
(Insert below timing for payments and provisions for withholding retainage, if any.)

§ 4.2 Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate below, or in the absence thereof, at the legal rate prevailing at the place of the Project.  
(Insert rate of interest agreed upon, if any.)

%

#### ARTICLE 5 INSURANCE

§ 5.1 The Contractor shall maintain the following types and limits of insurance until the expiration of the period for correction of Work as set forth in Section 14.2, subject to the terms and conditions set forth in this Section 5.1:

§ 5.1.1 Commercial General Liability insurance for the Project, written on an occurrence form, with policy limits of not less than (\$ ) each occurrence, (\$ ) general aggregate, and (\$ ) aggregate for products-completed operations hazard.

§ 5.1.2 Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than (\$ ) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage.

§ 5.1.3 The Contractor may achieve the required limits and coverage for Commercial General Liability and Automobile Liability through a combination of primary and excess or umbrella liability insurance, provided that such primary and excess or umbrella insurance policies result in the same or greater coverage as those required under Section 5.1.1 and 5.1.2, and in no event shall any excess or umbrella liability insurance provide narrower coverage than the primary policy. The excess policy shall not require exhaustion of the underlying limits only through the actual payment by the underlying insurers.

§ 5.1.4 Workers' Compensation at statutory limits.

§ 5.1.5 Employers' Liability with policy limits not less than (\$ ) each accident, (\$ ) each employee, and (\$ ) policy limit.

§ 5.1.6 The Contractor shall provide builder's risk insurance to cover the total value of the entire Project on a replacement cost basis.

**§ 5.1.7 Other Insurance Provided by the Contractor**

*(List below any other insurance coverage to be provided by the Contractor and any applicable limits.)*

**Coverage**

**Limits**

§ 5.2 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance and shall provide property insurance to cover the value of the Owner's property. The Contractor is entitled to receive an increase in the Contract Sum equal to the insurance proceeds related to a loss for damage to the Work covered by the Owner's property insurance.

§ 5.3 The Contractor shall obtain an endorsement to its Commercial General Liability insurance policy to provide coverage for the Contractor's obligations under Section 8.12.

§ 5.4 Prior to commencement of the Work, each party shall provide certificates of insurance showing their respective coverages.

§ 5.5 Unless specifically precluded by the Owner's property insurance policy, the Owner and Contractor waive all rights against (1) each other and any of their subcontractors, suppliers, agents, and employees, each of the other; and (2) the Architect, Architect's consultants, and any of their agents and employees, for damages caused by fire or other causes of loss to the extent those losses are covered by property insurance or other insurance applicable to the Project, except such rights as they have to the proceeds of such insurance.

**ARTICLE 6 GENERAL PROVISIONS**

**§ 6.1 The Contract**

The Contract represents the entire and integrated agreement between the parties and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a written modification in accordance with Article 10.

**§ 6.2 The Work**

The term "Work" means the construction and services required by the Contract Documents, and includes all other labor, materials, equipment, and services provided, or to be provided, by the Contractor to fulfill the Contractor's obligations.

**§ 6.3 Intent**

The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

**§ 6.4 Ownership and Use of Architect's Drawings, Specifications and Other Documents**

Documents prepared by the Architect are instruments of the Architect's service for use solely with respect to this Project. The Architect shall retain all common law, statutory, and other reserved rights, including the copyright. The Contractor, subcontractors, sub-subcontractors, and suppliers are authorized to use and reproduce the instruments of service solely and exclusively for execution of the Work. The instruments of service may not be used for other Projects or for additions to this Project outside the scope of the Work without the specific written consent of the Architect.

## **§ 6.5 Electronic Notice**

Written notice under this Agreement may be given by one party to the other by email as set forth below.

*(Insert requirements for delivering written notice by email such as name, title, and email address of the recipient, and whether and how the system will be required to generate a read receipt for the transmission.)*

## **ARTICLE 7 OWNER**

### **§ 7.1 Information and Services Required of the Owner**

**§ 7.1.1** If requested by the Contractor, the Owner shall furnish all necessary surveys and a legal description of the site.

**§ 7.1.2** Except for permits and fees under Section 8.7.1 that are the responsibility of the Contractor, the Owner shall obtain and pay for other necessary approvals, easements, assessments, and charges.

**§ 7.1.3** Prior to commencement of the Work, at the written request of the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence.

### **§ 7.2 Owner's Right to Stop the Work**

If the Contractor fails to correct Work which is not in accordance with the Contract Documents, the Owner may direct the Contractor in writing to stop the Work until the correction is made.

### **§ 7.3 Owner's Right to Carry Out the Work**

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, correct such deficiencies. In such case, the Architect may withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the cost of correction, provided the actions of the Owner and amounts charged to the Contractor were approved by the Architect.

### **§ 7.4 Owner's Right to Perform Construction and to Award Separate Contracts**

**§ 7.4.1** The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project.

**§ 7.4.2** The Contractor shall coordinate and cooperate with the Owner's own forces and separate contractors employed by the Owner.

## **ARTICLE 8 CONTRACTOR**

### **§ 8.1 Review of Contract Documents and Field Conditions by Contractor**

**§ 8.1.1** Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

**§ 8.1.2** The Contractor shall carefully study and compare the Contract Documents with each other and with information furnished by the Owner. Before commencing activities, the Contractor shall (1) take field measurements and verify field conditions; (2) carefully compare this and other information known to the Contractor with the Contract Documents; and (3) promptly report errors, inconsistencies, or omissions discovered to the Architect.

### **§ 8.2 Contractor's Construction Schedule**

The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work.

### **§ 8.3 Supervision and Construction Procedures**

**§ 8.3.1** The Contractor shall supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work.

**§ 8.3.2** The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner, through the Architect, the names of subcontractors or suppliers for each portion of the Work. The Contractor shall not contract with any subcontractor or supplier to whom the Owner or Architect have made a timely and reasonable objection.

#### **§ 8.4 Labor and Materials**

**§ 8.4.1** Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work.

**§ 8.4.2** The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract Work. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

#### **§ 8.5 Warranty**

The Contractor warrants to the Owner and Architect that: (1) materials and equipment furnished under the Contract will be new and of good quality unless otherwise required or permitted by the Contract Documents; (2) the Work will be free from defects not inherent in the quality required or permitted; and (3) the Work will conform to the requirements of the Contract Documents. Any material or equipment warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 12.5.

#### **§ 8.6 Taxes**

The Contractor shall pay sales, consumer, use, and similar taxes that are legally required when the Contract is executed.

#### **§ 8.7 Permits, Fees and Notices**

**§ 8.7.1** The Contractor shall obtain and pay for the building permit and other permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work.

**§ 8.7.2** The Contractor shall comply with and give notices required by agencies having jurisdiction over the Work. If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume full responsibility for such Work and shall bear the attributable costs. The Contractor shall promptly notify the Architect in writing of any known inconsistencies in the Contract Documents with such governmental laws, rules, and regulations.

#### **§ 8.8 Submittals**

The Contractor shall promptly review, approve in writing, and submit to the Architect shop drawings, product data, samples, and similar submittals required by the Contract Documents. Shop drawings, product data, samples, and similar submittals are not Contract Documents.

#### **§ 8.9 Use of Site**

The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits, the Contract Documents, and the Owner.

#### **§ 8.10 Cutting and Patching**

The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly.

#### **§ 8.11 Cleaning Up**

The Contractor shall keep the premises and surrounding area free from accumulation of debris and trash related to the Work. At the completion of the Work, the Contractor shall remove its tools, construction equipment, machinery, and surplus material, and shall properly dispose of waste materials.

#### **§ 8.12 Indemnification**

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, 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 (other than the Work itself), but only to the extent caused by the 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.

## **ARTICLE 9 ARCHITECT**

§ 9.1 The Architect will provide administration of the Contract as described in the Contract Documents. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 9.2 The Architect will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the Work.

§ 9.3 The Architect will not have control over or charge of, and will not be responsible for, construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility. The Architect will not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents.

§ 9.4 Based on the Architect's observations and evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor.

§ 9.5 The Architect has authority to reject Work that does not conform to the Contract Documents.

§ 9.6 The Architect will promptly review and approve or take appropriate action upon Contractor's submittals, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 9.7 On written request from either the Owner or Contractor, the Architect will promptly interpret and decide matters concerning performance under, and requirements of, the Contract Documents.

§ 9.8 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from the Contract Documents, and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 9.9 The Architect's duties, responsibilities, and limits of authority as described in the Contract Documents shall not be changed without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

## **ARTICLE 10 CHANGES IN THE WORK**

§ 10.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, and the Contract Sum and Contract Time shall be adjusted accordingly, in writing. If the Owner and Contractor cannot agree to a change in the Contract Sum, the Owner shall pay the Contractor its actual cost plus reasonable overhead and profit.

§ 10.2 The Architect may authorize or order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. Such authorization or order shall be in writing and shall be binding on the Owner and Contractor. The Contractor shall proceed with such minor changes promptly.

§ 10.3 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be subject to equitable adjustment.

## **ARTICLE 11 TIME**

§ 11.1 Time limits stated in the Contract Documents are of the essence of the Contract.

§ 11.2 If the Contractor is delayed at any time in progress of the Work by changes ordered in the Work, or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, or other causes beyond the Contractor's control, the Contract Time shall be subject to equitable adjustment.

§ 11.3 Costs caused by delays or by improperly timed activities or defective construction shall be borne by the responsible party.

## **ARTICLE 12 PAYMENTS AND COMPLETION**

### **§ 12.1 Contract Sum**

The Contract Sum stated in this Agreement, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

### **§ 12.2 Applications for Payment**

**§ 12.2.1** At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment for Work completed in accordance with the values stated in this Agreement. The Application shall be supported by data substantiating the Contractor's right to payment as the Owner or Architect may reasonably require, such as evidence of payments made to, and waivers of liens from, subcontractors and suppliers. Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment stored, and protected from damage, off the site at a location agreed upon in writing.

**§ 12.2.2** 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, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or other encumbrances adverse to the Owner's interests.

### **§ 12.3 Certificates for Payment**

The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in part; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole. If certification or notification is not made within such seven day period, the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time and the Contract Sum shall be equitably adjusted due to the delay.

### **§ 12.4 Progress Payments**

**§ 12.4.1** After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner provided in the Contract Documents.

**§ 12.4.2** The Contractor shall promptly pay each subcontractor and supplier, upon receipt of payment from the Owner, an amount determined in accordance with the terms of the applicable subcontracts and purchase orders.

**§ 12.4.3** Neither the Owner nor the Architect shall have responsibility for payments to a subcontractor or supplier.

**§ 12.4.4** A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the requirements of the Contract Documents.

### **§ 12.5 Substantial Completion**

**§ 12.5.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so the Owner can occupy or utilize the Work for its intended use.

**§ 12.5.2** When the Contractor believes that the Work or designated portion thereof is substantially complete, it will notify the Architect and the Architect will make an inspection to determine whether the Work is substantially complete. When the Architect determines that the Work is substantially complete, the Architect shall prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, establish the responsibilities of the Owner and Contractor, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

## **§ 12.6 Final Completion and Final Payment**

**§ 12.6.1** Upon receipt of a final Application for Payment, the Architect will inspect the Work. When the Architect finds the Work acceptable and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment.

**§ 12.6.2** Final payment shall not become due until the Contractor submits to the Architect releases and waivers of liens, and data establishing payment or satisfaction of obligations, such as receipts, claims, security interests, or encumbrances arising out of the Contract.

**§ 12.6.3** Acceptance of final payment by the Contractor, a subcontractor or supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

## **ARTICLE 13 PROTECTION OF PERSONS AND PROPERTY**

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs, including all those required by law in connection with performance of the Contract. The Contractor shall take reasonable precautions to prevent damage, injury, or loss to employees on the Work and other persons who may be affected thereby, the Work and materials and equipment to be incorporated therein, and other property at the site or adjacent thereto. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, or by anyone for whose acts the Contractor may be liable.

## **ARTICLE 14 CORRECTION OF WORK**

**§ 14.1** The Contractor shall promptly correct Work rejected by the Architect as failing to conform to the requirements of the Contract Documents. The Contractor shall bear the cost of correcting such rejected Work, including the costs of uncovering, replacement, and additional testing.

**§ 14.2** In addition to the Contractor's other obligations including warranties under the Contract, the Contractor shall, for a period of one year after Substantial Completion, correct work not conforming to the requirements of the Contract Documents.

**§ 14.3** If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 7.3.

## **ARTICLE 15 MISCELLANEOUS PROVISIONS**

### **§ 15.1 Assignment of Contract**

Neither party to the Contract shall assign the Contract as a whole without written consent of the other.

### **§ 15.2 Tests and Inspections**

**§ 15.2.1** At the appropriate times, the Contractor shall arrange and bear cost of tests, inspections, and approvals of portions of the Work required by the Contract Documents or by laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities.

**§ 15.2.2** If the Architect requires additional testing, the Contractor shall perform those tests.

**§ 15.2.3** The Owner shall bear cost of tests, inspections, or approvals that do not become requirements until after the Contract is executed. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

### **§ 15.3 Governing Law**

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules.

## **ARTICLE 16 TERMINATION OF THE CONTRACT**

### **§ 16.1 Termination by the Contractor**

If the Work is stopped under Section 12.3 for a period of 14 days through no fault of the Contractor, the Contractor may, upon seven additional days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed including reasonable overhead and profit, and costs incurred by reason of such termination.

**§ 16.2 Termination by the Owner for Cause**

**§ 16.2.1** The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 is otherwise guilty of substantial breach of a provision of the Contract Documents.

**§ 16.2.2** When any of the above reasons exist, the Owner, after consultation with the Architect, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may

- .1 take possession of the site and of all materials thereon owned by the Contractor, and
- .2 finish the Work by whatever reasonable method the Owner may deem expedient.

**§ 16.2.3** When the Owner terminates the Contract for one of the reasons stated in Section 16.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

**§ 16.2.4** If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

**§ 16.3 Termination by the Owner for Convenience**

The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause. The Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

**ARTICLE 17 OTHER TERMS AND CONDITIONS**

*(Insert any other terms or conditions below.)*

This Agreement entered into as of the day and year first written above.

*(If required by law, insert cancellation period, disclosures or other warning statements above the signatures.)*

\_\_\_\_\_  
**OWNER** *(Signature)*

\_\_\_\_\_  
*(Printed name and title)*

\_\_\_\_\_  
**CONTRACTOR** *(Signature)*

\_\_\_\_\_  
*(Printed name and title)*

LICENSE NO.:  
JURISDICTION:

**SECTION 006000**  
**BOND REQUIREMENTS**

**PART 1 GENERAL**

**1.01 PERFORMANCE AND PAYMENT BOND REQUIREMENTS**

- A. Simultaneously with delivery of the executed Contract, the Contractor shall furnish bonds covering the full and faithful performance of the Contract and the payment of all obligations arising thereunder, each in an amount equal to one hundred percent (100%) of the Contract Sum, with such sureties secured through the Contractor's usual sources as may be agreeable to the parties.
- B. The premiums for such sureties shall be paid by the Contractor and shall be included in the Contract Sum.

**1.02 RELATED REQUIREMENTS**

- A. Section 002110 - Instructions to Bidders.
- B. Section 002113 - Supplementary Instructions to Bidders.
- C. Section 004100 - Bid Form.
- D. Section 005000 - Contracting Forms and Supplements.
- E. Section 006500 - Insurance Requirements
- F. Section 007300 - Supplementary Conditions.
- G. Section 014216 - Definitions.

**PART 2 PERFORMANCE AND PAYMENT BONDS REQUIREMENTS**

**2.01 PERFORMANCE AND PAYMENT BOND REQUIREMENTS**

- A. The performance bond shall be written on AIA Document A312-2010, Performance Bond.
- B. The payment bond shall be written on AIA Document A312-2010, Payment Bond.
- C. Include with each copy certification that the Contractor has satisfied the Contractor's bond requirements under Mississippi Law for the full payment of taxes and other assessments by reason of and directly connected with the performance of the Contract or any part thereof. Where such obligations are satisfied by a Tax Rider on the performance and payment bonds, include copies of Form 72-440.
- D. The Contractor shall provide surety bonds from a company or companies authorized to do business in the State of Mississippi and listed on the United States Treasury Department's list of acceptable sureties. The bonds shall indicate the surety's Mississippi NAIC number, the surety agent's Mississippi Insurance Department license number and the Mississippi licensed agent's NAIC number. If countersigned by a Mississippi Licensed agent, provide the address of the Mississippi Licensed agent.
- E. The bonds shall be dated on or after the date of the Contract.

- F. The Contractor shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract.
- G. The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

**2.02 MODIFICATIONS TO THE BONDS**

- A. The following modifications shall be added at Article 16 of AIA 312-2010 Performance Bond and Article 18 of AIA 312-2010 Payment Bond:
  - 1. If any changes are made in the work, or any extensions of time are granted, or any increases in the total dollar amount of the Contract are made, such changes, extensions, increases, or other forbearance on the part of either the Owner or the Principal will not, in any way, release the Principal and Surety, or either of them, from their liability hereunder, or any portion thereof, notice to the Surety of any such change, extension, increase, or forbearance being expressly waived.
  - 2. This Bond is governed by and shall be construed in accordance with the Mississippi Law. Any inconsistency with the Bond and any provision of Mississippi law shall be remedied by deleting the inconsistent portion of the Bonds and leaving the remaining consistent portions in full force and effect.

**PART 3 EXECUTION (NOT USED)**

**END OF SECTION**

**SECTION 006500**  
**INSURANCE REQUIREMENTS**

**PART 1 GENERAL**

**1.01 INSURANCE REQUIREMENTS**

- A. The Contractor shall maintain the types and limits of insurance as set forth in Article 5 of the Agreement Form and as modified at Section 007300 - Supplementary Conditions paragraph 1.04.

**1.02 RELATED REQUIREMENTS**

- A. Section 002110 - Instructions to Bidders.
- B. Section 002113 - Supplementary Instructions to Bidders.
- C. Section 004100 - Bid Form.
- D. Section 005000 - Contracting Forms and Supplements.
- E. Section 006000 - Bond Requirements.
- F. Section 007300 - Supplementary Conditions.
- G. Section 014216 - Definitions.

**PART 2 CERTIFICATE OF INSURANCE REQUIREMENTS**

**2.01 SUBMISSION REQUIREMENTS**

- A. Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance.
- B. Furnish one copy of the certificate herein required for each copy of the Agreement, specifically setting forth evidence of all coverage required by Article 5 of the Agreement and as modified under at Section 007300 – Supplementary Conditions.
- C. The form of the certificate will be ACORD Certificate of Insurance 25 with supplemental attachment AIA Document G715 or a similar form acceptable to the Owner.
- D. Furnish to the Owner and Architect, copies of any endorsements that are subsequently issued amending coverage or limits. If the coverages are provided on a claims-made basis, the policy date or retroactive date shall predate the Contract and the termination date of the policy, or the applicable extended reporting period shall be no earlier than the termination date of the coverages required to be maintained after final payment.

**2.02 CERTIFICATE OF INSURANCE INSTRUCTIONS**

- A. The Certificate of Insurance must be completed, certified by the original signature of a Mississippi Licensed Insurance Agent and/or countersignature, dated, and bound in each set of

the Contract Documents. Insurance Companies providing coverage and Agent and/or Countersignature Agent must be approved by the Mississippi Insurance Department.

- B. Indicate Insured, Project, Companies providing coverage, policy numbers and policy periods in the blanks as applicable.
- C. If the "Owners/Contractors Protective Liability" insurance is part of the Commercial General Liability Insurance Policy, or included by endorsement, indicate the policy number and period of the CGL policy in the "Owners/Contractors Protective Liability" blank spaces.
- D. Automobile Liability Insurance may be provided which covers Bodily Injury and Property Damage in one (1) Combined Single Limit, or may be provided with separate minimum limits as shown on the Certificate of Insurance and specified in modifications to Article 5 at Section 007300 - Supplementary Conditions. The person signing the Certificate of Insurance should show which option the Contractor has selected by marking out the coverage that is not provided under the policies indicated.
- E. "Other Insurance" (if required) will be indicated by typing in the "OTHER" block and shall be as detailed in Article 5 of the Agreement and as modified at Section 007300 – Supplementary Conditions.
- F. "Certification" wording may not be changed without specific written approval from the Owner.
- G. Riders, Binders, TBA, TBD, or other unsolicited attachments, are not allowed as part of the Certificate of Insurance unless specifically requested in writing by the Owner, or specified as part of the requirements for this Project.
- H. List the Owner, "Scott-Ford House, Inc." as the additionally insured party on the Certificate.

### **PART 3 STANDARD CONSTRUCTION CONTRACT CERTIFICATE OF INSURANCE**

#### **3.01 STANDARD CONSTRUCTION CONTRACT CERTIFICATE OF INSURANCE**

- A. The following Certificate of Insurance is a tabulation of insurance required for this Project as specified in Article 5 entitled Insurance in the Agreement. The Contractor must provide all insurance specified in the Contract Documents for this Project and indicate such whether indicated on the Certificate of Insurance form, or not. The Contractor must verify all insurance has been provided as required.

**STANDARD CONSTRUCTION CONTRACT CERTIFICATE OF INSURANCE**

This certificate of insurance neither affirmatively nor negatively amends, extends, or alters the coverage afforded by the policies below.

<b>INSURED:</b> (Contractor's Name & Address)				<b>COMPANIES PROVIDING COVERAGE w/ MID Lic or NAIC #</b>		
				<b>A</b>	#	
<b>PROJECT:</b> (Number, Name & Location)				<b>B</b>	#	
				<b>C</b>	#	
<b>OWNER:</b> Tougaloo College 500 West County Line Road Tougaloo, MS 39174				<b>D</b>	#	
				<b>E</b>	#	
				<b>F</b>	#	
				<b>G</b>	#	
				Companies above must be approved by the MS Ins Dept. at <a href="http://www.mid.ms.gov/licapp/search_main.aspx">http://www.mid.ms.gov/licapp/search_main.aspx</a> per Code & WComp at <a href="http://www.mwcc.ms.gov/">http://www.mwcc.ms.gov/</a>		
Type Insurance	Co	Policy Number	Policy Period	Coverage and Minimum Amount		
General Liability Commercial General Liability				General Aggregate	\$ 1,000,000	
				Products Comp/Ops (Aggregate)	\$ 1,000,000	
				Personal Injury (Per Occurrence)	\$ 500,000	
				BI & PD (Per Occurrence)	\$ 500,000	
				Fire Damage (Per Fire)	\$ 50,000	
				Medical Expense (Per Person)	\$ 5,000	
Owners/Contractors Protective Liability				General Aggregate	\$ 1,000,000	
				Per Occurrence	\$ 500,000	
Automobile Liability				Bodily Injury/Property Damage Combined Single Limit (Per Occurrence)	\$ 500,000	
				<b>OR</b>	Bodily Injury (Per Person)	\$ 250,000
					Bodily Injury (Per Accident)	\$ 500,000
					Property Damage (Per Occurrence)	\$ 100,000
* Excess Liability (Umbrella on projects over \$500,000)				Aggregate	\$ 1,000,000	
				Per Occurrence	\$ 1,000,000	
Workers' Compensation (As required by Statute) Employers' Liability				Accident (Per Occurrence)	\$ 100,000	
				Disease-Policy Limit	\$ 500,000	
				Disease-Per Employee	\$ 100,000	
Property Insurance (not required when project is demolition ONLY - required for ALL other projects including paving)				<b>OR</b> Builders' Risk Installation Floater	Must be equal to Value of Work	
Other						
Certification: I certify that these policies (subject to their terms, conditions and exclusions) have been (1) issued to the Insured for the coverages and at least the amounts as indicated by companies licensed in Mississippi; (2) countersigned by a Mississippi Licensed Agent; and (3) endorsed to require the company to give thirty (30) days written notice to the Owner prior to cancellation or non-renewal of above.						
<b>Producing Agent:</b> (Name, Address and Telephone)				(Signature) _____ (Date) _____		
				(Name and Title of Authorized Representative) (typed)		
				Agent must be approved by the MS Ins Dept. <a href="http://www.mid.ms.gov/licapp/search_main.aspx">http://www.mid.ms.gov/licapp/search_main.aspx</a>		

**END OF SECTION**

**SECTION 007300**  
**SUPPLEMENTARY CONDITIONS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. The following supplements modify AIA Document A105-2017, Standard Short Form of Agreement Between Owner and Contractor. Where a portion of the Agreement is modified or deleted by these Supplementary Conditions, the unaltered portions of the Agreement shall remain in effect.

**1.02 RELATED SECTIONS**

- A. Section 005000 - Contracting Forms and Supplements.
- B. Section 005200 - Agreement Form.
- C. Section 006000 - Bond Requirements.
- D. Section 006500 - Insurance Requirements.
- D. Section 007310 - Architect's Special Conditions.
- E. Section 014216 - Definitions.

**1.03 A105 2017 ARTICLE 1 - THE CONTRACT DOCUMENTS**

- A. Add Article 1.6 as follows:

The Contract Documents shall include the Drawings, Specifications, including Divisions 0 through 34, all Addenda and modifications to the Drawings and/or Specifications, the Agreement between the Owner and Contractor, the notice to proceed and any executed change orders. Information and documentation pertaining to soil investigation data, laboratory investigations, soil borings, and related information included herein are not part of the Contract Documents. In the event of a conflict between the provisions of Division 0 and any other section of the Contract Documents, such other sections shall govern.

**1.04 A105 2017 ARTICLE 4 - PAYMENTS**

- A. At Article 4.1, Add the following:

**4.1.1** Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

  - .1** Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of five percent ( 5 % ).
  - .2** Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of five percent ( 5 % );
  - .3** Subtract the aggregate of previous payments made by the Owner; and

.4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Article 12.3.

**4.1.2** The progress payment amount determined in accordance with Article 4.1.1 shall be further modified under the following circumstances:

.1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less retainage described at Article 12.5.5, such amounts as the Architect shall determine for incomplete Work, retainage applicable to such incomplete Work and unsettled claims.

**1.04 A105 2017 ARTICLE 5 - INSURANCE**

A. Complete Article 5.1.1 as follows:

**5.1.1** Commercial General Liability insurance for the Project, written on an occurrence form, with policy limits of not less than one million dollars (\$1,000,000) each occurrence, one million dollars (\$1,000,000) general aggregate and one million dollars (\$1,000,000) for products-completed operations hazard.

B. Complete Article 5.1.2 as follows:

**5.1.2** Automobile Liability covering vehicles owned, and non-owned vehicles used, by the Contractor, with policy limits of not less than one million dollars (\$1,000,000) per accident, for bodily injury, death of any person, and property damage arising out of the ownership, maintenance, and use of those motor vehicles along with any other statutorily required automobile coverage.

C. Complete Article 5.1.5 as follows:

**5.1.5** Employers' Liability with policy limits not less than one hundred thousand dollars (\$100,000) each accident, one hundred thousand dollars (\$100,000) each employee, and five hundred thousand dollars (\$500,000) policy limit.

D. Change Article 5.1.6 to read as follows:

**5.1.6** The Contractor shall provide builder's risk insurance or installation floater to cover the total value of the entire project on a replacement cost basis.

E. At Article 5.1.7, add the following:

**OWNERS & CONTRACTORS PROTECTIVE LIABILITY:**

Bodily Injury & Property Damage	One Million Dollars	\$ 1,000,000 Aggregate
Bodily Injury & Property Damage	One Million Dollars	\$ 1,000,000 Per Occurrence

F. Delete Article 5.2 in its entirety and replace it with the following:

**5.2** The Contractor shall purchase and maintain such insurance as will protect the Owner from his contingent liability to others for property damages because of bodily injury, including death, and property damage, which may arise from operations under this Contract and other liability for damages which the Contractor is required to insure under any provision of this Contract. This policy shall be endorsed to include the Owner and his employees, the Architect and his employees, and all of the Architect's Consultants for this Project. Certificates of insurance shall be filed with the Owner and shall be the same limits set forth herein.

**5.2.1** If the property insurance requires minimum deductibles and such deductibles are identified in the Contract Documents, the Contractor shall pay costs not covered because of such deductibles. If the Contractor, or Insurer, increases the required minimum deductibles above the amounts identified, or if the Contractor elects to purchase this insurance with

voluntary deductible amounts, the Contractor shall be responsible for payment of the additional costs not covered because of such increased or voluntary deductibles.

- G. Delete Article 5.4 in its entirety and replace it with the following:

**5.4** The Contractor shall not commence work under this Contract until he has obtained all insurance required hereunder and until such insurance has been approved by the Owner. All of the insurance shall be in a company licensed to do business in the State of Mississippi and shall be countersigned by a licensed resident agent of the State of Mississippi. Approval of the insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder.

**5.4.1** For each copy of the Owner/Contractor Agreement, the Contractor furnish one copy of Accord Certificate of Insurance 25-S, per Section 006200 (Certificate of Insurance), and supplemental attachment, AIA Document G715, 2017 Edition. In addition, the insurance agency shall furnish an affidavit stating that they have examined the insurance requirements of the Owner Contractor Agreement, Article 5, and as modified by these Supplemental Conditions, immediately prior to the issuance of said Certificate of Insurance and G715. The Contractor shall not cancel or permit policies to lapse. Policies and Certificates of Insurance must contain endorsements that policies cannot be amended or canceled until thirty days after Owner and Architect have received written notice by registered mail of such amendment or cancellation. Furnish to the Owner copies of any endorsements that are subsequently issued amending limits of coverage.

- H. Add the following as Article 5.6:

**5.6 Insurance Requirements**

**5.6.1** Insurance coverage specified herein constitutes the minimum requirements and said requirements shall in no way lessen or limit the liability of the Contractor under the terms of the Contract. The Contractor shall procure and maintain at his own expense, any additional kinds and amounts of insurance that, in his own judgement, may be necessary for his proper protection in the prosecution of the work.

**5.6.2** Contractor shall carry insurance as prescribed herein and all policies shall be with companies satisfactory to the Owner. If a part of this Contract is sublet, the Contractor shall require each subcontractor to carry insurance of the same kinds and in like amounts as carried by the Contractor. Certificates of Insurance shall state that thirty (30) days written notice will be given to the Architect before the policy is cancelled or changed. The Certificate of Insurance shall also state that the insurance carrier will notify the Owner prior to any cancellation or changes. Any wording to the effect of "will attempt" or "will endeavor" and that the Owner will not hold the carrier blameless SHALL BE removed or deleted from the Insurance Certificate. No Contractor or subcontractor will be allowed to start any construction work on this contract until Certificates of all insurance required herein are approved by the Architect. The Certificates shall show the type, amount, class or operations covered, effective dates and dates of expiration of policies.

**1.04 A105 2017 ARTICLE 6 - GENERAL PROVISIONS**

- A. At Article 6.2, at the first sentence, after "and services required" insert "of the Contractor".  
B. At Article 6.3, add 6.3.1 as follows:

**6.3.1** It is the intent of the Contract Documents that the Contractor shall properly execute and complete the Work described by the Contract Documents, and unless otherwise provided in the Contract, the Contractor shall provide all labor, materials, equipment, tools, construction

equipment, and machinery, water, heat, utilities, transportation, and other facilities and services, whether temporary or permanent and whether or not incorporated in the Work, in full accordance with the Contract Documents and reasonably inferable from them as necessary to produce the intended results.

- C. At Article 6.3, add 6.3.2 as follows:

**6.3.2** The Contract Documents shall be interpreted collectively, each part complementing the others and consistent with the intent of the Contract Documents. Unless an item shown or described in the Contract Documents is specifically identified to be furnished or installed by the Owner or others or is identified as "Not In Contract" ("N.I.C."), the Contractor's obligation relative to that item shall be interpreted to include furnishing, assembling, installing, finishing, and/or connecting the item at the Contractor's expense to produce a product or system that is complete, appropriately tested, and in operable condition ready for use or subsequent construction or operation by the Owner or separate contractors. The omission of words or phrases for brevity of the Contract Documents, the inadvertent omission of words or phrases, or obvious typographical or written errors shall not defeat such interpretation as long as it is reasonably inferable from the Contract Documents as a whole.

.1 Words or phrases used in the Contract Documents which have well-known technical or construction industry meanings are to be interpreted consistent with such recognized meanings unless otherwise indicated.

.2 Except as noted otherwise, references to standard specifications or publications of associations, bureaus, or organizations shall mean the latest edition of the referenced standard specification or publication as of the date of the Advertisement of Bids.

.3 In the case of inconsistency between Drawings and Specifications or within either document not clarified by addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation.

.4 Generally, portions of the Contract Documents written in longhand take precedence over typed portions, and typed portions take precedence over printed portions.

.5 Any doubt as to the meaning of the Contract Documents or any obscurity as to the wording of them, shall be promptly submitted in writing to the Architect for written interpretation, explanation, or clarification.

- D. At Article 6.4, after the last sentence add the following:

The Contractor agrees to waive any and all claims against the Architect and the Architect's consultants and to defend, indemnify and hold the Architect and the Architect's consultants harmless from and against any and all claims, losses, liabilities and damages arising out of or resulting from the unauthorized use, reuse or alteration of the Architect's or Architect's consultants' designs, drawings and specifications.

- E. Add Article 6.6 as follows:

#### **6.6 ADDITIONAL DEFINITIONS**

**6.6.1 The Drawings:** The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

**6.6.2 The Specifications:** The Specifications are that portion of the Contract Documents consisting of the written requirements for material, equipment, systems, standards and workmanship for the Work, and performance of related services.

.1 Manufactured items shall be installed per manufacturer's instructions, recommendations, directions, etc., latest edition unless otherwise specified. Manufacturer's Technical Associations or Society's or Government's Specifications referenced herein become part of these Specifications.

**6.6.3 Miscellaneous Definitions:**

**6.6.3.1** The term "product" includes materials, systems and equipment.

**6.6.3.2** The term "provide" includes furnishing and installing a product, complete in place, tested and approved.

**6.6.3.3** The term "building code," and the term "code," refer to regulations of governmental agencies having jurisdiction.

**6.6.3.4** The term "similar" means in its general sense and shall not be interpreted as "identical". The use of the word "similar" shall require the Contractor to coordinate the actual conditions and dimensions of the location where the "similar" conditions are shown to occur.

**6.6.3.5** The terms "shown," "indicated," "detailed," "noted," "scheduled," and terms of similar import, refer to requirements contained in the Contract Documents.

**1.04 A105 2017 ARTICLE 7 - OWNER**

A. Delete Article 7.1.1 in its entirety.

B. Delete Article 7.1.2 in its entirety and insert the following in lieu thereof:

**7.1.2** Except for permits and fees, including those required under Article 8.7.1, which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for necessary approvals, easements, relocation of existing utilities on the site, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities. However, the contractor acknowledges that the Project Sum shall include adequate time and/or monies to allow acquisition of such approvals, easements, etc., during the construction contract time. Alternatively, the Contractor may request that such approvals, easements, relocation of utilities, etc., be completed prior to issuance of "Notice to Proceed". Under no circumstances shall the Contractor be granted additional time or monies for any delays caused by acquisition of such approvals, easements, relocation of utilities, etc., even if these issues delay progress of the actual construction project.

C. Delete Article 7.1.3 in its entirety.

D. Add the following Article 7.1.4:

**7.1.4** The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. Any other information or services relevant to the Contractor's performance of the Work under the Owner's control shall be furnished by the Owner within 45 days after receipt of a written request for such information or services from the Contractor.

E. Add the following Article 7.1.5:

**7.1.5** The Owner shall furnish to the Contractor one copy of the Contract Documents in digital format for the purposes of making reproductions pursuant to Article 6.4. If the Contractor requires paper documents, the Contractor shall be responsible for the costs of producing such paper documents. The Contractor may secure paper copies of prints of Drawings and Specifications from the Architect at the Architect's usual charge for reproduction and handling.

- F. Delete Article 7.2 in its entirety and replace it with the following:

**7.2** If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Article 14 or fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated. However, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Article 7.4.

The rights and remedies under this Article 7.2 are in addition to and do not in any respect limit any other rights of the Owner, including its rights under Article 7.3 and Article 16.

#### 1.05 A105 2017 ARTICLE 8 - CONTRACTOR

- A. At Article 8.1.1, add the following:

The Contractor acknowledges that it has reviewed the Drawings and Specifications and that any unusual conditions found to exist at the site or discrepancies found on Drawings or Specifications have been brought to the attention of the Architect prior to execution of the Contract by the Contractor. The Contractor acknowledges that failure to make such request shall not constitute an acceptable excuse thereafter for failure to carry out work in a satisfactory manner, and no additional compensation will be allowed for such discrepancies or unusual conditions which could be reasonably expected to be known by the Contractor prior to execution of the Contract.

- B. Add Article 8.1.3, as follows:

**8.1.3** Contractor, for itself and its subcontractors, acknowledges that the construction premises are restricted, that access is affected by the location of the Project, that the Owner will maintain use of the facility during the duration of the Work and that access is limited to that shown on the Drawings. Contractor acknowledges that such limitations and restrictions in space and accessibility have been taken into account in its Contract Sum and Schedule.

- C. Add Article 8.1.4, as follows:

**8.1.4 Utility Disconnection and/or Relocation:** During the examination of the site, the Contractor shall identify all utilities that must be disconnected and/or relocated to allow the orderly progress of the Work. The contractor shall allow time for such activity in the Contractor's progress schedule as required by Article 8.2 and Section 013216 from the date of request for disconnection and/or relocation of such utilities to completion of such activity.

**.1** No extension of time or reimbursement of cost will be allowed if the Contractor fails to give timely notice of need for utility disconnection and/or relocation; if the Contractor is unable to timely perform the Work dependent upon such disconnection and/or relocation; or if the date(s) included in the Contractor's progress schedule for disconnection and/or relocation are inadequate.

**.2** The Contractor shall coordinate the disconnection and/or relocation of utilities with the Owner and shall notify the Owner, through the Architect. The dates which the Contractor includes in its progress schedule for utility disconnection and/or relocation are subject to coordination with Owner's operation requirements and Owner's acceptance of such dates, which acceptance will not be unreasonably withheld. The Owner's approval of dates in the progress schedule for disconnection and or/relocation of utilities does not relieve the Contractor from the responsibility to request, in writing through the Architect, disconnection

and/or relocation of utilities in a timely manner prior to required disconnection and/or relocation.

.3 The utilities that may need to be disconnected or relocated may include, but are not limited to, medical gasses, water (steam, heated, chilled, domestic and fire), power, communications (telephone and data), security, and fire alarm.

D. Add Article 8.1.5 as follows:

**8.1.5** The Owner shall be entitled to deduct from the Contractor's Applications for Payment amounts paid to the Architect for evaluating and responding to the Contractor's requests for information that are not prepared in accordance with the Contract Documents or where the requested information is available to the Contractor from a careful study and comparison of the Contract Documents, field conditions, other Owner-provided information, Contractor-prepared coordination drawings, or prior Project correspondence or documentation.

E. Delete Article 8.2 and replace it with the following:

**8.2 Contractor's Construction and Submittal Schedules**

**8.2.1** The Contractor, within fifteen (15) calendar days after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project. The construction schedule shall not be changed without the written consent of the Owner and Architect.

**8.2.2** The Contractor, within fifteen (15) calendar days after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract sum or extension of Contract Time based on the time required for review of submittals.

**8.2.3** Time being of the essence, the Contractor shall perform the Work in accordance with the most recent schedule submitted to and approved by the Owner and Architect.

F. Add Article 8.4.2.1 as follows:

**8.4.2.1** The Contractor represents that it has independently investigated, considered and understands the labor conditions in the area surrounding the Project and acknowledges that such conditions may impact the Contractor's cost and/or time of performance of the Contract. Therefore, Contractor further represents that the Contract Price is based upon the Contractor's independent investigations into such labor conditions and that the Contract time is reasonable and the date of Substantial Completion is attainable. As a result, Contractor assumes the risk of increased costs, if any, incurred by it arising out of or related to such labor conditions and acknowledges that Contractor and its surety will reimburse Owner for any additional costs Owner incurs arising out of or related to such labor conditions.

G. Add the Article 8.4.3 and 8.4.4 as follow:

**8.4.3** Except in the case of minor changes in the work approved by the Architect in accordance with Article 8.8.1 or ordered by the Architect in accordance with Article 10.2, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive. After the Contract has been executed, the Owner and Architect may consider requests for the substitution of products in place of those specified. The Owner and Architect may, but are not obligated to, consider only those substitution requests that are in full conformance with the conditions set forth in the General Requirements (Division 1 of the Specifications). By making requests for substitutions, the Contractor:

- .1** represents that it has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to the product specified;
- .2** represents that it will provide the same warranty for the substitution as it would have provided for the product specified;
- .3** certifies that the cost data presented is complete and includes all related costs for the substituted product and for Work that must be performed or changed as a result of the substitution, except for the Architect's redesign costs, and waives all claims for additional costs related to the substitution that subsequently become apparent;
- .4** agrees that it shall, if the substitution is approved, coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects;

**8.4.4** The Owner shall be entitled to deduct from the Contractor's Applications for Payment amounts paid to the Architect for reviewing the Contractor's proposed substitutions and making agreed-upon changes in the Drawings and Specifications resulting from such substitutions.

H. At Article 8.7.2, in the second sentence, omit the phrase "knowing it to be".

I. At Article 8.7.2, add the following:

**8.7.2.1** All work performed under the Contract, including types and usage of equipment, shall comply with all local and State of Mississippi regulations applicable to building contracts and contractors and all codes specifically mentioned in Sections of the Specifications. All such codes and regulations are hereby made a part of the Specifications to the same extent as if written out in full. In the absence of other governing codes, the requirements of the International Building Code (current adoption by the Mississippi State Fire Marshal) shall apply to this work.

**8.7.2.2** At no additional cost to the Owner, the Contractor shall comply with all laws, statutes, ordinances, building codes, safety requirements, rules and regulations of whatever nature that apply to the Project, whether enacted or adopted before or after the bid opening. If the Contractor observes that portions of the Contract Documents are at variance therewith, the Contractor shall promptly notify the Architect in writing.

**8.7.2.3** All work performed under the Contract shall comply with the University of Mississippi Medical Center (UMMC) Hospital Regulations as included at Section 019000. The Contractor shall submit the Preconstruction Risk Assessment and comply with the Infection Prevention and Interim Life Safety requirements as required and approved by the University of Mississippi Medical Center. All costs for such compliance, including approvals and inspections shall be included in the Cost. The Contractor shall maintain all measures required by the University of Mississippi Medical Center for the duration of the Work and shall maintain and correct them to the satisfaction of the Owner, Architect and UMMC at no additional cost to the Owner. If the Contractor fails to maintain required measures, the Owner shall the issue a written order to the

Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated.

- J. At Article 8.8, add the following Articles 8.8.1 and 8.8.2:

**8.8.1** In reviewing Shop Drawings, Product Data, Samples and similar submittals the Architect shall be entitled to rely upon the Contractor's representation that such information is correct and accurate.

**8.8.2** The Architect's review of the Contractor's submittals will be limited to examination of an initial submittal and one (1) resubmittal. The Architect's review of additional submittals will be made only with the consent of the Owner after notification by the Architect. The Owner shall be entitled to deduct from the Contractor's Application for Payment amounts paid to the Architect for evaluation of such additional resubmittals.

- K. Delete Article 8.12 in its entirety and insert the following in lieu thereof:

**8.12 Indemnification**

**8.12.1** To the fullest extent permitted by law, the Contractor shall defend, 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 or nonperformance of the work, and/or the Contractor's acts or omissions. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Article 8.12.

**8.12.2** In claims against any person or entity indemnified under this Article 8.12 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Article 8.12.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

**8.12.3** The obligations of the Contractor under this Paragraph 8.12 shall not extend to the liability of the Architect, the Architect's consultants, and agents and employees of any of them arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, Change Orders, designs or specifications, or (2) the giving of or the failure to give directions or instructions by the Architect, the Architect's consultants, and agents and employees of any of them provided such giving or failure to give is the primary cause of the injury or damage.

**8.12.4** The Contractor agrees to defend, hold harmless and indemnify the Owner against all claims or demands originating under this Contract by subcontractors, suppliers, or other entities situated similarly.

- L. Add the following Article 8.13 as follows:

**8.13 Subcontractors**

**8.13.1 Definitions**

**8.13.1.1** A subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

**8.13.1.2** A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is

referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

**8.13.2 Award of Subcontracts and Other Contracts for Portions of the Work**

**8.13.2.1** Not later than two (2) days after the notification, the Contractor who is the apparent low bidder shall furnish in writing to the Owner, through the Architect, the list of Subcontractors as required at Section 002113 and shall include the names of persons or entities proposed as manufacturers or fabricators for certain products, equipment and systems identified therein at Section 002113, as described in the General Requirements (Division 1 of the Specifications) and, where applicable, the name of the installing Subcontractor.

**8.13.2.2** The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

**1.06 A105 2017 ARTICLE 9 - ARCHITECT**

A. At Article 9.2, add 9.2.1 as follows:

**9.2.1** The Owner is entitled to reimbursement from the Contractor for, and may withhold from the Contractor's Application for Payment, amounts paid to the Architect for site visits made necessary by the fault of the Contractor or by defects and deficiencies in the Work.

B. Add Article 9.10 as follows:

**9.10** The Owner and Contractor shall communicate with each other through the Architect about matters arising out of or relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

**1.07 A105 2017 ARTICLE 10 – CHANGES IN THE WORK**

A. At the first sentence of Section 10.1, replace the phrase "in writing" with the following:

per the General Requirements of Division One, including the procedures specified at Section 012000 – Price and Payment Procedures, Section 012050 – Change Order Procedures, Section 012100 Allowances, and Section 012200 - Unit Prices.

B. Add Articles 10.1.1 and 10.1.2 as follows:

**10.1.1** The combined overhead and profit included in the total cost to the Owner for a change in the Work shall be based on the following schedule:

- .1** For the Contractor, for Work performed by the Contractor's own forces, 20 percent of the cost.
- .2** For the Contractor, for Work performed by the Contractor's Subcontractors, 10 percent of the amount due the Subcontractors.
- .3** For each Subcontractor involved, for Work performed by that Subcontractor's own forces, 20 percent of the cost.
- .4** For each Subcontractor involved, for Work performed by the Subcontractor's Sub-subcontractors, 10 percent of the amount due to the Sub-subcontractor.
- .5** Additional overhead and profit shall not be applied to the total cost of the Work for Work performed under Unit Price descriptions, whether such Work is performed by the

Contractor, a Subcontractor, or a Sub-subcontractor. The Contractor acknowledges that Unit Price costs, as stated in the Contract, include all profit and overhead costs, whether such Unit Prices are used to increase or decrease the Contract Sum as a multiplier of the change in Unit Quantity.

**10.1.2** In order to facilitate checking of proposals for increases or decreases to the contract sum, 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 in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also. In no case will a change involving over \$5,000 be approved without such itemization.

C. Add Article 10.4 as follows:

**10.4** The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect and shall not be less than the price for equivalent work set forth in Means "Building Construction Cost Data", Current Edition. When, in the Architect's judgement, the minimum cost for such a credit is not adequately set forth therein, the Architect may obtain a quote for equivalent work from an independent contractor, subcontractor, fabricator, or supplier, which will serve as the basis for the minimum credit due to the Owner, based solely on the Architect's judgement of the price quote.

**.1** Except where the cost of the change is determined by Unit Price per Section 012200, when both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

**.2** Where the cost of the change is determined by Unit Price per Section 012200, no allowance for overhead and profit (whether an increase or decrease) shall be figured beyond that already included in the Unit Price. The net credit shall be determined by multiplying the quantity change by the Unit Price, as stated in the Contract, for such Work as described for that Unit Price.

D. Add Article 10.5 as follows:

1. **10.5** Prior to final determination of the total cost of a change, the Owner shall assume that all costs proposed by the Contractor are good for the duration of the Contract Time unless the Contractor's cost proposal includes written indication of the duration for which the cost proposal will remain good.

### 1.09 A105 2017 ARTICLE 11 – TIME

A. Add Article 10.4 as follows:

**10.4** The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial completion within the Contract Time. Unless otherwise mutually agreed to and stated specifically in the Certificate of Substantial Completion, the Contractor agrees to complete all incomplete items within 15 (fifteen) days from the date of Substantial Completion.

### 1.10 A105 2017 ARTICLE 12 – PAYMENTS AND COMPLETION

A. At Article 12.2.1 add the following sentence:

Applications for payment shall be per the General Requirements of Division 1 and as Specified at Section 012000 – Price and Payment Procedures. The form of Application for

Payment, duly notarized, shall be a current edition of AIA Document G702, Application and Certificate for Payment, supported by a current edition of AIA Document G703, Continuation Sheet.

B. At Article 12.2.1, add 12.2.1.1, 12.2.1.2 and 12.2.1.3 as follow:

**12.2.1.1** The retainage to be indicated on each Application for Payment shall be five percent (5%) of the amount due the Contractor on account of progress payments. No reduction in retainage will be made until final payment is made except for that provided at Article 12.5.5.

**12.2.1.2** The Contractor must submit each month with this Application for Payment a separate letter stating that he is wishing to request a Claim for Additional Time due to adverse weather conditions or that he had no need to request a Claim for Additional Time for that month. No payments on a monthly application will be made until such letter is received. Complete justification, as described at Article 17.1, must be included for each day's request for extension. A Contractor's letter, or statement, will not be considered as adequate justification. The receipt of this request and data by the Owner will not be considered as Owner approval in any way. If the Contractor has not been delayed by adverse weather conditions, then it shall state in writing that no delays for rain days are requested for the period covered by that Pay Application.

**12.2.1.3** Applications for payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

**12.2.1.4** Payment for materials and equipment stored off the site may be approved by the Owner upon compliance by the contractor with the following procedures:

- .1 submission by the Contractor to the Owner of a written agreement between the Contractor and the owner of the land or facility where the materials and equipment are stored, if the Contractor is not the owner of such land or facility;
- .2 consent of the Contractor's surety to the storage of materials and equipment as contemplated by the Contractor;
- .3 submission by the Contractor to the Owner of evidence of all perils insurance coverage for the full value of the materials and equipment stored off the site;
- .4 submission by the Contractor to the Owner of proof of purchase of the materials and equipment stored off the site;
- .5 prior to each progress payment, submission by the Contractor to the Architect of an inventory of the materials and equipment stored off the site; and
- .6 prior to each progress payment, an inspection and approval by the Architect of the materials and equipment stored off site.

C. At Article 12.2.2, add the following 12.2.2.1:

**12.2.2.1** The provisions of this paragraph shall be inserted in all subcontracts and material contracts and notice of its provisions shall be given to all persons furnishing materials for the work when no formal contract is entered into for such materials. Nothing contained in this paragraph, however, shall defect or impair the right of persons furnishing materials or labor to recover under any bond given by the Contractor for their protection of any rights under any law permitting such person to look to funds due the Contractor in the hands of the Owner.

D. At Article 12.5, add Articles 12.5.3, 12.5.4 and 12.5.5 as follows:

**12.5.3** Substantial Completion shall be established according to the General Requirements of Division 1 and the procedures specified at Section 017000 – Execution and Closeout Requirements.

**12.5.4** The Architect will perform no more than two (2) inspections to determine whether the Work or a designated portion thereof has attained Substantial Completion in accordance with the Contract Documents. The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for any additional inspections.

**12.5.5** Upon the Owner's acceptance of the Work as substantially complete and upon the Contractor's compliance with all conditions precedent to substantial completion as stated in Articles 12.5, submission of items required at Article 12.6.2 and upon application by the Contractor, the Owner will pay to the Contractor all retainage held by the Owner less an amount equal to the greater of (a) two percent (2%) of the Contract Sum, or (b) two hundred percent (200%) of the estimated cost of the Work remaining to be performed by the Contractor in accordance with the Architect's documentation. Final payment, including all retainage, shall be made at the time and in the manner provided for final payment in accordance with the provisions of Article 12.6 and the additional conditions precedent to final acceptance and payment set forth in Article 12.5.

- E. At Article 12.6.1, add Articles 12.6.1.1 and 12.6.1.2 as follow:

**12.6.1.1** Final Completion shall be established according to the General Requirements of Division 1, including the procedures specified at Section 017000 – Execution and Closeout Requirements and Section 017800 – Closeout Submittals.

**12.6.1.2** The Architect will perform no more than two (2) inspections to determine whether the Work or a designated portion thereof has attained Final Completion in accordance with the Contract Documents. The Owner is entitled to reimbursement from the Contractor for amounts paid to the Architect for any additional inspections.

- F. Replace Article 12.6.2 with the following:

**12.6.2** Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) and affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (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, (4) consent of surety, if any, to final payment, (5) documentation that any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases of waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

- G. At Article 12.6, add Article 12.6.4 as follows:

**12.6.4** If final acceptance is made more than thirty days after the date of Contract completion, the guarantee period shall begin at the date of final acceptance. Specified periods of warranty shall not apply in cases of fraud or concealed defects in workmanship or materials.

H. Add Article 12.7 as follows:

**12.7 Liquidated Damages**

**12.7.1** Time being of the essence of this Contract and a matter of material consideration thereof, a reasonable estimate in advance is established to cover losses incurred by the Owner if the Project is not substantially complete on the date set forth in the Contract Documents. The Contractor and its Surety will be liable for and will pay the Owner the sums hereinafter stipulated as fixed and agreed as liquidated damages for each calendar day for delay until the Work is substantially complete. The Contractor and its Surety acknowledge that the Owner's losses caused by the Contractor's delay are not readily ascertainable and that the amount estimated per day for liquidated damages is reasonable and is not a penalty. The liquidated damages which may be assessed under Article 12.7 are in addition to damages which may be assessed for delays to the Owner prior to substantial completion in accordance with Article 7.4.

**12.7.2 The amount established per day for liquidated damages is three hundred fifty dollars (\$350.00).**

**1.11 A105 2017 ARTICLE 13 – PROTECTION OF PERSONS AND PROPERTY**

A. Add the following at the end of Article 13:

The Architect shall not administer the Contractor's performance of its duties and responsibilities under Article 13 because the initiation, maintenance and supervision of safety precautions and programs is the sole responsibility of the Contractor as means, methods, techniques, sequences and procedures of construction and, therefore, is not part of the Contractor's scope of Work which is to be administered by the Architect.

B. Add Article 13.1 as follows:

**13.1 Responsibility of the Contractor to Act in an Emergency**

**13.1** In case of an emergency which threatens loss or injury of property and/or safety of life, the Contractor shall act, without previous instructions from the Owner or Architect, as the situation may warrant. He shall notify the Architect, the Owner (Scott Ford House, Inc.) thereof immediately thereafter. Any compensation claimed by the Contractor, together with substantiating documents in regard to expense, shall be submitted to the Owner and the amount of compensation shall be determined by agreement or arbitration.

**1.12 A105 2017 ARTICLE 14 – CORRECTION OF WORK**

A. At Article 14.2, add Article 14.2.1 and 14.2.2 as follow:

**14.2.1** Upon request by the Owner and prior to the expiration of one year from the date of Substantial Completion, the Architect will conduct, and the Contractor shall attend, a meeting with the Owner to review the facility operations and performance.

**14.2.2** The one-year period for correction of Work shall be extended with respect to portions of the Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

**1.13 A105 2017 ARTICLE 15 – MISCELLANEOUS PROVISIONS**

- A. At Article 15.2.1, add Articles 15.2.1.1, 15.2.1.2, and 15.2.1.3 as follow:

**15.2.1.1** The Contractor shall notify the Owner and Architect sufficiently in advance of back-filling, enclosure or otherwise concealing any utilities, to permit proper inspection. If consent of the Owner or Architect is not given to backfill, enclose or otherwise conceal any utilities, and the utilities are nonetheless concealed, the Contractor shall uncover for inspection and re-cover such utilities, all at its own expense, when so requested by the Owner or the Architect.

**15.2.1.2** Inspection of materials and appurtenances to be incorporated in the improvements embraced in this Contract may be at the place of production, manufacture or shipment, whenever the quantity justifies it. Such inspection and acceptance, unless otherwise stated herein, shall be final except as regards:

- .1 Latent defects
- .2 Departures from specific requirements of the contract
- .3 Damages or loss in transit
- .4 Fraud or such gross mistake as amounts to fraud subject to the requirements
- .5 The inspection of materials as a whole or in part to be made at the project site.

**15.2.1.3** Neither inspection, testing, approval or acceptance of the work in whole or in part by the Owner or its agents shall relieve the Contractor or its Sureties of full responsibility for materials furnished or work performed not in strict accordance with the Contract.

- B. Replace Article 15.2.2 with the following:

**15.2.2** If the Architect, Jackson Medical Mall, University of Mississippi Medical Center, or other authorities having jurisdiction require additional testing, the Contractor shall perform those tests.

**1.14 A105 2017 ARTICLE 16 – TERMINATION OF THE CONTRACT**

- A. Delete Article 16.1 in its entirety.

- B. Delete the word “repeatedly” at Article 16.2.1.1.

- C. Delete the word “repeatedly” at Article 16.2.1.3.

- D. At Article 16.2.1, add the following:

**16.2.1.5** fails to achieve Substantial Completion of the Project as described at Article 12.5 within the time stated therein;

**16.2.1.6** fails to complete the list of items attached to the Certificate of Substantial Completion within the time required;

**16.2.1.7** fails to meet any other deadline required by the Contract.

- .1 Contractor acknowledges that time is of the essence of this Contract and that all deadlines required by the Contract are critical to timely completion of the Contract. Therefore, Contractor agrees that its failure to meet any deadline constitutes a substantial and material breach of this Contract, entitling the Owner to terminate the Contract.

- E. Add Article 16.2.5 as follows:

**16.2.5** If the Owner terminates the Contract for cause, and it is determined for any reason that the Contractor was not actually in default under the contract at the time of termination, the Contractor shall be entitled to recover from the Owner the same amount as the

Contractor would be entitled to receive under a termination for convenience as provided by Article 16.3. The foregoing shall constitute the Contractor's sole and exclusive remedy for termination of the Contract. In no event shall the Contractor be entitled to special, consequential, or exemplary damages, nor shall the Contractor be entitled to anticipated profits resulting from termination of this Contract.

F. At Article 16.3, add the following Article 16.3.1:

**16.3.1** The Contractor shall not be entitled to receive any payment for either overhead or profit on work not performed.

**1.15 A105 2017 ARTICLE 17 – OTHER TERMS AND CONDITIONS**

A. Add Article 17.1 as follows:

**17.1 Claims for additional time due to adverse weather conditions**

**17.1.1** Claims by the Contractor for additional time due to adverse weather conditions shall be made along with the Contractor's Pay Application, each month, per 12.2.1.2, including supporting information for each day per 17.1.3.

**17.1.2** Any right to make a claim for an increase in the Contract Time is subject to the terms and conditions of Article 10 above.

**17.1.3** If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

**17.1.3.1** Normal rain days for the geographic location of the project are as follows:

**MONTHLY ANTICIPATED ADVERSE WEATHER CALENDAR DAYS**

<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
10	9	10	8	9	9	11	10	7	6	8	10

**17.1.3.2** The table above will constitute the baseline for monthly (or portion thereof) adverse weather evaluations. Actual adverse weather days shall be recorded on a calendar day basis, including weekends and holidays, and compared to the monthly anticipated adverse weather days at the end of each month. Once the number of actual factual adverse weather days anticipated in the table above have been incurred, the Architect will examine any subsequently occurring adverse weather days to determine if the Contractor is entitled to a time extension. These subsequently occurring adverse weather days must each have documented minimum amounts of 0.25 inches of precipitation and must prevent work from occurring for 50 percent (50%) or more of the Contractor's work day and must delay work critical to the timely completion of the project in order to qualify for an extension of time. Delays caused by extreme heat or cold will not be considered weather days. **Weather days may not be requested for portions of the Work that occur at the interior of the building.** An on-site daily log of weather conditions is to be maintained by the project superintendent.

**17.1.2.3** Submit a daily log reporting form for approval prior to first Application for Payment containing:

- a. Record of adverse conditions that hindered work.
- b. Time of day work activities were stopped.
- c. Temperature.
- d. Work in progress.

- e. Number of hours work was stopped for each work day.
- f. Trades on the job and number of workmen for each trade.
- g. Record weather conditions each calendar day of each month.
- h. Written and graphic report from the National Weather Service, radio station, or television station serving the local area of the construction site.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 007310**  
**ARCHITECT'S SPECIAL CONDITIONS**

**PART 1 GENERAL CONDITIONS**

**1.01 DESCRIPTION**

- A. Scope: To set forth special conditions as are necessary due to the nature of the Project.

**1.02 RELATED REQUIREMENTS**

- A. Section 007300 - Supplementary Conditions
- B. Division 1 - General Requirements
- C. Section 011000 - Summary
- D. Section 014216 - Definitions
- E. Section 012552 - Security Procedures
- F. Section 016000 - Product Requirements
- G. Section 017099 - Execution and Closeout Requirements
- H. Section 017419 - Construction Waste Management and Disposal

**1.03 MEASUREMENTS AND VERIFICATION OF DIMENSIONS**

- A. Before doing any work or ordering materials, the Contractor shall verify all measurements at the site and be responsible for their correctness. No additional compensation will be allowed on account of differences in actual dimensions and measurements shown on the Drawings. If such differences between actual dimensions and measurements shown on the Drawings are found to exist, the Contractor shall notify the Architect and inconsistencies shall be resolved before proceeding with the Work.

**1.04 BUILDING CODES**

- A. Contracts shall be executed in strict compliance with Building Codes of governing bodies such as State, County and the City in Mississippi; also, the National Board of Fire Underwriters, International Building Code, International Electrical Code, International Plumbing Code, National Security Life Safety Code, and the Facilities Guidelines Institute Guidelines for Design and Construction of Hospitals and Outpatient Facilities. These requirements shall take precedence over the Architect's Specifications wherever there exists a contradiction in the two.
- B. All materials, equipment, and workmanship shall conform to the requirements of applicable state, county and municipal codes and standards. The respective grade, class, size and rating shown is the minimum which will be accepted; provided that should it be unobtainable, the next larger or better shall be used at no additional cost to the Owner.

### **1.05 STANDARDS**

- A. Any materials specified by reference to the number, symbol or title of a specific standard such as a Commercial Standard, a Federal Specification, a trade association standard, or other similar standard, shall comply with the requirements in the latest revision thereof, and any amendment or supplement thereto, in effect on the date of Request for Proposal, except as limited to type, class, or grade as modified in such reference.
- B. The standards referred to, except as modified in the Specifications, shall have full force and effect as though printed in the Specifications. These standards are not furnished for the reason that the manufacturers and trades involved are assumed to be familiar with their requirements. The Architect will furnish upon request, information as to how copies of the standards referred to may be obtained.

### **1.06 MANUFACTURER'S DIRECTIONS**

- A. All manufactured articles, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer, unless herein specified to the contrary. Furnish copies of printed directions with articles, materials and equipment.

### **1.07 EQUALS**

- A. Reference in the Specifications to an article, device, product, material, fixture, form or type of construction by name, make or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. The Contractor must acquire a written approval from the Architect before using any material, articles, devices, products, fixtures, or form and type of construction not specified but considered equal to that specified. In no case will equals be considered or accepted unless the Contractor has such written approval.

### **1.08 COOPERATION**

- A. The Contractor and all subcontractors shall coordinate all work, one with the other, so as to facilitate the general progress of the Work. Each trade shall afford all other trades every reasonable opportunity for installation of their work.
- B. General Contractor shall be responsible for coordinating all work. He shall locate fixtures, partitions, etc., as a guide for all trades.
- C. Justifiable delays, such as strikes, acts of God, etc., caused by conditions beyond the control of the Contractor shall not be considered as constituting a cause for claiming damages therefore from either the Contractor or the Owner.

### **1.09 LATENT CONDITIONS**

- A. If, in the performance of the Contract, latent conditions at the site are found to be materially different from those indicated by the Contract Documents, or unknown conditions are found which are not usually inherent in the work of the character specified, the attention of the Architect and Owner shall be called immediately to such conditions before they are disturbed. Upon such notice, or upon his own observation of such conditions, the Architect and Owner

shall promptly make such changes in the Contract Documents as they find necessary to conform to the different conditions, and any increase or decrease in the cost of the Work resulting from such changes shall be adjusted by Change Order as provided in the Agreement Form as modified by Section 007300 and the General Requirements of Division One.

**1.10 DEPENDENT DESIGN CHANGE CAUSED BY SUBSTITUTION**

- A. If a substitution is approved for an item named in the Specifications, changes in dependent design therefor shall be the responsibility of the trade originating the request for substitution. The interested trade shall prepare sketches showing required redesigns and submit them through the Contractor to the Architect for the approval together with his request for substitution.

**1.11 CONTRACTOR'S TITLE TO MATERIALS**

- A. No materials or supplies for the Work shall be purchased by the Contractor or by any subcontractor subject to any chattel mortgage or under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies for which he accepts partial payment.

**1.12 ENGINEERING AND LAYOUT**

- A. The General Contractor shall at his expense provide competent engineering services to execute the Work in accordance with the Contract requirements. He shall verify the figures shown on the survey and approach drawings before the undertaking of any construction work, and shall be responsible for the finished work.

**1.13 SPECIFICATION EXPLANATION**

- A. For convenience of reference and to facilitate the letting of contracts and subcontracts, these Specifications are separated into titled Sections of one or more items of related work. Such separation shall not, however, operate to make the Architect an arbiter to establish limits to the contracts between the Contractor and subcontractors or suppliers.

**1.14 DRAWINGS AND SPECIFICATIONS**

- A. Drawings and Specifications are instruments of service to be used to construct complete, ready for use, the building and other work connected with the same. The Drawings and Specifications are meant to be complimentary. Any items described in one or both shall be considered part of the work as described in these Contract Documents. Should the Drawings and Specifications contradict each other, a written interpretation shall be obtained from the Architect if possible and if time permits prior to bidding. If not, then the more stringent requirements shall take precedence. Prior to actual construction all discrepancies between Drawings and Specifications shall be resolved by the Architect.
- B. Drawing a portion of work in detail and outlining the balance shall mean that such details shall be continued to completion to get the full effect intended by the Architect.

**PART 2 FACILITY SPECIFIC CONDITIONS**

**2.01 UTILITIES**

- A. The Owner does not currently maintain utility service to the property. However, utility service is available nearby. The Contractor shall provide their own power and water from nearby sources approved in advance by the Owner and shall provide a portable toilet for use during the course of the Work.

**2.02 FIRES AND TRASH DISPOSAL**

- A. No open fires will be permitted on the site, inside or outside. No burning or dumping of any trash will be allowed anywhere on the grounds during construction or after completion of construction. The Contractor will arrange for disposal of the trash on a timely basis.

**2.03 CONTINUED OPERATION OF THE FACILITY**

- A. The Contractor shall maintain and limit access to only those areas indicated in the drawings and that have been designated by the Owner. Use of and access to other areas of the site or the facility shown in the drawings or other nearby facilities of the Owner are strictly prohibited.
- B. The Contractor shall coordinate all security connections and potential gaps in the existing security system with the Owner in advance of each phase and in accordance with the requirements of Section 013553.

**2.04 USE OF EXISTING FACILITY**

- A. Smoking and tobacco use is strictly prohibited on the campus of Tougaloo College.
- B. Firearms are prohibited on the campus of Tougaloo College.

**2.05 COLOR SCHEDULE**

- A. For all finishes, whether the Basis of Design product or not, the Contractor shall submit the specified samples and chips from the actual suppliers or subcontractors for approval and color, texture and/or finish selection by the Architect. All colors, textures and finishes available from the manufacturer of the specified item(s) shall be available for selection unless specified otherwise in individual sections of these specifications. When submittals of all products requiring color, texture or finish selection have been received and approved by the Architect, the Architect will issue a comprehensive finish schedule indicating approved colors, finishes and textures. The Architect will not approve colors, finishes, or textures prior to submittal of all required samples, chips or specified submittal requirements for finishes.

**PART 3 - NOT USED**

**END OF SECTION**

**SECTION 011000  
SUMMARY**

**PART 1 GENERAL**

**1.01 PROJECT**

- A. Project Name: John W. Boddie House, Interior Renovation – Phase 1
- B. Owner's Name: Tougaloo College
- C. Public Funding Sources:
  - 1. State of Mississippi: House Bill 12018 First Extraordinary Session, Laws of 2018 and Section 12 of Senate Bill 2002, 2018 Frist Extraordinary Session, Laws of 2018
  - 2. Ste of Mississippi, Department of Archives & History, Community Heritage Preservation Grant- Round 13, Grant No. CHPG#2019-015
  - 3. United States Department of the Interior, National Park Service, Historic Preservation Fund Grants-In-Aid, 2018 HPF HBCU, Grant No. P18AP00399-02
- D. Architect's Name: WFT Architects, P.A.
- E. The project consists of furnishing all labor, materials, and equipment to complete all work shown and described on the Contract Documents entitled: John W. Boddie House, Interior Renovation – Phase 1, as prepared by WFT Architects, P.A., and dated 08 July, 2022. The project includes all work described in the Contract Documents and consists of, but is not limited to, the following types of work:
  - 1. The Work described in the Bid Documents for the John W. Boddie House, Interior Renovation – Phase 1 (Rebid) occurs on the site of the John W. Boddie House on the campus of Tougaloo College in Tougaloo, Mississippi.
  - 3. Perform selective demolition and renovation work described in the Contract Documents and as required for a complete and proper project.
  - 2. All work shall be completed in accordance with the Mississippi Antiquities Law (39-007-et. al. of the Mississippi Code, 1972, as amended), the Secretary of the Interior's Standards for the Treatment of Historic Properties, and the approved Construction Documents.

**1.02 CONTRACT DESCRIPTION**

- A. Contract Type: A single prime contract based on a Stipulated Price as described in Document 005200 - Agreement Form, 007300 – Supplementary Conditions, 006000 – Bond Requirements and 006500 Insurance Requirements.

**1.03 WORK BY OWNER**

- A. The Owner will remove all the material currently stored inside the John W. Boddie House prior to the start of construction, except those materials that will be used in the Work.

**1.04 OWNER / TENANT OCCUPANCY**

- A. Tougaloo College is an educational institution with students and faculty living and attending classes on-campus. The buildings and grounds surrounding the construction site will be in use

during the course of the project. The Contractor shall not enter the adjacent structures and shall protect them from damage at all times.

- B. Cooperate with Tougaloo College to minimize potential conflicts and to facilitate the Owner's operations.

**1.05 CONTRACTOR USE OF SITE AND PREMISES**

- A. Construction Operations: Limited to areas specifically indicated on Drawings and as approved by Owner under provisions of Section 013553.
- B. Arrange use of site and premises to allow:
  - 1. Owner's occupancy of adjacent areas.
  - 3. Confine operations at the site to areas permitted by Law, Ordinances, Permits, Contract Documents, and the Owner.
  - 4. Store materials, components and equipment within the Work Area as delineated on the Site Plan. Contractor shall not unreasonably encumber the site or the premises with materials or equipment.
  - 5. Assume full responsibility for protection and safekeeping of materials, components and products stored on premises.
  - 6. Move any stored materials and products which interfere with operations of the Owner.
  - 7. Notify the Architect of the need for additional storage or work areas which may exceed the area designated in the Contract Documents.
  - 8. Assume responsibility for protecting from damage all existing landscaping, paved areas, fencing, utilities, structures, building materials, components and finishes to remain, and equipment and systems to remain. Contractor shall repair and/or replace all damaged items that were in good condition and/or working order prior to commencement of the Work without cost to the Owner.
- C. Provide access to and from site as required by law and by Owner:
  - 1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered. If the project barriers obstruct current exit paths, ensure alternate exit paths are available and properly identified with exit signs.
  - 2. Outside of the project area, all exit and paths of egress shall remain unobstructed and open at all times, for the duration of the Work. Project material shall not be stored in these areas.
  - 3. Do not obstruct roadways, sidewalks, or other public ways without permission and permit.
  - 4. Restrict vehicular access to the Work Area as shown in the Documents.
- D. Existing building spaces shall not be used for storage except where the Contractor has obtained approval of Architect and Owner.
- E. Time Restrictions:
  - 1. Limit conduct of especially noisy, malodorous, and dusty work to the hours of 9:00 a.m. to 5:00 p.m. Monday through Saturday as approved in advance by the Owner.
  - 2. Limit conduct of work on-site to the hours of 7:00 a.m. to 6:00 p.m. More restricted hours as may be required by the Owner from time to time to accommodate campus events or programs. Hours of work shall be established during the Pre-Construction Conference.
- F. Utilities:
  - 1. The Contractor shall be responsible for providing power to the Work Area from power and water and shall provide a potable toilet for use during the course of the Work.

**1.07 WORK SEQUENCE**

- A. Coordinate construction schedule and operations with Owner.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 012000**  
**PRICE AND PAYMENT PROCEDURES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Procedures for preparation and submittal of applications for progress payments.
- B. Documentation of changes in Contract Price and Contract Time.
- C. Change procedures.
- D. Correlation of Contractor submittals based on changes.
- E. Procedures for preparation and submittal of application for final payment.

**1.02 RELATED REQUIREMENTS**

- A. Section 005000 - Contracting Forms and Supplements: Forms to be used.
- B. Section 005200 - Agreement Form: Contract Sum, retainages, payment period, monetary values of unit prices, General Conditions providing additional requirements for progress payments, final payment, changes in the Work.
- C. Section 007300 - Supplementary Conditions: Percentage allowances for Contractor's overhead and profit.
- D. Section 012050 - Change Order Procedures.
- D. Section 012100 - Allowances: Payment procedures relating to allowances.
- E. Section 012200 - Unit Prices: Monetary values of unit prices; Payment and modification procedures relating to unit prices.
- F. Section 017800 - Closeout Submittals: Project record documents.

**1.03 SCHEDULE OF VALUES**

- A. Use Schedule of Values Form: AIA G703, edition stipulated in the Agreement.
- B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.
- C. Forms filled out by hand will not be accepted.
- D. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.
- E. Format: Utilize the Index of this Project Manual. Identify each line item with number and title of the specification section. Identify site mobilization.
  - 1. Submit typewritten Schedule of Values on AIA Document G703, using Index of this specification as basis for format for listing costs of work for sections under Division 2 - 34. Identify each line item with number and title as listed in Project Manual Index.
  - 2. Itemize separate line item cost for at least each of the following general cost items:
    - a. Performance and Payment Bonds
    - b. Insurance

- c. Field Supervision and Layout
  - d. Temporary Facilities and Controls
  - e. Rental Equipment
  - f. Testing Laboratory Services
  - g. Waste Management and Waste Removal
3. Itemize separate line item cost for work required by each section of this specification. Break down installed cost with overhead and profit if requested by the Architect.
  4. For each line item which has installed value of more than \$10,000.00, break down costs to list materials and labor under each item, rounding figures to nearest dollar. Make sum of total costs of items listed in Schedule equal to total contract sum.
  5. Provide a line item for Closeout Documents/Warranties of 1.75% of the total contract.
  6. Provide a line item for millwork shop drawings equal to 10% of the millwork subcontract.
- F. Preparing Schedule of Unit Material Values:
1. Submit separate schedule of unit price for materials to be stored on which progress payments will be made. Make form of submittal parallel to Schedule of Values with each line item identified same as line item in Schedule of Values. Include in unit prices only: cost of material, delivery and unloading at site and sales tax, loading at site and sales tax.
  2. Verify that unit prices multiplied by quantities equal material cost of that item in Schedule of Values.
- G. Include in each line item, the amount of Allowances specified in this in Section 012100. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- H. Stored Materials: In order to receive payments for stored materials, Contractor shall submit along with the Schedule of Values a separate schedule of unit prices for all materials to be stored on which progress payments will be made.
1. Make form of submittal parallel to Schedule of Values.
  2. Include in unit prices only: Cost of material, delivery and unloading at site and sales tax. Verify that unit prices multiplied by quantities equal material cost of that item in Schedule of Values.
  3. Application for payment on stored materials shall be accompanied by invoices marked with this project name and indicating material for which application has been made and proof of insurance on warehouse or storage site where materials are stored.
- I. Revise schedule to list approved Change Orders, with each Application For Payment.
1. List each approved Change Order amount as a separate line item.
  2. Break down installed cost (labor and materials) and overhead and profit, if requested by the Architect.

#### **1.04 APPLICATIONS FOR PROGRESS PAYMENTS**

- A. Payment Period: Submit at intervals stipulated in the Agreement.
- B. Use Form AIA G702 and Form AIA G703, edition stipulated in the Agreement.
- C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.
- D. Forms filled out by hand will not be accepted.
- E. For each item, provide a column for listing each of the following:
  1. Item Number.

2. Description of work.
  3. Scheduled Values.
  4. Previous Applications.
  5. Work in Place and Stored Materials under this Application.
  6. Authorized Change Orders.
  7. Total Completed and Stored to Date of Application.
  8. Percentage of Completion.
  9. Balance to Finish.
  10. Retainage.
- F. Execute certification by signature of authorized officer.
- G. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.
- H. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of work.
- I. Submit five (5) hard-copies of each Application for Payment.
- J. Include the following with the application:
1. Transmittal letter as specified for submittals in Section 013000.
  2. Construction progress schedule, revised and current as specified in Section 013000.
  3. Affidavit Certifying Payment to All Subcontractors signed and notarized in accordance with Mississippi Code 31-5-25 and House Bill 1562, Laws of 2002
  4. Invoices and affidavits attesting to off-site stored products. Proof of insurance against loss or damage for the materials and products stored off-site.
- K. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

#### **1.05 OTHER DOCUMENTS ACCOMPANYING APPLICATIONS FOR PROGRESS PAYMENT**

- A. With each application for progress payment furnish the following documents:
1. Affidavit certifying payment to all subcontractors pursuant to Miss. Code Ann. 31-5-25 and H.B. 1562, Laws of 2002.
  2. On Contractor's letterhead, request for extension of contract time with explanation for the request, requested number of days, and the data and information substantiating the request in compliance with the requirements of Section 007300.

#### **1.06 MODIFICATION PROCEDURES**

- A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.
- B. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue an Architect's Field Order (refer to Section 012050) containing instructions directly to Contractor.
- C. For other required changes, Architect will issue a Construction Change Directive if authorized by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.

- D. For Construction Change Directive, refer to Section 012050.
  - 1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
  - 2. Promptly execute the change.
- E. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within ten (10) days.
- F. The General Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 016000.
- G. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
  - 1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on General Contractor's price quotation.
  - 2. For change requested by the General Contractor the amount will be based on the General Contractor's request for a Change Order as approved by the Owner.
  - 3. For pre-determined unit prices and quantities, the amount will be based on the fixed Unit Prices.
- H. Substantiation of Costs: Provide full information required for evaluation.
  - 1. On request, provide following data:
    - a. Quantities of products, labor, and equipment.
    - b. Taxes, insurance, and bonds.
    - c. Overhead and profit, as limited by Article 10 of the Agreement Form as modified by Section 007300 – Supplementary Conditions.
    - d. Justification for any change in Contract Time.
    - e. Credit for deletions from Contract, similarly documented.
  - 2. Support each claim for additional costs with additional information:
    - a. Origin and date of claim.
    - b. Dates and times work was performed, and by whom.
    - c. Time records and wage rates paid.
    - d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
  - 3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.
- I. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

- J. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.
- K. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- L. Promptly enter changes in Project Record Documents.

**1.07 APPLICATION FOR FINAL PAYMENT**

- A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- B. Application for Final Payment will not be considered until the following have been accomplished:
  - 1. All closeout procedures specified in Sections 017000 and 017800.
  - 2. Receipt of items required for Final Payment in the Agreement Form as modified by Section 007300.

**PART 2 PRODUCTS – NOT USED**

**PART 3 EXECUTION – NOT USED**

**END OF SECTION**

**SECTION 012050**  
**CHANGE ORDER PROCEDURES**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Work included: Make such changes in the Work, in the contract Sum, in the Contract Time of Completion, or any combination thereof, as are described in written Change Orders signed by the Owner and the Architect and issued after execution of the contract, in accordance with the provisions of this Section.
- B. Related work:
  - 1. Documents affecting work of this section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Changes in the work are described further in Article 10 of the Agreement Form and as modified by Section 007300 – Supplementary Conditions.
  - 3. Architect's Field Orders:
    - a. From time to time during progress of the work, the Architect may issue an "Architect's Field Order" which interprets the Contract Documents or orders minor changes in the work without change in Contract Sum or Contract Time.
    - b. Should the Contractor consider that a change in Contract Sum or Contract Time is required, he shall submit an itemized proposal to the Architect immediately and before proceeding with the work. If the proposal is found to be satisfactory and in proper order, the Field Order in that event will be superseded by a Change Order.
  - 4. Construction Change Directive:
    - a. From time to time during the progress of the work, the Architect may issue a "Construction Change Directive" which is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the work prior to agreement or adjustment, if any, in the Contract Sum or Contract Time, or both.
    - b. A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.
  - 5. Proposal Requests:
    - a. From time to time during progress of the work the Architect may issue a "Proposal Request" for an itemized quotation for changes in the Contract Sum and/or Contract Time incidental to proposed modifications to the Contract Documents.
    - b. The Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. The General Contractor shall prepare and submit a fixed price proposal within ten (10) days.
    - c. This proposal request will not be a Change Order, and will not be a direction to proceed with the changes described therein.
  - 6. The General Contractor may propose a change by submitting a request for change to the Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract

Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 016000.

### **1.02 QUALITY ASSURANCE**

- A. Include within the Contractor's quality assurance program such measures as are needed to assure familiarity of the Contractor's staff and employees with these procedures for processing Change Order data.

### **1.03 SUBMITTALS**

- A. Make submittals directly to the Architect at the address shown on the Contract Documents.
- B. Submit the number of copies called for under the various items listed in this Section.

### **1.04 PRODUCT HANDLING**

- A. Maintain a "Register of Proposal Requests, Field Orders, Construction Change Directives, and Change Orders" at the job site, accurately reflection current status of all pertinent data.
- B. Make the Register available to the Architect for review at his request.

### **1.05 PROCESSING CHANGES INITIATED BY THE OWNER**

- A. Should the Owner contemplate making a change in the work or a change in the Contract Time of Completion, the Architect will issue a "Proposal Request," "Field Order," or "Constructive Change Directive" to the Contractor.
- B. If the Contractor has been directed by the Architect to make the described change in the work with no change in the Contract Sum and no change in the Contract Time of completion, but the Contractor wishes to make a claim for one or both of such changes, the Contractor shall proceed with the change and shall notify the Architect in writing within ten (10) days of the date of the "Field Order" or "Construction Change Directive."
- C. If the Contractor has been directed by the Architect to make the described change subject to later determination of cost or credit in accordance with the Conditions of the Contract herein and the General Conditions, the Contractor shall:
  - 1. Take such measures as needed to make the change;
  - 2. Consult with the Architect and reach an agreement on the most appropriate method for determining credit or cost for the change.
- D. If the Contractor has been directed by the Architect to promptly advise the Architect as to credit or cost proposed for the described change, the Contractor shall:
  - 1. Analyze the described change and its impact on costs and time;
  - 2. Secure the required information and forward it to the Architect within ten (10) days for review;
  - 3. Meet with the Architect as required to explain costs and, when appropriate, determine other acceptable ways to achieve the desired objective;
  - 4. Alert pertinent personnel and subcontractors as to the impending change and, to the maximum extent possible, avoid such work as would increase the Owner's cost for making the change, advising the Architect in writing when such avoidance no longer is practicable.

**1.06 PROCESSING CHANGES INITIATED BY THE CONTRACTOR**

- A. Should the Contractor discover a discrepancy among the Contract Documents, a concealed condition as described in the Article 10.3 of the Agreement Form, or other cause for suggesting a change in the work, a change in the Contract Sum, or a change in the Contract Time of Completion, he shall notify the Architect as required by pertinent provisions of the Contract Documents.
- B. Upon agreement by the Architect that there is reasonable cause to consider the Contractor's proposed change, the Architect will issue a Proposal Request in accordance with the provisions described in Paragraph 1.01.B.5 above.

**1.07 PROCESSING PROPOSAL REQUESTS**

- A. Make written reply to the Architect in response to each Proposal Request.
  - 1. State proposed change in the Contract Sum, if any.
  - 2. State proposed change in the Contract Time of Completion, if any.
  - 3. Clearly describe other changes in the work, if any, required by the proposed change or desirable therewith.
  - 4. Include full backup data such as subcontractor's letter of proposal or similar information.
  - 5. Submit this response in duplicate.
- B. When cost or credit for the change has been agreed upon by the Owner and the Contractor, or the Owner has directed that cost or credit be determined in accordance with provisions of the Agreement Form, the Architect will issue a "Change Order" to the Contractor.

**1.08 COMPUTATION OF CHANGE IN CONTRACT AMOUNT**

- A. Refer to Section 012000, Price and Payment Procedures, Subparagraphs 1.06.G and 1.06.H.

**1.09 PROCESSING CHANGE ORDERS**

- A. Change Orders will be dated and will be numbered in sequence.
- B. The Change Order will describe the change or changes, will refer to the Proposal Requests, Field Orders or Construction Change Directives involved, and will be signed by the Owner and the Architect.
- C. The Architect will issue copies of each Change Order to the Contractor.
  - 1. The Contractor promptly shall sign all copies and return them to the Architect.
  - 2. The Architect will forward all signed copies to the Owner for signature(s).
  - 3. One copy of the signed and dated Change Order will be returned to the Contractor and to the Architect.
- D. Should the Contractor disagree with the stipulated change in the Contract Sum or change in Contract Time of Completion, or both:
  - 1. The Contractor promptly shall return all copies of the Change Order, unsigned by him, to the Architect with a letter signed by the Contractor and stating the reason or reasons for the Contractor's disagreement.

2. The Contractor's disagreement with the Change Order shall not in any way relieve the Contractor of his responsibility to proceed with the change as ordered and to seek settlement of the dispute under pertinent provisions of the Contract Documents.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 012100  
ALLOWANCES**

**SECTION NOT USED**

**END OF SECTION**

**SECTION 012200**  
**UNIT PRICES**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Scope: Should various latent conditions be discovered by the Contractor and verified by the Architect during construction, then such unsuitable conditions shall be replaced at the unit price as approved. Costs shall be provided on the Unit Prices Form provided at Section 004200, which shall be an integral part of the Bid Form.
- B. Any additional work authorized under this Section will be added to the Contract by Change Order which has been approved by Architect, Owner and Contractor.
- C. Costs: Each item of unit price work shall include all costs for materials, labor, handling, delivery, installation, services, coordination, supervision, taxes, overhead and profit.

**PART 2 PRODUCTS**

**2.01 MATERIALS**

- A. Replacement materials and methods for any additional work under this Section shall comply with appropriate requirements of applicable specifications Sections.

**PART 3 EXECUTION**

**3.01 UNIT PRICE NO. 1**

- A. NOT USED

**END OF SECTION**

**SECTION 012300  
ALTERNATES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Submission Procedures.
- B. Documentation of changes to Contract Sum and Contract Time to be made under each Alternate.
- C. General: The referenced Specification Sections contain pertinent requirements for materials and methods to achieve the work described herein. Coordinate related work and modify surrounding work, as required, to complete the Project under each Alternate designated in the Agreement.

**1.02 REQUIREMENTS**

- A. Submit Alternates with full description of the proposed Alternate and the effect on adjacent or related components.
- B. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement. Alternates will be taken in numerical order as the budget allows.
- C. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

**1.03 SELECTION AND AWARD OF ALTERNATES**

- A. Indicate variation of Bid Price for Alternates described below and list in Bid Form Document or any supplement to it, which requests a "difference" in Bid Price by adding to or deducting from the base bid price.
- B. Alternate prices shall be held for 30 days from date of Notice to Proceed for Owner selection of any alternates that were not awarded with the original Contract.

**1.04 SCHEDULE OF ALTERNATES**

- A. Alternate No. 1 (ADD): Add the following to the Base Bid including all material, labor, overhead and profit:
  - 1. Extend the water supply for the automatic fire sprinkler system and install the riser and other components to the extent shown in the Drawings
- B. Alternate No. 2 (ADD): Add the following to the Base Bid including all material, labor, overhead and profit:
  - 1. Perform the repairs to the wood siding and elements and paint the associated work as shown in the Drawings.

- C. Alternate No. 3 (ADD): Add the following to the Base Bid including all material, labor, overhead and profit:
1. Perform all work required to prepare and paint the entire exterior of the buildings, including all previously materials, elements and components.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 013000**  
**ADMINISTRATIVE REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Preconstruction meeting.
- B. Progress meetings.
- C. Construction progress schedule.
- D. Submittals for review, information, and project closeout.
- E. Number of copies of submittals.
- F. Submittal procedures.

**1.02 RELATED REQUIREMENTS**

- A. Document 005200 - Agreement Form
- B. Section 007300 - Supplementary Conditions
- C. Section 013216 - Construction Progress Schedule: Form, content, and administration of schedules.
- D. Section 016000 - Product Requirements: Submittals and substitutions and product options.
- E. Section 017000 - Execution and Closeout Requirements
- F. Section 017800 - Closeout Submittals: Project record documents.

**1.03 PROJECT COORDINATION**

- A. Owner Representative shall be designated by Owner.
- B. Cooperate with the Owner Representative in allocation of mobilization areas of site; for field offices and sheds, for maintaining security, site access, traffic, and parking.
- C. During construction, coordinate use of site and facilities through the Owner Representative.
- D. Comply with Owner Representative's and Architect's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.
- E. Comply with instructions of the Owner Representative for use of temporary utilities and construction facilities.
- F. Coordinate field engineering and layout work under instructions of the Owner Representative and the Architect.
- G. Make the following types of submittals to Architect:
  - 1. Requests for interpretation (RFI's).
  - 2. Requests for substitution (comply with Section 016000).
  - 3. Shop drawings, product data, and samples.

4. Test and inspection reports.
5. Pre-Construction Risk Assessment for Construction and Renovation Projects and Interim Life Safety Requirements Forms as required under Section 019000.
6. Manufacturer's instructions and field reports.
7. Applications for payment and change order requests.
8. Progress schedules.
9. Coordination drawings.
10. Closeout submittals.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PRECONSTRUCTION MEETING**

- A. Owner will schedule a meeting after Notice of Award.
- B. Attendance Required:
  1. Owner representative(s).
  2. Architect.
  3. General Contractor
  4. Major Subcontractors.
  5. MDAH representative(s)
  6. Other Subcontractors when requested by the Owner or Architect.
- C. Agenda:
  1. Execution of Owner - Contractor Agreement.
  2. Submission of executed bonds and insurance certificates.
  3. Distribution of Contract Documents.
  4. Review of list of Subcontractors, list of Products, Schedule of Values, and Progress Schedule.
  5. Designation of personnel representing the parties to Contract: Owner, General Contractor and Architect.
  6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
  7. Scheduling.
  8. Use of premises by Owner and Contractor.
  9. Owner requirements and occupancy of adjacent facilities.
  10. Construction facilities and controls provided by Owner.
  11. Agreement for temporary utilities provided by Owner.
  12. Owner security and housekeeping procedures.

13. Application for payment procedures.
  14. Procedures for testing.
  15. Procedures for maintaining record documents.
- D. Record minutes and distribute, via email, electronic (PDF) copies within five (5) working days after meeting to Architect, Owner, other meetings participants, and those affected by decisions made.

### **3.02 PROGRESS MEETINGS**

- A. The Contractor shall schedule and administer meetings throughout progress of the Work at maximum monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.
- C. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner's representative, Architect, and others as appropriate to agenda topics for each meeting.
- D. Agenda:
  1. Review minutes of previous meetings.
  2. Review of Work progress.
  3. Field observations, problems, and decisions.
  4. Identification of problems that impede, or will impede, planned progress.
  5. Review of submittals schedule and status of submittals.
  6. Review of off-site fabrication and delivery schedules.
  7. Maintenance of progress schedule.
  8. Corrective measures to regain projected schedules.
  9. Planned progress during succeeding work period.
  10. Coordination of projected progress.
  11. Maintenance of quality and work standards.
  12. Effect of proposed changes on progress schedule and coordination.
  13. Ongoing Interim Life Safety Requirements Forms as required under Section 019000.
  14. Other business relating to Work.
- E. Record minutes and distribute, via email, electronic (PDF) copies within five (5) working days after meeting to Architect, Owner, participants, and those affected by decisions made.

### **3.03 CONSTRUCTION PROGRESS SCHEDULE - See Section 013216**

- A. Within ten (10) days after award of the Contract, submit an electronic (PDF) copy of a Preliminary Construction Schedule defining prepared in accordance with Section 013216.
- B. If preliminary schedule requires revision after review, submit revised schedule within five (5) days.
- C. Within seven (7) days after review of preliminary schedule, submit draft of proposed complete schedule for review.

1. Include written certification that major Subcontractors have reviewed and accepted proposed schedule.
- D. Within ten (5) days after joint review, submit complete schedule.
- E. Submit updated schedule with each Application for Payment.

### **3.04 DOCUMENTATION OF EXISTING CONDITIONS AND CONSTRUCTION PROGRESS**

- A. Prior to starting the Work, take photographs or video as evidence of existing project conditions as follows:
  1. Interior views of: Each room in the existing structure.
  2. Exterior views of: Existing facilities within the construction area shown on the Contract Documents.
  3. Exterior views of: The site within and adjacent to the construction area shown on the Contract Documents.
- B. Photography Type: Digital; electronic files.
- C. Maintain one set of all photographs at project site for reference; same copies as submitted, identified as such.
- D. Provide photographs of structure throughout the progress of the work, taken on a weekly basis.
- E. Views:
  1. Provide non-aerial photographs from four "corner" views at each specified time, until Date of Substantial Completion.
  2. Consult with Architect for instructions on views required.
  3. Provide factual presentation.
  4. Provide correct exposure and focus, high resolution and sharpness, maximum depth of field, and minimum distortion.
- F. Digital Photographs: Color, minimum resolution of 1024 by 768, in JPG format; provide files unaltered by photo editing software.
  1. Delivery Medium: Via email.
  2. File Naming: Include project identification, date and time of view, and view identification.
  3. PDF File: Assemble all photos into printable pages in PDF format, with 2 to 3 photos per page, each photo labeled with file name; one PDF file per submittal.
  4. Documents for Project Closeout: Include PDF file of assembled photos in record document CDs/DVDs.

### **3.05 SUBMITTALS FOR REVIEW**

- A. When the following are specified in individual sections, submit them for review:
  1. Product data.
  2. Shop drawings.
  3. Samples for selection.
  4. Samples for verification.
  5. Refer to Section 016000 – Product Requirements.

- B. Format: Product Data and Shop Drawings shall be submitted in digital format using the "PDF" (portable document format) filetype. Sample format shall consist of the actual material.
- C. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.
- C. Samples will be reviewed only for aesthetic, color, or finish selection.
- D. After review, provide copies and distribute in accordance with paragraph 3.09 – Submittal Procedures paragraph below and for record documents purposes described in Section 017800 – Closeout Submittals.

### **3.06 SUBMITTALS FOR INFORMATION**

- A. When the following are specified in individual sections, submit them for information:
  - 1. Design data.
  - 2. Certificates.
  - 3. Test reports.
  - 4. Inspection reports.
  - 5. Manufacturer's instructions.
  - 6. Manufacturer's field reports.
  - 7. Other types indicated.
- B. Submit for Architect's knowledge as contract administrator for Owner. No action will be taken.

### **3.07 SUBMITTALS FOR PROJECT CLOSEOUT - See Section 017800**

- A. When the following are specified in individual sections, submit them at project closeout:
  - 1. Project record documents.
  - 2. Operation and maintenance data.
  - 3. Warranties.
  - 4. Bonds.
  - 5. Other types as indicated.
- B. Submit for Owner's benefit during and after project completion.

### **3.08 NUMBER OF COPIES OF SUBMITTALS**

- A. Documents for Review: Submit minimum of four (4) copies.
  - 1. When possible, submit Small Size Sheets, Not Larger Than 11 x 17 inches: Submit the number of copies that Contractor requires, one copy for the Owner plus one copy that will be retained by Architect.
- B. Documents for Information: Submit four (4) copies.
- C. Documents for Project Closeout: Make two (2) reproductions of submittal originally reviewed. Submit one extra of submittals for information. Total of three (3) copies. Submit one (2) copies in electronic (PDF) format.

- D. Samples: Submit two (2) samples of each required material; one of which will be retained by Architect.
  - 1. After review, produce duplicates.
  - 2. Retained samples will not be returned to Contractor unless specifically so stated.

### **3.09 SUBMITTAL PROCEDURES**

- A. Coordinate submittal preparation with construction schedule, fabrication lead-times, other submittals, and other activities that require sequential operations.
  - 1. The Contractor shall transmit all submittals sufficiently in advance to allow ample time for checking, correcting, re-submitting, and re-checking. No extension of Contract Time will be authorized due to failure to transmit submittals in time to permit processing sufficiently in advance of when materials are required in the Work. For each submittal for review, allow twenty eight (28) days excluding delivery time to and from the Contractor.
  - 2. Architect will not accept submittals from sources other than Contractor.
  - 3. No work shall be ordered, fabricated, or installed by the Contractor until the appropriate submittals have been approved by the Architect.
  - 4. All submittals shall be accompanied by a letter of transmittal which shall list the numbers and dates of the materials submitted. Drawings shall be complete in every respect and bound in sets. Unless directed otherwise, submit all materials for inter-related items at approximately the same time.
  - 5. Deliver submittals to Architect at business address.
  - 6. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.
- B. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix (e.g. No.14.A, 078400.A, etc.).
- C. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
- D. When revised for resubmission, identify all changes made since previous submission.
- E. Apply Contractor's stamp, signed or initialed certifying that review, approval, 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. Any submittals not bearing the Contractor's certification will not be considered. Prepare submittals by placing a permanent label on each for identification. Provide a 4 by 5 inch space on the label or beside title block to record review and approval markings and action taken. Include the following information on the label:
  - 1. Project name.
  - 2. Date.
  - 3. Name and address of Contractor.
  - 4. Name and address of subcontractor or supplier.
  - 5. Number and title of appropriate Specification Section.
- F. Provide space for Architect's review stamp.
- G. Product Data: Mark each copy to show applicable choices and options. Include the following:

1. Data indicating compliance with specified standards and requirements.
  2. Notation of coordination requirements.
  3. For equipment data, include rated capacities, dimensions, weights, required clearances, and furnished specialties and accessories.
- H. Shop Drawings: Submit newly prepared information drawn to scale. Indicate deviations from Contract Documents. Do not reproduce Contract Documents or copy standard information. Submit five (6) copies on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches. Architect will return the copies, less those retained. Include the following:
1. Dimensions, profiles, methods of attachment, coordination with adjoining work, large scale details, and other information, as appropriate for the Work.
  2. Identification of products and materials.
  3. Notation of coordination requirements.
  4. Notation of dimensions established by field measurement.
  5. Where documents prepared by an Engineer are required by the Specification, provide seal of Engineer licensed to practice in the state of Mississippi.
  5. The Contractor shall make every effort to provide shop drawings for construction and equipment conforming to the Contract Documents. The Contractor shall check shop drawings submitted by the subcontractor and material suppliers in order to determine their completeness and accuracy for construction purposes, prior to submission of such drawings to the Architect.
- I. Samples: The Contractor shall submit to the Architect any samples, required by the specifications or that may be requested by the Architect, of any materials or equipment he proposes to use and shall prepay all shipping charges on the samples.
1. No materials or equipment of which samples are required to be submitted for approval shall be used on the work until such approval has been given by the Architect. Any materials or equipment requiring approval but not submitted to the Architect shall be removed at the Contractor's expense.
  2. Each sample shall have a label indicating the material represented, its place of origin and the name of the producer, the Contractor, and the project for which the material is intended. Samples of finished materials submitted shall be so marked as to indicate whether the materials represented are required by the drawings and specifications.
  3. A letter in duplicate submitting each shipment of samples, the name of the project for which the materials are intended, and the trade names and manufacturers of the material.
  4. The approval of any sample shall be only for the characteristics or for the uses named in such approval and no other. No approval of a sample shall be taken in itself to change or modify any contract requirement. When a material has been approved no additional sample of that material will be considered and no change in brand or make will be permitted.
  5. Unless specified otherwise in the respective sections, submit two (2) samples of each type or color of material of sufficient size and range to be descriptive of the material when used in large areas.
- J. Test Reports and Data: All test reports and data required by the various sections of these specifications and in accordance with Section 014000 shall be submitted to the Architect within three (3) days after the receipt of such reports by the Contractor.

- K. Architect will review each submittal, mark as appropriate to indicate action taken and, within two weeks, return copies less those retained. Compliance with specified requirements remains Contractor's responsibility. The approval of submittals will be general and, except as otherwise provided in this section, shall not be construed as permitting any departure from the contract requirements, as relieving the Contractor of the responsibility for any errors in details, diversions, or otherwise that may exist, or as approving departures from additional details or instructions previously furnished by the Architect.

**END OF SECTION**

**SECTION 013216**  
**CONSTRUCTION PROGRESS SCHEDULE**

**PART 1 GENERAL**

**1.01 DESCRIPTION**

- A. Work included: To assure adequate planning and execution, so that the Work is completed within the number of calendar days allowed in the Contract, and to assist the Architect in appraising the reasonableness of the proposed schedule and in evaluating progress of the Work, prepare and maintain the schedules and reports described in this Section.
- B. Related work:
  - 1. Documents affecting work of this section include, but are not necessarily limited to, Agreement Form, Supplementary Conditions, and Sections in Division 1 of these Specifications.
  - 2. Construction Schedule is required under Article 8.2 of the Agreement Form, AIA A105-2017.
  - 3. Construction period: Agreement Form.
- C. Definitions:
  - 1. "Day," as used throughout the Contract unless otherwise stated, means "calendar day."

**1.02 QUALITY ASSURANCE**

- A. Perform data preparation, analysis, charting, and updating in accordance with accepted industry standards.
- B. Reliance upon the approved schedule:
  - 1. The construction schedule as approved by the Architect will be an integral part of the Contract and will establish interim completion dates for the various activities under the Contract.

**1.03 SUBMITTALS**

- A. Comply with pertinent provisions of Section 013000.
- B. Construction schedule: Within ten (10) calendar days after the award of the Contract, submit an electronic (PDF) copy of a Preliminary Construction Schedule prepared in accordance with Part 3 of this Section.
- C. If preliminary schedule requires revision after review, submit revised schedule within five (5) days.
- D. Within seven (7) days after review of preliminary schedule, submit draft of proposed complete schedule for review.
  - 1. Include written certification that major Subcontractors have reviewed and accepted proposed schedule.
- D. Within five (5) days after joint review, submit complete schedule.
- E. Submit updated schedule with each Application for Payment.

- F. Periodic reports: At each monthly project progress meeting, following the submittal described in Paragraph 1.03.B above, submit five (5) copies of the construction schedule updated as described in Part 3 of this Section.
- G. Submit under transmittal forms specified in Section 013000.

## **PART 2 PRODUCTS**

### **2.01 CONSTRUCTION ANALYSIS**

- A. Graphically show by bar chart the order and interdependence of all activities necessary to complete the Work, and the sequence in which each activity is to be accomplished, as planned by the Contractor and his project field superintendent in coordination with all subcontractors whose work is shown on the diagram.
- B. Coordinate content with Schedule of Values specified in Section 012000.
- C. Include, but do not necessarily limit indicated activities to:
  - 1. Project mobilization;
  - 2. Submittal and approval of Shop Drawings and Samples;
  - 3. Procurement of equipment and critical materials;
  - 4. Fabrication of special material and equipment, and its installation and testing;
  - 5. Final cleanup;
  - 6. Final inspecting and testing; and
  - 7. All activities by the Architect that affect progress, required dates for completion, or both, for all and each part of the Work.
  - 8. Provide legend for symbols and abbreviations used.

## **PART 3 EXECUTION**

### **3.01 CONSTRUCTION SCHEDULE**

- A. As soon as practicable after receiving the Notice to Proceed, complete the construction analysis in preliminary form, meet with the Owner's Representative and the Architect, review contents of proposed construction schedule, and make all revisions agreed upon.
- B. Submit in accordance with Paragraph 1.3 above.

### **3.02 PERIODIC REPORTS**

- A. As required under Paragraph 1.3 above, update the approved construction schedule.
  - 1. Indicate "actual" progress in percent completion for each activity.
  - 2. Provide written narrative summary of revisions causing delay in the program, and an explanation of corrective actions taken or proposed.

**3.03 REVIEW AND EVALUATION OF SCHEDULE**

- A. Participate in joint review and evaluation of schedule with the Owner and Architect at each Progress Meeting or at each submittal.
- B. Evaluate project status to determine work behind schedule and work ahead of schedule.
- C. After review, revise as necessary as result of review, and resubmit within 5 working days.

**3.04 UPDATING SCHEDULE**

- A. Maintain schedules to record actual start and finish dates of completed activities.
- B. Indicate progress of each activity to date of revision, with projected completion date of each activity.
- C. Annotate diagrams to graphically depict current status of Work.
- D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.
- E. Indicate changes required to maintain Date of Substantial Completion.
- F. Submit reports required to support recommended changes.

**3.05 DISTRIBUTION OF SCHEDULE**

- A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect, Owner and other concerned parties.
- B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

**END OF SECTION**

**SECTION 013553**  
**SECURITY PROCEDURES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Security measures including entry control and miscellaneous restrictions.

**1.02 RELATED REQUIREMENTS**

- A. Section 007310 - Architects Special Conditions.
- A. Section 011000 - Summary: use of premises and occupancy.
- B. Section 015000 - Temporary Facilities and Controls: Temporary lighting.

**1.03 SECURITY**

- A. Protect Work and existing premises from theft, vandalism, and unauthorized entry.
- C. Restrict access of any kind through the Work Area to other structures on site except as specifically directed by the Owner or as indicated on Drawings.
- D. Maintain security throughout construction period.

**1.04 ENTRY CONTROL**

- A. Allow entrance only to authorized persons. Contractor shall maintain record of all persons entering the project site.

**PART 2 PRODUCTS – NOT USED**

**PART 3 EXECUTION – NOT USED**

**END OF SECTION**

**SECTION 014000**  
**QUALITY REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. References and standards.
- B. Quality assurance submittals.
- C. Mock-ups.
- D. Control of installation.
- E. Tolerances.
- F. Manufacturers' field services.

**1.02 RELATED REQUIREMENTS**

- A. Agreement Form and as modified by 007300 - Supplementary Conditions: Inspections and approvals required by public authorities.
- B. Section 013000 - Administrative Requirements: Submittal procedures.
- C. Section 014216 - Definitions.
- D. Section 016000 - Product Requirements: Requirements for material and product quality.

**1.03 REFERENCE STANDARDS**

- A. ASTM E 329 - Standard Specification for Agencies Engaged in Construction Inspection and/or Testing; 2009.
- B. ASTM E 543 - Standard Specification for Agencies Performing Nondestructive Testing; 2009.

**1.04 SUBMITTALS**

- A. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
  - 1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
  - 2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.
- B. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
  - 1. Submit report in duplicate within 30 days of observation to Architect for information.
  - 2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

### **1.05 REFERENCES AND STANDARDS**

- A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.
- C. Obtain copies of standards where required by product specification sections.
- D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.
- E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

### **PART 2 PRODUCTS - NOT USED**

### **PART 3 EXECUTION**

#### **3.01 CONTROL OF INSTALLATION**

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Have Work performed by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

#### **3.02 MOCK-UPS**

- A. Tests will be performed under provisions identified in this section and identified in the respective product specification sections.
- B. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

- C. Accepted mock-ups shall be a comparison standard for the remaining Work.
- D. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, remove mock-up and clear area when directed to do so.

### **3.03 TOLERANCES**

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

### **3.04 MANUFACTURERS' FIELD SERVICES**

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment and demonstration of operation and maintenance of equipment to Owner's personnel as applicable, and to initiate instructions when necessary.
- B. Submit qualifications of observer to Architect 30 days in advance of required observations.
  - 1. Observer subject to approval of Architect.
  - 2. Observer subject to approval of Owner.
- C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

### **3.05 DEFECT ASSESSMENT**

- A. Replace Work or portions of the Work not conforming to specified requirements.
- B. If, in the opinion of the Architect or Owner, it is not practical to remove and replace the Work, the Architect in conjunction with Owner will direct an appropriate remedy or adjust payment.

**END OF SECTION**

**SECTION 014216**  
**DEFINITIONS**

**PART 1 GENERAL**

**1.01 SUMMARY**

- A. Other definitions are included in individual specification sections.

**1.02 DEFINITIONS**

- A. Furnish: To supply, deliver, unload, and inspect for damage.
- B. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.
- C. Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment. All products specified shall be new unless specifically indicated as otherwise in the Construction Documents.
- D. Provide: To furnish and install.
- E. Supply: Same as Furnish.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION - NOT USED**

**END OF SECTION**

**SECTION 015000**  
**TEMPORARY FACILITIES AND CONTROLS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Temporary utilities.
- B. Temporary telecommunications services.
- C. Temporary sanitary facilities.
- D. Temporary Controls: Exterior barriers, enclosures, and fencing.
- E. Temporary Controls: Interior enclosures
- F. Interim Life Safety Measures
- G. Security.
- H. Vehicular access and parking.
- I. Waste removal.
- J. Field offices.
- K. Removal of utilities, facilities, and controls.

**1.02 RELATED REQUIREMENTS**

- A. Section 013553 – Security Procedures

**1.03 REFERENCE STANDARDS**

- A. American Society for Testing and Materials (ASTM), E84 – Standard Test Method for Surface Burning Characteristics of Building Materials.
- B. National Fire Protection Association (NFPA), 701 Test 2 (Large Scale) – Standard Methods of Fire Tests for Flame Propagation of textiles and Films.

**1.04 TEMPORARY UTILITIES**

- A. The Owner does not currently maintain utility service to the property. The Contractor shall provide their own temporary power and water at the site.

**1.05 TEMPORARY SANITARY FACILITIES**

- A. Provide and maintain a portable toilet from the time of project mobilization until Substantial Completion. Coordinate location and maintenance with Owner.
- B. Maintain daily in clean and sanitary condition.

**1.07 TEMPORARY CONTROLS: EXTERIOR BARRIERS, ENCLOSURES, AND FENCING**

- A. Owner will provide location for Contractor's lay-down and storage on exterior. Security of the lay-down and storage area shall be the responsibility of the Contractor. Contractor shall obtain approval and coordinate installation of all security measures with the Owner in advance of installation.
- B. The Contractor shall furnish and install a lockable, steel security gate across the existing driveway in the location shown in the Drawings.

**1.10 FIRE PROTECTION EQUIPMENT**

- A. The Contractor shall furnish and maintain a minimum of two A:B:C type, 10 pound, portable fire extinguishers in the work area at all times. Fire extinguishers shall be stored within sight and convenient reach of the workers. Fire extinguishers shall be maintained with date and tag of current inspection and shall be labeled by UL or FM for purpose specified and as indicated.

**1.11 TEMPORARY SIGNAGE**

- A. Provide temporary signage of type and size and at locations indicated on Drawings.

**1.12 SECURITY**

- A. Coordinate with Owner security program and requirements of Section 013553 – Security Procedures.

**1.13 VEHICULAR ACCESS AND PARKING**

- A. Comply with regulations relating to use of public streets and sidewalks.
- B. Coordinate access and haul routes with governing authorities and Owner.
- C. Provide and maintain access to fire hydrants, free of obstructions.
- D. Provide means of removing mud from vehicle wheels before entering and exiting designated construction area.
- E. Designated existing on-site roads and paved areas may be used for construction traffic.
- F. Existing paved areas located on the project site may be used for delivery and storage of material but not for parking.
- G. Construction parking shall occur along the curb on the street.

**1.14 WASTE REMOVAL**

- A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.
- B. Provide containers with lids. Remove trash from site periodically.
- C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

- D. Coordinate schedule for waste removal with Owner's requirements for traffic and building access. Maintain procedures and requirements specified at Section 013553 and Section 017419.

### **1.15 FIELD OFFICES**

- A. No area for a field office will be provided on site. Contractor's operations on Owner property shall be limited to the Work Area, the designated lay-down and parking areas.
- B. Coordinate with Owner for designated space for Project meetings.

### **1.16 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS**

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Completely remove or cap and abandon, where indicated thus, concealed mechanical ductwork and devices, plumbing, conduit, cabling and other installations as indicated on Drawings and required in individual specification sections.
- C. Clean and repair damage caused by installation or use of temporary work. Finishes damaged by installation or use of temporary work, construction traffic, or any operations of the Contractor within the Owner property shall be repaired by the Contractor and returned to the condition of the existing adjacent construction at no cost to the Owner. Repairs shall be made to the satisfaction of the Owner and Architect. Corrective work shall be completed such that the transition between repaired or replaced material and the existing construction is not visible. Where it is the opinion of the Architect and Owner that repairs shall be continued beyond the damaged area to provide a discreet transition, such repairs shall be made by the Contractor at no cost to the Owner.
- D. Restore existing facilities used during construction to original condition.
- E. Restore new permanent facilities used during construction to specified condition.

## **PART 2 PRODUCTS – Not Used**

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions prior to installation of temporary protective materials and elements. Notify Architect of any circumstances or conditions affecting installation or maintenance of temporary protectives.

### **3.02 PREPARATION**

- A. Clean surfaces adjacent to and including locations for the installation of temporary materials and elements. Repair surfaces as required to provide a smooth, even sound surface. Surfaces shall be free of debris, oils, dust or other deleterious materials.

**3.03 INSTALLATION**

- A. Install components in accordance with manufacturer's instructions, secured rigidly in position to supporting construction.

**3.04 MAINTENANCE**

- A. Maintain components for the duration of the Work. Immediately repair any defects in temporary enclosures or permanent construction.

**3.05 CLEANING AND REMOVAL**

- A. Prior to Substantial Completion, completely remove all temporary protective measures. Clean affected surfaces and provide repair or replacement of damaged finishes. Return all finishes to condition of adjacent finishes. Repair or replacement of damaged finishes shall be provided by the Contractor at no cost to the Owner.

**END OF SECTION**

**SECTION 016000  
PRODUCT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. General product requirements.
- B. Re-use of existing products.
- C. Transportation, handling, storage and protection.
- D. Product option requirements.
- E. Substitution limitations and procedures.
- F. Maintenance materials, including extra materials, spare parts, tools, and software.

**1.02 RELATED REQUIREMENTS**

- A. Section 013000 – Administrative Requirements: Submittal procedures.
- B. Section 014000 – Quality Requirements: Product quality monitoring.
- C. Section 017000 – Execution and Closeout Requirements.
- D. Section 017800 – Closeout Submittals.

**1.03 SUBMITTALS**

- A. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.
- B. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.
- C. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
  - 1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.
  - 2. Samples for verification shall be provided as required to document specific product characteristics as may be required by the Architect or Owner.

**1.04 SHOP DRAWINGS**

- A. Following the procedures specified at Section 013000 – Administrative Requirements, the Contractor shall submit, for the approval of the Architect, shop and setting drawings and schedules required by the specifications or requested by the Architect. No work shall be fabricated by the Contractor until such approval has been given.
- B. Drawings and schedules shall be submitted accompanied by letter of transmittal which shall give a list of the numbers and dates of the drawings submitted. Each drawing or submittal shall

be numbered in relation to its appropriate specification section. Drawings shall be complete in every respect and bound in sets. Unless items are otherwise listed it will be understood that all shop drawings for inter-related items will be submitted at approximately the same time.

- C. The Contractor shall submit all drawings and schedules sufficiently in advance to allow ample time for checking, correcting, re-submitting and re-checking. Submit all drawings, schedules, and samples as required to avoid delay of project schedule and shipping requirements.
- D. Shop drawings shall be processed from subcontractor through the Contractor. No shop drawings shall be submitted to the Architect by a subcontractor or material supplier.
- E. The drawings submitted shall be marked with the name of the project, numbered consecutively, and bear the stamp of approval of the Contractor as evidence that the drawings have been checked by the Contractor. Any drawings submitted without the stamp of approval will not be considered and will be returned to the Contractor for re-submission.
- F. The Contractor shall make every effort to provide shop drawings for construction and equipment conforming to the contract documents. The Contractor shall check shop drawings submitted by the subcontractor and material suppliers in order to determine their completeness and accuracy for construction purposes, prior to submission of such drawings to the Architect. Where changes from the contract documents are proposed, the Contractor shall indicate the difference in his submittal. The Contractor's check shall also determine whether or not the equipment will be compatible with his sequence of operation or the Owner's, if specified. If the equipment is not compatible with the intended or specified sequence, he shall notify the Architect.
- G. Suppliers of substitute or equal products shall provide information to illustrate compatibility and equal standards to that specified. Requests for substitutions and for supplying proposed equal products shall be in strict accordance with the requirements of Part 3 Execution - Substitutions Procedures below.
- H. The Contractor shall submit to the Architect a minimum of six (6) copies of shop drawings as required at Section 013000 and at specific specifications.
- I. The Architect will review shop drawings submissions within twenty eight (28) days. The Architect will include all comments or corrections desired on the first transmittal. Thus, when drawings which need corrections are resubmitted, the Architect will be able to confine his attention to those items commented on in the previous submission. Shop drawings which are incomplete or indicate no attempt at conformance with the contract documents shall not be submitted to the Architect for review.
- J. The approval of shop and setting drawings will be general and, except as otherwise provided in this section, shall not be construed as permitting any departure from the contract requirements as relieving the Contractor of the responsibility for any errors in details, diversions, or otherwise that may exist; or as approving departures from additional details or instructions previously furnished by the Architect.

## **PART 2 PRODUCTS**

### **2.01 EXISTING PRODUCTS**

- A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

- B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor and shall be removed from the site.
- C. Reused Products: Reused products include materials and equipment previously used in this or other construction, salvaged and refurbished as specified.

## **2.02 NEW PRODUCTS**

- A. Provide new products unless specifically required or permitted by the Contract Documents.
- B. Do not use products having any of the following characteristics:
  - 1. Made using or containing CFC's or HCFC's.
- C. Where all other criteria are met, Contractor shall give preference to products that:
  - 1. If used on interior, have the lowest emissions and zero VOC content where such products are available.
  - 2. If wet-applied, have zero VOC content.
  - 3. Are extracted, harvested, and/or manufactured closer to the location of the project.
  - 4. Have longer documented life span under normal use.
  - 5. Result in less construction waste.
  - 6. Are made of vegetable materials that are rapidly renewable.
- D. Products with Rapidly Renewable Material Content:
  - 1. Definition: Materials made from plants that are typically harvested within 10 years or less after planting.
  - 2. Specific Product Categories: Provide renewable material content as specified elsewhere.
- E. Products with Recycled Content:
  - 1. Specific Product Categories: Provide recycled content as specified elsewhere.
  - 2. Calculations: Where information about recycled content is required to be submitted:
    - a. Determine percentage of post-consumer and post-industrial content separately, using the guidelines contained in 16 CFR 260.7(e).
    - b. Previously used, reused, refurbished, and salvaged products are not considered recycled.
    - c. Wood fabricated from timber abandoned in transit to original mill is considered reused, not recycled.
- F. Provide interchangeable components of the same manufacture for components being replaced.

## **2.03 PRODUCT OPTIONS**

- A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

## **2.04 SUBSTITUTIONS**

- A. The Contract Documents are intended to produce a building of consistent character and quality of design. All components of the building including visible items of mechanical and electrical equipment have been selected to result in a coordinated design in relation to the overall appearance of the building. The Architect will judge overall design of the work, as well as for the intrinsic merits of the proposed substitution. The Architect will not permit "as equal to materials specified" proposed substitutes which, in the Architect's opinion, would be out of character, obtrusive or otherwise inconsistent with the character or quality of design of the work.
- B. Requests for substitutions: the Contractor may request permission for a substitution of any item, subject to the following conditions:
  - 1. Submit requests in writing to the Architect, on a "Request for Substitution" form supplied by the Architect, fully completed. A sample copy of this form is included in this Project Manual following this Section.
  - 2. State whether the use of the substitution will require alteration to any part of the Work. If the substitution is adopted, carry out any such alteration without extra charge. In the case where the affected work is part of another subcontract, obtain cost from the other sub-contractor for such alteration and include it in the cost of the substitution.
  - 3. No claim shall arise from any rejection, nor, unless otherwise agreed, shall adoption of a substitution be grounds for any claim for variation to cost or time.
- C. Requests for substitutions will be received and considered when extensive revisions to Contract Documents are not required and changes are in keeping with general intent of Contract Documents, and when timely, fully documented and properly submitted, all as determined by the Architect.

## **2.05 MAINTENANCE MATERIALS**

- A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.
- B. Deliver to Project site; obtain receipt prior to final payment.

## **PART 3 EXECUTION**

### **3.01 SUBSTITUTION PROCEDURES**

- A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.
- B. Architect will consider requests for substitutions only within 15 days after date of Agreement.
- C. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- D. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.
  - 1. For each proposed substitution, complete and submit to the Architect a "Request for Substitution" form.

2. "Request for Substitution" form is included in this Project Manual.
- E. A request for substitution and submission of a "Request for Substitution" form constitutes a representation that the submitter:
  1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  2. Will provide the same warranty for the substitution as for the specified product.
  3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to the Owner.
  4. Waives claims for additional costs or time extension that may subsequently become apparent.
  5. Will reimburse the Owner and Architect for review or redesign services associated with re-approval by authorities.
- F. Substitutions will not be considered when they are indicated or implied on shop drawings or product data submittals, without separate written request accompanied by a "Request for Substitution" form, or when acceptance will require revision to the Contract Documents.
- G. Substitution Submittal Procedure:
  1. Submit six (6) copies of request for substitution for consideration. Limit each request to one proposed substitution.
  2. Submit completed "Request for Substitution" form.
  3. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
  4. The Architect will notify Contractor in writing of decision to accept or reject request.
  5. No work involving any request for substitution shall be commenced, or materials ordered, until the Contractor has received written evidence of the approval of the request by the Architect.

### **3.02 TRANSPORTATION AND HANDLING**

- A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.
- B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.
- C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.
- D. Transport and handle products in accordance with manufacturer's instructions.
- E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.
- F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.
- H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

**3.03 STORAGE AND PROTECTION**

- A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.
- B. Store and protect products in accordance with manufacturers' instructions.
- C. Store with seals and labels intact and legible.
- D. Store sensitive products in weathertight, climate-controlled enclosures in an environment favorable to product.
- E. For exterior storage of fabricated products, place on sloped supports above ground.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Prevent contact with material that may cause corrosion, discoloration, or staining.
- J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.
- K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

**END OF SECTION**

**SECTION 017000**  
**EXECUTION AND CLOSEOUT REQUIREMENTS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. General project conditions and coordination.
- B. Pre-installation meetings.
- C. Field engineering requirements.
- D. Product requirements for cutting and patching.
- E. Examination, preparation, and general installation procedures.
- F. Requirements for renovation and alteration work.
- G. Laying out the work.
- H. Protecting installed construction.
- I. Cutting and patching.
- J. Adjusting.
- K. Progress cleaning and final cleaning.
- L. Starting of systems and equipment.
- M. Testing, adjusting, and balancing for HVAC.
- N. Demonstration and instructions.
- O. Closeout procedures, except payment procedures.
- P. Maintenance.

**1.02 RELATED REQUIREMENTS**

- A. Section 011000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.
- B. Section 013000 - Administrative Requirements: Submittals procedures.
- C. Section 014000 - Quality Requirements: Testing and inspection procedures.
- D. Section 015000 - Temporary Facilities and Controls.
- E. Section 017800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.
- F. Section 024100 - Demolition: Selective demolition.
- G. Individual Product Specification Sections:
  - 1. Advance notification to other sections of openings required in work of those sections.
  - 2. Limitations on cutting structural members.

### **1.03 REFERENCE STANDARDS**

- A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2004.

### **1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements.
- B. See Section 016000 - Product Requirements.
- C. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
  - 1. Structural integrity of any element of Project.
  - 2. Integrity of weather exposed or moisture resistant element.
  - 3. Efficiency, maintenance, or safety of any operational element.
  - 4. Visual qualities of sight exposed elements.
  - 5. Include in request:
    - a. Identification of Project.
    - b. Location and description of affected work.
    - c. Necessity for cutting or alteration.
    - d. Description of proposed work and products to be used.
    - e. Date and time work will be executed.
- D. Project Record Documents: Accurately record actual locations of capped and active utilities.
- E. See Section 017800 – Closeout Submittals.

### **1.05 PROJECT CONDITIONS**

- A. Use of explosives is not permitted.
- B. Protect facility from puddling or running water. Provide water barriers as required to protect other portions of the facility water damage or flooding during demolition and execution of the Work.
- C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- D. Dust Control: Execute work by methods to minimize raising dust from construction operations.
  - 1. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
  - 2. Thoroughly clean all dust and construction debris from the Work Area at the end of each day.
- E. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

### **1.06 COORDINATION**

- A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.
- B. Notify affected utility companies and comply with their requirements.
- F. Coordinate completion and clean-up of work of separate sections.
- G. After Substantial Completion, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
- H. Payment for Costs
  - 1. Costs caused by ill-timed or defective work or work not conforming to Contract Documents will be borne by party responsible for ill-timed, rejected or non-conforming work.

### **1.07 PREINSTALLATION MEETINGS**

- A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Architect 7 days in advance of meeting date.
- D. Prepare agenda and preside at meeting:
  - 1. Review conditions of examination, preparation and installation procedures.
  - 2. Review coordination with related work.
- E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner participants and those affected by decisions made.

## **PART 2 PRODUCTS**

### **2.01 PATCHING MATERIALS**

- A. New Materials: As specified in product sections; match existing products and work for patching and extending work. All new materials shall match the original in type, design and appearance.
- B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard. Final acceptance of patched work shall be determined by the Architect and Owner.
- C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 016000 - Product Requirements.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

- B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.
- C. Examine and verify specific conditions described in individual specification sections.
- D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or mis-fabrication.
- E. Verify that utility services are available, of the correct characteristics, and in the correct locations.
- F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

### **3.02 PREPARATION**

- A. Clean substrate surfaces prior to applying next material or substance.
- B. Seal cracks or openings of substrate prior to applying next material or substance.
- C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

### **3.03 GENERAL INSTALLATION REQUIREMENTS**

- A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.
- B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.
- C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.
- D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.
- E. Make neat transitions between different surfaces, maintaining texture and appearance.

### **3.04 REQUIREMENTS FOR RENOVATION AND ALTERATION WORK**

- A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
  - 1. Verify that construction and utility arrangements are as shown.
  - 2. Report discrepancies to Architect before disturbing existing installation.
  - 3. Beginning of renovation/alterations work constitutes acceptance of existing conditions.
- B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
  - 1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 015000 and per requirements of Section 019000.
- C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.
  - 1. Where openings in exterior enclosure exist, provide construction to make exterior enclosure weatherproof.

- D. Remove existing work as indicated and as required to accomplish new work.
  - 1. Coordinate with Owner for removal by Owner of existing furniture, equipment, devices, wall-mounted items or other material which the Owner intends to remove prior to start of demolition operations.
  - 2. Remove items indicated on Drawings.
  - 3. Relocate items indicated on Drawings.
  - 4. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
  - 5. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.
- E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Telecommunications).
  - 1. Carefully remove, tag, catalog, and store elements of existing systems which are to be reinstalled following completion of new work. Clean items prior to reinstallation.
  - 2. Remove existing elements of abandoned systems to accommodate new construction.
    - a. Verify that abandoned services serve only abandoned facilities.
    - b. Remove abandoned pipe, ducts, conduits, and equipment including those below grade; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.
- F. Protect existing work to remain.
  - 1. Prevent movement of structure; provide shoring and bracing if necessary.
  - 2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
  - 3. Repair adjacent construction and finishes damaged during removal work.
- G. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
  - 1. When existing finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division and make recommendation to Architect.
  - 2. Where a change of plane of 1/4 inch (6 mm) or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.
- H. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.
- I. Refinish existing surfaces as indicated:
  - 1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
  - 2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
- J. Clean existing systems and equipment.

- K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.
- L. Do not begin new construction in alterations areas before demolition is complete.
- M. Comply with all other applicable requirements of this section.

### **3.05 LAYING OUT THE WORK**

- A. Verify locations of new construction in relation to remaining existing construction.
- B. Control datum for locations of new construction is existing structural system components and existing construction as indicated on Drawings.
- C. Promptly notify Architect of any discrepancies discovered.
- D. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
- E. Periodically verify layouts by same means.

### **3.06 PROTECTION OF INSTALLED WORK**

- A. Protect installed work from damage by construction operations.
- B. Provide special protection where specified in individual specification sections.
- C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- 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 grassed and landscaped areas.
- H. Remove protective coverings when no longer needed; reuse or recycle coverings if possible.

### **3.07 CUTTING AND PATCHING**

- A. Whenever possible, execute the work by methods that avoid cutting or patching.
- B. See Alterations article above for additional requirements.
- C. Perform whatever cutting and patching is necessary to:
  - 1. Complete the work.
  - 2. Fit products together to integrate with other work.
  - 3. Uncover work to provide for installation of ill-timed work.
  - 4. Install specified work in existing construction.
  - 5. Provide routine penetration of non-structural surfaces for installation of piping or conduit serving mechanical, electrical, and other services.
  - 6. Uncover site utilities which are to be disconnected and moved.

7. Match work that has been cut to adjacent work.
  8. Repair areas adjacent to cuts to required condition.
  9. Repair new work damaged by subsequent work.
  10. Remove samples of installed work for testing when requested.
  11. Remove and replace defective and non-complying work.
- C. In addition to contract requirements, upon Architect's written instructions:
1. Uncover work for observation of covered work.
  2. Remove samples of installed materials for testing.
  3. Remove work to provide alteration of existing work.
- D. Do not cut or alter work of another contractor without his consent.
- E. Inspect existing conditions of work, including elements subject to movement or damage during cutting and patching.
1. Provide shoring, bracing and support as required to maintain structural integrity on project. Provide protection for other portions of project and protection from the elements.
- E. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.
1. Use masonry saw to cut concrete slab-on-grade along perimeter of areas of slab to be removed. Cut and break out concrete to neat, straight lines and firm material.
  2. Use masonry saw to cut masonry at joints and at junctures with construction to remain and carefully remove in small sections.
  3. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.
  4. Execute excavating and backfilling by methods which prevent damage to other work and prevent settlement.
- F. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.
- G. Restore work which has been cut or removed, install new products to provide completed work in accordance with requirements of Contract Documents.
- H. Fit work air-tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 078400, to full thickness of the penetrated element. Provided engineered system specifically designed and approved for (1) the penetrating material, size and configuration, (2) the type, thickness, and configuration of the partition or assembly being penetrated, and (3) the rating required for the completed assembly.
- J. Patching:
1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
  2. Match color, texture, and appearance.

3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.
  4. Refinish entire surfaces as necessary to provide an even finish. Refinish continuous surfaces entirely to the nearest intersection and assemblies.
- K. Costs caused by ill-timed or defective work or work not conforming to Contract Documents will be borne by party responsible for ill-timed, rejected or non-conforming work.
- L. Protect other structures, grounds and equipment on the property that are not included in the Work. Notify the Architect and Owner immediately if any evidence of damage is observed.

### **3.08 ADJUSTING**

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

### **3.09 PROGRESS CLEANING**

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

### **3.10 FINAL CLEANING**

- A. Execute final cleaning prior to final inspection.
1. Clean the job-site, including the exterior storage and lay-down area and the Work Area.
- B. Use cleaning materials that are nonhazardous.
- C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
- D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.
- E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.
- F. Clean filters of operating equipment.
- G. Clean debris from roofs, gutters, downspouts, scuppers, overflow drains, area drains and drainage systems.
- H. Clean site; sweep paved areas, rake clean landscaped surfaces.
- I. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

### **3.11 CLOSEOUT PROCEDURES**

- A. Refer also to requirements of Article 12 of the Agreement Form and Section 007300.
- B. Submit items required under provisions of Section 017800 – Closeout Submittals.
- C. Make submittals that are required by governing or other authorities.
  - 1. Provide copies to Architect.
  - 2. Provide copies to Owner.
- D. Contractor's Correction Punchlist: Prior to Contractor's Notice of Substantial Completion, the Contractor shall prepare and submit to the Architect the Contractor's Correction Punchlist identifying items required for completion prior to Substantial Completion. Upon completion of the items Contractor's Correction Punchlist, the Contractor shall notify the Architect to schedule the Architect's preliminary Substantial Completion review.
- E. Architect's Preliminary Substantial Completion Review: The Contractor shall accompany the Architect on a preliminary review to determine the items to be listed for completion or correction in the Contractor's Substantial Completion Correction Punch List which will be required for Contractor's Notice of Substantial Completion.
  - 1. If items indicated on the Contractor's Correction Punch List are found to be incomplete the Architect may determine that the Architect's Preliminary Substantial Completion review will be cancelled and completed when the Work indicated in the Contractor's Correction Punchlist is complete. Contractor shall complete the items indicated and notify Architect per 3.12.B.
  - 2. If items indicated in the Contractor's Correction Punch List is found to be sufficiently complete, the Architect will review the work to determine items to be listed for completion or correction in prior to Contractor's Notice of Substantial Completion.
- F. Notify Architect when the items listed in the Contractor's Correction Punch List for Substantial Completion have been complete and the work is considered ready for Substantial Completion review.
  - 1. 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 Substantial Completion review. Include Contractor's Preliminary and Substantial Completions Punch Lists.
- G. Accompany the Architect and Owner on Substantial Completion review.
  - 1. If items on the Contractor's Completion Punch List are found to be incomplete, the Substantial Completion review will be canceled. The Contractor shall complete the items on the Contractor's Punch List and notify Architect upon completion per 3.12.C.
  - 2. If the Work is determined to be substantially complete the Architect will prepare Certificates of Substantial Completion and create a Final Correction Punch List containing Architect and Owner's comprehensive list of items identified to be completed or corrected.
- H. Correct items of work listed in executed Certificates of Substantial Completion and comply with requirements for access to Owner occupied areas.
- I. Accompany the Architect and Owner on preliminary final review.
- J. Correct items of work listed in Final Correction Punch List.
- K. Notify Architect when work is considered finally complete and ready for Architect's final review.

- L. Complete items of work determined by Architect's final review.

**3.12 MAINTENANCE**

- A. Provide service and maintenance of components indicated in specification sections.
- B. Warranty Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

**END OF SECTION**

**SECTION 017800**  
**CLOSEOUT SUBMITTALS**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Project Record Documents.
- B. Operation and Maintenance Data.
- C. Warranties and Bonds.
- D. Evidence of Compliance.
- E. Keys and Keying Schedule.
- F. Spare Parts and Extra Stock.

**1.02 RELATED REQUIREMENTS**

- A. Agreement Form – General Conditions: Performance bond and labor and material payment bonds, warranty, and correction of work.
- B. Section 007300 – Supplementary Conditions.
- C. Section 013000 – Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.
- D. Section 017000 – Execution and Closeout Requirements: Contract closeout procedures.
- E. Individual Product Sections: Specific requirements for operation and maintenance data.
- F. Individual Product Sections: Warranties required for specific products or Work.

**1.03 SUBMITTALS**

- A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.
- B. Operation and Maintenance Data:
  - 1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
  - 2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
  - 3. Submit one copy of completed volumes in final form prior to substantial completion inspection. Copy will be returned, with Architect comments. Revise content of documents as required prior to submittal.
  - 4. Submit four (4) sets of revised final documents in final form within 10 days after final inspection.
- C. Warranties and Bonds:
  - 1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
  - 2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
  - 3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

- D. Evidence of compliance.
- E. Keys and keying schedule.
- F. Spare parts and extra stock.

**PART 2 PRODUCTS - NOT USED**

**PART 3 EXECUTION**

**3.01 PROJECT RECORD DOCUMENTS**

- A. Maintain on site one electronic and one hard copy set of the following record documents; record actual revisions to the Work:
  - 1. Drawings.
  - 2. Specifications.
  - 3. Addenda.
  - 4. Change Orders and other modifications to the Contract.
  - 5. Reviewed shop drawings, product data, and samples.
  - 6. Manufacturer's instruction for assembly, installation, and adjusting.
  - 7. Operation and Maintenance Data.
- B. Ensure entries are complete and accurate, enabling future reference by Owner.
- C. Store record documents separate from documents used for construction.
- D. Record information concurrent with construction progress.
- E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
  - 1. Manufacturer's name and product model and number.
  - 2. Product substitutions or alternates utilized.
  - 3. Changes made by Addenda and modifications.
- F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
  - 1. Measured depths of foundations in relation to finish main floor datum.
  - 2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
  - 4. Field changes of dimension and detail.
  - 5. Details not on original Contract drawings.
  - 6. Changes made by field directive or change order.
- G. Scan hard copy markup and include with digital copy in digital format. Provide two (2) copies on CD, DVD or portable USB drive of all project record documents. All files shall be scanned in color at the largest size available and at no less than 300 dpi. Files shall be in .pdf format.

**3.02 OPERATION AND MAINTENANCE DATA**

- A. Format of Submittal Binders
  - 1. Prepare data in the form of an instructional manual.

2. Binders: Commercial quality 8-1/2 x 11 inch three-ring binders with hardback, cleanable, plastic covers. When multiple binders are used, correlate data into related consistent groupings.
  3. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; list title of Project; identify subject matter of contents.
  4. Arrange content of systems under specification section numbers and sequence of the Project Manual Index.
  5. Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
  6. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.
  7. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- B. Contents of Submittal Binders, Each Volume
1. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect/Engineer, sub consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.
  2. For Each Product or System: List names, address and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts, and specification section number prominently displayed.
  3. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.
  4. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.
  5. Type Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 014000.
  6. Warranties and Bonds: Bind in copy of each as specified in Section 017000.
  7. Include a copy of the approved shop drawing for each product or system edited to comply with Section 017000.
- C. Operation and Maintenance Data for Materials and Finishes
1. For Each Product, Applied Material, and Finish:
    - a. Product data, with catalog number, size, composition, and color and texture designations.
    - b. Information for re-ordering custom manufactured products.
  2. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.
  3. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.
  4. Additional information as specified in individual product specification sections.
  5. Provide demonstration and training materials.

### **3.03 WARRANTIES AND BONDS**

- A. Assemble in commercial quality three ring binder with Table of Contents, matching requirements for Operations and Maintenance Data binders described above.

- B. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within fourteen (14) days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.
- C. Verify that documents are in proper form, contain full information, and are notarized.
- D. Co-execute submittals when required.
- E. Retain warranties and bonds until time specified for submittal.
- F. For items of Work delayed beyond date of substantial completion, provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.

### **3.04 EVIDENCE OF COMPLIANCE**

- A. Provide evidence of compliance with requirements of governmental agencies having jurisdiction including, but not necessarily limited to:
  - 1. Certificates of Inspection;
  - 2. Certificates of Occupancy;
- B. Certificates of Insurance for products and completed operations;
- C. Evidence of payment and release of liens;
- D. List of subcontractors, service organizations, and principal vendors, including names, addresses and telephone numbers where they can be reached for emergency service at all times including nights, weekends and holidays.
- E. Final adjustment of accounts:
  - 1. Submit a final statement of accounting showing all adjustments to the Contract Sum.
  - 2. If so required, a final Change Order will be prepared showing adjustments to the Contract Sum which were not made previously by Change Orders.

### **3.05 SPARE PARTS AND EXTRA STOCK**

- A. Deliver spare parts and extra stock material to location determined by Owner.
- B. Provide minimum quantities of spare parts and extra stock specified under individual sections, including but not limited to the following:
  - 1. Paint and finish materials.
- C. Deliver to Project site prior to substantial completion in order to obtain substantial completion.

**END OF SECTION**

SECTION 02 4119  
SELECTIVE DEMOLITION

**PART 1 - GENERAL**

1.1 SUMMARY

**A. Section Includes:**

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

**B. Related Requirements:**

1. Section 01 1000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 01 5639 "Temporary Tree and Plant Protection" for temporary protection of existing trees and plants that are affected by selective demolition.
3. Section 01 7300 "Execution" for cutting and patching procedures.
4. Section 01 3516 "Alteration Project Procedures" for general protection and work procedures for alteration projects.
5. Section 31 1000 "Site Clearing" for site clearing and removal of above- and below-grade improvements not part of selective demolition.

1.2 DEFINITIONS

- A. **Remove:** Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. **Remove and Salvage:** Detach items from existing construction, in a manner to prevent damage, and [deliver to Owner ready for reuse] [store].
- C. **Remove and Reinstall:** Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. **Existing to Remain:** Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.
- E. **Dismantle:** To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.3 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.
  1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 INFORMATIONAL SUBMITTALS

- A. **Proposed Protection Measures:** Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property[, for environmental protection]

[, for dust control] [and] [, for noise control]. Indicate proposed locations and construction of barriers.

- B. **Predemolition Photographs or Video:** Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by salvage and demolition operations. Comply with Section 01 3233 "Photographic Documentation." Submit before Work begins.

1.5 CLOSEOUT SUBMITTALS

- A. **Inventory:** Submit a list of items that have been removed and salvaged.

1.6 FIELD CONDITIONS

- A. **Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.**
  - 1. **Before selective demolition, Owner will remove the following items:**
    - a. <Insert items to be removed by Owner>.
- B. **Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.**
- C. **Hazardous Materials:** It is not expected that hazardous materials will be encountered in the Work.
  - 1. **If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.**
- D. **Historic Areas:** Demolition and hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection, by 12 inches (300 mm) or more.
- E. **Storage or sale of removed items or materials on-site is not permitted.**
- F. **Utility Service:** Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
  - 1. **Maintain fire-protection facilities in service during selective demolition operations.**

1.7 COORDINATION

- A. **Arrange selective demolition schedule so as not to interfere with Owner's operations.**

**PART 2 - PRODUCTS – NOT USED**

**PART 3 - EXECUTION**

3.1 EXAMINATION

- A. **Verify that utilities have been disconnected and capped before starting selective demolition operations.**
- B. **Survey of Existing Conditions:** Record existing conditions by use of [measured drawings] [preconstruction photographs or video] [and] [templates].
  - 1. **Inventory and record the condition of items to be removed and salvaged.**

2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

### 3.2 PROTECTION

- A. **Temporary Protection:** Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
  1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
  2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
  3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
  4. Cover and protect furniture, furnishings, and equipment that have not been removed.
  5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 5000 "Temporary Facilities and Controls."
- B. **Temporary Shoring:** Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
  1. Strengthen or add new supports when required during progress of selective demolition.
- C. Remove temporary barricades and protections where hazards no longer exist.

### 3.3 SELECTIVE DEMOLITION, GENERAL

- A. **General:** Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
  1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
  2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
  3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
  4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
  5. Maintain fire watch during and for at least <Insert number> hours after flame-cutting operations.
  6. Maintain adequate ventilation when using cutting torches.
  7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
  8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
  9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

10. Dispose of demolished items and materials promptly. Comply with requirements in Section 01 7419 "Construction Waste Management and Disposal."
  - B. **Site Access and Temporary Controls:** Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
  - C. **Work in Historic Areas:** Selective demolition may be performed only in areas of Project that are not designated as historic. In historic spaces, areas, and rooms, or on historic surfaces, the terms "demolish" or "remove" shall mean historic "removal" or "dismantling" as specified in Section 02 4296 "Historic Removal and Dismantling."
  - D. **Removed and Salvaged Items:**
    1. Clean salvaged items.
    2. Pack or crate items after cleaning. Identify contents of containers.
    3. Store items in a secure area until delivery to Owner.
    4. Transport items to Owner's storage area on-site designated by the Owner.
    5. Protect items from damage during transport and storage.
  - E. **Removed and Reinstalled Items:**
    1. Clean and repair items to functional condition adequate for intended reuse.
    2. Pack or crate items after cleaning and repairing. Identify contents of containers.
    3. Protect items from damage during transport and storage.
    4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
  - F. **Existing Items to Remain:** Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- 3.4 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS
- A. **Concrete:** Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.
  - B. **Masonry:** Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.
- 3.5 DISPOSAL OF DEMOLISHED MATERIALS
- A. **Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.**
    1. Do not allow demolished materials to accumulate on-site.
    2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
    3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
    4. Comply with requirements specified in Section 01 7419 "Construction Waste Management and Disposal."
  - B. **Burning:** Do not burn demolished materials.

**3.6 CLEANING**

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.**

**END OF SECTION**

**SECTION 024296  
HISTORIC REMOVAL AND DISMANTLING**

**PART 1 - GENERAL**

1.1 SUMMARY

A. Section Includes:

1. Historic treatment procedures for removal and dismantling work for designated historic spaces, areas, rooms, and surfaces and the following specific work:
  - a. Removal and dismantling of indicated portions of building or structure and debris hauling.
  - b. Removal and dismantling of indicated site elements and debris hauling.
  - c. Salvage of existing items to be reused or recycled.

B. Related Requirements:

1. Section 013591 "Historic Treatment Procedures" for general historic treatment requirements.

1.2 DEFINITIONS

- A. Dismantle: To disassemble or detach a historic item from a surface, or a nonhistoric item from a historic surface, using gentle methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
- B. Existing to Remain: Existing items that are not to be removed or dismantled, except to the degree indicated for performing required Work.
- C. Remove: To take down or detach a nonhistoric item located within a historic space, area, or room, using methods and equipment to prevent damage to historic items and surfaces; disposing of items unless indicated to be salvaged or reinstalled.
- D. Retain: To keep an element or detail secure and intact.
- E. Salvage: To protect removed or dismantled items and deliver them to Owner.

1.3 PRECONSTRUCTION MEETINGS

- A. Preconstruction Conference(s): Conduct conference(s) at Project site.
  1. Review list of items indicated to be salvaged.
  2. Verify qualifications of personnel assigned to perform removal and dismantling.
  3. Inspect and discuss condition of each construction type to be removed or dismantled.
  4. Review requirements of other work that depends on condition of substrates exposed by removal and dismantling work.
  5. Review methods and procedures related to removal and dismantling work, including, but not limited to, the following:

- a. Historic removal and dismantling specialist's personnel, equipment, and facilities needed to make progress and avoid delays.
- b. Materials, material application, sequencing, tolerances, and required clearances.
- c. Fire prevention.
- d. Coordination with building occupants.

#### 1.4 INFORMATIONAL SUBMITTALS

- A. Preconstruction Documentation: Show preexisting conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by Contractor's removal and dismantling operations.
- B. Removal and Dismantling Historic Treatment Program: Submit seven (7) days before work begins.
- C. List of Items Indicated To Be Salvaged: Prepare a list of items indicated on Drawings to be salvaged for Owner's use or for reinstallation. Submit seven (7) days before preconstruction conference.
- D. Inventory of Salvaged Items: After removal or dismantling Work is complete, submit a list of items that have been salvaged.
  1. Include item description, item condition, number of items if more than one of a type, and tag number. Include photo of item in original location.
  2. As work proceeds, include on the inventory items that were indicated to be salvaged and items of historic importance discovered during the work. Document reasons, if any, why an item indicated to be salvaged was not salvaged.

#### 1.5 FIELD CONDITIONS

- A. Conditions existing at time of inspection for bidding purposes will be maintained by Owner as long as practicable.
  1. Before removal and dismantling, Owner will remove the following items:
    - a. Woodwork currently stored inside the building.
- B. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with removal and dismantling work.
- C. Hazardous Materials:
  1. It is not expected that hazardous materials will be encountered in the Work.
    - a. Hazardous materials have been removed by Owner under a separate contract.
    - b. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.
      - 1) In the case of asbestos, stop work in the area of potential hazard, shut off fans and other air handlers ventilating the area, and rope off area until the questionable material is identified. Resume work in the area of concern after safe working conditions are verified.

- D. Storage or sale of removed or dismantled items on-site is not permitted unless otherwise indicated.

**PART 2 - PRODUCTS - (Not Used)**

**PART 3 - EXECUTION**

**3.1 HISTORIC REMOVAL AND DISMANTLING EQUIPMENT**

- A. Removal and Dismantling Equipment: To the greatest extent possible, use manual, handheld tools. Handheld power tools may be used where historic materials are not being removed and are not adjacent to materials being removed.

**3.2 EXAMINATION**

- A. Preparation for Removal and Dismantling: Examine construction to be removed or dismantled to determine best methods to safely and effectively perform removal and dismantling work. Examine adjacent work to determine what protective measures are necessary. Make explorations, probes, and inquiries as necessary to determine condition of construction to be removed or dismantled and location of utilities and services to remain that may be hidden by construction that is to be removed or dismantled.

1. Verify that affected utilities are disconnected and capped.
2. Inventory and record the condition of items to be removed and dismantled for reinstallation or salvage. Enter this information on the inventory of salvaged items.
3. Before removal or dismantling of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

- B. Survey of Existing Conditions: Prior to beginning construction, record existing conditions by use of photographs and/or video recordings.

**3.3 HISTORIC REMOVAL AND DISMANTLING**

- A. Comply with requirements in Section 013591 "Historic Treatment Procedures" for identifying and storing historic items.

- B. Perform work according to the historic treatment program.

1. Perform removal and dismantling to the limits indicated.
2. Provide supports or reinforcement for existing construction that becomes temporarily weakened by removal and dismantling work, until the Project Work is completed unless otherwise indicated.
3. Perform cutting by hand or with small power tools as permitted by Architect wherever possible. Cut holes and slots neatly to size required, with minimum disturbance of adjacent work.
4. Do not operate air compressors inside building unless approved by Architect in each case.

5. Do not drill or cut columns, beams, joints, girders, structural slabs, or other structural supporting elements, without having Contractor's professional engineer's written approval for each location before such work is begun.
  6. Dispose of removed and dismantled items off-site unless indicated to be salvaged or reinstalled.
- C. Water-Mist Sprinkling: Use water-mist sprinkling and other wet methods to control dust only with adequate, approved procedures and equipment according to the historic treatment program to ensure that such water does not create a hazard or adversely affect other building areas or materials.
- D. Unacceptable Equipment: Keep equipment that is not permitted for historic removal or dismantling work away from the vicinity where such work is being performed.
- E. Removing and Dismantling Items on or Near Historic Surfaces:
1. Use only dismantling equipment and procedures within 12 inches (300 mm) of historic surface. Protect historic surface from contact with or damage by tools.
  2. Wherever possible, unfasten items in the opposite order from which they were installed.
  3. Support each item as it becomes loosened to prevent stress and damage to the historic surface.
  4. Dismantle anchorages.
- F. Masonry Walls:
1. Remove masonry carefully, and erect temporary bracing and supports as needed to prevent collapse of materials being removed.
  2. Stop removal work and immediately inform Architect and Contractor's professional engineer if any structural elements above or adjacent to the work show signs of distress or dislocation during any phase of removal work.
  3. Remove wall in easily managed pieces.
  4. During removal, maintain the stability of the partially remaining wall.
- G. Concrete Walks, Paving and Steps:
1. Remove concrete surfaces, fill, and topping as indicated on Drawings.
  2. Protect adjacent materials to remain.
- H. Anchorages:
1. Remove anchorages associated with removed items.
  2. Dismantle anchorages associated with dismantled items.
  3. In nonhistoric surfaces, patch holes created by anchorage removal or dismantling according to the requirements for new work.
  4. In historic surfaces, patch or repair holes created by anchorage removal or dismantling according to Section that is specific to the historic surface being patched.

**END OF SECTION 024296**

**SECTION 031000**  
**CONCRETE FORMS AND ACCESSORIES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

**1.02 RELATED REQUIREMENTS**

- A. Section 032000 – Concrete Reinforcement.
- B. Section 033000 – Cast-In-Place Concrete.

**1.03 REFERENCE STANDARDS**

- A. ACI 117.1R – Guide for Tolerance Compatibility in Concrete Construction; American Concrete Institute; 2014.
- B. ACI 301 – Specifications for Structural Concrete for Buildings; American Concrete Institute; 2016.
- C. ACI 318 – Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute; 2014.
- D. ACI 347R – Guide to Formwork for Concrete; American Concrete Institute; 2014.
- E. PS 1 – Structural Plywood; 2009.

**1.04 SUBMITTALS**

- A. See Section 013323 – Shop Drawings, Product Data, and Samples, for submittal procedures.
- B. Shop Drawings: Indicate pertinent dimensions, materials, bracing, and arrangement of joints and ties.

**1.05 QUALITY ASSURANCE**

- A. Designer Qualifications: Design elevated formwork under direct supervision of a professional engineer experienced in design of concrete formwork and licensed in the state in which the project is located.

**PART 2 PRODUCTS**

**2.01 FORMWORK - GENERAL**

- A. Provide concrete forms, accessories, shoring, and bracing as required to accomplish cast-in-place concrete work.
- B. Design and construct to provide resultant concrete that conforms to design with respect to shape, lines, and dimensions.
- C. Comply with applicable state and local codes with respect to design, fabrication, erection, and removal of formwork.
- D. Comply with relevant portions of ACI 347, ACI 301, and ACI 318.
- E. Earth forms are permitted for spread footings, interior grade beams and the interior face of perimeter grade beams. The exterior face of perimeter grade beams shall be plywood formed.

## **2.02 WOOD FORM MATERIALS**

- A. Softwood Plywood: PS 1, C Grade, Group 2.

## **2.03 FORMWORK ACCESSORIES**

- A. Form Release Agent: Colorless mineral oil that will not stain concrete.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

### **3.02 ERECTION - FORMWORK**

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads.
- C. Align joints and make watertight. Keep form joints to a minimum.
- D. Obtain approval before framing openings in structural members that are not indicated on drawings.
- E. Coordinate this section with other sections of work that require attachment of components to formwork.

### **3.03 APPLICATION - FORM RELEASE AGENT**

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings that are affected by agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

### **3.04 INSERTS, EMBEDDED PARTS, AND OPENINGS**

- A. Provide formed openings where required for items to be embedded in passing through concrete work.
- B. Locate and set in place items that will be cast directly into concrete.
- C. Coordinate with work of other sections in forming and placing openings, slots, reglets, recesses, sleeves, bolts, anchors, other inserts, and components of other work.
- D. Install accessories in accordance with manufacturer's instructions, so they are straight, level, and plumb. Ensure items are not disturbed during concrete placement.
- E. Install waterstops in accordance with manufacturer's instructions, so they are continuous without displacing reinforcement. Heat seal joints so they are watertight.
- F. Provide temporary ports or openings in formwork where required to facilitate cleaning and inspection. Locate openings at bottom of forms to allow flushing water to drain.
- G. Close temporary openings with tight fitting panels, flush with inside face of forms, and neatly fitted so joints will not be apparent in exposed concrete surfaces.

### **3.05 FORM CLEANING**

- A. Clean forms as erection proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.

### **3.06 FORMWORK TOLERANCES**

- A. Construct formwork to maintain tolerances required by ACI 117.

### **3.07 FIELD QUALITY CONTROL**

- A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and to verify that supports, fastenings, wedges, ties, and items are secure.
- B. Do not reuse wood formwork more than 3 times for concrete surfaces to be exposed to view. Do not patch formwork.

### **3.08 FORM REMOVAL**

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- C. Store removed forms to prevent damage to form materials or to fresh concrete. Discard damaged forms.

**END OF SECTION**

**SECTION 032000**  
**CONCRETE REINFORCEMENT**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Reinforcing Steel for Cast-In-Place Concrete.
- B. Supports and Accessories for Steel Reinforcement.

**1.02 RELATED REQUIREMENTS**

- A. Section 031000 – Concrete Forms and Accessories.
- B. Section 033000 – Cast-In-Place Concrete.

**1.03 REFERENCE STANDARDS**

- A. ACI 301 – Specifications for Structural Concrete for Buildings; American Concrete Institute; 2016.
- B. ACI 318 – Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute; 2014.
- C. ACI SP-66 – ACI Detailing Manual; American Concrete Institute; 2004.
- D. ASTM A 615 – Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2016.
- E. CRSI – Manual of Standard Practice; Concrete Reinforcing Steel Institute; 2009.

**1.04 SUBMITTALS**

- A. See Section 013323 – Shop Drawings, Product Data, and Samples, for submittal procedures.
- B. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.
- C. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.
- D. Reports: Submit certified copies of mill test report of reinforcement materials analysis.

**1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301.

**PART 2 PRODUCTS**

**2.01 REINFORCEMENT**

- A. Reinforcing Steel: ASTM A 615 Grade 60.
- B. Reinforcement accessories:
  - 1. Tie wire: annealed, minimum 16 gage.
  - 2. Chairs, bolsters, bar supports, spacers: sized and shaped for adequate support of reinforcement during concrete placement.

## **2.02 FABRICATION**

- A. Fabricate concrete reinforcing in accordance with CRSI – Manual of Standard Practice.
- B. Welding of reinforcement is not permitted.
- C. Locate reinforcing splices not indicated on drawings at point of minimum stress.

## **PART 3 EXECUTION**

### **3.01 PLACEMENT**

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Conform to applicable code for concrete cover over reinforcement.

**END OF SECTION**

**SECTION 033000**  
**CAST-IN-PLACE CONCRETE**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Foundations, Slabs on Grade and Floors.
- B. Cast-In-Place Concrete Site Structures.
- C. Joint Devices Associated with Concrete Work.
- D. Concrete Curing.

**1.02 RELATED REQUIREMENTS**

- A. Section 031000 – Concrete Forms and Accessories.
- B. Section 032000 – Concrete Reinforcement.

**1.03 REFERENCE STANDARDS**

- A. ACI 211.1 – Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete; American Concrete Institute; 1991 (Reapproved 2002).
- B. ACI 301 – Specifications for Structural Concrete for Buildings; American Concrete Institute; 2016.
- C. ACI 302.1R – Guide for Concrete Floor and Slab Construction; American Concrete Institute; 2015.
- D. ACI 304R – Guide for Measuring, Mixing, Transporting, and Placing Concrete; American Concrete Institute; 2000(Reapproved 2009).
- E. ACI 305R – Guide to Hot Weather Concreting; American Concrete Institute; 2010.
- F. ACI 306R – Guide to Cold Weather Concreting; American Concrete Institute; 2016.
- G. ACI 308R – Guide to External Curing of Concrete; 2016.
- H. ACI 318 – Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute; 2014.
- I. ASTM C 33 – Standard Specification for Concrete Aggregates; 2016.
- J. ASTM C 39 – Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2017.
- K. ASTM C 94 – Standard Specification for Ready-Mixed Concrete; 2014.
- L. ASTM C 143 –Standard Test Method for Slump of Hydraulic-Cement Concrete; 2015.
- M. ASTM C 150 – Standard Specification for Portland Cement; 2015.
- N. ASTM C 171 – Standard Specification for Sheet Materials for Curing Concrete; 2016.
- O. ASTM C 260 – Standard Specification for Air-Entraining Admixtures for Concrete; 2010.
- P. ASTM C 309 – Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2011.

- Q. ASTM C 494 – Standard Specification for Chemical Admixtures for Concrete; 2017.
- R. ASTM C 618 – Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2017.
- S. ASTM C 1107 – Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2017.
- T. ASTM D 994 – Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type); 2011 (Reapproved 2016).
- U. ASTM D 1751 – Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types); 2004 (Reapproved 2013).
- V. ASTM E 1155 – Standard Test Method for Determining F(F) Floor Flatness and F(L) Floor Levelness Numbers; 2014.
- W. COE CRD–C 513 – COE Specifications for Rubber Waterstops; Corps of Engineers; 1974.

#### **1.04 SUBMITTALS**

- A. See Section 013323 – Shop Drawings, Product Data, and Samples, for submittal procedures.
- B. Samples: Submit two, 6 inch long samples of waterstops and construction joint devices.
- C. Samples: Submit samples of underslab vapor retarder to be used.

#### **1.05 QUALITY ASSURANCE**

- A. Perform work of this section in accordance with ACI 301 and ACI 318.
- B. Follow recommendations of ACI 305R when concreting during hot weather.
- C. Follow recommendations of ACI 306R when concreting during cold weather.

### **PART 2 PRODUCTS**

#### **2.01 FORMWORK**

- A. Comply with requirements of Section 031000.

#### **2.02 REINFORCEMENT**

- A. Comply with requirements of Section 032000.

#### **2.03 CONCRETE MATERIALS**

- A. Cement: ASTM C 150, Type I or II – Normal Portland type.
  - 1. Acquire all cement for entire project from same source.
- B. Fine and coarse aggregates: ASTM C 33.
  - 1. Acquire all aggregates for entire project from same source.
- C. Fly Ash: ASTM C 618, CLASS C or F.
- D. Water: Clean and not detrimental to concrete.

#### **2.04 CHEMICAL ADMIXTURES**

- A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.
- B. Air Entrainment Admixture: ASTM C 260.
- C. Water Reducing and Accelerating Admixture: ASTM C 494 Type E.

#### **2.05 ACCESSORY MATERIALS**

- A. Non-Shrink Grout: ASTM C 1107; premixed compound consisting of non-metallic aggregate, cement, water reducing and plasticizing agents.
  - 1. Minimum compressive strength at 28 days: 7,000 PSI.
- B. Moisture-Retaining Cover: ASTM C 171; regular curing paper, white curing paper, clear polyethylene, white polyethylene, or white burlap-polyethylene sheet.
- C. Liquid Curing Compound: ASTM C 309, Type 1, clear or translucent. The use of curing compounds is not allowed on building floor/slabs. Acceptable for sidewalks and concrete paving.
- D. Underslab Vapor Barrier: Comply with requirements of Section 030505 – Underslab Vapor Barrier

#### **2.06 BONDING AND JOINTING PRODUCTS**

- A. Waterstops: Rubber, complying with COE CRD-C 513. Use maximum possible lengths, preformed corner sections and heat welded jointing.
- B. Joint Filler: Nonextruding, resilient asphalt impregnated fiberboard or felt, complying with ASTM D 1751, width/depth as indicated.

#### **2.07 CONCRETE MIX DESIGN**

- A. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.
- B. Normal Weight Concrete:
  - 1. Compressive strength, when tested in accordance with ASTM C 39 at 28 days: as indicated on drawings.
  - 2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
  - 3. Water-Cement Ratio: Maximum 50 percent by weight.
  - 4. Maximum Slump: 6 inches.
  - 5. Air Entrainment (exterior concrete): 3% - 6%.

#### **2.08 MIXING**

- A. Transit Mixers: Comply with ASTM C 94.

### **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify lines, levels, and dimensions before proceeding with work of this section.

### **3.02 PREPARATION**

- A. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.

### **3.03 PLACING CONCRETE**

- A. Place concrete in accordance with ACI 304R.
- B. Place concrete for floor slabs in accordance with ACI 302.1R.
- C. Notify architect not less than 48 hours prior to commencement of placement operations.
- D. Install joint devices in accordance with manufacturer's instructions.
- E. Place concrete continuously between predetermined expansion, control, and construction joints.
- F. Do not interrupt successive placement; do not permit cold joints to occur.
- G. Second Floor slabs shall be poured flat, not necessarily a constant thickness, account for deflection of floor framing. Minimum thickness of slab is shown on plans.
- H. Screed floors level, using laser screed, maintaining the following minimum F(F) floor flatness and F(L) floor levelness values when measured in accordance with ASTM E 1155.
  - 1. F(F): Specified Overall Value (SOV) of 35; Minimum Localized Value (MLV) of 25.
  - 2. F(L): Specified Overall Value (SOV) of 25; Minimum Localized Value (MLV) of 17.

### **3.04 CONCRETE FINISHING**

- A. Repair surface defects, including tie holes, immediately after removing formwork.
- B. Unexposed form finish: rub down or chip off fins or other raised areas 1/4 inch or more in height.
- C. Exposed form finish: rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
  - 1. Smooth rubbed finish: wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.
- D. Concrete Floor Slabs: Finish to requirements of ACI 302.1R.

### **3.05 CURING AND PROTECTION**

- A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
  - 1. Normal concrete: Not less than 7 days.
  - 2. High early strength concrete: Not less than 4 days.

- C. Surfaces not in contact with forms:
  - 1. Slabs and floors to receive adhesive-applied flooring: Curing compounds and other surface coatings are usually considered unacceptable by flooring and adhesive manufacturers. If such materials must be used, either obtain the approval of the flooring and adhesive manufacturers prior to use or remove the surface coating after curing to flooring manufacturer's satisfaction.
  - 2. Initial curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
    - a. Ponding: Maintain 100 percent coverage of water over floor slab areas, continuously for 4 days.
    - b. Spraying: Spray water over floor slab areas and maintain wet.
    - c. Saturated Burlap: Saturate burlap-polyethylene and place burlap-side down over floor slab areas, lapping ends and sides; maintain in place.
  - 3. Final curing: Begin after initial curing but before surface is dry.
    - a. Moisture-Retaining Cover: Seal in place with waterproof tape or adhesive.
- D. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

### **3.06 FIELD QUALITY CONTROL**

- A. Submit proposed mix designs for review prior to commencement of concrete operations.
- B. Compressive Strength Tests: ASTM C 39. For each test, mold and cure three concrete test cylinders. Obtain test samples for every 50 cu yd or less of each class of concrete placed.
- C. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.
- D. Perform one slump test for each set of test cylinders taken, following procedures of ASTM C 143.

### **3.07 DEFECTIVE CONCRETE**

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances, or specified requirements.
- B. Repair or replacement of defective concrete will be determined by the architect. The cost of additional testing shall be borne by contractor when defective concrete is identified.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of architect for each individual area.

**END OF SECTION**

**SECTION 055000  
METAL FABRICATIONS**

**PART 1 - GENERAL**

1.1 SUMMARY

A. Section Includes:

1. Cast iron downspout boots.

B. Products furnished, but not installed, under this Section include the following:

1. Anchor bolts and steel pipe sleeves indicated to be cast into concrete or built into unit masonry.

C. Related Requirements:

1. Section 042000 "Unit Masonry" for installing loose lintels, anchor bolts, and other items built into unit masonry.

1.2 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with one another.

- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Fasteners.
2. Shop primers.
3. Metal downspout boots.

- B. Shop Drawings: Show fabrication and installation details. Provide Shop Drawings for the following:

1. Typical stainless steel frame for new chimney caps.

1.4 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of adjacent construction contiguous with metal fabrications by field measurements before fabrication.

- B. On-site verification: Verify the materials, dimensions and configuration of the area, materials and/ or construction on which the metal fabrications will be installed to confirm their capability to receive the installation.

**PART 2 - PRODUCTS**

**2.1 METALS**

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Cast Iron: Either gray iron, ASTM A48/A48M, or malleable iron, ASTM A47/A47M, unless otherwise indicated.

**2.2 FASTENERS**

- A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
  - 1. Provide stainless steel fasteners for fastening aluminum and stainless steel.
  - 2. Provide galvanized steel fasteners for fastening steel and galvanized steel.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A; with hex nuts, ASTM A563; and, where indicated, flat washers.
- C. Stainless Steel Bolts and Nuts: Regular hexagon-head annealed stainless steel bolts, ASTM F593 with hex nuts, ASTM F594 and, where indicated, flat washers; Alloy Group 1.
- D. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563 and, where indicated, flat washers.
  - 1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
- E. Anchors, General: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.
- F. Post-Installed Anchors: chemical anchors.
  - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated.
  - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.

**2.3 MISCELLANEOUS MATERIALS**

- A. Shop Primers: Provide primers that comply with Section 099113, "Exterior Painting." And Section 099123, "Interior Painting."

- B. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- C. Concrete: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa).

#### 2.4 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply with the following:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

#### 2.5 CAST IRON DOWNSPOUT BOOTS

- A. Downspout Boots: Match the existing boots which are R-4926-G1 by Neenah Foundry with Non-Hub coupling.
- B. Prime cast-iron downspout boots with zinc-rich primer.

**2.6 GENERAL FINISH REQUIREMENTS**

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

**2.7 STEEL AND IRON FINISHES**

- A. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete or masonry, or unless otherwise indicated.
  - 1. Shop prime with **primers specified in Section 099113 "Exterior Painting"**.
- B. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
  - 1. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
  - 2. Other Steel Items: SSPC-SP 3, "Power Tool Cleaning."
- C. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
  - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.

**PART 3 - EXECUTION**

**3.1 INSTALLATION, GENERAL**

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove welding flux immediately.
  - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.

- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.

**3.2 INSTALLATION OF CAST IRON DOWNSPOUT BOOTS**

- A. Anchor metal downspout boots in the locations of the damaged units being replaced using the same attachment methods as the existing.

**3.3 REPAIRS**

- A. Touchup Painting:

1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
  - a. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
2. Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 099113 "Exterior Painting."

**END OF SECTION**

**SECTION 061000  
ROUGH CARPENTRY**

**PART 1 - GENERAL**

1.1 SUMMARY

A. Section Includes:

1. Wood products.
2. Wood-preservative-treated lumber.
3. Fire-retardant treated lumber.
4. Dimension lumber framing.
5. Miscellaneous lumber.
6. Plywood backing panels.

B. Related Requirements:

1. Section 062013 "Exterior Finish Carpentry" for exterior wood trim and siding.

1.2 DEFINITIONS

- A. Boards or Strips: Lumber of less than 2 inches nominal (38 mm actual) size in least dimension.
- B. Dimension Lumber: Lumber of 2 inches nominal (38 mm actual) size or greater but less than 5 inches nominal (114 mm actual) size in least dimension.
- C. Exposed Framing: Framing not concealed by other construction.
- D. Lumber grading agencies, and abbreviations used to reference them, include the following:
  1. SPIB: The Southern Pine Inspection Bureau.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
  1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
  2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
  3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency in accordance with ASTM D5664.
  4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Material Certificates:
1. For preservative-treated wood products. Indicate type of preservative used and net amount of preservative retained.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

**PART 2 - PRODUCTS**

2.1 WOOD PRODUCTS

- A. Lumber: Comply with DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
1. Factory mark each piece of lumber with grade stamp of grading agency.
  2. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry wood products.
  3. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content:
1. Boards: 15 percent.
  2. Dimension Lumber: 19 percent for 2-inch nominal (38-mm actual) thickness or less; no limit for more than 2-inch nominal (38-mm actual) thickness unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWPA U1, Use categories as follows:
1. UC3B (Commodity Specification A): Uncoated sawn products in exterior construction not in contact with ground, exposed to all weather cycles including intermittent wetting but with sufficient air circulation for wood to dry. Excludes sawn products not in contact with ground but with ground contact-type hazards. Include the following items:
    - a. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
    - b. Wood framing members that are less than 18 inches (460 mm) above the ground in crawlspaces or unexcavated areas.
    - c. Wood decking, railings, and joists and beams for decks that are not critical to the performance and safety of the entire system/construction and that are in locations easily accessible for maintenance, repair, or replacement.

2. UC3B (All Other Commodity Specifications): Uncoated products excluding sawn products in exterior construction not in contact with ground, exposed to all weather cycles including prolonged wetting. Include the following items:
    - a. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
    - b. Wood framing members that are less than 18 inches (460 mm) above the ground in crawlspaces or unexcavated areas.
  3. UC4A (Commodity Specification A): Non-critical sawn products in contact with ground and exposed to all weather cycles including continuous or prolonged wetting, and sawn products not in contact with ground but with ground contact-type hazards or that are critical or hard to replace. Include the following items:
    - a. Wood framing members that are less than 6 inches (152 mm) above the ground.
    - b. Joists and beams when they are difficult to maintain, repair, or replace and are critical to the performance and safety of the entire system/construction.
  4. UC4A (All Other Commodity Specifications): Non-critical products excluding sawn products in contact with ground and exposed to all weather cycles, normal exposure conditions. Include the following items:
    - a. Blocking, nailers and framing supporting exterior finish carpentry.
  5. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on Drawings, and the following:
1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
  2. Wood sills, sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.
  3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
  4. Wood framing members that are less than 18 inches (460 mm) above the ground in crawlspaces or unexcavated areas.
  5. Wood floor plates that are installed over concrete slabs-on-grade.
- 2.3 DIMENSION LUMBER FRAMING
- A. Non-Load-Bearing Interior Partitions by Grade: Construction or No. 2 grade.
1. Application: Interior partitions not indicated as load bearing.
  2. Species:
    - a. Southern pine or mixed southern pine; SPIB.
    - b. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.
- B. Load-Bearing Partitions by Grade: No. 2 grade.

1. Application: interior load-bearing partitions.
2. Species:
  - a. Southern pine or mixed southern pine; SPIB.
  - b. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

C. Joists, Rafters, and Other Framing by Grade: Construction or No. 2 grade.

1. Species:
  - a. Southern pine or mixed southern pine; SPIB.
  - b. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

## 2.4 MISCELLANEOUS LUMBER

A. Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Furring.
4. Grounds.

B. Dimension Lumber Items: Construction or No. 2 grade lumber of the following species:

1. Mixed southern pine or southern pine; SPIB.
2. Spruce-pine-fir (south); NeLMA, WCLIB, or WWPA.

C. Concealed Boards: 19 percent maximum moisture content and the following species and grades:

1. Mixed southern pine or southern pine; No. 3 grade; SPIB.
2. Spruce-pine-fir (south) or spruce-pine-fir; Standard or No. 3 Common grade; NeLMA, NLGA, WCLIB, or WWPA.

D. Roofing Nailers: Structural- or No. 2-grade lumber or better; kiln-dried Douglas fir, southern pine, or wood having similar decay-resistant properties.

E. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

## 2.5 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: Plywood, DOC PS 1, Exterior, A-C in thickness indicated or, if not indicated, not less than 3/4-inch (19-mm) nominal thickness.

## 2.6 FASTENERS

A. General: Fasteners are to be of size and type indicated and comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches (38 mm) into wood substrate.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M or ASTM F2329 or, if noted, Type 304 stainless steel.

B. Nails, Brads, and Staples: ASTM F1667.

## 2.7 PLYWOOD SUBFLOORING

A. Subflooring: APA PS 1 Rated Sturd-I-Floor 24 oc Exposure 1 Tongue & Groove.

## PART 3 - EXECUTION

### 3.1 INSTALLATION

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Set work to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

C. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels.

D. Install plywood floor underlayment (subflooring) according to APA Form E30X, Engineered Wood Construction Guide

E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

F. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:

1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches (2438 mm) o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches (2438 mm) o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal (38-mm actual) thickness.
3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. (9.3 sq. m) and to solidly fill space below partitions.

G. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

H. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

- I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.
- J. Securely attach roofing nailers to substrates by anchoring and fastening to withstand bending, shear, or other stresses imparted by Project wind loads and fastener-resistance loads as designed in accordance with ASCE/SEI 7.
- K. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

### 3.2 INSTALLATION OF WOOD BLOCKING AND NAILERS

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach wood blocking to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.
- C. Attach wood roofing nailers securely to substrate to resist the designed outward and upward wind loads indicated on Drawings and in accordance with ANSI/SPRI ED-1, Tables A6 and A7.

### 3.3 INSTALLATION OF WOOD FURRING

- A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.

### 3.4 INSTALLATION OF WALL AND PARTITION FRAMING

- A. General: Provide single bottom plate and double top plates using members of 2-inch nominal (38-mm actual) thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Fasten plates to supporting construction unless otherwise indicated.
  - 1. For interior partitions and walls, provide 2-by-6-inch nominal- (38-by-140-mm actual-) or 2-by-4-inch nominal- (38-by-89-mm actual-) size wood studs as indicated in the Drawings spaced **16 inches (406 mm)** o.c. unless otherwise indicated.
  - 2. Provide continuous horizontal blocking at midheight of partitions more than 96 inches (2438 mm) high, using members of 2-inch nominal (38-mm actual) thickness and of same width as wall or partitions.
- B. Construct corners and intersections with three or more studs, except that two studs may be used for interior non-load-bearing partitions.
- C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.
  - 1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal (89-mm actual) depth for openings 48 inches (1200 mm) and less in width, 6-inch nominal (140-mm actual) depth for openings 48 to 72 inches (1200 to 1800 mm) in width, 8-inch nominal (184-mm actual) depth for openings 72 to 120 inches (1800 to 3000 mm) in width, and not less than 10-inch nominal (235-mm actual) depth for openings 10 to 12 feet (3 to 3.6 m) in width.

2. For load-bearing walls, provide double-jamb studs for openings 60 inches (1500 mm) and less in width, and triple-jamb studs for wider openings. Provide headers of depth indicated.

### 3.5 INSTALLATION OF FLOOR JOIST FRAMING

- A. General: Install floor joists with crown edge up and support ends of each member with not less than 1-1/2 inches (38 mm) of bearing on wood or metal, or 3 inches (76 mm) on masonry. Attach floor joists as follows:
  1. Where supported on wood members, by toe nailing or by using metal framing anchors.
  2. Where framed into wood supporting members, by using wood ledgers as indicated or, if not indicated, by using metal joist hangers.
- B. Frame openings with headers and trimmers supported by metal joist hangers; double headers and trimmers where span of header exceeds 48 inches (1200 mm).
- C. Do not notch in middle third of joists; limit notches to one-sixth depth of joist, one-third at ends. Do not bore holes larger than one-third depth of joist; do not locate closer than 2 inches (50 mm) from top or bottom.
- D. Provide solid blocking of 2-inch nominal (38-mm actual) thickness by depth of joist at ends of joists unless nailed to header or band.
- E. Lap members framing from opposite sides of beams, girders, or partitions not less than 4 inches (102 mm) or securely tie opposing members together. Provide solid blocking of 2-inch nominal (38-mm actual) thickness by depth of joist over supports.
- F. Provide solid blocking between joists under jamb studs for openings.
- G. Under non-load-bearing partitions, provide double joists separated by solid blocking equal to depth of studs above.
- H. Provide bridging of type indicated below, at intervals of 96 inches (2438 mm) o.c., between joists.
  1. Diagonal wood bridging formed from bevel-cut, 1-by-3-inch nominal- (19-by-64-mm actual-) size lumber, double-crossed and nailed at both ends to joists.
  2. Steel bridging installed to comply with bridging manufacturer's written instructions.

### 3.6 INSTALLATION OF CEILING JOIST FRAMING

- A. Ceiling Joists: Install with crown edge up and complying with requirements specified above for floor joists.

**END OF SECTION**

**SECTION 064013**  
**EXTERIOR ARCHITECTURAL WOODWORK**

**PART 1 - GENERAL**

1.1 SUMMARY

A. Section Includes:

1. Exterior standing and running trim for opaque finish.
2. Exterior door and window casing trim for opaque finish.
3. Exterior tongue and groove porch flooring
4. Exterior stair treads
5. Preservative-treated-wood material.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing exterior architectural woodwork that are concealed within other construction before exterior architectural woodwork installation.

1.2 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections, to ensure that exterior architectural woodwork can be supported and installed as indicated.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

B. Wood-Preservative Treatment:

1. Include data and warranty information from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.
2. Indicate type of preservative used and net amount of preservative retained.
3. Include chemical-treatment manufacturer's written instructions for finishing treated material and manufacturer's written warranty.

- C. Samples: For each exposed product and for each color and finish specified.

1. Size:

- a. Lumber Products: Submit sample of each wood component, trim or moulding, in the size and bearing the profile indicated in the Drawings and at least 12 inches long, including but not limited to the following:
  - 1) Lap siding
  - 2) Corner board
  - 3) Tongue and groove pilaster cladding
  - 4) Tongue and groove porch flooring
  - 5) Various unprofiled trim boards (i.e. apron trim)

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For architectural woodwork manufacturer and Installer.
- B. Evaluation Reports: For preservative-treated wood materials, from ICC-ES.
- C. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Quality Standard Compliance Certificates: AWI Quality Certification Program.

1.6 QUALITY ASSURANCE

- A. Manufacturer's Qualifications: Employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Architectural Woodwork Standards, Section 2.
- B. Store woodwork in installation areas or in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.
  - 1. Handle and store fire-retardant-treated wood to comply with chemical-treatment manufacturer's written instructions.

1.8 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation of exterior architectural woodwork only when existing and forecasted weather conditions permit work to be performed and at least one coat of
- B. Field Measurements: Where exterior architectural woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings.
  - 1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being concealed by construction, and indicate measurements on Shop Drawings.
- C. Established Dimensions: Where exterior architectural woodwork is indicated to fit to other construction, establish dimensions for areas where woodwork is to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

**PART 2 - PRODUCTS**

2.1 ARCHITECTURAL WOODWORK, GENERAL

- A. Quality Standard: Unless otherwise indicated, the work of this section shall meet or exceed the requirements of the Architectural Woodwork Standards published by the Architectural Woodwork Institute for grades of exterior architectural woodwork indicated for construction, finishes, installation, and other requirements.

2.2 EXTERIOR STANDING AND RUNNING TRIM FOR OPAQUE FINISH

- A. Architectural Woodwork Standards Grade: Premium
- B. Wood Species: Spanish Cedar
  - 1. Do not use plain-sawn softwood lumber with exposed, flat surfaces more than 3 inches (76 mm) wide.
  - 2. Wood Moisture Content: 10 to 15 percent.

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2.4 EXTERIOR STAIRS

- A. Architectural Woodwork Standards Grade: Premium
- B. Hand select wood for freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot holes, shake, splits, torn grain, and wane.
- C. Stair Treads:
  - 1. 1-1/2-inch- (32-mm-) thick, kiln-dried, pressure-preservative-treated stepping with profiled edge nosing as shown in the Drawings:
    - a. Grade Characteristics:
      - 1) Clear **one face; small pin knots and worm holes allowed on back face.**
      - 2) Straight grained and parallel cut.
      - 3) Free of heart centers.
      - 4) No decay, incipient decay, honeycomb, knot holes, shakes, splits, or wane.
      - 5) No discoloration.
- D. Wood Species: Spanish Cedar

1. Do not use plain-sawn softwood lumber with exposed, flat surfaces more than 3 inches (76 mm) wide.

E. Stair Risers: Modify salvaged existing risers and reinstall as described in the Drawings.

## 2.5 PORCH FLOOR BOARDS

- A. Architectural Woodwork Standards Grade: Premium
- B. Boards: Provide new, tongue and groove porch floor boards matching the section dimensions of the existing boards.
- C. Wood species: Match that of the original flooring - Southern Yellow Pine, Kiln dried, smooth textured, finish grade.
- D. Preservative treat all new porch flooring materials.

## 2.6 PRESERVATIVE-TREATED-WOOD MATERIAL

- A. Preservative-Treated-Wood Materials: Provide with water-repellent preservative treatment complying with AWWA N1 (dip, spray, flood, or vacuum-pressure treatment).
  1. Preservative Chemicals: 3-iodo-2-propynyl butyl carbamate (IPBC).
  2. Use chemical formulations that do not bleed through or otherwise adversely affect finishes. Do not use colorants in solution to distinguish treated material from untreated material.
- B. Extent of Preservative-Treated Wood Materials:
  1. Southern Yellow Pine
  2. Spanish Cedar (Honduran Mahogany)
  3. Items fabricated from the following wood species need not be treated:
    - a. Ipe.

## 2.7 FASTENERS

- A. General: Provide fasteners of size and type indicated, acceptable to authorities having jurisdiction, and that comply with requirements specified in this article for material and manufacture. Provide nails or screws, in sufficient length, to penetrate not less than 1-1/2 inches (38 mm) into wood substrate.
  1. Use fasteners with hot-dip zinc coating complying with ASTM A153/A153M or ASTM F2329/F2329M unless otherwise indicated.
  2. For pressure-preservative-treated wood, use stainless steel fasteners.
  - 3.
- B. Nails: ASTM F1667.
- C. Power-Driven Fasteners: ICC-ES AC70.
- D. Wood Screws and Lag Screws: ASME B18.2.1, ASME B18.6.1, or ICC-ES AC233.

- E. Carbon-Steel Bolts: ASTM A307 with ASTM A563 (ASTM A563M) hex nuts and, where indicated, flat washers all hot-dip zinc coated.
- F. Stainless Steel Bolts: ASTM F593, Alloy Group 1 or 2; with ASTM F594, Alloy Group 1 or 2 (ASTM F836M, Grade A1 or Grade A4) hex nuts and, where indicated, flat washers.

## 2.8 MISCELLANEOUS MATERIALS

- A. Blocking, Shims, and Nailers: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.
  - 1. Wood-Preservative Treatment: By pressure process, AWPA U1; Use Category UC3b.
    - a. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.
    - b. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
    - c. Mark lumber with treatment quality mark of an inspection agency approved by the American Lumber Standards Committee's (ALSC) Board of Review.

## 2.9 FABRICATION

- A. Fabricate exterior architectural woodwork to dimensions, profiles, and details indicated.
  - 1. Ease edges to radius indicated for the following:
    - a. Edges of Solid-Wood (Lumber) Members: 1/16 inch (1.5 mm) unless otherwise indicated.
- B. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site.
  - 1. Disassemble components only as necessary for shipment and installation.
  - 2. Where necessary for fitting at site, provide allowance for scribing, trimming, and fitting.
  - 3. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled.
    - a. Verify that parts fit as intended, and check measurements of assemblies against field measurements indicated on approved Shop Drawings before disassembling for shipment.

## 2.10 SHOP PRIMING

- A. Preparations for Finishing: Comply with the Architectural Woodwork Standards for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing exterior architectural woodwork, as applicable to each unit of work.
- B. Backpriming: Apply one coat of sealer or primer, compatible with finish coats, to concealed surfaces of woodwork. Apply two coats to surfaces installed in contact with concrete or masonry and to end-grain surfaces.
- C. Exterior Architectural Woodwork for Opaque Finish: Shop prime all surfaces with one coat of wood primer as specified in Section 099113 "Exterior Painting."

### PART 3 - EXECUTION

#### 3.1 PREPARATION

- A. Before installation, condition exterior architectural woodwork to average prevailing humidity conditions at Project site.
- B. Before installing exterior architectural woodwork, examine shop-fabricated work for completion, and complete work as required, including removing packing and backpriming concealed surfaces.

#### 3.2 INSTALLATION

- A. Grade: Install exterior architectural woodwork to comply with same grade as item to be installed.
- B. Assemble exterior architectural woodwork, and complete fabrication at Project site to the extent that it was not completed during shop fabrication.
- C. Install exterior architectural woodwork level, plumb, true in line, and without distortion.
  - 1. Shim as required with concealed shims.
  - 2. Install level and plumb to a tolerance of 1/8 inch in 96 inches (3 mm in 2400 mm).
- D. Standing and Running Trim:
  - 1. Install with minimum number of joints possible, using full-length pieces (from maximum length of lumber available) to greatest extent possible.
  - 2. Do not use pieces less than **36 inches (900 mm)** long, except where shorter single-length pieces are necessary.
  - 3. Scarf running joints and stagger in adjacent and related members.
- E. Scribe and cut exterior architectural woodwork to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
- F. Preservative-Treated Wood Materials: Where field cut or drilled, treat cut ends and drilled holes according to AWPA M4.
- G. Anchor exterior architectural woodwork to anchors or blocking built in or directly attached to substrates.
  - 1. Secure with countersunk, concealed fasteners and blind nailing.
  - 2. Use fine finishing nails or finishing screws for exposed fastening, countersunk and filled flush with exterior architectural woodwork.
  - 3. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced and with adjacent rows staggered.
  - 4. For shop-finished items, use filler matching finish of items being installed.
- H. Touch up finishing work specified in this Section after installation of exterior architectural woodwork.
  - 1. Fill nail holes with matching filler where exposed.
  - 2. Apply specified finish coats, including stains and paste fillers if any, to exposed surfaces where only sealer/prime coats are shop applied.

- I. Field Finishing: See Section 099113 "Exterior Painting" for final finishing of installed exterior architectural woodwork.

**3.3 REPAIR**

- A. Repair damaged and defective exterior architectural woodwork, where possible, to eliminate functional and visual defects and to result in exterior architectural woodwork being in compliance with requirements of the Architectural Woodwork Standards for the specified grade.
- B. Where not possible to repair, replace defective woodwork.

**3.4 CLEANING**

- A. Clean exterior architectural woodwork on exposed and semiexposed surfaces.

**END OF SECTION**

**SECTION 079200  
JOINT SEALANTS**

**PART 1 - GENERAL**

1.1 SUMMARY

A. Section Includes:

1. Silicone joint sealants.
2. Nonstaining silicone joint sealants.
3. Urethane joint sealants.
4. Latex joint sealants.

B. Related Requirements:

1. Section 079100 "Preformed Joint Seals" for preformed compressible foam and precured joint seals.
2. Section 079219 "Acoustical Joint Sealants" for sealing joints in sound-rated construction.
3. Section 321373 "Concrete Paving Joint Sealants" for sealing joints in paved roads, parking lots, walkways, and curbing.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at **[Project site] <Insert location>**.

1.3 ACTION SUBMITTALS

A. Product Data:

1. Joint sealants.
2. Joint-sealant backing materials.

- B. Samples for Initial Selection: Manufacturer's standard color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

- C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

D. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

- A. Sample warranties.

1.5 CLOSEOUT SUBMITTALS

- A. Manufacturers' special warranties.
- B. Installer's special warranties.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Authorized representative who is trained and approved by manufacturer.

1.7 MOCKUPS

- A. Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.8 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
  - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F (5 deg C).
  - 2. When joint substrates are wet.
  - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
  - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.9 WARRANTY

- A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: One (1) years from date of Substantial Completion.
- B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
  - 1. Warranty Period: Five (5) years from date of Substantial Completion.
- C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:
  - 1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
  - 2. Disintegration of joint substrates from causes exceeding design specifications.
  - 3. Mechanical damage caused by individuals, tools, or other outside agents.
  - 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

## PART 2 - PRODUCTS

### 2.1 SOURCE LIMITATIONS

- A. Obtain joint sealants from single manufacturer for each sealant type.

### 2.2 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

### 2.3 SILICONE JOINT SEALANTS

- A. Sealant S-1: Silicone, non-staining, S, NS, 50, NT: Single-component, nonsag, plus 50 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 50, Use NT.
  - 1. Manufacturer: Dow; www.dow.com
  - 2. Product(s): Dow 756 and 790
  - 3. Application: Exterior joints in between dissimilar building materials (wood to masonry, concrete or stucco; metal and masonry, concrete or stucco) and in between components that require sealing.
- B. Sealant S-2: Silicone, NS, 100, NT: Single-component, nonsag, non-staining paving sealant; plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM D5893, Type S, Grade NS, Class 100, Use NT.
  - 1. Manufacturer: Dow; www.dow.com
  - 2. Product(s): Dow 888
  - 3. Application: Control and expansion joints in concrete paving and in joints separating concrete paving from adjacent materials.

### 2.4 BUTYL SEALANT TAPE

- A. Butyl-Rubber-Based Joint Sealants: Provide a 100% solids polyisobutylene cross-linked butyl, preformed sealant tape meeting ASTM C1311.
  - 1. General Sealants, Inc.; GS#187-S Butyl Sealant Tape
  - 2. HS Butyl; #0303 General Purpose Butyl Tape
  - 3. Tremco Commercial Sealants & Waterproofing; Tremco 440 Tape

### 2.5 LATEX JOINT SEALANTS

- A. Acrylic Latex: One-part, water based, acrylic latex or siliconized acrylic latex sealant, ASTM C834, Type OP, Grade NF, gun grade, and paintable.
  - 1. ALEX Fast Dry Acrylic Latex Caulk Plus Silicone by DAP Global, Inc.
  - 2. Powerhouse #1100A Siliconized Acrylic latex Sealant by Sherwin Williams.
  - 3. Tremflex 834 Acrylic Latex Sealant
  - 4. AVW-920 High Performance Acrylic Latex by Pecora Corporation

**JOINT-SEALANT BACKING**

- B. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- C. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin), Type O (open-cell material), Type B (bicellular material with a surface skin), or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

**2.6 MISCELLANEOUS MATERIALS**

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

**3.2 PREPARATION**

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
  - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
  - 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing

optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:

- a. Concrete.
  - b. Masonry.
3. Remove laitance and form-release agents from concrete.
  4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
    - a. Metal.
    - b. Glass.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

### 3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
  1. Do not leave gaps between ends of sealant backings.
  2. Do not stretch, twist, puncture, or tear sealant backings.
  3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
  1. Place sealants so they directly contact and fully wet joint substrates.
  2. Completely fill recesses in each joint configuration.
  3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

- F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
1. Remove excess sealant from surfaces adjacent to joints.
  2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
  3. Provide concave joint profile in accordance with Figure 8A in ASTM C1193 unless otherwise indicated.
  4. Provide flush joint profile at exterior woodwork in accordance with Figure 8B in ASTM C1193.
  5. Use masking tape to protect surfaces adjacent to recessed tooled joints.

#### 3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

#### 3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

**END OF SECTION**

**SECTION 092116.23  
GYPSUM BOARD SHAFT WALL ASSEMBLIES**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Gypsum board shaft wall assemblies.

**1.3 ACTION SUBMITTALS**

- A. Product Data: For each component of gypsum board shaft wall assembly.

**1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and support them on risers on a flat platform to prevent sagging.

**1.5 FIELD CONDITIONS**

- A. Environmental Limitations: Comply with gypsum-shaftliner-board manufacturer's written instructions.
- B. Do not install finish panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, moisture damaged, or mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, and irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

**PART 2 - PRODUCTS**

**2.1 PERFORMANCE REQUIREMENTS**

- A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E119 by an independent testing agency.

**2.2 GYPSUM BOARD SHAFT WALL ASSEMBLIES**

- A. Fire-Resistance Rating: 1 hour.
- B. STC Rating: 51, minimum.
- C. Gypsum Shaftliner Board:
  - 1. Type X: ASTM C1396/C1396M; manufacturer's proprietary fire-resistive liner panels with paper faces, 1 inch (25.4 mm) thick, with double beveled long edges.
    - a. ToughRock Shaftliner by Georgia Pacific.
    - b. Gold Bond Shaftliner XP by National Gypsum
    - c. Sheetrock Brand Mold tough Gypsum Liner Panels by United States Gypsum
- D. Non-Load-Bearing Steel Framing, General: Complying with ASTM C645 requirements for metal unless otherwise indicated and complying with requirements for fire-resistance-rated assembly indicated. Same Source Components: Provide non-load bearing steel framing components manufactured by the same company.
  - 1. Protective Coating: Coating with equivalent corrosion resistance of ASTM A653/A653M, G40 (Z120) unless otherwise indicated.
- E. Studs: Manufacturer's standard profile for repetitive, corner, and end members as follows:
  - 1. Products: ASTM C645 and A1003
  - 2. Depth: 6 inches (152 mm).
  - 3. Minimum Base-Metal Thickness: 0.033 inch (0.84 mm).
  - 4. Manufacturers:
    - a. C-T Cavity Shaftwall Studs by ClarkDietrich
    - b. C-H Studs by Cemco
    - c. I-Stud Shaftwall System by Scafco
- F. Runner Tracks: Manufacturer's standard J-profile track with manufacturer's standard long-leg length, but at least 2 inches (51 mm) long and matching studs in depth.
  - 1. Minimum Base-Metal Thickness: Matching steel studs.
- G. Finish Panels: Gypsum board as specified in Section 092900 "Gypsum Board."
- H. Sound Attenuation Blankets: 3-1/2 inches thick; Manufactured in compliance with ASTM C665 Type 1

**2.3 AUXILIARY MATERIALS**

- A. Provide auxiliary materials that comply with shaft wall manufacturer's written instructions.
- B. Trim Accessories: Cornerbead, edge trim, and control joints of material and shapes as specified in Section 092900 "Gypsum Board" that comply with gypsum board shaft wall assembly manufacturer's written instructions for application indicated.
- C. Steel Drill Screws: ASTM C1002 unless otherwise indicated.

- D. Track Fasteners: Power-driven fasteners of size and material required to withstand loading conditions imposed on shaft wall assemblies without exceeding allowable design stress of track, fasteners, or structural substrates in which anchors are embedded.
  - 1. Expansion Anchors: Fabricated from corrosion-resistant materials, with allowable load or strength design capacities calculated according to ICC-ES AC193 and ACI 318 greater than or equal to the design load, as determined by testing per ASTM E488/E488M conducted by a qualified testing agency.
  - 2. Power-Actuated Anchors: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with allowable load capacities calculated according to ICC-ES AC70, greater than or equal to the design load, as determined by testing per ASTM E1190 conducted by a qualified testing agency.
- E. Reinforcing: Galvanized-steel reinforcing strips with 0.033-inch (0.84-mm) minimum thickness of base metal (uncoated).
- F. Acoustical Sealant: Section 079000 "Joint Sealants."

### **PART 3 - EXECUTION**

#### **3.1 EXAMINATION**

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

#### **3.2 INSTALLATION**

- A. General: Install gypsum board shaft wall assemblies to comply with requirements of fire-resistance-rated assemblies indicated and manufacturer's written installation instructions.
- B. Do not bridge building expansion joints with shaft wall assemblies; frame both sides of expansion joints with furring and other support.
- C. Install supplementary framing in gypsum board shaft wall assemblies around openings and as required for blocking, bracing, and support of gravity and pullout loads of fixtures, equipment, services, heavy trim, furnishings, wall-mounted door stops, and similar items that cannot be supported directly by shaft wall assembly framing.
  - 1. Elevator Hoistway: At elevator hoistway-entrance door frames, provide jamb struts on each side of door frame.
  - 2. Reinforcing: Provide where items attach directly to shaft wall assembly as indicated on Drawings; accurately position and secure behind at least one layer of face panel.
- D. Penetrations: At penetrations in shaft wall, maintain fire-resistance rating of shaft wall assembly by installing supplementary steel framing around perimeter of penetration and fire protection behind boxes containing wiring devices, elevator call buttons and floor indicators, and similar items.

- E. Isolate perimeter of gypsum panels from building structure to prevent cracking of panels while maintaining continuity of fire-rated construction.
- F. Firestop Tracks: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
- G. Control Joints: Install control joints at locations indicated on Drawings while maintaining fire-resistance rating of gypsum board shaft wall assemblies.
- H. Sound-Rated Shaft Wall Assemblies: Seal gypsum board shaft walls with acoustical sealant at perimeter of each assembly where it abuts other work and at joints and penetrations within each assembly.
- I. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch (3 mm) from the plane formed by faces of adjacent framing.

### 3.3 PROTECTION

- A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- B. Remove and replace panels that are wet, moisture damaged, or mold damaged.
  - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, and irregular shape.
  - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092116.23

**SECTION 099113  
EXTERIOR PAINTING**

**PART 1 - GENERAL**

1.1 RELATED DOCUMENTS

- A. Scope of Work included with Quote Letter No.: J457-0070a-BF dated August 9, 2022.

1.2 SUMMARY

- A. Section Includes:
  - 1. Preparation of existing surfaces for new paint.
  - 2. Primers.
  - 3. Finish coatings.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
  - 1. Include preparation requirements and application instructions.
  - 2. Indicate VOC content.
- B. Samples for Verification: For each type of paint system and each color and gloss of topcoat.
  - 1. Submit Samples on rigid backing, min. 8 inches (200 mm) square.
  - 2. Apply coats on Samples in steps to show each coat required for system.
  - 3. Label each coat of each Sample.
  - 4. Label each Sample for location and application area.
- C. Product Schedule: Use same designations indicated on Drawings and in the Exterior Painting Schedule to cross-reference paint systems specified in this Section. Include color designations.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Paint Products: 1 gal. (3.8 L) of each material and color applied.

1.5 QUALITY ASSURANCE

- A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
  - 1. Architect will select one surface to represent surfaces and conditions for application of each paint system.

- a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
  - b. Other Items: Architect will designate items or areas required.
2. Final approval of color selections will be based on mockups.
    - a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.
  3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
  4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

#### 1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).
  1. Maintain containers in clean condition, free of foreign materials and residue.
  2. Remove rags and waste from storage areas daily.

#### 1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).
- B. Do not apply paints in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

### **PART 2 - PRODUCTS**

#### 2.1 MANUFACTURERS

- A. Basis of Design: Benjamin Moore
- B. Acceptable Manufacturers:
  1. Sherwin Williams
- C. Source Limitations: Obtain each paint product from single source from single manufacturer.

#### 2.2 PAINT PRODUCTS, GENERAL

- A. Material Compatibility:
  1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer based on testing and field experience.
  2. For each coat in a paint system, provide products recommended in writing by topcoat manufacturer for use in paint system and on substrate indicated.

- B. Colors: Colors shall be provided by the paint subcontractor and shall match the colors applied previously.

### 2.3 PRIMERS

- A. Exterior, Alkyd/Oil Wood Primer: Alkyd/oil-based primer that is resistant to extractive bleeding when applied to wood substrates with less than 15 percent moisture content; formulated for sag, mold, and microbial resistance; for hiding stains; and for use on exterior wood subject to extractive bleeding.
  - 1. Benjamin Moore, Fresh Start All Purpose Primer #046
- B. Quick-Drying, Alkyd Metal Primer: Corrosion-resistant, solvent-based, modified-alkyd primer; lead and chromate free; formulated for quick-drying capabilities and for use on cleaned, exterior steel surfaces.
  - 1. Benjamin Moore, Super Spec HP Alkyd Metal Primer #P06
- C. Quick-Drying Aluminum Primer: Corrosion-resistant, solvent-based, alkyd or modified-alkyd primer formulated for quick-drying capabilities and for use on prepared exterior aluminum.
  - 1. Benjamin Moore, Ultra Spec HP Acrylic Metal Primer #HP04

### 2.4 FINISH COATINGS

- A. Exterior Latex Paint: Water-based, pigmented coating; formulated for alkali, mold, microbial, and water resistance and for use on exterior surfaces, such as portland cement plaster, concrete, and primed wood.
  - 1. Benjamin Moore, Regal High Build Soft Gloss Acrylic House Paint #N403
  - 2. Gloss and Sheen: Satin
- B. Exterior Latex Paint: Water-based, pigmented coating; formulated for alkali, mold, microbial, and water resistance and for use on exterior ferrous metals:
  - 1. Benjamin Moore, Ultra Spec HP DTM Acrylic Semi-Gloss #HP29
  - 2. Gloss and Sheen: Satin

### 2.5 FLOOR SEALERS AND PAINTS

- A. Exterior Wood and Concrete Floor Paint: Urethane-based, pigmented coating formulated to hide stains, for alkali and incidental water resistance, and for use on exterior, concrete and primed-wood surfaces subject to low to medium foot traffic.
  - 1. Benjamin Moore, Super Spec HP Urethane Gloss Enamel #P22
  - 2. Gloss and Sheen Level: Gloss

**PART 3 - EXECUTION**

**3.1 EXAMINATION**

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
  - 1. Concrete: 12 percent.
  - 2. Fiber-Cement Board: 12 percent.
  - 3. Masonry (Clay and Concrete Masonry Units): 12 percent.
  - 4. Wood: 15 percent.
  - 5. Portland Cement Plaster: 12 percent.
  - 6. Gypsum Board: 12 percent.
- C. Portland Cement Plaster Substrates: Verify that plaster is fully cured.
- D. Verify suitability of substrates, including surface conditions and compatibility, with finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
  - 1. Application of coating indicates acceptance of surfaces and conditions.

**3.2 PREPARATION**

- A. Comply with manufacturer's written instructions applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
  - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
  - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems specified in this Section.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceeds that permitted in manufacturer's written instructions.

- F. Steel Substrates: Remove rust, loose mill scale, and shop primer if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:
  - 1. SSPC-SP 7/NACE No. 4.
- G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.
- I. Aluminum Substrates: Remove loose surface oxidation.
- J. Existing Wood Substrates: Carefully remove loose and poorly bonded existing paint from existing wood surfaces by the following methods.
  - 1. Hand scraping with putty knives and paint scrapers.
  - 2. Hand sanding with sanding blocks and sponges.
  - 3. Mechanical sanding with orbital finish sander.
  - 4. Thermal removal with electric heat plate or heat gun.
  - 5. Remove existing paint from ornamental trim, moulding and brackets with a chemical, solvent based stripper. Following chemical removal, treat the existing wood to return to neutral pH.
  - 6. Low pressure water washing (maximum 100 P.S.I.)
- K. The following methods of paint removal will not be permitted:
  - 1. Mechanical devices such as belt sanders, disc grinders, rotary drill attachments.
  - 2. Abrasive methods such as high-pressure water blasting and sand blasting.
  - 3. Thermal methods such as blow torches that utilize an open flame.
- L. Where chemical strippers are used, neutralize the surfaces according to the manufacturer's recommendations to insure proper bonding of new paint.
- M. New Wood Substrates: Prepare new wood substrates using the following methods:
  - 1. Ensure that all joints between wood pieces are tight.
  - 2. Prime edges, ends, faces, undersides, and backsides of new wood.
  - 3. After priming, fill holes, gaps and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

### 3.3 INSTALLATION

- A. Apply paints in accordance with manufacturer's written instructions.
- B. Apply paint using brushes, rollers and sponges.
- C. Spraying paint will not be permitted unless approved in advance by the Architect.
- D. At changes in color or material and to protect adjacent surfaces not to be painted, tape and mask adjacent surfaces as required to create sharp, clean, straight lines.
- E. Where required, tint undercoats same color as topcoat, but tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Provide sufficient difference in shade of undercoats to distinguish each separate coat.

- F. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- G. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

### 3.4 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
  - 1. Do not clean equipment with free-draining water and prevent solvents, thinners, cleaners, and other contaminants from entering into waterways, sanitary and storm drain systems, and ground.
  - 2. Dispose of contaminants in accordance with requirements of authorities having jurisdiction.
  - 3. Allow empty paint cans to dry before disposal.
  - 4. Collect waste paint by type and deliver to recycling or collection facility.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

### 3.5 EXTERIOR PAINTING SCHEDULE

- A. Existing and New Wood and Masonry and Stucco Wall Surfaces as follows:
  - 1. Primer: Benjamin Moore, Fresh Start All Purpose Primer #046
  - 2. Wood Siding and trim: Benjamin Moore, #542 Ben Exterior Low Lustre Acrylic House Paint: 2 coats over primer.
- B. Existing and New Wood Floor Surfaces as follows:
  - 1. Primer: none
  - 2. Finish: Benjamin Moore, Super Spec HP Urethane Gloss Enamel #P22
- C. Existing and New Concrete, Masonry or Stone Floor Surfaces as follows:
  - 1. Primer: none
  - 2. Finish: Benjamin Moore, Super Spec HP Urethane Gloss Enamel #P22
- D. Existing and New Wood Soffit, Fascia, Running and Standing Trim, Ornament and Doors as follows:
  - 1. Primer: Benjamin Moore, Fresh Start All Purpose Primer #046
  - 2. Light and Medium-Shade: Benjamin Moore, Regal High Build Soft Gloss Acrylic House Paint #N403: 2 coats over primer
  - 3. Deep-Color, Full-Gloss: Benjamin Moore, Regal High Build Soft Gloss Acrylic House Paint #N403: 2 coats over primer.

- E. Existing and New Ferrous Metal as follows:
  - 1. Primer: Benjamin Moore, Super Spec HP Alkyd Metal Primer #P06
  - 2. Light and Medium Shade: Benjamin Moore, Ultra Spec HP DTM Semi-Gloss #HP29: 2 coats over primer.
  - 3. Deep-Color: Benjamin Moore, Ultra Spec HP DTM Acrylic Gloss #HP28: 2 coats over primer.
  
- F. Existing and New Zinc-Coated Metal as follows:
  - 1. Primer: Benjamin Moore, Ultra Spec HP Acrylic Metal Primer #HP04
  - 2. Semigloss: Benjamin Moore, Ultra Spec HP DTM Acrylic Semi-Gloss #HP29: 2 coats over primer.
  - 3. Full-Gloss: Benjamin Moore, Ultra Spec HP DTM Acrylic Gloss #HP28: 2 coats over galvanized metal primer.
  
- G. Existing and New Aluminum as follows:
  - 1. Primer: Benjamin Moore, Ultra Spec HP Acrylic Metal Primer #HP04
  - 2. Semigloss: Benjamin Moore, Ultra Spec HP DTM Acrylic Semi-Gloss #HP29: 2 coats over primer.
  - 3. Full-Gloss: Benjamin Moore, Ultra Spec HP DTM Acrylic Gloss #HP28: 2 coats over primer.

**END OF SECTION**

**SECTION 10 4416  
FIRE EXTINGUISHERS**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

**1.02 ACTION SUBMITTALS**

- A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.

**1.03 INFORMATIONAL SUBMITTALS**

- A. Warranty: Sample of special warranty.

**1.04 CLOSEOUT SUBMITTALS**

- A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

**1.05 WARRANTY**

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
  - 1. Failures include, but are not limited to, the following:
    - a. Failure of hydrostatic test according to NFPA 10 when testing interval required by NFPA 10 is within the warranty period.
    - b. Faulty operation of valves or release levers.
  - 2. Warranty Period: Six years from date of Substantial Completion.

**PART 2 - PRODUCTS**

**2.01 PERFORMANCE REQUIREMENTS**

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.

**2.02 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS**

- A. Fire Extinguishers: Type, size, and capacity for each mounting bracket indicated.
  - 1. Source Limitations: Obtain fire extinguishers and accessories from single source from single manufacturer.
  - 2. Valves: Manufacturer's standard.
  - 3. Handles and Levers: Manufacturer's standard.
  - 4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.
- B. Manufacturers:
  - 1. Kidde
  - 2. Amerex

3. FireGuard USA
- C. Fire Extinguisher Types:
  1. Stored-Pressure Water Type (FE-1): UL-rated 2-A, 2.5-gal. nominal capacity, with water in stainless steel container; with pressure-indicating gage.
  2. Multipurpose Dry-Chemical Type in Steel Container (FE-2): UL-rated 3-A:40-B:C, 5-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

### 2.03 MOUNTING BRACKETS

- A. Mounting Brackets: Manufacturer's standard galvanized steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or red baked-enamel finish.
  1. Source Limitations: Obtain mounting brackets and fire extinguishers from single source from single manufacturer.
- B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.
  1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface.
    - a. Orientation: Vertical.

## PART 3 - EXECUTION

### 3.01 EXAMINATION

- A. Examine fire extinguishers for proper charging and tagging.
  1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

- A. General: Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.
- B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.
  1. Mounting Height: Top of fire extinguisher to be at 42 inches above finished floor.

**END OF SECTION**

**SECTION 22 0000  
PLUMBING**

**PART 1 - GENERAL**

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Work included in Section 220000 Plumbing: Provide all materials, equipment, fabrication, installation and tests as noted in Contract Documents in conformity with applicable codes and authorities having jurisdiction.
- B. Materials composition shall conform to the International Plumbing Code.
- C. Related Sections:
  - 1. Section 230000 – HVACs.
  - 2. Consult all other Sections, determine the extent and character of related work and properly coordinate work specified herein with that specified elsewhere to produce a complete and operable installation. See also Coordination Table in Section 230000 – HVACs.
- D. Related Work Specified Elsewhere:
  - 1. Utilities five feet beyond building line unless noted otherwise: See Division 33 Utilities.
  - 2. Underground de-watering piping: See Division 31 Earthwork.
  - 3. Irrigation piping: See Division 33 Irrigation.
  - 4. Pre-cast concrete planter boxes and site drainage structures: See Division 3 Concrete.
  - 5. Structural steel (except as specified herein): See Division 5 Metals.
  - 6. Miscellaneous lumber and framing work, such as for framing, soffits and support of mechanical materials and equipment: See Division 6 Wood, Plastics, and Composites.
  - 7. Scupper overflow drains: See Division 7 Thermal and Moisture Protection.
  - 8. Painting: See Division 9 Finishes.
  - 9. Accessories including soap dispenser: See Division 10 Specialties.

1.3 COORDINATION

- A. See Coordination Matrix in Section 230000 – HVACs.
- B. Plumbing Contractor shall review the documents of other trades, in particular mechanical drawings, prior to bid and include in bid all offsets and other rerouting of piping and devices to avoid conflicts. Where ducts and mechanical piping conflict with 220000 piping, 220000 piping shall be rerouted as required to resolve the conflict. In no case shall piping penetrate ductwork.
- C. Routing of pipe shall be in a neat manner to work with the architectural and structural elements of the building and the requirements of the Architect. Any pipe routes at exposed ceiling areas are

subject to review and approval by the Architect. Submit these pipe routes in advance to the Architect prior to the Shop Drawing submittal.

**1.4 REFERENCE STANDARDS**

- A. As specified in Division 01 and Section 230000 – HVACs.

**1.5 QUALITY ASSURANCE**

- A. As specified in Division 01 and Section 230000 – HVACs.

**1.6 SUBMITTALS**

- A. See Section 230000 – HVACs.
- B. Layout Shop Drawings, where required see Section 230000 – HVACs.
- C. Submit product data, O&M data, and samples and show item on shop drawings (where shop drawings are required) according to the following table.
  1. “R” means required.
  2. “R2” means required only for products and equipment differing for the specified manufacturer and model and for “or equals” where specified.

Item	Product Data	O&M Manual	Samples	Shop Drawing
Drains and cleanouts	R			R
Plumbing pipe and fittings	R	R		R
Piping and equipment insulation	R			
Valves	R	R		R
Piping specialties	R	R		
Water piping sterilization	R	R		

**1.7 REFERENCE STANDARDS**

- A. As specified in Division 01 and Section 230000 – HVACs.

**1.8 SUBSTITUTIONS AND PRODUCT OPTIONS**

- A. As specified in Division 01 and Section 230000 – HVACs.

**1.9 DESCRIPTION OF BID DOCUMENTS**

- A. As specified in Division 01 and Section 230000 – HVACs.

1.10 DEFINITIONS

- A. As specified in Division 01 and Section 230000 – HVACs.

1.11 PROJECT CONDITIONS

- A. As specified in Division 01 and Section 230000 – HVACs.

1.12 CLEARANCE FROM ELECTRICAL EQUIPMENT

- A. As specified in Division 01 and Section 230000 – HVACs.

1.13 PRODUCT DELIVERY, HANDLING, AND STORAGE

- A. As specified in Division 01 and Section 230000 – HVACs.

1.14 PROJECT MANAGEMENT AND COORDINATION SERVICES

- A. As specified in Division 01 and Section 230000 – HVACs.

1.15 REVIEW OF CONSTRUCTION

- A. As specified in Division 01 and Section 230000 – HVACs.

1.16 CUTTING AND PATCHING

- A. As specified in Division 01 and Section 230000 – HVACs.

**PART 2 - PRODUCTS**

2.1 MANUFACTURERS

- A. Named manufacturer model numbers used as example of item and establish minimum level of quality and minimum standard options. Equivalent models are acceptable.

- 1. cleanouts:

- a. Wade.
- b. Zurn.
- c. Or equal.

- 2. Valves:

- a. Apollo.
- b. Nibco.
- c. Watts.

- d. Or equal.

## 2.2 CLEANOUTS

- A. Cleanouts (CO): Cast iron body, sealed with raised head bronze threaded plug, shall be complete with cast iron body, raised head bronze threaded plug.
- B. Wall Cleanouts (WCO): Cast iron body. Smooth chromium-plated bronze access cover and frame. Unit shall be complete with a cleanout assembly and smooth chromium-plated bronze access cover and frame.
  - 1. Install cleanouts at the ends of the horizontal piping for lavatories and water closets.
  - 2. Wall cleanouts at or serving urinals shall be mounted as low as possible and shall not be installed directed above any fixtures.
  - 3. Wall cleanouts serving water closets shall be mounted above the rims of water closets.
- C. Furnish suitable wrenches for each style of cleanout plug or cap.

## 2.3 PIPE MATERIALS AND JOINING SYSTEMS

- A. Sanitary Soil, Waste and Vent Piping: ASTM A74A and CISPI 301 standard weight cast iron soil pipe and fittings. All piping & fittings shall have a standard rust inhibiting coating and shall carry the CISPI mark.
  - 1. Below Slab on Grade or Below Grade: Cast iron hubless soil pipe and fittings with Husky 4000, Clamp-All, or equal, heavy-duty type 304 stainless steel couplings with neoprene gasket. All pipe and fittings shall be wrapped with 8 mil thick polyethylene sleeves.
  - 2. Above Slab on Grade: Cast iron hubless soil pipe and fittings with Husky 4000, Clamp- All, or equal, heavy duty, type 304 stainless steel couplings with neoprene gasket.
- B. Sanitary Soil, Waste and Vent Piping: ASTM D 2665 solid wall schedule 40 PVC, drain waste, and vent pipe with PVC socket fittings, drain, waste, and vent patterns to fit schedule 40 pipe.
  - 1. Adhesive primer.
  - 2. Solvent cement.
- C. Domestic water (cold & hot), trap priming piping.
  - 1. Potable-water piping and components shall comply with NSF 14 and NSF 61 Annex G.
  - 2. Piping above Slab on Grade: Type "L" copper tubing and wrought copper sweat type fittings per ANSI B16-22, ASTM B 813 and ASTM B 828. Solder shall be lead free.
  - 3. Piping above Slab on Grade (2" size and under): Type "L" copper tubing and wrought copper sweat type fittings per ANSI B16-22, ASTM B 813, and ASTM B 828. Solder shall be lead free.
  - 4. Piping above Slab on Grade (2-1/2" size and above): Type "L" with brazed joints.
  - 5. Piping below Slab on Grade (Trap Priming): Type "K" copper tubing and wrought copper sweat type fittings and brazed joints. Copper tubing and fittings shall be per ANSI B16-22, ASTM B 813 and ASTM B 828. Copper tubing and fittings below grade shall be wrapped within 8 mil thick polyethylene tubing.
    - a. Slope all trap priming piping to each trap being primed.

2.4 PLUMBING VALVES

A. Ball Valves.

1. 4 inches and smaller.
2. Bronze.
3. 316 SS trim.
4. Two-piece body.
5. Standard port.
6. 600 psi water on gauge (WOG) at 100 deg F, 150 psi saturated steam.
7. Apollo or equal.
  - a. Threaded: 70LF-100 Series.
  - b. Soldered: 70LF-200 Series.
8. For piping systems with insulation, provide valve handles with extended neck assembly.

B. Check Valves.

1. Lead-Free Check Valves:
  - a. Type: Spring.
  - b. Body: Lead-Free cast copper silicon alloy.
  - c. Size: Same as connected piping, 1/4" to 2"
2. Valve shall have a conical Lead-Free check, PTFE seat and silent operation. Pressure rating no less than 400psi WOG non-shock and 15psi WSP.
3. Check valves shall comply with state codes and standards, where applicable, requiring reduced lead content.
4. Valve shall be a Watts Series LF600 or equal.

C. Balancing Valves.

1. Calibrated balance valves.
2. Body: Lead-free brass.
3. Ball: 304 stainless-steel.
4. Seal Rings: Glass and carbon filled TFE.
5. Readout Valves: Brass with EPT check valves.
6. Stem O-ring: EPDM.
7. Maximum Working Pressures: 300 psig minimum.
8. Valves shall be furnished with a calibrated nameplate and memory stop indicator.
9. Valves shall be proved with capped readout valves fitted with internal check valves and 1/4" NPT tapped and plugged drain port.
10. Bell & Gossett Circuit Setter Model CB or equal.

2.5 PIPE INSULATION

A. As specified in Section 230000 – HVAC:

1. Domestic hot water piping systems.
2. Domestic cold water piping systems.
3. Condensate drain piping.
4. Sanitary sewer piping receiving cold condensate.

5. Roof drainage piping systems.

- B. Provide insulation inserts at all pipe supports or pipe hangers for any plumbing piping being insulated (no exceptions).

## 2.6 HANGERS AND SUPPORTS

- A. See Section 230000 – HVAC.
- B. Refer to paragraph hereinafter “PIPING ISOLATION FOR NOISE CONTROL”, Hangers and supports shall accommodate noise control assemblies and all associated components.
- C. Provide Holdrite or equal, pipe supports for piping in wall, fixture stub-outs and rough-in brackets.

## 2.7 BURIED UTILITY WARNING AND IDENTIFICATION TAPE

- A. Seton Company, or approved equal, polyethylene plastic tape manufactured specifically for warning and identification of buried pipelines. Tape shall be of the type provided in rolls, 6” minimum width, green background with warning and identification imprinted in bold black letters continuously and repeatedly over entire tape length. Warning and identification for lines shall be “CAUTION-BURIED WATER LINE BELOW”. Code and letter coloring shall be permanent, unaffected by moisture and other substances contained in trench backfill material. Install 12” above each pipe during backfill.

## 2.8 ESCUTCHEONS

- A. Escutcheon plates with set screw to hold securely in place, installed on pipes passing through exposed ceilings, floors, and walls in visible locations.
- B. Provide chrome plated brass pipe escutcheons with inside diameter closely fitting pipe outside diameter or outside of pipe insulation where pipe is insulated. Select outside diameter of escutcheon to completely cover pipe penetration hole in floors, walls, ceilings, or pipe sleeve extension, if any. Furnish pipe escutcheons with chrome finish.
  - 1. Pipe escutcheons for moist areas: For water resistant floors, and areas where water and condensation can be expected to accumulate, provide cast brass, or sheet brass escutcheons, solid.
  - 2. Pipe escutcheons for dry areas: Provide sheet steel escutcheons, solid.

## **PART 3 - EXECUTION**

### 3.1 INSPECTION

- A. Refer to Section 230000 – HVACs.
- B. Verify that conditions are satisfactory for the installation of materials and equipment. Notify Architect if conditions are not satisfactory and do not commence work until conditions have been corrected.

3.2 INSTALLATION

- A. Refer to Section 230000 – HVACs.
- B. All equipment and system components shall be installed in a neat and workmanlike manner.
- C. Repair all damaged finishes.
- D. Install all equipment and systems per the manufacturer's written instructions and recommendations.
- E. All equipment must be anchored to the building. All hung equipment shall incorporate vibration isolation.
- F. Each AC equipment drip and drain opening which normally or frequently discharges water (such as air conditioning unit drains, pump base and stuffing box drips, overflows, and similar drips and drains) shall be connected to the drain openings or piped down directly over the floor drains which are provided for the purpose, as applicable, whether indicated on the Drawings or not.
- G. Install open drain fittings with top of hub 1 inch above floor.

3.3 PROTECTION OF WORK DURING CONSTRUCTION

- A. Refer to Section 230000 – HVACs.
- B. Protect from damage, water, dust, etc., material, equipment and apparatus provided under this Division, both in storage and installed, until Substantial Completion has been filed.
- C. Provide protective covers, skids, plugs or caps to protect equipment and materials from damage and deterioration during construction. Cover motors and other moving machinery to protect from dirt and water during construction.
- D. Material, Equipment or Apparatus:
  - 1. Material, equipment, or apparatus damaged because of improper storage or protection will be rejected.
  - 2. Remove damaged material, equipment or apparatus from site and provide new, duplicate, material, equipment, or apparatus in replacement of that rejected.
  - 3. Porous materials, such as pipe insulation, shall be protected from weather. If such material becomes wet during construction, it shall be removed and replaced at no cost to Owner; drying is not sufficient due to possible microbial contamination.
- E. Miscellaneous:
  - 1. Protect other miscellaneous equipment, piping, etc. during construction. Where inadvertent damage occurs, restore to condition similar to that before damage.
  - 2. Inspect each piece of pipe, tubing, fittings, and equipment for defects and obstructions. Promptly remove all defective materials from the site.
  - 3. Install pipes to clear all beams and obstructions. Do not cut into any structural members without prior approval of the Architect.

**3.4 PIPING**

- A. All gravity piping shall slope at per the International Plumbing Code.
- B. Install pipes and pipe fittings in accordance with recognized industry practices which will achieve permanently leak resistant piping systems, capable of performing each indicated service without piping failure. Install each run with minimum joints and couplings but with adequate and accessible unions for disassembly and maintenance/replacement of valves and equipment. Reduce sizes, where indicated by use of reducing fittings. Align piping accurately at connections, within 1/16-inch misalignment tolerance.
- C. Wherever possible, piping shall be run in beam bays before offsetting to below a beam.
- D. Verify all invert elevations and pitched lines before starting work.
- E. Coordinate all pipe runs below slab at floor with the General Contractor.
- F. Vertical pipe penetrations of the structural foundation are not permitted. Piping shall be offset horizontally below top of slab and above top of foundation. Piping shall be wrapped with ½" layer of insulation.
- G. Refer to Structural Drawings for details in regards to locations of sleeves through grade beams.

**3.5 PIPING SCHEDULE**

- A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

<u>Service</u>	<u>Type of Pipe</u>	<u>Fittings</u>	<u>Joints</u>
Under-building slab Domestic water	Soft copper, Type K	None	None
Above slab	Hard copper, Type L	Cast or wrought copper	Soldered
Below grade, Soil, Waste, and Vent Piping	Solid-wall PVC	PVC socket fittings, DWV pattern	Solvent-cemented
Above grade, Soil, Waste, and Vent Piping (not installed in return air plenum)	Solid-wall PVC	PVC socket fittings, DWV pattern	Solvent-cemented
Above grade, Soil, Waste, and Vent Piping (installed in return air plenum)	Cast-iron, hubless	Hubless, DWV pattern	Heavy-duty, couplings
Condensate drains	Solid wall PVC	PVC socket fittings, DWV pattern	Solvent-cemented

**3.6 VALVES**

- A. For valves in multiple parallel runs of piping, provide 4" clearance between valve handle and adjacent pipe, or insulation. Install valve handles in horizontal position between pipes. Do not install valve handles on top of pipe.
- B. Install valves in accordance with manufacturer's written installation instructions.
- C. Provide valves as shown on drawings.
- D. Provide all valves (except control valves), strainers, and check valves of same size as the pipes in which they are installed unless otherwise indicated.
- E. Pressure rating of valves same as piping in which installed.
- F. Install valves with stems upright or horizontal, not inverted.
- G. Install valves with cast directional arrows in direction of flow.
- H. Support line valves at the valve in addition to regularly spaced pipe supports shown and specified.
- I. Provide blow-down ball valves and hose adaptors at strainers, air separators, tanks, pipe traps, equipment drains, etc. of same size as strainer blow-off connection.
- J. Provide drain valves at main shut-off valves, low points of piping and apparatus.
- K. Locate wheel handles to clear obstructions with hand.
- L. Install valves only in accessible locations.
- M. Wherever possible, install valves accessible from floor level. Provide guided chain operators on valves over 7 feet above floor in equipment areas. Extend chains to within 6 feet 6 inches of floor.
- N. Locate equipment shut-off valves to be accessible without climbing over equipment.
- O. Provide operating handles for all valves and cocks without integral operators, unless otherwise noted. Provide adequate clearance for easy operation.
- P. Provide open-ended line valves with plugs or blind flanges.

**3.7 PIPE INSULATION INSTALLATION**

- A. Refer to Section 230000 – HVAC.
- B. Install materials in accordance with manufacturer's instructions.
- C. Provide cellular glass inserts for all pipe sizes, systems, and all types of supports.

**3.8 CLEANING**

- A. During construction:

1. Keep openings in piping closed to prevent entrance of foreign matter.
  2. Clean pipe, fittings, and valves internally.
- B. Clean plumbing fixtures with soap and water. Remove marks and labels. Clean and polish chrome. Remove paint, concrete, plaster, and other foreign materials.
- C. Clean all drains, and tanks, of dirt and debris.
- D. Remove shipping paper from cleanout covers and drain strainers and polish.
- E. Remove and clean out all dirt and debris from pipe spaces, including all wire, and blocking.
- F. All equipment and materials furnished by this Section shall be completely dust and paint free, clean, and rust free and freshly painted or polished when the final inspection is made.
- G. Thoroughly clean and flush interior and exterior of all piping systems (wet systems, and drainage systems) of any nature of all pipe contaminates such as cuttings, fillings, grease, solder, flux and welding residue.

### 3.9 STERILIZATION

- A. Clean and disinfect potable domestic water piping as follows:
1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
  2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:
    - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
    - b. Fill and isolate system according to either of the following:
      - 1) Fill system or part thereof with water/chlorine solution with at least 50 ppm of chlorine. Isolate with valves and allow to stand for 24 hours.
      - 2) Fill system or part thereof with water/chlorine solution with at least 200 ppm of chlorine. Isolate and allow to stand for three hours.
    - c. Flush system with clean, potable water until no chlorine is in water coming from system after the standing time.
    - d. Repeat procedures if biological examination shows contamination.
    - e. Submit water samples in sterile bottles to authorities having jurisdiction.
- B. Clean non-potable domestic water piping as follows:
1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
  2. Use purging procedures prescribed by authorities having jurisdiction or if methods are not prescribed, follow procedures described below:
    - a. Flush piping system with clean, potable water until dirty water does not appear at outlets.

- b. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.
  - C. Prepare and submit reports of purging and disinfecting activities. Include copies of water-sample approvals from authorities having jurisdiction.
  - D. Clean interior of domestic water piping system. Remove dirt and debris as work progresses.
- 3.10 EXCAVATING, TRENCHING, AND BACKFILLING
  - A. In accordance with the requirements of Division 31 for excavating, trenching, and backfilling.
  - B. Provide barricades, signs, lanterns, shoring, sheeting, and pumping as part of Work in this Division as required to ensure safe conditions. Comply with OSHA requirements.
  - C. Dig trenches straight, true to line and grade with sides and bottoms smoothed of any rock points.
    - 1. Excavate 6 inches below grade of pipe.
    - 2. Fill with sand properly packed.
    - 3. Support pipe for entire length on packed sand.
    - 4. Shape or pack bottom of trenches for pipe, duct fittings, hubs, couplings, etc., using templates to fit outside periphery of lower third of piping and ductwork.
    - 5. Provide piping outside building with 36-inch minimum cover from top of pipe to finished grade.
    - 6. Minimum width 16 inches.
    - 7. Provide identification wire and tape.
  - D. Dispose of all surplus excavation material and seepage water as directed by the Architect.
  - E. Backfill.
    - 1. After piping has been installed, tested, and approved, backfill all excavation, tamp and compact by motor powered or compressed air tampers.
    - 2. Backfill to 6-inches above crown of pipe with unwashed sand, with remainder of trench back-filled and mechanically tamped in 6-inch maximum layers of selected excavated materials, free from organic matter, rocks, etc. Provide 90-percent compaction in accordance with ASTM D 1557-58T; 95-percent compaction for trenches below building slabs.
  - F. In any asphalt or concrete paved areas, backfill only to subgrade level.
  - G. When piping is installed, prior to backfilling, advise Architect; do not backfill without acceptances of Architect.
  - H. Replace to original condition all paving, curbs, gutters, walks, etc., which become disturbed by trenching.
- 3.11 EQUIPMENT AND PIPING IDENTIFICATION
  - A. Piping.

1. Identify piping with symbol identification, direction of flow arrows and specific pressure zones, complying with ANSI A 13.1 color standards.
2. Identify piping at approximately 25' centers where unconcealed. Concealed piping above inaccessible ceilings shall be identified at each access panel. Concealed piping above accessible ceilings shall be identified within 10 feet of each wall penetration (both sides of walls).
3. Where capped piping is provided for future connections, provide legible and durable metal tags indicating symbol identification.
4. Printed labels with colored background and attaching strap: Seton, W. Brady, or equal.
5. Apply in accordance with manufacturer's instructions.
6. Identify reclaimed water system as per IPC requirements.

**B. Buried Utility Warning and Identification Tape.**

1. Seton, Brady, or equal.
2. Polyethylene plastic tape manufactured specifically for warning and identification of buried pipelines. Code and letter coloring shall be permanent, unaffected by moisture and other substances contained in trench backfill material.
3. Install tape 12" above top of pipe during backfilling of trench.

**3.12 PAINTING**

- A. Refer to Section 230000 – HVACs.

**3.13 LEAKAGE TESTING**

- A. Before conducting tests, valve-off or disconnect any equipment and apparatus which may be damaged by the test pressures higher than normal working pressures. All testing shall be witnessed by the Authority Having Jurisdiction.
- B. Sanitary Soil, Waste, and Vent Piping: Hydrostatically test and prove tight, to provide a minimum 10-foot head of water, and in accordance with the governing plumbing code.
- C. Domestic Hot Water and Domestic Cold-Water Piping: Test and prove tight under 150 PSI hydrostatic pressure.
- D. Apply tests for a minimum period of two (2) hours, unless otherwise hereinbefore specified, and until tests are complete, in the opinion of the inspecting authority.
- E. Work may be tested in sections, if necessary, for convenience. In this case, test of first section shall include all connections between previously tested sections and section under test.
- F. Furnish all labor and all other utilities required to conduct leakage tests.

Piping Test Log						
Date	System	Description of Piping System and Section Tested	Test Press. (psig)	Test Duration (hours)	Results Pass/Fail	Witness (Contractor) Initials
This form shall be completed and submitted with the project closeout documents. Contractor shall copy this form if more sheets are required. Piping pressure test log shall be kept at project site and shall be made available to the Architect upon request.						

**END OF SECTION**

**SECTION 23 0000**  
**HEATING, VENTILATING, & AIR CONDITIONING SYSTEMS**

**PART 1 - GENERAL**

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Work included in Section 230000 Heating, Ventilating, & Air Conditioning (HVAC) Systems: Provide all materials, equipment, fabrication, installation, and tests as noted in Contract Documents in conformity with applicable codes and authorities having jurisdiction.
- B. Materials composition shall conform to the International Mechanical Code.
- C. Related Work Specified Elsewhere:
  - 1. Structural steel (except as specified herein): See Division 5 Metals.
  - 2. Miscellaneous lumber and framing work, such as for framing, soffits and support of mechanical materials and equipment: See Division 6 Wood, Plastics, and Composites.
  - 3. Scupper overflow drains: See Division 7 Thermal and Moisture Protection.
  - 4. Painting: See Division 9 Finishes.

1.3 COORDINATION

- A. See Coordination Matrix hereinafter.
- B. Mechanical Contractor shall review the documents of other trades, in particular mechanical drawings, prior to bid and include in bid all offsets and other rerouting of ductwork, piping, and devices to avoid conflicts. Where ducts and mechanical piping conflict with Division 21 and Division 22 piping, Division 21 and 22 piping shall be rerouted as required to resolve the conflict. In no case shall piping penetrate ductwork.
- C. Routing of duct and pipe shall be in a neat manner to work with the architectural and structural elements of the building and the requirements of the Architect. Any duct and pipe routes at exposed ceiling areas are subject to review and approval by the Architect. Submit these pipe routes in advance to the Architect prior to the Shop Drawing submittal.

1.4 DIVISION OF WORK

- A. This section delineates the division of work between Divisions.
- B. Consult all other Sections, determine the extent and character of related work, and properly coordinate work specified herein with that specified elsewhere to produce a complete and operable installation. This section is provided to assist the Contractor in coordination of work

scope but shall not be construed to limit Contractor's scope of work encompassed by the contract documents.

- C. Coordination with other Trades: The following table is intended to assist the Contractors in coordinating the scope of work between Division 23 (Indicated as 23 in table), Section 230900 Energy Management & Control System (indicated as 23C), and other Divisions as indicated. However, the General Contractor is ultimately responsible for coordination among his subcontractors regardless of what is listed in this Section.

INTERFACE/RESPONSIBILITY MATRIX						
System	Division under which the following is specified				Remarks	
	Equipment	Installation	Power Wiring [1]	Control & Interlock Wiring [1]		
<b>MECHANICAL EQUIPMENT</b>						
	Dehumidifiers	23	23	26	23C	
	Split-systems	23	23	26	23C	
	Disconnects	26/23	26/23	26	26	[6]
<b>MISCELLANEOUS</b>						
	Trenching, backfilling, boring, soil compaction, saw-cutting, patching and paving for underground piping	31	31	-	-	
	Thermal and acoustical insulation in and on partitions and ceilings	7	7	-	-	
	Combination louver/damper	23	23	23C	23C	
	Concrete housekeeping pads, curbs, pedestals, and inertia base fill etc. for equipment	3	3	-	-	[16]
	Equipment, ductwork, and piping steel supports and frames	23	23	-	-	
	Painting of exposed piping, HVAC equipment, etc.	23	23	-	-	
	Fire-stopping around pipe and duct penetrations in floor and walls	23	23	-	-	
	Framing of walls and ceilings to accept air outlets, fire dampers, etc.	9	9	-	-	[18]
	Ceiling and wall access doors	23	8	-	-	[19]
<b>NUMBERED REMARKS:</b>						
[1] Wiring includes raceway, fittings, wire, boxes and related items, all voltages						
[2] Wiring of interlock of duct smoke detectors to shut off supply fans upon detection of smoke is specified under Section 230900 Energy Management & Control System. All other smoke control/fire alarm related control wiring is specified under Division 26 Electrical.						
[3] End switch required only for monitoring position of damper. See HVAC drawings and Division 23 smoke and fire damper specifications to see where required.						
[4] Factory installed starters and variable speed drives are specified under Division 23 HVAC. Prewired control panel is specified under Division 23 HVAC, single point power connection (unless otherwise noted on drawings) specified by Division 23 HVAC. Packaged mechanical equipment specified with BACnet communication cards/gateways shall be provided by Division 23						

INTERFACE/RESPONSIBILITY MATRIX					
System	Division under which the following is specified				Remarks
	Equipment	Installation	Power Wiring [1]	Control & Interlock Wiring [1]	
					<p>HVAC. Packaged mechanical equipment vendor to provide all necessary technical assistance to Division 23C Contractor in mapping across equipment points to the EMCS.</p> <p>[5] Motor starters are specified under Division 23 HVAC. Incoming power (from source) and outgoing power (to motor) is specified under Division 26 Electrical.</p> <p>[6] Disconnects are specified under Division 23 HVAC where specifically called for in equipment schedules or specifications to be factory installed with equipment. Otherwise, all disconnects are specified under Division 26 Electrical.</p> <p>[7] Power to all EMCS control panels is specified under Section 230900 Energy Management &amp; Control Systems, coordinate with Division 26 contractor for available circuits.</p> <p>[8] Network IT LAN drop at required EMCS location(s) specified under Section 230900 Energy Management &amp; Control Systems. It shall be the responsibility of the Division 23C contractor to coordinate required IT LAN network connection location(s) with the Division 26 contractor or Owner's IT Department. Connection(s) to Owner's IT LAN and termination to wall jack specified under Section 230900 Energy Management and Control System.</p> <p>[9] Coordinate piping from condensate pans to the sewer system including trap and final connections is specified under Division 22 Plumbing. Piping from auxiliary drain pans where provided at air handling equipment in furred spaces is specified under Division 23 HVAC.</p> <p>[10] Pressure reducing valves to deliver gas at the pressure required by mechanical equipment, including final connections and shut-off cock, is specified under Division 22 Plumbing. All other gas control and regulating devices provided under the Section providing the gas-fired equipment. Venting of gas regulating devices and other equipment gas-train devices where required is specified under Division 22 Plumbing.</p> <p>[11] Test plugs mounted adjacent to all temperature well (for calibration) specified under Division 23</p> <p>[12] Duct air leakage testing is specified under Division 23 HVAC. Division 23 HVAC contractor shall notify Testing, Adjusting, and Balancing (TAB) Agency once all ductwork has passed the pretests and maximum duct air leakage rates confirmed. TAB Agency shall witness the final duct air leakage tests and initial the Duct Air Leakage Test Log (included in Section 233113 – Metal Ducts) certifying the test passed.</p> <p>[13] Duct access doors required for access to control devices where required specified under Division 23 HVAC.</p> <p>[14] Actuators for motorized dampers supplied with fans or hood, where scheduled on HVAC drawings are specified under Division 23 HVAC, mounted, but not wired. Power and control wiring specified under Division 23C.</p> <p>[15] Factory wired control transformer, safeties and contactors with single point power wiring connection specified under Division 23 HVAC.</p> <p>[16] Shop drawings showing dimensions of all curbs, bases, etc. specified under Division 23 HVAC.</p> <p>[17] Shims to level curb specified under Division 6. Curb insulation specified under Division 23 HVAC. All roof curbs shall be approved by roofing manufacturer.</p> <p>[18] Additional T-bar or spline and cut ceiling tile as required to accept air outlets is specified under Division 9.</p> <p>[19] Dimensioning of access doors to mechanical equipment and coordination with Architect and Division 8 specified under Division 23.</p>

1.5 REFERENCE STANDARDS

- A. Nothing in Drawings or Specifications shall be construed to permit Work not conforming to applicable laws, ordinances, rules, regulations.
- B. When drawings or Specifications exceed requirements of applicable laws, ordinances, rules and regulations, comply with documents establishing the more stringent requirement.
- C. Published specifications, standards, tests or recommended method of trade, industry or governmental organizations as listed below apply to all work in this Section:
  - 1. AABC - Associated Air Balance Council.
  - 2. ADC - Air Diffuser Balance Council.
  - 3. AMCA - Air Moving and Conditioning Association.
  - 4. ANSI - American National Standards Institute.
  - 5. ARI - Air Conditioning and Refrigeration Institute.
  - 6. ASHRAE - American Society of Heating, Refrigeration and Air Conditioning Engineers.
  - 7. ASME - American Society of Mechanical Engineers.
  - 8. ASTM - American Society for Testing and Materials.
  - 9. ETL - Intertek Semko (Formerly Electrical Testing Laboratories).
  - 10. IEEE - Institute of Electrical and Electronic Engineers.
  - 11. NEMA - National Electrical Manufacturer's Association.
  - 12. NFPA - National Fire Protection Association.
  - 13. SMACNA - Sheet Metal and Air Conditioning Contractors National Association.
  - 14. UL - Underwriters' Laboratories.
- D. Industry standards and manufacturers' recommendations, diagrams or requirements shall be strictly adhered to for installation of materials and equipment.

1.6 QUALITY ASSURANCE

- A. All equipment and accessories to be the product of a manufacturer regularly engaged in its manufacture.
- B. All items of a given type shall be the products of same manufacturer.
- C. Supply all equipment and accessories new and free from defects.
- D. Supply all equipment and accessories in compliance with the applicable standards listed in herein with all applicable national, state and local codes.

1.7 DEFINITIONS

- A. "Provide": to supply, install and connect up complete and ready safe and regular operation of particular work referred to unless specifically noted.
- B. "Install": to erect, mount and connect complete with related accessories.
- C. "Supply": to purchase, procure, acquire and deliver complete with related accessories.
- D. "Work": labor, materials, equipment, apparatus, controls, accessories, and other items required for proper and complete installation.

- E. "Piping": pipe, tube, fittings, flanges, valves, controls, strainers, hangers, supports, unions, traps, drains, insulation, and related items.
- F. "Wiring": raceway, fittings, wire, boxes and related items.
- G. "Concealed": embedded in masonry or other construction, installed in furred spaces, within double partitions or hung ceilings, in trenches, in crawl spaces, or in enclosures.
- H. "Exposed": not installed underground or "concealed" as defined above.
- I. "Indicated," "shown" or "noted": as indicated, shown or noted on drawings or specifications.
- J. "Similar" or "equal": of base bid manufacture, equal in materials, weight, size, design, and efficiency of specified product, conforming to PART 2 Materials.
- K. "Reviewed," "satisfactory," or "directed": as reviewed, satisfactory, or directed by or to Architect.
- L. "Motor Controllers": manual or magnetic starters (with or without switches), individual pushbuttons or hand-off-automatic (HOA) switches controlling the operation of motors.
- M. "Control or Actuating Devices": automatic sensing and switching devices such as thermostats, pressure, float, electro-pneumatic switches and electrodes controlling operation of equipment.

#### 1.8 SUBMITTALS

- A. Schedule.
  - 1. Allow 10 working days for approval unless Engineer agrees to accelerated schedule.
- B. Submit drawings, product data, samples and certificates of compliance required as hereinafter specified in this Section.
- C. Submission Procedure.
  - 1. Initial Submittal.
    - a. Each submittal shall have a unique serial number such as "SUBMITTAL 230000-01".
    - b. Submittals may be submitted non-concurrently if required by the schedule.
    - c. Submit one electronic copy of product data in word-searchable format such as Adobe pdf. Provide separate files for each equipment type. Paper copies or scans of paper copies will not be accepted.
    - d. Submittal will be reviewed, and comments returned to Contractor.
  - 2. Resubmission.
    - a. Each resubmittal shall have the original unique serial number plus unique revision number such as "SUBMITTAL 230000-01 REVISION 1".
    - b. Make any corrections or change in submittals as required.
    - c. Resubmit for review in electronic format described above until no exceptions are taken.

3. Final approval: Once submission is accepted, Contactor shall print two bound sets of submittals for Owner. Engineering Resource Group does not require or desire paper copies.

D. Contents of Submittals.

1. HVAC Equipment Submittals

- a. Manufacturer's name and model number.
- b. All information required to completely describe materials and equipment and to indicate compliance with drawings and specifications, including, but not limited to:

- 1) A schedule, for all items of the same type shall be supplied. The schedule shall include the manufacturer, the model, size, specific information that makes that item unique, the service of the item, the system served by the item.
- 2) Schedule shall include the new and existing air conditioning unit, terminal units and reheat coils.
- 3) Physical Data, as applicable.
  - a) Dimensions.
  - b) Weight.
  - c) Finishes and colors.
- 4) Performance Data, as applicable, for new and existing equipment.
  - a) Rated capacities.
  - b) Performance curves.
  - c) Operating temperature and pressure.
- 5) Electrical and plumbing requirements.
- 6) Flow and wiring diagrams as applicable.
- 7) Description of system operation.

- c. All other pertinent information requested in individual paragraphs herein.  
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2. Testing, Adjusting, and Balancing (TAB) Submittal.

- a. All test and report forms that will be submitted for the final TAB report.
- b. A written description of the balance procedures.
- c. Submit at least 30 days prior to any TAB work.

E. Operating Instructions & Maintenance Manuals.

1. Before requesting acceptance of work, submit in word-searchable format such as Adobe pdf via email for review by Engineer. File shall include bookmarks for each piece of equipment. Paper copies will not be accepted.
2. After review and making corrections noted, furnish three printed and bound sets for the Owner. Assemble in with separate tabs for each piece of equipment in heavy three-ring binder.
3. O&M manual shall include all submittal data submitted herein above, as installed. The intent of this section is that a single document contains all relevant information about each piece of equipment.
4. In addition to the submittal data, the O&M manual shall also include the following information for all new equipment:

- a. Manufacturer's name, model number, service manual, spare-parts list, and descriptive literature for all components.
- b. Installation instructions.
- c. Maintenance instructions.
- d. Wiring diagrams.
- e. Listing of possible breakdown and repairs.
- f. Instruction for starting, operation, and programming.
- g. Detailed and simplified one line, color coded flow and wiring diagram.
- h. Name, address and phone number of contractors equipment suppliers and service agencies.
- i. Guarantee period, including start and end period.
- j. Startup test readings, dated and signed by testing technician.
- k. TAB reports.

F. Record Drawings.

1. Update design/shop AutoCAD drawings to "as- built" conditions:
  - a. Fully incorporate all revisions made by all crafts in course of work.
  - b. Include all field changes, adjustments, variances, substitutions, and deletions, including all Change Orders.
  - c. Exact location, type, and function of concealed valves, dampers, controllers, piping, air vents and piping drains.
  - d. Exact size, elevations, and horizontal location of piping and ducts.
  - e. Revise equipment schedules to reflect all substitutions.
  - f. Complete drawings of all HVAC systems, both new and existing.
2. Submit in electronic format per Submittals above for approval.
3. Once Approved.
  - a. Provide one set of original CAD files including all referenced background drawings as well as Adobe pdf files of each drawing on portable media (e.g., USB flash drive).
  - b. Load complete CAD files onto the control system existing front-end computer. (Viewing software by others.)
  - c. Provide one full size set of drawings on bond paper.
  - d. Provide pdf set loaded onto 1 flash drive.

1.9 WARRANTY

- A. Furnish all labor, materials, services, and equipment warranties as outlined herein for mechanical systems and equipment.
- B. Test Period: Each piece of equipment shall meet performance specifications after three months' actual operation to OWNER'S satisfaction.
- C. CONTRACTOR shall replace, or make good, any defect due to faulty workmanship or material, which shall develop within one year from the beginning of the warranty period. This guaranty shall cover both material and labor. Leaking pipe work is considered faulty workmanship. This warranty shall include repair, removal of defective parts and installation of replacements. The CONTRACTOR shall also be responsible for property damage that results from defects in materials, improper controls or setup, and/or installation during the warranty period.
- D. For first year after the warranty begins, CONTRACTOR shall provide, at no cost to the OWNER, any required maintenance and service necessary to assure the proper operation of the

installations and systems. Latent defects arising during this period shall, upon notification by the OWNER, be promptly corrected at no additional cost to the OWNER. This shall include:

1. Refrigerant and Oil Replacement in Refrigeration Systems: Leaking refrigerant systems shall be repaired, proved tight, and charged with manufacturer’s recommended refrigerant and lubricant, within any standard warranty period.
  2. Any adjustments and service required, excluding filter monitoring and replacement.
  3. Any necessary adjustments in system control set points when required, excluding filter monitoring.
- E. The CONTRACTOR shall make inspections at end of 6th and 11th months after beginning of warranty related to the HVAC control system. During these inspections the CONTRACTOR shall verify all control settings and recalibrate controls and sensors to match requirements as can be coordinated with PROFESSIONAL based on historical trend by data and to optimize system performance. Temperature and safety controls shall be adjusted as necessary to insure continuous, trouble free, safe, and automatic operation of systems including gas burner, refrigerating equipment, etc.
- F. Extended Equipment Warranties
1. Definitions and General Requirements
    - a. Extended warranties, defined as a warranty after the standard one (1) year warranty.
    - b. “Comprehensive” is defined as a complete warranty except for acts of God and negligent maintenance or operation of the specified equipment as required of the OWNER.
    - c. All comprehensive equipment warranties shall include all parts, labor, shipping, postage, freight, handling fees, etc., to accomplish any repair and/or replacement at no additional cost to OWNER. These warranty provisions will be binding on any CONTRACTOR and/or supplier/manufacturer unless specifically approved otherwise in writing by OWNER.
    - d. Lack of specific action on any manufacturer’s, supplier, and/or CONTRACTOR submitted alternate warranty shall not be construed as approval of same and shall not void the manufacturer and/or CONTRACTOR’S contractual obligation to provide specified warranty.
    - e. Third party insurance and/or split CONTRACTOR labor/manufacturer’s equipment/material warranties shall not be acceptable. Only manufacturer’s comprehensive warranties shall be acceptable.

2. Extended Warranties Required

NAME	ITEM	PARTS (YRS)	LABOR (YRS)	OTHER
Split System Air Conditioners (VRF Type)	Compressor	10	1	
	Parts	10	1	
	Controls	10	1	
Dehumidifier	All	2	1	

1.10 COMPLETION REQUIREMENTS

- A. Until the documents required in this section are submitted and approved, the system will not be considered "accepted" and final payment to contractor will not be made.
- B. O&M Manuals, as specified above.
- C. Record Drawings, as specified above.
- D. TAB reports, as specified below.
- E. Inspection and permit: Provide one copy of inspection certificates signed and approved by the local code authorities.
- F. Training, as specified below.
- G. Warranty: Provide written guarantee and warranty documents for all equipment and systems, including the start and end date for each.

1.11 SCHEDULE OF WORK

- A. Arrange construction work to conform to schedules established by the Owner and Architect.
- B. Schedule test, balance, and acceptance testing of mechanical systems.
  - 1. This phase must occur after completion of mechanical systems, including all control calibration and adjustment
- C. Include any charges, including overtime wages, required to perform work within scheduling criteria specified above.

1.12 GUARANTEE

- A. The Contractor shall guarantee the following:
  - 1. All new materials, new equipment, apparatus, and workmanship shall be free of defective materials and faulty workmanship.
  - 2. All equipment and material will produce the results specified. Service of existing equipment is the responsibility of the owner.
  - 3. All systems have been fully tested, adjusted, and balanced.
- B. The HVAC Contractor shall furnish written guarantee to replace all defective work, materials, and services furnished under this Section, at no additional cost to the Owner, for the warranty period.
- C. The warranty period shall be one (1) year from date of filing of the project Substantial Completion.
- D. The Owner reserves the right to make temporary repairs as necessary to keep equipment in operating condition without voiding the guarantees or relieving responsibility during the guarantee period.
- E. The warranty shall not include:
  - 1. Standard maintenance items.

2. Repairs or replacement of equipment damaged as a result of misuse, abuse, or lack of proper maintenance.
3. Existing equipment and materials not provided by this contract.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Named manufacturer model numbers used as example of item and establish minimum level of quality and minimum standard options. Equivalent models are acceptable.

### **2.2 SPLIT SYSTEM AIR-CONDITIONERS**

- A. Variable refrigerant flow split-system heat pumps.
- B. Trane-Mitsubishi, Daikin, Hitachi, or equal.
- C. Multi Position Air Handling Unit
  1. Indoor unit shall be a floor mounted vertical, horizontal left, horizontal right, or downflow air handling unit (as shown on plans), operable with refrigerant R-410A. equipped with an electronic expansion valve.
  2. When installed in a vertical configuration it shall have top discharge air and bottom return air. When installed in a horizontal right or horizontal left configuration, it shall have a horizontal discharge air and horizontal return air. When installed in a downflow configuration it shall have bottom discharge and top return air.
  3. The cabinet shall be constructed with sound absorbing, foil-faced insulation to control air leakage. Cabinet to be pre-painted heavy-gauge steel casing. Select an installation location with adequate structural support, space for service access and clearance for air return and supply duct connections. A field supplied secondary drain pan shall be installed where required by national, state, or local code.
  4. External Filter Rack: Factory assembled, side or top service housings, constructed of 18 gage galvanized steel with integral track to receive 2-inch MERV 8 filters.
  5. Condensate draining shall be made via gravity or external condensate pump as shown on plumbing plans.
  6. Coils shall be of the direct expansion type constructed from aluminum tubes expanded into aluminum fins to form a mechanical bond. The coil shall be of a waffle louver fin and high heat exchange, rifled bore tube design to ensure highly efficient performance. The coils shall be a 2- to 4-row cross fin copper evaporator coil with 14 to 16 fpi design completely factory tested. The refrigerant connections shall be brazed connections and the condensate shall be 3/4 inch outside diameter PVC. A thermistor shall be located on the liquid and gas line.
  7. Electric Coil: Helical, nickel-chrome, resistance-wire heating elements; with refractory ceramic support bushings, automatic-reset thermal cutout, built-in magnetic contactors, manual-reset thermal cutout, airflow proving device, and one-time fuses in terminal box for overcurrent protection.

8. Supply fans. Centrifugal, factory balanced, adjustable belt drive, permanently lubricated bearings. Centrifugal, factory balanced, resilient mounted, direct drive. Dual fans on air handling units 12.5 tons and greater. See fan type indicated on Construction Drawings.
9. Fan motors. The fan shall be a direct-drive Sirocco type fan, statically and dynamically balanced impeller with high and low fan speeds available. The fan motor shall operate on 208/230 volts, 1 phase, 60 hertz with a motor output range 0.2 to 1.0. HP.
10. Provide units with single point power connection and control box with circuit breakers for overload and short circuit protection. Circuit breakers shall qualify as disconnect means at unit. Provide unit with circuit breaker cover kit to protect circuit breaker.

**D. Air-Cooled, Compressor-Condenser Components:**

1. The inverter scroll compressor shall be variable speed (inverter) controlled which is capable of changing the speed to follow the variations in total cooling and heating load as determined by the suction gas pressure as measured in the condensing unit. In addition, samplings of evaporator and condenser temperatures shall be made so that the high/low pressures detected are read every 20 seconds and calculated. With each reading, the compressor capacity shall be controlled to eliminate deviation from target value.
2. The condensing unit fan(s) shall consist of propeller type, direct-drive fan motors that have multiple speed operation via a DC (digitally commutating) inverter.
3. The condenser coil shall be manufactured from copper tubes expanded into aluminum fins to form a mechanical bond.

**E. Controls.**

1. The unit shall have controls provided by unit manufacturer to perform input functions necessary to operate the system.
2. Wall mounted programmable thermostat.
  - a. LCD touchscreen display.
  - b. Heating and cooling stages to match application specified.
  - c. 7-day programmable.
  - d. Proportional plus integral (PI) control.
  - e. Touchscreen lockout.
  - f. Setpoint adjustment.
  - g. Override control.
  - h. Fan speed control.
  - i. Clock.

**2.3 FANS**

- A. Cook, Greenheck, PennBerry, or equal.
- B. Fans shall be tested and rated in accordance with AMCA Standards and shall bear AMCA Labels
- C. Wheels shall be balanced statically and dynamically, free from vibration or noises.
- D. Bearings self-aligning, ball-bearing type, complete with grease fittings, extended to single point on drive side or to accessible location.

- E. Actual brake horsepower of fan and drive shall not exceed nameplate rating of motor driving fan.
- F. Provide adjustable sheaves for one-to-two-strand belt drives on motors 15 HP or less. Sheaves shall be selected to operate at mid-point of fan curve to allow adjustment in both directions. For belt drives with more than two strands serving motors over 15 HP, provide fixed sheaves. Replace fan sheaves as necessary to obtain desired results.
- G. Provide back draft dampers on exhaust fans.

#### 2.4 AIR INLETS AND OUTLETS

- A. Titus, Price, Metal-Aire or equal.
- B. Styles: See Construction Drawings.
- C. Borders and Frames:
  - 1. Diffuser trim to match ceiling type; see reflected ceiling plans.
  - 2. Provide center-tees for slots in tee-bar ceilings.
  - 3. Use frames with concealed fasteners; no visible screw heads.
- D. Interior of perforated diffusers (back-pan and blades) painted flat black.
- E. All visible portions of grille boxes painted flat black on the inside; grille box duct liner pins painted flat black.
- F. Square to rounds are to be 3" high diffuser boxes on top of grilles with factory black paint inside.

#### 2.5 MANUAL AND AUTOMATIC DAMPERS

- A. Ruskin, Greenheck, or equal.
- B. Manual Dampers:
  - 1. Conform to requirements of SMACNA HVAC Duct Construction Standards.
  - 2. General:
    - a. Blades of same material as duct where damper is located.
    - b. Damper Hardware:
      - 1) Ventlok 400 and 4000 series or equal; for low pressure systems 2-inch SMACNA pressure class and less.
      - 2) Ventlok HiVel hardware or equal; for greater than 2-inch SMACNA pressure class.
    - c. Actuating quadrants typical for single and multi-blade dampers; provide closed bearing on opposite end from quadrant to prevent air leakage: Ventlok No. 609 or equal.
    - d. Bearing at one end of damper rod: Ventlok No. 609 or equal.
    - e. Sealed bushings installed at both ends to avoid duct leakage.
    - f. Accessible quadrant at other end of damper rod.
      - 1) With lever and lock screw: Ventlok No. 635 or equal.

- 2) Insulated ducts.
  - a) Quadrants mounted on collar to clear insulation.
  - b) Ventlok Nos. 637, 638, or 639 or equal.
  - c) Selection based on insulation thickness.
- g. For dampers above non-removable ceilings and without ceiling access panels provide Ventlok No. 677 or equal concealed damper regulator.
  - 1) With paintable cover plate.
  - 2) Required interconnecting hardware.
- 3. Round, Inline
  - a. Heavy 26-gauge G-90 Galvanized Steel Body (all sizes)
  - b. Extra Heavy 24-gauge G-90 Galvanized Steel Blade
  - c. 3/8" Square Axle Secured to Blade with U-bolts
  - d. Nylon bushings on thru and end (all sizes)
  - e. 2" Stool with Locking Quadrant and Handle (all sizes, wing nuts not acceptable)
  - f. Sealed on all Seams
  - g. BO3 (2") Build-out, 3/8" Square Shaft (solid rod), U-bolt, Locking Quadrant, Handle
  - h. Flexmaster Co. Connecting Sleeve (SL-BO3), Crown 175-XS2 or equal.
- 4. Rectangular
  - a. Single blade dampers:
    - 1) Galvanized steel ductwork: galvanized steel, except as indicated in the Drawings.
    - 2) Blade: Two gages heavier than duct gage, or 18 gage, whichever is lighter.
  - b. Multi-blade dampers.
    - 1) Low Pressure/Low Velocity Systems (2-inch water column or less static pressure class and 1500 fpm or less face velocity).
      - a) Opposed blade damper.
      - b) Ruskin Model CD35 or equal.

## 2.6 LOUVERS

- A. Ruskin, Greenheck, or equal.
- B. Louver Design.
  - 1. Extruded aluminum.
  - 2. Wind-driven rain resistant type.
  - 3. Factory Finish: Kynar 500, color selected by architect.
  - 4. Screen: 14-gauge aluminum wire screen.
  - 5. Combination louver/damper to include concealed actuator.

2.7 DUCTWORK AND ACCESSORIES

A. Materials and Joints.

1. Round ductwork to be spiral per SMACNA HVAC Duct Construction Standards. Snap-lock joints not allowed.
2. Ductwork shall be galvanized sheet metal minimum G-90 except as noted below.
3. The gauge of metal, type of joints, hanging, reinforcing, and other details of construction shall conform to the SMACNA HVAC Duct Construction Standards.
4. Joints in Rectangular Sheet Metal Duct to be longitudinal seams shall be Pittsburgh. Low pressure ductwork shall be TDC, TDF or Duct-Mate except ducts under 19" longest side may be "S" and drive.
5. Conical Taps: Low-pressure round take-off fittings in rectangular duct:
  - a. Heavy 26-gauge G-90 Galvanized Steel Body.
  - b. (1") 26-gauge G-90 Galvanized Steel Flange.
  - c. Double Sided Adhesive Gasket on Flange.
  - d. Extra Heavy 24-gauge G-90 Galvanized Steel Blade.
  - e. 3/8" Square Axle Secured to Blade with U-bolts (2 U-bolts used for 8" diameter and larger).
  - f. Nylon bushings on thru and end (all sizes).
  - g. 2" Stool with Locking Quadrant and Handle (all sizes, wing nuts not acceptable).
  - h. Sealed on all Seams.
  - i. BO3 (2") Build-out, 3/8" Square Shaft (solid rod), U-bolt, Locking Quadrant, Handle.
  - j. Flexmaster CBD-SOG-BO3 UT 3000G, Crown 3210-DS2 or equal.
6. Flexible Duct.
  - a. Flexible duct shall be listed by UL under Class One air duct and UL 181. All flexible ducts, even low-pressure ducts, shall be 4" pressure class to increase longevity.
  - b. Flexible duct length shall be not exceed 6 feet and shall be oversized. Ducts shall be supported as required by the IMC.
  - c. Flexible duct, other than acoustical flex duct, shall consist of a vinyl or zinc coated steel helix, solid liner and outer sheathing. Aluminum duct is also acceptable provided noise criteria can be met.
  - d. Factory insulation jacket, factory wrapped R8 minimum.
  - e. Flexible duct shall not be used on medium pressure duct systems upstream of VAV box connections. (Hard duct connections to VAV boxes are required to improve inlet conditions to VAV box, reduce break-out noise, and to ensure that pressure drop is low.)
  - f. Final connections to all grilles shall be acoustical flex for final 6 feet where room permits.
  - g. Flex duct shall be installed with bends to maximize noise attenuation.
  - h. Flexmaster Type 1M or equal.

B. Duct Flexible Connectors.

1. Conforming to NFPA 701, UL Standard No. 214 and NFPA 90A.
2. SMACNA HVAC Duct Construction Standards, except as indicated on the Drawings.
3. With metal edges at each end: No. 24 USSG galvanized steel. Double lock joint.
4. Length of fabric connections. Minimum: 4 inches. Maximum: 10 inches.
5. Materials:
  - a. Coated glass fabric.
  - b. Flame spread rating: 25.
  - c. Smoke development rating: 50.

- d. 30 ounces per square yard.
- e. Sewed and cemented seams.
- f. Indoors:
  - 1) Neoprene.
  - 2) Ventfabrics, Inc. Ventglas or equal.

C. Ductwork Sealing.

- 1. Comply with:
  - a. ASHRAE 90.1
  - b. UL 181, 181A, and 181B.
- 2. ALL Ductwork shall be sealed per SMACNA sealing classes as follows:
  - a. Seal Class A.
- 3. The gores of gored elbows and end caps shall be sealed.
- 4. Duct sealant shall be Fosters 32-14 "High Velocity Duct Sealant", Hardcast, or equal. Pressure applied tapes are not acceptable as the sole sealant.
- 5. Gasketed joints (e.g., TDC, TDF, and Duct-Mate) and longitudinal joints with sealant installed during fabrication do not require additional sealing.
- 6. Flexible ducts shall be connected using Panduit strap on the inner liner, sealed with tape, then the outer liner shall be sealed with tape.

2.8 FILTERS

- A. Camfil/Farr, Flanders, or equal.
- B. Type 1: Pleated Filter:
  - 1. 2 inch or 4 inch pleated.
  - 2. Media: Cotton & synthetic media (no polyester).
  - 3. Minimum performance:
    - a. MERV 8 for use after construction period.
    - b. MERV 13 for use at startup and during construction period.
  - 4. Maximum initial pressure drop at 500 feet per minute face velocity shall not to exceed 0.3 inches water column. Final pressure drop shall be no less than 1.0 inch water column.
  - 5. Camfil/Farr 30/30 or equal.

2.9 PIPE MATERIALS AND JOINING SYSTEMS

- A. Piping materials:
  - 1. Schedule 40 black steel for pipe sizes 2-1/2-inches and larger.
  - 2. Type "L" Copper pipe sizes 2-inches and smaller.
- B. Joint System.
  - 1. Copper.

- a. Hard temper, wrought-copper, solder joint fittings, ANSI B16.22, 95/5 tin/antimony solder or
  - b. Press-joint fittings. Press fittings and joints shall be feature leak before press technology. The O-ring shall be constructed out of EPDM. The fittings shall be rated for working pressure of 200 psi and temperature range from 32°F to 250°F. Press fittings are not acceptable for underground installations.
- C. Type UPP-1: Underground Pre-Insulated Ductile Iron Pipe and Fittings.
- 1. General.
    - a. Piping shall be factory fabricated, pre-insulated pipe units consisting of the fluid carrier pipe, polyurethane foam insulation and moisture barrier outer jacket.
  - 2. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151/A21.51, with mechanical-joint bell and plain spigot end.
    - a. Standard-Pattern, Mechanical-Joint Fittings: AWWA C110/A21.10, ductile or gray iron.
  - 3. Insulation: The insulation shall be rigid polyurethane foam, conforming to ASTM C-591, with a minimum density of two (2) pounds per cubic foot, 90 -95 percent closed cell content and initial thermal conductivity  $K = .13$ . The insulation shall completely fill the annular space between the pipe and the jacket. Support guides shall be factory installed, to assure equal thickness of insulation around the pipe. Insulation thickness: 2 inches.
  - 4. Protective Jacket: The outer casing protective jacket shall be high density polyethylene. The jacket shall be manufactured to a minimum thickness of SDR 32.5. Jackets made from PVC, tape materials, or thin-walled polyethylene shall not be allowed. Fittings shall be insulated and jacketed. Both ends of each length of piping shall have a polyethylene disk between the service pipe and the jacket. The disk shall be recessed approximately 1/2" from the end of the pipe. End seals shall not be mastic, rubber, shrink end caps or other non-polyethylene materials.
  - 5. Expansion Joints: Install expansion joints per manufacturer's guidelines to account for expansion and contraction.
  - 6. Install, insulate and test per manufacturers guidelines. Test at 150 psi for four hours minimum before any backfilling over pipe.
- 2.10 PIPE ACCESSORIES
- A. Piping system components shall be selected for maximum design operating pressure based on static head, shutoff pump head, and pressure relief valve setting.
  - B. Temperature gauges. Weiss DVU or equal.
    - 1. Self-powered via integral photovoltaic cells.
  - C. Pressure gauges: Weksler Model BA13Y with valve or equal.
  - D. Pressure/temperature test plugs: "Pete's Plug" fittings, solid brass with Nordel valve core (or neoprene valve core for chilled water or condenser water) fitted with a color coded and marked cap with gasket.

E. Shut-off Valves.

1. Nibco or equal.
2. Ball or butterfly valves only.
3. Valves used for balancing shall have Infinite position handles with memory stop.
4. Ball valve.
  - a. Full Port 1/2 to 1 inch; Standard Port 1-1/4 and larger.
  - b. Stainless steel ball and stem.
  - c. Nibco 580-70-66 or equal.
5. Butterfly valves.
  - a. Removable seats.
  - b. Valve stem shall be fastened to the disc so that no liquid can reach the stem.
  - c. External fasteners such as roll pins, cotters, keys, or set screws will not be allowed.
  - d. Butterfly valves shall be lug type; no wafer type.
  - e. Provide manual gear operator for butterfly valves 8" and larger.
6. Extended neck model and handle extensions for all insulated lines.
7. Provide chain operators on all valves located higher than 7 feet above access level.

F. Pipe Supports.

1. Kin-line, Superstrut, Unistrut, or equal.
2. Where pipe is insulated, protect insulation at hangers by installing a 22 gauge shield and clamp sized to allow pipe insulation to pass continuously through the hanger. For piping 2" and larger, provide 360 degree cellular glass silicate insert within shield.
3. Refer to paragraph hereinafter "PIPING ISOLATION FOR NOISE CONTROL", Hangers and supports shall accommodate noise control assemblies and all associated components.

G. Sleeves.

1. Provide sleeves where pipes pass through floors above grade, roofs, poured-in-place masonry walls, and exterior walls.
2. Sleeves shall be standard weight steel pipe, except sleeves for concealed piping through floors not in structural members may be 25-gauge galvanized sheet metal.
3. Floor sleeves for piping shall extend from the bottom of the slab to 2-inches above the finished floor.
4. Seal between piping and sleeve with fire-rated caulk at all penetrations of fire-rated partitions and floors.
5. Make sleeves through outside walls watertight. Caulk between uninsulated pipe and sleeve.
6. Size sleeves for insulated pipes to allow full thickness insulation.

H. Flexible Pipe Couplings.

1. Mason Industries Masonflex model SFDEJ or equal, Multi-Layered Kevlar Peroxide Cured EPDM, twin-sphere connector with limit bolts or cables.

2.11 INSULATION

A. Duct Insulation.

1. CertainTeed, Owens Corning, Johns-Manville, Knauf, or equal.
2. Have flame spread not more than 25 and smoke density of not more than 50 when tested as a composite installation.
3. Application Insulation Type and Thickness Schedule:

<u>Location</u>	<u>Cooling or Heat/Cool Supply</u>	<u>Return/Outdoor Air</u>	<u>Exhaust</u>
Supply/return ductwork concealed in ceiling or return air plenum	2.2 inches DW-V	1-1/2 inches DW-V	1-1/2 inches DW-V
Concealed in unconditioned spaces	2.2 inches DW-V	1-1/2 inches DW-V	1-1/2 inches DW-V
Exposed to view duct	1 inch 1.5 pounds per Cubic foot AL or AL	1 inch 1.5 pounds per Cubic foot AL or AL	-
Flex duct	By manufacturer	By manufacturer	By manufacturer
Air distribution devices, not factory insulated (backpans of grilles, registers, and diffusers)	2.2 inches DW-V	-	-

DW-V – Duct Wrap with vapor barrier (FSK) jacket.  
AL – Acoustical lining.

**B. Piping Insulation.**

1. Pittsburg-Corning, Certainteed, Owens Corning, Johns-Manville, Knauf, Armstrong, Rubatex, or equal.
2. Have flame spread not more than 25 and smoke density of not more than 50 when tested as a composite installation.
3. Fittings.
  - a. Chilled water: Elbows shall be insulated with PVC fitting covers (Zeston) with all joints and overlaps taped with Zeston PVC vapor barrier tape. Valves and fittings shall be insulated with fiberglass oversized insulation or molded fittings and shall be coated with two coats of Foster vapor barrier mastic reinforced with glass fabric. Butt ends of insulation shall be sealed off at 21 ft. intervals maximum or at fittings, with Foster 30- 35, or equal. Vapor barrier is to be continuous. Insulation is not required at coil headers where condensation will drip into coil drain pan.
4. Refrigerant piping: Miter insulation at fittings. Paint outdoor piping with two coats of UV resistant white paint.
5. Application Insulation Type and Thickness Schedule:
  - a. Type P-1.
    - 1) Molded fiberglass.
    - 2) All-service jacket (ASJ).
    - 3) Vapor sealed.
  - b. Type P-1A.
    - 1) Molded fiberglass.
    - 2) All-service jacket with a polymer film exterior surface (ASJ-MAX).
    - 3) Vapor sealed.

- 4) Temperature rating: 0-1000 deg F.
- 5) ASTM E84 tested as an assembly.
- c. Type P-2.
  - 1) Flexible elastomeric insulation.
- d. Type P-3.
  - 1) Cellular glass insulation.
  - 2) All service jacket (ASJ).
  - 3) Vapor sealed.
- e. Type E-1.
  - 1) Flexible elastomeric insulation.

Piping Systems	Location	Type	Pipe Size	Insulation Thickness	Freeze Protection
Cold Condensate Drain Lines	Interior	P-2	All Sizes	3/4"	-
Condensate, and sanitary sewer waste/vent piping receiving condensate (horizontal piping and first three feet of vertical piping, Underside of floor drain bodies receiving condensate)	Interior	P-2	All Sizes	3/4"	
Domestic cold water	Interior concealed	P-1	1-1/2" and smaller	1/2"	-
			2" and larger	3/4"	-
			2" and larger	1"	-
Refrigerant suction	All	P-2	All Sizes	3/4"	-
Refrigerant hot gas (VRF systems)	All	P-2	All Sizes	3/4"	-
Chilled Water	Interior concealed	P-3	4" and Smaller	1-1/2"	-
			6" and Larger	2"	-

**2.12 ELECTRICAL WORK**

- A. All electrical materials and installation provided under this division shall comply with the requirements of the National Electrical Code.
- B. Wiring in exposed areas (e.g., outdoors or in electrical and mechanical rooms) shall be in conduit. Plenum cable may be used for low voltage wiring above ceilings or in ductwork as allowed by code.
- C. All control wiring shall be 120V and less. All wiring for voltages higher than 30 volts shall be installed by a licensed electrician.

**PART 3 - EXECUTION**

**3.1 RECORD DRAWINGS**

- A. Keep an accurate dimensional record of installed systems and equipment. Maintain a set of record ("as-built") drawings up-to-date as construction progresses. Drawings shall be maintained at the jobsite and available for inspection by the Architect and Owner.

**3.2 PROTECTION OF WORK DURING CONSTRUCTION**

- A. Protect from damage, water, dust, etc., material, equipment and apparatus provided under this Division, both in storage and installed, until Substantial Completion has been filed.
- B. Provide protective covers, skids, plugs or caps to protect equipment and materials from damage and deterioration during construction. Protect exposed coils with plywood or other suitable rigid covers to avoid damage to fins.
- C. Protect existing walls, doors, carpeting, etc. from damage. Any damage must be repaired at no cost to Owner.
- D. Cover motors and other moving machinery to protect from dirt and water during construction.
- E. During transport to and storage on the construction site, and during rough-in until final connections are made, all ductwork and other related air distribution component openings shall be covered with plastic to prevent contamination from dust, water, and debris.
- F. Keep openings in piping closed to prevent entrance of foreign matter.
- G. Material, Equipment or Apparatus:
  - 1. Material, equipment, or apparatus damaged because of improper storage or protection will be rejected.
  - 2. Remove damaged material, equipment or apparatus from site and provide new, duplicate, material, equipment, or apparatus in replacement of that rejected.
  - 3. Porous materials, such as duct liner, shall be protected from weather. If such material becomes wet during construction, it shall be removed and replaced at no cost to Owner; drying is not sufficient due to possible microbial contamination.

**3.3 INSTALLATION AND WORKMANSHIP**

- A. All equipment and material shall be installed in a neat and workmanlike manner.
- B. Repair all damaged or temporarily removed walls, roofs, roofing, equipment, etc.
- C. Follow manufacturer's installation instructions and recommendations.
- D. All equipment must be anchored to the building. All hung equipment shall incorporate vibration isolation.

3.4 PIPING

- A. Install pipes and pipe fittings in accordance with recognized industry practices which will achieve permanently leak resistant piping systems, capable of performing each indicated service without piping failure. Install each run with minimum joints and couplings but with adequate and accessible unions for disassembly and maintenance/replacement of valves and equipment. Reduce sizes where indicated by use of reducing fittings. Align piping accurately at connections, within 1/16-inch misalignment tolerance.
- B. Escutcheons: Provide stainless steel escutcheons at piping penetrations of walls where exposed public view and required for proper appearance. Provide galvanized steel escutcheons at penetrations of masonry walls elsewhere. Escutcheons not generally required at drywall penetrations where not exposed to public view.
- C. Sleeves:
  - 1. Provide sleeves where pipes pass through floors above grade, roofs, poured-in-place masonry walls, and exterior walls.
  - 2. Sleeves shall be standard weight steel pipe, except sleeves for concealed piping through floors not in structural members may be 25-gauge galvanized sheet metal.
  - 3. Floor sleeves for piping shall extend from the bottom of the slab to 2-inches above the finished floor.
  - 4. Seal between piping and sleeve with fire-rated caulk at all penetrations of fire-rated partitions and floors.
  - 5. Make sleeves through outside walls watertight. Caulk between uninsulated pipe and sleeve.
  - 6. Size sleeves for insulated pipes to allow full thickness insulation.

3.5 DUCTWORK

- A. Install per SMACNA Standards.
- B. Rectangular and medium pressure duct bends greater than 45 degrees shall be curved sections, the center line radius of which shall not be less than 1-1/2 times the width of the duct in the plane of the bend. Where required due to space constraints, short radius elbows with duct splitter(s) may be used. No capped "bullhead" tees, and short-radius tees permitted. On low pressure ducts, square elbows with single width turning vanes may be used. Round duct elbows may be adjustable type on low pressure systems only, with gores sealed.
- C. Grille Connections.
  - 1. Provide at entry to diffuser collar either:
    - a. Straight duct for 1 duct diameters or greater.
    - b. Full radius elbow.
    - c. Plenum with side duct collar.
    - d. Equal to Thermaflex FlexFlow Elbow.
  - 2. Connections at grilles shall be insulated to the extent the duct is insulated including the final register box and back pan.
  - 3. Seal connections at grilles per seal class of upstream ductwork.

**3.6 FILTERS**

- A. Media as selected in equipment schedules on the Drawings.
- B. Construction filters:
  - 1. Type 1 for all equipment: roll media not acceptable.
  - 2. Type 2 filter media is intended to be utilized over return/exhaust air grilles, registers and/or open ductwork during the construction period when the systems are being operated. This filter media is not to be utilized inside the housing of any HVAC systems.
- C. Spare Filters:
  - 1. Provide three (3) sets of spare filters for each piece of HVAC equipment and filter grille except the following (provide only one (1) spare set):
    - a. PTAC's (thru-wall units).
    - b. VRF system (indoor non-ducted units).
- D. Before turning system over to the Owner, remove temporary construction filters and install clean final filters:

**3.7 ELECTRICAL**

- A. All necessary and ancillary electrical work shall be included as part of this section including permits, design, disconnects and controls.

**3.8 CLEANING**

- A. Thoroughly clean all equipment, ducts, etc. free of dust, scale, filings, plaster, grease, oil, paint and other construction debris.
- B. No construction materials, debris, dirt, etc. shall remain in any area, including both tenant areas and mechanical areas, during normal business hours. Clean up all areas prior to start of normal business hours.
- C. Ducts.
  - 1. Duct openings shall be sealed with plastic during construction to prevent debris buildup.
  - 2. Vacuum any visible debris from inside ducts, duct plenums and grille boxes.
  - 3. Use connected fan(s) to blow air through all duct systems until they are free of all foreign materials.

**3.9 PAINTING**

- A. Painting Under this Section.
  - 1. Black steel or PVC water piping exposed to outdoors.
    - a. One coat primer.
    - b. Two coat alkyd oil exterior rust inhibitive enamel paint, color by Architect, for steel.
    - c. One coat latex exterior enamel paint, made for PVC applications. Color by Architect.

2. Interior of ductwork at air outlets as far back as visible from occupied spaces.
    - a. Flat black.
  3. Marred surfaces of factory painted equipment.
    - a. Spot coat (touch-up) to match adjacent coat.
  4. Flexible unicellular insulation outdoors.
    - a. Two generous coats of latex exterior enamel, color by Architect.
- B. Execution.
1. Protect flooring and equipment with drip cloths.
  2. Paint and materials stored in location where directed.
  3. Oily rags and waste removed from building every night.
  4. Wire brush and clean off all oil, dirt and grease areas to be painted before paint if applied.
  5. Workmanship.
    - a. No painting or finishing shall be done with:
      - 1) Dust laden air.
      - 2) Unsuitable weather conditions.
      - 3) Space temperature below 60 degrees F.
    - b. Pipes painted containing no heat and remain cold until paint is dried.
    - c. Paint spread with uniform and proper film thickness showing no runs, sags, crawls or other defects.
    - d. Finished surfaces shall be uniform in sheen, color, and texture.
    - e. All coats thoroughly dry before succeeding coats are applied, minimum 24 hours between coats.
    - f. Priming undercoat of slightly different color for inspection purposes.
  6. Piping continuously painted in all exposed areas.
- C. Paint.
1. High gloss medium or long alkyd paint.
  2. Best grade for its purpose.
  3. Deliver in original sealed containers.
  4. Apply in accordance with manufacturer's instructions.
- D. Colors.
1. Color coding as follows on Sherwin Williams, "Kem Lustral" or "Metalalistic II" name and figure numbers
  2. Interior of ductwork as far back as visible from outside: flat black.
  3. Uncoated hangers, supports, rods and insets: dip in zinc chromate primer.
  4. Outdoor exposed elastomeric insulation: UV resistant white.
- E. Factory Finish.
1. Steel air outlets in acoustical tile ceilings: baked white enamel.
  2. Aluminum air outlets: anodized.

3. Exposed fan coil units: baked enamel.
4. Unit ventilators and unit heaters: baked enamel.

F. Marred surfaces of prime coated equipment and piping: spot prime coat to match adjacent coat.

### 3.10 LEAKAGE TESTING

1. Testing of hydronic systems: Pressure test piping at 1-1/2 times operating pressure, hold for one hour. No loss in pressure will be permitted. All leaks shall be repaired by tightening, rewelding or replacing pipe and fittings. Caulking of joints will not be permitted. Retest as required.
2. Duct leakage testing: Duct leakage tests shall be performed in accordance with the SMACNA Duct Leakage Testing Manual. If duct systems do not meet the leakage classes listed in this manual at applicable duct rating pressure, leaks shall be sealed and tests rerun, both at the HVAC contractor's expense.

### 3.11 TESTING, ADJUSTING, AND BALANCING

A. Test and adjust all items of heating, ventilating and air conditioning system to provide design conditions:

1. Testing and balancing shall be performed in complete accordance with AABC or NEBB National Standards for Field Measurements and Instrumentation as applicable to air distribution.
2. In general, systems shall be balanced so that one or more balancing valves/dampers remains wide open; if further flow reduction is required, fan speed shall be reduced.

B. Air Systems.

1. Total air quantities for all air-handling units shall be determined by pitot tube traverse of main ducts, traverse of filter banks or coils, and by totaling the readings of individual air outlets. All three methods should be employed where possible so that comparisons can be made.
2. Total air quantities shall be obtained by adjustment of fan speeds. The HVAC contractor shall include the costs of dampers, pulley and belt changes in his contract.
3. Split Systems
  - a. Determine airflows on supply return and all modes for units.

### 3.12 INSPECTION

A. Verify that conditions are satisfactory for the installation of materials and equipment. Notify Architect if conditions are not satisfactory and do not commence work until conditions have been corrected.

**END OF SECTION**

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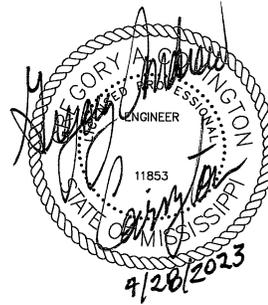
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## **SECTION 260511 - ELECTRICAL GENERAL**

### **PART 1 – GENERAL**

#### **1.1 GENERAL**

- A. All work shall conform to the latest editions of the National Electrical Code (NEC) [National Fire Protection Association (NFPA) 70], the Standard for Electrical Safety in the Workplace (NFPA 70E), the Life-Safety Code (NFPA 101), the International Building Code, the Americans with Disabilities Act, and all other applicable federal, state, and local codes and regulations.
- B. All work shall be performed in strict compliance with NFPA 70E. Submission of bid shall stand as an agreement by the Contractor to indemnify and hold harmless the Engineer and Owner from all liability related to damage and/or injury to personnel and equipment during the installation of the project.
- C. The contract documents are schematic in nature and are intended to convey the intent of the electrical work to be performed on this project. Provide all material, labor, equipment, etc., necessary to provide complete and operable electrical systems.
- D. The General Conditions, Supplementary Conditions, General Requirements, Information to Bidders, and all other parts of this set of Contract Documents are hereby adopted and are applicable to the Electrical Contractor.

#### **1.2 SCOPE OF WORK**

- A. Visit site prior to bid. Devise a plan for installation of complete and operable electrical systems meeting the requirements and intent of the Contract Documents. Submission of Bid stands as evidence that the Contractor accepts the Contract Documents as sufficient and complete for the work to be performed. Notify the engineer at least two weeks prior to bid of any discrepancies between the Contract Documents and actual field conditions. No change orders will be granted due to existing conditions that could have been observed during a site visit.
- B. Provide temporary power and lighting during construction. Coordinate with the General Contractor for the exact requirements.
- C. Electrical switchgear and panelboard layouts are based on sizes of Square D equipment. Equipment manufactured by General Electric, Siemens, and Cutler Hammer are equally acceptable. However, the Electrical Contractor is responsible for selecting and furnishing gear that will fit in the spaces provided and shall be responsible for arranging the gear to meet the required code clearances. Regardless of the manufacturer, the Electrical Contractor shall provide a drawn-to-scale electrical layout with the equipment brochures for all rooms in which panelboards, motor control centers, switchboards, or switchgear are placed. The drawings shall include the work of all other trades including mechanical system piping, ductwork, sprinkler piping, etc. No conduits shall be installed until layouts have been approved.
- D. Locate junction boxes, pull boxes, disconnects, and other equipment requiring access in such a manner that they are accessible at the end of construction. Notify the Architect where it is impossible to plan conduit routing or equipment placement in such a manner, and provide the necessary access panels in the ceiling or wall as required. The access panel type and style shall be subject to the Architect's approval. Employ a painter to provide the appropriate coatings as directed by the Architect.
- E. Relocate, or recircuit, all electrical equipment, conduit, and circuitry conflicting with or obstructing work on this project. Where the electrical systems are owned by other entities, pay them to relocate, or recircuit, their facilities.

- F. Arrange for connection of service to all electrical systems by the appropriate utility company. Coordinate completely with all utility company requirements even if they are different than the contract documents. If utility company requirements are different from the contract documents, notify the engineer at least ten days prior to bid. Pay all utility company charges necessary for installation and connection of service. If the cost of the service is unavailable at the time of bid, submit a letter to the General Contractor, signed by the appropriate utility company official, stating that the cost has not been determined. The General Contractor shall submit this letter with his bid. The cost will then become the Owner's responsibility.
- G. Provide all necessary equipment, raceway, circuitry, fittings, lugs, terminations, labor, etc. and connect to all equipment and appliances requiring electrical connections furnished herein, by the Owner, or by other Contractors. Prior to ordering electrical equipment and roughing in for equipment furnished herein, by the Owner, or by other Contractors, verify all connection types, connection locations, connection heights, voltages, number of phases, conductor sizes, disconnecting means, breaker sizes, etc. Furnish the proper electrical equipment for the equipment actually being supplied.

## 1.2 SCHEDULING OUTAGES

The Contractor is responsible for scheduling any required power, communications, fire alarm system, etc., outages to existing facilities with the Owner and/or other affected parties. The Contractor shall take steps as necessary to minimize the period of these outages including, but not limited to the following:

- ) Working multiple shifts as required;
- ) Increasing manpower as required;
- ) Providing temporary power and/or connections as required.

The cost of all such work, including premium work hours such as weekends and holidays, shall be included in the Contractor's bid price.

## 1.4 SUBMITTALS AND SHOP DRAWINGS

- A. Within 30 days after award of Contract and prior to beginning work, provide six bound copies of manufacturers' cut sheets containing information concerning each article of electrical equipment to be furnished on this project. These cut sheets shall contain sufficient information to prove compliance with the contract documents. Information addressing the requirements of the contract documents shall be highlighted. Each bound set shall bear the stamp of the Electrical Contractor as well as the General Contractor.
- B. Within 30 days after award of Contract and prior to beginning work, provide six sets of full size shop drawings showing exact equipment locations with all equipment drawn to scale. Show all raceways with their junction boxes and pull boxes. Show all connection types, locations, and heights to equipment. Provide mounting and support details for all raceways and equipment. Coordinate with all other trades to ensure that there are no conflicts between systems. Each set of shop drawings shall bear the stamp of the Electrical Contractor, the General Contractor, and all Project Sub-Contractors. Failure to submit these Shop Drawings will render the Electrical Contractor responsible for resolving all conflicts between trades at his own expense.
- C. Submittals and Shop Drawings are reviewed to determine quality of materials. Approval of submittals and shop drawings does not relieve the Contractor of meeting the requirements and intent of the Contract Documents.
- D. Outlet, light fixture, and device locations are shown in their approximate locations on the drawings. Coordinate with Architectural drawings to get final locations. Mount all electrical outlets shown at counters such that the bottom of the box is two inches above the backsplash

or six inches above a counter with no backsplash. The Owner reserves the right to relocate outlets, light fixtures, and devices a distance not to exceed twenty feet prior to the installation of outlet boxes.

## **PART 2 - PRODUCTS**

- 2.1 All electrical equipment and materials shall be new. All equipment and materials shall be stored on the job site in weatherproof enclosures. Electronic equipment shall be stored in facilities where the temperature and humidity are controlled. In addition, comply completely with all manufacturers' requirements for storage and handling.
- 2.2 All equipment shall be UL listed for the application in which it is used and shall be labeled as evidence of its UL listing.
- 2.3 All products of similar type shall be of the same manufacturer.
- 2.4 Each branch circuit and multiwire branch circuit shall be run with its own neutral conductor complying with NEC article 200.4.

## **PART 3 – EXECUTION**

### 3.1 WORKMANSHIP

All work shall be performed with an emphasis on neatness. The Engineer, Architect, and Owner retain the right to reject work that is, in their judgment, unsatisfactory.

### 3.2 EXPERIENCE

The Contractor shall have completed at least two jobs of similar size and scope within the past five years. The Engineer reserves the right to reject Contractors based on their inability to submit evidence of their experience, or based on experience with the Contractor on previous projects.

### 3.3 PERMITS

Obtain and pay for all permits required for work.

### 3.4 FIREPROOFING

- A. Fireproof all penetrations through firewalls with a fireproofing compound listed to maintain the rating of the wall through which the raceway passes.
- B. The firestopping caulk shall be a one-part, intumescent, latex elastomer. The caulk shall be capable of expanding a minimum of 3 times at 1000°F. The material shall be thixotropic and be applicable to overhead, vertical and horizontal firestops. The caulk shall be listed by independent test agencies such as UL or FM and be tested to, and pass the criteria of, ASTM E 814 Fire Test, tested under positive pressure. It shall comply with the requirements of the NEC (NFPA-70), BOCA, ICBO, SBCCI and NFPA Code 101. Firestopping caulk shall be paintable, but shall be non-hardening. Firestopping caulk shall be 3M Firebarrier CP or approved equal.
- C. The fireproofing materials shall be installed by individuals certified to perform such work. Submit evidence of personnel certifications with electrical equipment brochures.
- D. Where cable trays are shown crossing firewalls, terminate the cable tray on each side of the wall and run the conductors through conduits installed in the wall. Fireproof around the conductors after installation.

- E. Provide mineral wool packing and all other materials recommended by the manufacturer for a complete installation.

### 3.5 FLASHING

Provide all necessary equipment and flash all roof penetrations in such a manner to ensure that all penetrations are completely sealed and all roof warranties remain in effect. Where there are no roof warranties, the Electrical Contractor shall guarantee the electrical penetrations against leaking for a period of one year from project completion. Employ a professional roofing contractor to perform all flashing.

### 3.6 PROTECTION

- A. Keep energized equipment covered during all phases of construction. Use enclosures, doors, covers, etc., to ensure that neither personnel nor machinery contact live electrical equipment.
- B. Replace electrical equipment that is damaged during construction.

### 3.7 DAMAGED FACILITIES

Locate all existing site equipment and utilities prior to beginning construction. Repair all equipment and utilities damaged during construction, or pay for the repair of the equipment and utilities where required by the Owner of the damaged facilities.

### 3.8 EXCAVATION AND BACKFILL

- A. Excavate in such a manner as to minimize erosion of the soil. Backfill trenches around conduits with fine sand that is free of rocks, clods, and debris. Fill sand a minimum of 4" over conduits. Backfill the rest of the trench in six inch increments, wetted, and tamped. Final compaction shall be a minimum of 95% of that of the adjacent earth. Resurface the grade with the same material as that excavated from the grade whether it be paving, concrete, sod, etc. Repair work shall be comparable to the quality of the original site prior to excavation.
- B. Provide a 3" wide plastic labeled marker tape 12" below grade over all electrical conduits buried underground. Tapes for power circuits shall have a warning such as "Caution: Buried Electrical Line Below." Labels on tapes for telephone, data, cable television, and other facilities shall adequately describe the line over which they are buried.
- C. Provide a #12 AWG tracer wire in each buried conduit run labeled accordingly on each end.

### 3.9 IDENTIFICATION

- A. Label all switchboards, panelboards, motor starters, disconnects, and motor control centers furnished under Division 26 and other divisions of this contract with engraved rigid plastic nameplates having letters at least ¼ inch high. Nameplates shall be bolted to the enclosure. All labels shall indicate the voltage, number of phases, the AIC rating, and the panelboard and circuit number from which the device is fed.
- B. All circuit breakers in Switchboards, Motor Control Centers, Square D I-Line, and similar panelboards shall be labeled with plastic nameplates (as described in Part A) providing the name of the load served and the ampacity and number of poles of the breaker.
- C. All Square D NQOD, NF and similar panelboards shall have typewritten circuit directories.

- D. Label all conductors at all junction boxes, pull boxes, and terminations with typewritten adhesive markers indicating the panelboard or switchboard name and circuit number of the conductor. Labels shall be Brady Datab or approved equal.
- E. Label all junction boxes and pull boxes with stenciled painted letters containing the name of the panelboard and circuit numbers of the circuits contained within. Use black paint for normal circuits, red paint for emergency circuits, and orange paint for fire alarm circuits. The Contractor may select other colors for junction boxes and pull boxes for auxiliary systems.
- F. Label all conduits in the most likely direction of access and view every 50' and on both ends of each bend with stenciled painted letters containing the name of the panelboard and circuit numbers of the circuits contained within. Use black paint for normal circuits, red paint for emergency circuits, and orange paint for fire alarm circuits. The Contractor may select other colors for conduits for auxiliary systems.

### 3.10 AS-BUILT DRAWINGS

Maintain one set of drawings during construction for as-built markings. Mark these drawings in red to indicate field changes. Provide these drawings to the Engineer at the end of the construction process. Where required under the General Conditions, Special Conditions, or other portions of this contract, provide revised computer drawn as-built drawings to the Engineer at the end of construction.

### 3.11 TESTING

- A. Test all systems, or pay testing agencies as required, for compliance with the requirements of all regulatory agencies.
- B. Test the electrical power service ground using a Biddle Three-Terminal Ground Resistance Tester, or approved equal. Grounds shall meet the requirements of the NEC, or of Specification 26 05 26, whichever is more stringent. Test grounds only when the earth is dry. Provide additional ground rods as necessary to achieve the required results.
- C. Prior to making final equipment connections, test all service, feeder, and branch circuit conductors for continuity, phase-to-phase faults, and phase-to-ground faults using a Megger BM100 or approved equal test instrument generating 500 Vdc. Insulation resistance shall be a minimum of 500,000 Ohms between any conductor and ground and 1,000,000 Ohms between any two conductors.
- D. Test other systems as required in their respective specifications.
- E. Provide three bound copies of all test results to the Engineer at the end of the construction process. No Recommendation of Substantial Completion will be granted until all testing reports have been submitted.

### 3.12 WARRANTY

Provide the Owner a written guarantee to repair, or replace, all faulty equipment and systems for a period of one year from date of Substantial Completion. During this one-year period, a representative of the Contractor shall be on the site actively working on the repairs within 24 hours of the Owner's telephone call. During this period of time, the Owner shall not be charged for any repair work or expenses related with the repair work unless the Contractor can prove that the Owner has damaged the equipment or system.

END OF SECTION

## **SECTION 260512 - WORK IN EXISTING FACILITIES**

### **PART 1 – GENERAL**

#### **1.1 GENERAL**

- A. All work shall be scheduled and coordinated through the General Contractor with the Owner. Provide necessary costs for all work during both normal and premium work hours in bid.
- B. Provide continuous uninterrupted power to all existing facilities to remain during the entire construction process. Any required power outages must be scheduled and approved by the Owner in writing at least three days prior to the outage.

#### **1.2 SCOPE OF WORK**

- A. Prior to beginning work, survey existing electrical systems. Document, in writing, signed by the Owner any portions of existing systems that are not operating properly before construction begins. Any electrical systems found inoperable at the end of the construction process that has not been so documented shall be repaired at the end of construction.
- B. Remove electrical equipment in areas being demolished, and electrical equipment feeding other equipment being demolished. Remove raceways and circuitry back to the panel of origination. Where raceways are installed in inaccessible areas, remove conductors back to the panel of origination. Where circuits are not being completely demolished, remove conductors back to a junction box or other connection point outside of the renovated area and recircuit existing electrical equipment that is to remain as required. Where necessary, completely refeed existing electrical equipment that is to remain. It is the intent of this specification that all existing equipment to remain be left completely operable at the end of the construction process.
- C. Survey existing panelboard circuitry and provide new typewritten directories giving complete as-built circuitry information for all panelboards affected by the construction on this project.
- D. Where new circuit breakers are installed in existing equipment, the new circuit breakers shall be manufactured for installation in that equipment. The Amperes Interrupting Current (AIC) Rating shall equal the AIC rating of the existing equipment. A breaker with a lower AIC rating may be used if the contractor provides calculations showing that the breaker rating is sufficient to handle the available fault current. Submit these calculations for approval prior to ordering the breaker. An AIC rating on an existing breaker in the panelboard or switchboard does not demonstrate sufficient proof that the available fault current is less than that breaker's AIC rating.

### **PART 2 – PRODUCTS**

- 2.1 Products shall be selected to maintain or improve the aesthetics of the facility. Gain approval of the Architect or Engineer prior to ordering or installing any electrical equipment or raceway.

### **PART 3 – EXECUTION**

- 3.1 Coordinate the routing of all circuits and the locations of all devices with the Architect or Engineer and the Owner. Shop drawings shall describe completely the locations and elevations of all raceways, boxes, fittings, and equipment.

- 3.2 Where conduits and circuitry are shown concealed in existing walls, ceiling, or floors, employ professional tradesmen to perform cutting, patching, painting, and any other type of finishing required to match the surrounding surfaces. Submit the selected professional's qualifications to the Architect or Engineer for approval prior to beginning work.

END OF SECTION

## **SECTION 260519 – 600V CONDUCTORS**

### **PART 1 – GENERAL**

Provide all circuitry, terminations, splices, connectors, lugs, and other equipment necessary for connection of all equipment requiring electrical connections.

### **PART 2 – PRODUCTS**

- 2.1 All electrical conductors shall be soft-drawn annealed copper having 98% conductivity and an insulation rating of 600V.
- 2.2 Conductors shall be UL listed for installation in the raceway in which they are to be installed.
- 2.3 Conductors shall be rated 90 degrees C for use in residential, commercial, industrial, and institutional facilities, and shall be listed as 105 degrees C appliance wire. Conductors shall be listed under UL 83, UL 1063, and UL 758. If XLP or EPR insulation is used, conductors shall be listed under UL 44 and NEMA WC7.
- 2.4 Conductors used for branch circuits, feeders, auxiliary systems, and controls run in dry locations shall have PVC insulation and a Nylon outer jacket. They shall be THHN/THWN or XHHW-2.
- 2.5 Conductors used for branch circuits, feeders, auxiliary systems, and controls run in wet locations shall have XLP or EPR insulation and be type XHHW-2.
- 2.6 Conductors used for operating room isolation panels and associated branch circuits shall be copper stranded conductor having a cross-linked polyethylene insulation or equivalent with a dielectric constant of 3.5 or less. Wire-pulling compounds that increase the dielectric constant shall not be used on the secondary conductors of isolation panels. The isolated circuit conductors shall be identified as follows:

Isolated Circuit #1 – Orange  
Isolated Circuit #2 – Brown

For 125 volt, 15 & 20 ampere receptacles: The orange conductor shall be connected to the terminal on the receptacle that is identified in accordance with NEC 200.10(B) for connection to the grounded circuit conductor.

- 2.7 Conductors used for services shall be type SE for aerial services or type USE-2 for underground services.
- 2.8 Sizes #10 and #12 shall be solid conductors except where used for controls. All controls conductors shall be stranded.
- 2.9 Use minimum #14 AWG conductors for controls and auxiliary circuits. Use larger conductors as required to compensate for voltage drops exceeding 3% of the system voltage.
- 2.10 Conductors shall be furnished in the colors described below unless local ordinances require different colors. Conductors #8 and smaller shall be furnished with colored insulation; conductors larger than #8 shall be taped with the appropriately colored tape for a length of at least 2" at each panelboard, junction box, pull box, load, or other exposed location. Ground conductors shall be taped green for their entire exposed length.

<b>System Voltage</b>	<b>208Y/120V, 3-Phase, 4-Wire</b>	<b>120/240V, 3-Phase, 4-Wire</b>	<b>480Y/277V, 3-Phase, 4-Wire</b>
Phase A	Black	Black	Brown
Phase B	Red	Orange	Orange
Phase C	Blue	Blue	Yellow
Neutral	White	White	Gray
Ground	Green	Green	Green

2.11 Conductor sizing chart:

<b>Voltage Drop Chart for 20amp single pole circuits</b>		
Voltage	Circuit Length	Conductor size (awg)
120	< 90'	#12
120	> 90'	#10
120	> 145'	#8
120	> 230'	#6
277	< 200'	#12
277	> 200'	#10
277	> 325'	#8
277	> 525'	#6

- A. Circuit sizes indicated on the drawings are minimum NEC requirements. Refer to this chart for upsizing conductors based on circuit length.
- B. Do not connect conductors larger than #10 directly to a receptacle or a switch. Provide a junction box to downsize the conductor to #12 at the device.
- C. For circuits longer than those listed above, consult with the Engineer for conductor sizes.

**PART 3 – EXECUTION**

- 3.1 Install conductors carefully using a minimum of two tradesmen – one feeding the conductors into the conduit, and the other pulling the conductors into the conduit.
- 3.2 **Each branch circuit and multiwire branch circuit shall be run with its own neutral conductor complying with NEC article 200.4.**
- 3.3 Join stranded conductors with appropriate mechanical or compression lugs. Wire nuts may be used for solid conductors only.
- 3.4 Splices shall only be made in approved enclosures. Splices shall not be pulled inside conduits.
- 3.5 Provide cable supports and strain relief connectors as required by the NEC.
- 3.6 Furnish junction boxes, pull boxes, handholes, manholes, etc. as required to ensure that the maximum number of bends allowed by the NEC are not exceeded and to ensure that the cables are not damaged during installation.

END OF SECTION

**SECTION 260526 – GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS**

**PART 1 – GENERAL**

1.1 GENERAL

Ground all equipment, systems, structures, etc., per the latest edition of the National Electrical Code (NEC).

**PART 2 – PRODUCTS**

- 2.1 Use mechanical bolted connections in dry locations that are accessible.
- 2.2 Use exothermic welds in wet locations and locations that will be inaccessible at the end of construction.
- 2.3 Ground rods shall be UL listed 3/4" x 10' copper-clad steel ground rods with a minimum copper cladding thickness of 10 mils.

**PART 3 – EXECUTION**

- 3.1 Ground rods shall be installed with their tops no less than 6" below grade.
- 3.2 Bond ground connections to metal raceways at each end of the conduit run. Provide grounding bushings where required by the NEC. Where cable trays are used, bond the ground conductor to each section and fitting of the tray.
- 3.3 Provide all circuits with an equipment grounding conductor sized per the NEC, or as shown on the drawings. Circuitry shown on drawings does not include the required equipment grounding conductor. Where multiple circuits are run with a common neutral, only one equipment grounding conductor is needed. The equipment grounding conductor shall be furnished with green insulation for conductors #8 AWG and smaller; where larger than #8, the equipment grounding conductor shall be taped green for its entire exposed length.
- 3.4 The grounding electrode conductor(s) shall be bare or shall be colored green for its entire exposed length.
- 3.5 Individual ground conductors shall be installed in PVC conduit sized per the NEC.
- 3.6 Provide receptacles, luminaires, and other devices with a green conductor that bonds the receptacle grounding screw or pigtail, the outlet box grounding screw, and the equipment grounding conductor together.
- 3.7 In health care facilities, where two or more different panel boards serve the same patient-care area, an 8 AWG insulated continuous copper conductor shall bond these different panel boards together.
- 3.8 Telephone, cable television, and other auxiliary systems shall be bonded to the electrical building service ground using a conductor no smaller than #6 AWG.

END OF SECTION

**SECTION 260533 – RACEWAYS, OUTLET BOXES AND JUNCTION BOXES FOR ELECTRICAL SYSTEMS**

**PART 1 – GENERAL**

**1.1 GENERAL**

- A. All electrical systems circuitry shall be contained in raceways unless expressly listed in the specification for that system.
- B. Outlet Boxes and Junction Boxes
  - 1. Furnish and install all outlet boxes and junction boxes in accordance with this specification and the requirements of the NEC.
  - 2. Provide outlet boxes for all switches, receptacles, luminaires, telephone jacks, cable jacks, and other devices furnished in this Contract. Provide all necessary hardware including, but not limited to, additional structural support, support brackets, screws, bolts, fixture studs, etc.
  - 3. Outlet boxes and junction boxes in dry locations shall be galvanized stamped steel boxes sized per the latest edition of the National Electrical Code (NEC), but no less than 4" x 4" x 2 1/8" deep. The thickness of the steel shall be in compliance with the requirements of the NEC. Provide stamped steel covers for all junction boxes manufactured to fit the particular box on which it is used.
  - 4. Outlet boxes used in concrete and masonry walls and ceilings shall be of the concrete type manufactured for such applications.
  - 5. Outlet boxes and junction boxes in wet locations shall be of cast metal construction with gasketed waterproof covers. All conduit connections to the boxes shall be made watertight.
  - 6. Wall outlet boxes shall be 4" x 4" x 2 1/8", or larger as required, with plaster rings provided for final flush installation. Plaster rings shall have single-gang openings unless the equipment mounted inside requires two-gang installation.
  - 7. Floor boxes in slabs on grade shall be deep rectangular, cast iron, fully adjustable boxes with brass rings. Covers shall be made of brass and shall provide flip top access to the power or data jacks inside. Screw-on covers are not acceptable unless a flip-top cover is unavailable for the device installed in the floor box. Provide the box sized as required for the number of devices shown installed. Boxes shall be as follows, or approved equal:
    - a. Single-Gang Boxes: Hubbell B2436
    - b. Single-Gang Cover Plates: Hubbell S3825
    - c. Double-Gang Boxes: Hubbell B4233
    - d. Double-Gang Cover Plates: Two Hubbell S3825 Cover Plates
    - e. Triple-Gang Boxes: Hubbell B4333
    - f. Triple-Gang Cover Plates: Three Hubbell S3825 Cover Plates
  - 8. In slabs above grade, use cast iron, semi-adjustable shallow boxes as follows, or approved equal:
    - a. Single-Gang Boxes: Hubbell B2414
    - b. Two-Gang Boxes: Hubbell B4214
    - c. Three-Gang Boxes: Hubbell B4314

9. Receptacles installed in floor boxes shall be as described in Specification 26 09 23, Switches and Receptacles. Data, Telephone, or Combination Data and Telephone Outlets shall consist of Category 5 rated RJ45 jacks mounted in a Hubbell DJOI strap for use under a S3825 flip top cover plate.
10. In existing slabs above grade, use poke thru boxes as follows, or equal:
  - a. Hubbell System One
11. Size all boxes per the requirements of the latest NEC.

## 1.2 SCOPE OF WORK

### A. Raceways

1. Provide all raceways, fittings, couplings, anchors, supports, hangers, etc. for complete raceway systems.
2. Size all conduits per the requirements of the NEC; however, minimum conduit size shall be  $\frac{3}{4}$ " nominal trade size.
2. Use Schedule 40 polyvinyl chloride (PVC) conduit for circuits run underground and in slabs on grade level. Provide PVC-coated galvanized rigid steel elbows and PVC-coated galvanized rigid steel conduit for all vertical runs extending to a point at least 6" above grade. Galvanized Rigid steel conduit coated with two complete coats of asphaltum or bituminous paint may be used in lieu of PVC-coated galvanized rigid steel conduit.
3. Use Galvanized Rigid Steel (GRS) conduit for all applications where circuits are run above ground exposed to the weather.
4. Use Intermediate Metal Conduit (IMC) for all branch circuits, feeders, and auxiliary circuits requiring conduit 1  $\frac{1}{4}$ " nominal trade size or larger in dry locations.
5. Use Electrical Metallic Tubing (EMT) for all branch circuits and feeders less than 1  $\frac{1}{4}$ " nominal trade size in dry locations and in slabs above grade level.

## PART 2 – PRODUCTS

### 2.1 Products for Raceways

- A. PVC conduits, fittings, couplings, adapters, and accessories shall be UL listed and approved for use with 90 degree Celsius conductors. The UL label shall be affixed to each ten foot length of conduit and each fitting. Conduits shall comply with NEMA Specification TC-2 and UL 651. Fittings shall comply with NEMA TC-3 and UL 514b.
- B. PVC-coated conduits, fittings, couplings, adapters, and accessories shall be UL listed with PVC as the primary corrosion protection. They shall be hot dipped galvanized rigid steel conduit with threads electro-galvanized after cutting. The conduit shall meet UL 6. The fittings shall meet UL 514B. The PVC coating shall be uniformly applied to the interior and exterior of all conduit and fittings. The coating shall be nominally 2 mils thick. The PVC coating shall extend one pipe diameter or two inches, whichever is less, at every male fitting except unions to fit over the joining female connection. Couplings shall contain a series of longitudinal ribs, 40 mils in thickness, to protect the coating from damage by tools during installation. PVC-coated conduits shall be ETL

Verified PVC-001. Fittings shall be manufactured to the same standard. PVC-coated conduit shall be Robroy Plastibond or approved equal.

- C. GRS conduits, fittings, couplings, adapters, and accessories shall be UL listed. They shall be hot-dipped galvanized steel. They shall meet the safety standards of UL 6, and shall be manufactured to ANSI C80.1. Threads shall be hot galvanized after cutting.
  - D. IMC conduits, fittings, couplings, adapters, and accessories shall be UL listed. They shall be hot-galvanized steel. Fittings, couplings, adapters, and accessories shall be the same as those for GRS conduit described above. IMC shall meet UL 1242 and ANSI C80.6. Threads shall be hot galvanized after cutting. The inside of the conduit shall be finished with a corrosion-resistant coating.
  - E. EMT conduits, fittings, couplings, adapters, and accessories shall be UL listed. They shall be hot galvanized steel and shall be produced in accordance with UL 797 and ANSI C80.3. The inside shall be finished with a corrosion-resistant lubricating coating.
  - F. Conduit fittings used with EMT conduits may be set screw indenter type or compression type. All metallic fittings for IMC and Rigid conduit shall be compression type fittings.
  - G. Flexible metallic conduit shall be constructed of galvanized steel and shall be UL listed as compliant with UL 1 and UL 1479.
  - H. Liquidtight flexible conduit shall be constructed of galvanized steel and shall be coated with a PVC jacket to resist liquids, dirt, grease, and oils. All fittings shall be designed, constructed, and installed to maintain the integrity of the liquidtight connections. Liquidtight flexible conduit shall comply with UL 360.
- 2.2 ACCEPTABLE MANUFACTURERS FOR OUTLET BOXES AND JUNCTION BOXES.
- A. Outlet boxes and junction boxes shall be manufactured by Raco, Steel City, Crouse Hinds, or Appleton.

### **PART 3 – EXECUTION**

#### 3.1 CONDUIT EXECUTION

- A. Conduits run underground shall be buried no less than 24" deep. Services and primary conduits feeding transformers shall be buried no less than 48" deep.
- B. **Do not install conduits in or below ground floor slabs, except for service conduits, site lighting, and where specifically indicated on the drawings.**
- C. Do not install conduits within 6" of the deck where a screw down type roof system is utilized.
- D. PVC-coated conduits may be field-bent provided that manufacturer-approved tools are used. Individuals installing PVC-coated conduits shall be trained for installation by factory-certified trainers. Provide evidence of training with equipment brochures.
- E. Support and install all conduits per the latest edition of the National Electrical Code. Support groups of conduits with electrical strut supported by threaded rods anchored to the building structure. Supports shall be designed to hold no less than twice the weight of the conduit and conductors to be supported plus an additional 250 pounds at midspan.

- F. All conduits shall be grouped and run parallel to each other and to building walls.
  - G. All conduits shall be assembled according to the manufacturer's instructions.
  - H. Conduits run underground shall be assembled to be watertight.
  - I. Cap all conduits during installation. Pull a mandrel sized for that conduit and a cleaning brush through each conduit before installation of any conductors.
  - J. Conduits that are obviously damaged and field bends that are obviously out of round shall be replaced.
  - K. Provide final connections to equipment with flexible metallic conduit. In wet or damp locations, use liquidtight flexible conduit. Flexible conduit shall not exceed 72".
  - L. Terminate conduits entering boxes with a locknut inside the box and a locknut outside the box. Provide protective bushings on all conduit threads. Use watertight hubs where conduit terminations are exposed to moisture.
  - M. Use grounding bushings on all feeder conduits, all underground conduits, and where required by the National Electrical Code.
  - N. Conduits shall be run no closer than 12" to hot water pipes.
  - O. Where conduits are run through the ceiling and are required to make connections to equipment within the room that is not located near a wall, support the conduit from the structural ceiling and provide a flange bolted to the floor. Install a tee conduit fitting in the vertical run of conduit, and make the connection to the equipment with a piece of flexible conduit extending from the tee conduit fitting to the equipment.
  - P. Provide expansion fittings where conduits cross building expansion joints. Provide grounding jumpers between the conduits.
  - Q. Provide EMT conduit sleeves where conduits pass through walls, floors, or footings sized a minimum of two nominal trade sizes larger than the conduit that must pass through the sleeve.
  - R. Equip all empty conduits with a pullwire or string capable of withstanding 200 pounds of pulling tension.
- 3.2 Execution for Outlet Boxes and Junction Boxes.
- A. All devices shall be flush mounted unless specific written permission is obtained from the Engineer for a particular device in a particular location.
  - B. Install outlet boxes in walls, and provide plaster rings such that wall finish contractor's finish is flush against the edge of the plaster ring. Workmanship will not be accepted where the hole in the wall shows behind the cover plate, or the wall finish is uneven or unpainted at the edge of the cover plate.
  - C. Use round or square ceiling outlet boxes as required for the device being installed. The ceiling shall be finished flush against the box; the fixture shall completely cover the box and mount tight against the ceiling. Coordinate the requirements of the fixture prior to installing the box.

- D. Provide junction boxes, pull boxes, and conduit fittings where required by the NEC to limit the number of bends in the raceway, and where required to prevent damage to conductors due to long runs.
- E. Junction boxes and pull boxes installed in the ground outside shall be Quazite Composolite or approved equal. Mount the boxes over 24" of washed gravel fill. If splices are to be made inside the boxes, the boxes shall be of the type furnished with a bottom, and all conduit connections shall be watertight. In addition, all conductor splices shall be made watertight using an appropriate splice kit as manufactured by 3M, or an approved equal.

END OF SECTION

## **SECTION 260923 - SWITCHES AND RECEPTACLES**

### **PART 1 – GENERAL**

Furnish and install all switches and receptacles in accordance with this specification and the requirements of the NEC.

### **PART 2 – PRODUCTS**

#### **2.1 ACCEPTABLE MANUFACTURERS**

Switches and receptacles shall be manufactured by Hubbell, Cooper Wiring Devices, Leviton, or Pass & Seymour.

#### **2.2 GENERAL**

- A. Switches and receptacles shall be specification grade. They shall have ampacity and voltage ratings suitable for the application in which they are used.
- B. Consult architect or engineer for device colors prior to ordering devices.
- C. Provide brushed stainless steel cover plates for all devices. A single cover plate shall cover all devices in one box.
- D. Light switches shall be 20 Ampere, 120-277V back-wired and side-wired toggle switches. They shall be rated up to 2 HP at 240V. Each switch shall be equipped with a grounding screw. Switches shall be Hubbell CSB series or approved equal.
- E. Duplex NEMA 5-20R receptacles shall be Hubbell HBL 5362A or approved equal.
- F. Duplex GFI NEMA 5-20R receptacles shall be Hubbell HBL GF5362A or approved equal.
- G. Weatherproof while-in-use cover plates shall be Teddico #34017-7 or approved equal. Cover plates shall be single gang, lockable, and constructed of heavy duty die cast metal.
- H. All 125V, 15 and 20 ampere receptacles installed in dwelling units shall be of the tamper-resistant type.
- I. All 15 and 20 ampere, 125 and 250V non-locking receptacles installed in wet or damp locations shall be listed as the weather-resistant type.
- J. Devices furnished in this Contract, but not listed above, shall be of the same standard of quality as those items listed.

### **PART 3 – EXECUTION**

- 3.1 Flush mount all devices unless specific written permission is obtained from the Engineer for a particular device in a particular location.
- 3.2 Install all devices vertically unless the drawings specifically state that the particular device should be mounted horizontally.
- 3.3 Install receptacles with the ground slot up.

END OF SECTION

## **SECTION 262400 - PANELBOARDS**

### **PART 1 – GENERAL**

- 1.1 Furnish and install all panelboards, complete with their circuit breakers, phase buses, neutral buses, ground buses, structural supports, and other equipment necessary for complete systems.
- 1.2 The equipment vendor shall perform all calculations necessary and provide complete Arc Flash Labels as required by the National Electrical Cod (NEC) and the drawings. Note: The drawings typically require more detail than required by the NEC.

### **PART 2 – PRODUCTS**

#### **2.1 GENERAL**

- A. Panelboards shall be designed, manufactured, and tested to be in compliance with NEMA PB 1, UL 50, UL 67, UL 489, NFPA 70, and the ASTM.
- B. Circuit breakers shall be designed, manufactured, and tested to be in compliance with NEMA AB 1, UL 489, and Federal Specification W-C-375B/GEN.
- C. Panelboards shall be UL listed for service entrance where used for that purpose.
- D. Panelboard ampere interrupting current (AIC) ratings shall equal the lowest rated device in the panelboard. Provide panelboards with the AIC ratings shown on the Contract Drawings. Buses shall be braced to withstand the AIC rating shown on the drawings. Series ratings shall only be used where shown on the panelboard schedules.
- E. All panelboards shall be furnished with dead-front, door-in-door construction.
- F. Lug locations shall be determined during the creation of shop drawings for proper arrangement with the raceway system.
- G. Buses shall be constructed of 98% conductivity copper or equivalently rated aluminum.
- H. Panelboard enclosures shall be NEMA 1 when they are to be mounted indoors, and NEMA 3R when they are to be mounted outdoors. Provide special enclosures where shown on the Contract Drawings.

#### **2.2 ACCEPTABLE MANUFACTURERS**

Panelboards shall be manufactured by Siemens, Square D, General Electric, or Cutler Hammer.

#### **2.3 PANELBOARD CLASSES**

- A. Power distribution panelboards shall be available with mains and branch devices up to 1200 amperes. AIC ratings shall be available up to 200,000 Amperes. Power distribution panelboards shall be equipped with a nameplate containing the appropriate system voltage, number of wires, and number of phases for the system on which they are installed.
- B. In 480Vac and less applications where a main breaker not exceeding 600 Amperes is required, the AIC rating does not exceed 65,000 Amperes, and no branch breakers exceed 125Amperes, Square D NF and equivalent panelboards may be used.

- C. In 480Vac and less applications where a main breaker not exceeding 225 Amperes is required, the AIC rating does not exceed 14,000 Amperes, and no branch breakers exceed 100Amperes, Square D NEHB and equivalent panelboards may be used.
- D. In 240Vac and less applications where a main breaker not exceeding 400 Amperes or main lugs not exceeding 600 Amperes is required, the AIC rating does not exceed 22,000 Amperes, and no branch breakers exceed 125 Amperes, Square D NQOD and equivalent panelboards may be used.

## 2.4 CIRCUIT BREAKERS

- A. Circuit breakers shall be thermal magnetic, molded-case with quick-make, quick-break contact action. They shall have thermal and magnetic tripping elements on each pole. Breakers with multiple poles shall have common tripping of all poles. Circuit breaker ampere ratings shall be stamped on the handle. Interrupting ratings of the circuit breakers shall be equivalent to the specified AIC rating of the panelboard. Breakers handles shall reside in a position between "ON" and "OFF" after a trip condition. Breakers shall be rated HACR when used for heating, air-conditioning, and refrigeration; HID when used with High Intensity Discharge fixtures; and shall be rated SWD when used for switching duty.
- B. Circuit breaker sizes for motor loads are based on Square D recommendations for use of their breakers at the motor horsepowers listed on the mechanical drawings. If equipment is used other than Square D, adjust breaker sizes per the manufacturer's recommendations.
- C. Each circuit breaker supplying a multiwire branch circuit shall be installed with a manufacturer supplied handle tie to simultaneously disconnect all ungrounded conductors. Each multiwire branch circuit shall comply with NEC article 210.4.
- D. Circuit breakers with slash ratings, such as 120/240V or 480Y/277V, shall be used in solidly grounded systems where the nominal voltage of any conductor to ground does not exceed the lower of the two values of the breaker's voltage rating and the nominal voltage between any two conductors does not exceed the higher value of the circuit breaker's voltage rating.
- E. Circuit breakers with straight voltage ratings, such as 240V or 480V, shall be used in systems other than solidly grounded systems (Corner-Grounded Delta, Ungrounded, Impedance Grounded, etc.) where the nominal voltage between any two conductors does not exceed the circuit breaker's voltage rating. A two-pole circuit breaker shall not be used to protect a three-phase, Corner-Grounded Delta system unless the circuit breaker is marked 1 -3 .

## PART 3 – EXECUTION

- 3.1 Install panelboards in complete compliance with all manufacturers' installation instructions.
- 3.2 Install conductors neatly in panelboards. Group and tie-wrap circuits that share a common neutral.
- 3.3 Number circuits exactly as shown on the contract drawings.

END OF SECTION

## **SECTION 262800 - DISCONNECTS AND SEPARATELY-MOUNTED CIRCUIT BREAKERS**

### **PART 1 – GENERAL**

Furnish and install all disconnects and separately mounted circuit breakers as shown on the drawings, specified herein, and required by the NEC.

### **PART 2 – PRODUCTS**

#### **2.1 GENERAL**

- A. Disconnects shall be of the heavy-duty type, and shall be UL listed for service entrance use. They shall meet or exceed the requirements of NEMA Standard KS1. Provide fuses sized to appropriately protect the load served. Equipment manufacturer's recommendations shall take precedence over the Contract Drawings.
- B. Fuses shall be dual element, time-delay, Class J fuses. They shall be Bussman Low-Peak or approved equal.
- C. Circuit breakers shall be thermal magnetic, molded-case with quick-make, quick-break contact action. They shall have thermal and magnetic tripping elements on each pole. Breakers with multiple poles shall have common tripping of all poles. Circuit breaker ampere ratings shall be stamped on the handle. Interrupting ratings of the circuit breakers shall be equivalent to the specified AIC rating of the panelboard. Breakers handles shall reside in a position between "ON" and "OFF" after a trip condition. Breakers shall be rated HACR when used for heating, air-conditioning, and refrigeration; HID when used with High Intensity Discharge fixtures; and shall be rated SWD when used for switching duty.
- D. Circuit breaker sizes for motor loads are based on Square D recommendations for use of their breakers at the motor horsepowers listed on the mechanical drawings. If equipment is used other than Square D, adjust breaker sizes per the manufacturer's recommendations.
- E. Circuit breakers with slash ratings, such as 120/240V or 480Y/277V, shall be used in solidly grounded systems where the nominal voltage of any conductor to ground does not exceed the lower of the two values of the breaker's voltage rating and the nominal voltage between any two conductors does not exceed the higher value of the circuit breaker's voltage rating.
- F. Circuit breakers with straight voltage ratings, such as 240V or 480V, shall be used in systems other than solidly grounded systems (Corner-Grounded Delta, Ungrounded, Impedance Grounded, etc.) where the nominal voltage between any two conductors does not exceed the circuit breaker's voltage rating. A two-pole circuit breaker shall not be used to protect a three-phase, Corner-Grounded Delta system unless the circuit breaker is marked 1 -3 .
- G. Disconnect and individually-mounted circuit breaker ampere interrupting current (AIC) ratings shall equal the rating of the panelboard from which they are fed unless otherwise noted.
- H. Buses shall be constructed of 98% conductivity copper or equivalently rated aluminum.
- I. Switches shall be horsepower rated where used to serve motors.
- J. Enclosures shall be NEMA 1 when they are to be mounted indoors, NEMA 3R when they are to be mounted outdoors, and NEMA 4X where they are subject to washdown. Provide special enclosures where shown on the Contract Drawings.

#### **2.2 ACCEPTABLE MANUFACTURERS**

Disconnects and separately-mounted circuit breakers shall be manufactured by Siemens, Square D, General Electric, or Cutler Hammer.

**PART 3 – EXECUTION**

- 3.1 Install disconnects and individually-mounted circuit breakers in complete compliance with all manufacturers' installation instructions. Where necessary, provide structural supports and bracing for installation.
- 3.2 Disconnects are to be surface-mounted.
- 3.3 Individually-mounted circuit breakers are to be flush-mounted unless otherwise shown.

END OF SECTION

## **SECTION 265100 - LIGHTING**

### **PART 1 – GENERAL**

Provide all lighting fixtures (luminaires), lamps, end caps, connectors, fittings, structural support members, supports, brackets, etc., for a complete and operable lighting system.

### **PART 2 – PRODUCTS**

#### **2.1 LUMINAIRES**

- A. Luminaires are shown in the Luminaire Schedule on the drawings to establish a standard of quality. Manufacturer's names and model numbers shall not be interpreted as a proprietary specification. Notify the engineer at least two weeks prior to bid if an equivalent for a fixture listed in the schedule is not readily available,
- B. Prior to submitting electrical equipment brochures for review and approval, coordinate with the General Contractor and verify that the fixtures are appropriate for the ceiling types in which they are shown to be installed. Also verify that ballast voltage on the submittals is appropriate for the electrical system on which the fixtures are to be installed (regardless of voltage listed in the part number in the Fixture Schedule). Submit with equipment brochures a certificate stating that these items of coordination have been completed.

#### **2.2 LED**

- A. LED fixtures shall be LM79 and LM80 tested. Color temperature shall be as specified on the drawings.
- B. Lumen outputs listed on the drawings are minimum requirements.
- C. Fixtures shall have a minimum 80CRI.

#### **2.3 BATTERIES**

- A. Emergency Batteries: Emergency batteries in fixtures shall consist of an automatic power failure device, a test switch, and a pilot light that is visible from outside of the fixture. They shall contain a fully automatic solid state charger in a self-contained power pack. The fixture shall be factory wired in a manner that will allow the emergency lamps to be switched while still maintaining charging power to the battery. Wiring Diagrams shall be furnished with the fixture showing switching connections. The battery shall be of the sealed electrolyte type with the capacity to provide power to the lamps provided for a minimum of 90 minutes.

The battery shall be able to operate unattended with no maintenance for a period of no less than five years. Emergency batteries shall be fully compatible with solid state ballasts. Battery packs shall be mounted inside the fixture unless remotely mounted ballasts are shown on the drawings.

#### **2.4 SUPPORTS**

- A. Provide all structural members necessary to support fixtures in locations shown on the contract drawings. Submit mounting and support details to the Architect or Engineer for approval with the project shop drawings. Notify the General Contractor prior to bid of any structural work that will be required to support the fixtures.

- B. Provide hangers, cords, stems, etc., where required. Coordinate with the Architect or Engineer for proper stem lengths prior to ordering fixtures.
- C. Support the ceiling grid at all four corners of recessed light fixtures.
- D. Provide clips for fixtures installed in lay-in ceilings. Clips shall be equal to Erico Caddy clips # 515 or #515A.

**PART 3 – EXECUTION**

- 3.1 Raceways for lighting systems in accessible ceilings shall be run to junction boxes mounted in locations that do not interfere with the ceiling installation, the luminaire installation, or other building systems. Provide final connections to fixtures using conductors in flexible conduit. Flexible conduit whips shall not exceed six feet in length.
- 3.2 All recessed fixtures shall be mounted with their trims flush against the ceiling.
- 3.3 Comply completely with all manufacturers' installation instructions.
- 3.4 LED fixtures shall be warranted for 5 years after beneficial occupancy.

END OF SECTION

**SECTION 270528 - TELEPHONE AND DATA SYSTEMS**

**PART 1 – GENERAL**

Provide a complete system of raceways, outlet boxes, and pull wires for the telephone and data systems in accordance with this specification and the contract drawings.

**PART 2 – PRODUCTS**

- 2.1 Outlet boxes shall be furnished per Specification Section 260533.
- 2.2 Plaster rings with single-gang outlet openings shall be furnished unless otherwise noted.
- 2.3 Raceways shall be furnished per Specification Section 260533. Minimum conduit size shall be 1" nominal trade size.
- 2.4 Provide all outlets with blank, brushed stainless steel cover plates.
- 2.5 Telephone and Data Backboard: Wall mount a ¾" x 4' x 8' sheet of plywood, primed and painted with two coats of fire retardant paint of the color and finish selected by the Architect. Provide a ¼" x 4" x 17.75" copper ground block (Erico Eritech TMGB-A18L23PT or approved equal) on the wall, bond a #6 AWG copper conductor to the ground block with a two hole compression lug and run the #6 AWG ground wire to the electrical power system ground. Bond the #6 AWG ground wire to the power system electrode using an exothermic weld.

**PART 3 – EXECUTION**

- 3.1 Provide a #4/0 copper ground wire in 1" PVC conduit from each Telephone and Data Backboard to the Building Power System Ground. Bond the #4/0 copper ground wire to the power system ground.
- 3.2 Extend a 1" conduit from each outlet box to a point above the nearest accessible ceiling. Turn the conduit horizontal and terminate it with a protective bushing. Provide all conduits with pullstrings.
- 3.3 Service Conduits: Provide two 4" PVC conduits with long radius elbows from the Telephone and Data Backboard to the telephone company right-of-way. Conduits bends shall contain radii that are no less than 10 times the conduit diameter. Coordinate the exact termination point with the telephone company. Comply completely with all telephone company requirements. Furnish conduits with pullstrings. Stub conduits up 4" above the floor at the Telephone and Data Backboard and cover with plastic caps. Do not glue the caps on the conduits. Seal conduits below grade to prohibit the entrance, of dirt, water, and gases. Service conduits shall be buried 24" to 36" below grade. Mark the end of the conduits by placing a vertical stick of conduit from the end of the conduit vertically to a point at least 12" above grade. Provide physical protection as well as warning tape attached to stakes around the marker.
- 3.4 Equip all service conduits with a pullwire or string capable of withstanding 200 pounds of pulling tension.

END OF SECTION

## SECTION 283100 - FIRE ALARM SYSTEM

### PART 1 – GENERAL

#### 1.1 GENERAL

- A. Furnish and install a complete and operable fire alarm system in accordance with the Contract drawings and all federal, state, and local codes. Equipment on the drawings represents the absolute minimum required for the project. Include costs for all other required devices and equipment required for a complete and operable code compliant system. Notify the engineer in writing of any devices required by code, but not shown, at least ten days prior to bid.
- B. Comply completely with the latest edition of all applicable federal, state, and local codes including, but not limited to the following:
  - 1) National Electrical Code (NFPA 70)
  - 2) Life Safety Code (NFPA 101)
  - 3) National Fire Alarm Code (NFPA 72)
  - 4) The International Building Code
  - 5) ANSI/ASME A17.1, Safety Code for Elevators and Escalators

#### 1.2 SCOPE OF WORK

- A. Provide all enclosures, hardware, software, devices, and all other components, material, and labor required to install, configure, and test the entire system to the satisfaction of the Engineer and all authorities.
- B. All components of the system shall be manufactured by the same company. The system and its components shall be approved by UL and Factory Mutual.
- C. All system components shall be installed by a franchised distributor of the fire alarm system having a repair and service department on call 24 hours a day, seven days a week. The repair and service department shall be located within 150 miles of the project.
- D. Submit complete shop drawings showing all devices including mounting locations and heights and terminal-to-terminal connections. **Employ an independent third party testing agency that will be involved in certification of the system to review the shop drawings to ensure compliance with the contract documents and all applicable codes.**

### PART 2 – PRODUCTS

- 2.1 Provide an intelligent, addressable fire alarm control panel complete with all equipment necessary to monitor and control the devices shown. The system shall sound a non-coded general alarm. Upon an alarm condition, the fire alarm control panel shall automatically report the alarm condition to a monitoring agency. Provide all telephone connections, circuitry, and conduit to perform this functionality back to the telephone backboard. [The fire alarm system shall be capable of producing voice announcements through the system speakers].
- 2.2 Provide a NiCad battery sized to operate the control panel without normal power for 24 hours, and then to alarm the panel continuously for at least five minutes. Submit battery sizing calculations with the manufacturer's cut sheets and shop drawings.
- 2.3 All devices shall be addressable and shall be electrically supervised.
- 2.4 Smoke detectors shall be of the photoelectric type.

- 2.5 Duct detectors shall be of the air sampling type. Furnish complete with sampling tubes and duct housings.
- 2.6 Smoke detectors mounted under raised computer floors shall be of the photoelectric type. They shall be UL listed for installation in plenums.
- 2.7 Pull stations shall be of metallic construction. They shall be furnished with lexan shields and warning horns.
- 2.8 Horns shall be rated a minimum of 85 dB at 10'.
- 2.9 Speakers shall be square. They shall be wall-mounted to a 4" square box. They shall produce a minimum sound level of 85dB at 10'. They shall have adjustable taps for volume level adjustment.
- 2.10 Strobes shall have a nominal rating of at least 75 Cd.
- 2.11 Combination horn-strobe units or speaker-strobe units shall meet the specified requirements of the individual horns, strobes, and speakers.
- 2.12 Monitor all sprinkler system flow switches at the facility. Provide an alarm upon flow indication.
- 2.13 Monitor all sprinkler system tamper and supervisory switches at the facility. Provide a trouble signal upon tamper indication.
- 2.14 Provide duct detectors in the return duct of all air units. If a fresh air intake duct is installed, all duct detectors shall be mounted upstream of the intake duct. For air units with flow ratings greater than 15,000 CFM, provide duct detectors in both the return and supply ducts.
- 2.15 Provide all necessary relays and circuitry, and shut down all air units upon an alarm condition of the fire alarm system.
- 2.16 Provide all necessary equipment and circuitry for control of the elevator in accordance with ANSI/ASME A17.1, Safety Code for Elevators and Escalators.
- 2.17 Provide all necessary equipment and circuitry to automatically release the magnetic door locks upon an alarm of the Fire Alarm System.
- 2.18 Conductors shall be #14 AWG copper rated THHN/THWN. Provide larger conductors where required to compensate for voltage drop.

### **PART 3 – EXECUTION**

- 3.1 All components and circuitry shall be assembled and installed per the requirements of all applicable codes and the manufacturer's recommendations.
- 3.2 All devices shall be mounted with their boxes flush in the walls.
- 3.3 Smoke detectors shall be mounted at least 36" away from supply vents.
- 3.4 All outlet boxes, junction boxes, and cover plates shall be painted red.
- 3.5 All circuitry shall be in concealed conduit sized per the NEC, but no less than ½" EMT. All fire alarm conduits shall be painted red.
- 3.6 The Fire Alarm System Contractor shall employ an independent third party testing agency to test and certify all system components, including each smoke detector, duct detector, and pull station prior to the pre-final inspection. All systems shall be completely operable prior to the request for a

pre-final site observation. The system shall be tested in the presence of the Owner, Architect, and Engineer at the prefinal site observation.

- 3.7 Provide a one-year warranty for the system and all components. The warranty shall begin at the date of final acceptance of the building. During the warranty period, the system shall be repaired or replaced as necessary at no cost to the Owner. During the warranty period, a technician shall be on the job site within twenty-four hours of a problem report from the Owner.

END OF SECTION

**SECTION 31 2000**  
**EARTH MOVING**

**PART 1 - GENERAL**

**1.01 SUMMARY**

- A. Section Includes:
  - 1. Excavating and filling for rough grading the Site.
  - 2. Preparing subgrades for walks and turf and grasses.
  - 3. Excavating and backfilling for buildings and structures.
  - 4. Subbase course for concrete walks.
  - 5. Excavating and backfilling trenches for utilities.
- B. Related Requirements:
  - 1. Section 31 1000 "Site Clearing" for site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
  - 2. Section 32 9200 "Turf and Grasses" for finish grading in turf and grass areas, including preparing and placing planting soil for turf areas.

**1.02 DEFINITIONS**

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
  - 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
  - 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.
- C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.
- D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.
- F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
  - 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.
  - 2. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, will be without additional compensation.
- G. Fill: Soil materials used to raise existing grades.
- H. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other fabricated stationary features constructed above or below the ground surface.
- I. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- J. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- K. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

**1.03 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct preexcavation conference at Project site.
  - 1. Review methods and procedures related to earthmoving, including, but not limited to, the following:
    - a. Personnel and equipment needed to make progress and avoid delays.
    - b. Coordination of Work with utility locator service.
    - c. Coordination of Work and equipment movement with the locations of tree- and plant-protection zones.
    - d. Extent of trenching by hand or with air spade.
    - e. Field quality control.

**1.04 ACTION SUBMITTALS**

- A. Product Data: For each type of the following manufactured products required:
  - 1. Controlled low-strength material, including design mixture.

**1.05 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For qualified testing agency.
- B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:
  - 1. Classification according to ASTM D2487.
  - 2. Laboratory compaction curve according to ASTM D698.
- C. Preexcavation Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by earth-moving operations. Submit before earth moving begins.
- D. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E329 and ASTM D3740 for testing indicated.

**1.06 FIELD CONDITIONS**

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.
  - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
  - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth-moving operations.
- C. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified in Section 01 5000 "Temporary Facilities and Controls" and Section 31 1000 "Site Clearing" are in place.
- D. Do not commence earth-moving operations until plant-protection measures specified in Section 01 5639 "Temporary Tree and Plant Protection" are in place.
- E. The following practices are prohibited within protection zones:
  - 1. Storage of construction materials, debris, or excavated material.
  - 2. Parking vehicles or equipment.
  - 3. Foot traffic.
  - 4. Erection of sheds or structures.
  - 5. Impoundment of water.
  - 6. Excavation or other digging unless otherwise indicated.
  - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- F. Do not direct vehicle or equipment exhaust towards protection zones.

- G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

## **PART 2 - PRODUCTS**

### **2.01 SOIL MATERIALS**

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D2487, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
  - 1. Liquid Limit: Less than 45.
  - 2. Plasticity Index:  $10 \leq PI \leq 24$ .
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D2487, or a combination of these groups.
  - 1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.
- F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200 sieve.
- H. Drainage Course: Narrowly graded mixture of crushed stone, or crushed or uncrushed gravel; ASTM D448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and zero to 5 percent passing a No. 8 sieve.
- I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and zero to 5 percent passing a No. 4 sieve.
- J. Sand: ASTM C33/C33M; fine aggregate.
- K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

### **2.02 ACCESSORIES**

- A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:
  - 1. Red: Electric.
  - 2. Yellow: Gas, oil, steam, and dangerous materials.
  - 3. Orange: Telephone and other communications.
  - 4. Blue: Water systems.
  - 5. Green: Sewer systems.
- B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility, with metallic core

encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches deep; colored as follows:

1. Red: Electric.
2. Yellow: Gas, oil, steam, and dangerous materials.
3. Orange: Telephone and other communications.
4. Blue: Water systems.
5. Green: Sewer systems.

### **PART 3 - EXECUTION**

#### **3.01 PREPARATION**

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth-moving operations.
- C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

#### **3.02 DEWATERING**

- A. Provide dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.
- B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
  1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
- D. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.

#### **3.03 EXPLOSIVES**

- A. Explosives:
  1. Do not use explosives.

#### **3.04 EXCAVATION, GENERAL**

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.
  1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
  2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:
    - a. 24 inches outside of concrete forms other than at footings.
    - b. 12 inches outside of concrete forms at footings.
    - c. 6 inches outside of minimum required dimensions of concrete cast against grade.
    - d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
    - e. 6 inches beneath bottom of concrete slabs-on-grade.

- f. 6 inches beneath pipe in trenches and the greater of 24 inches wider than pipe or 42 inches wide.
- B. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents. Changes in the Contract Time may be authorized for rock excavation.
  - 1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; and soil, boulders, and other materials not classified as rock or unauthorized excavation.

### **3.05 EXCAVATION FOR STRUCTURES**

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
  - 1. Excavations for Footings and Foundations: Do not disturb bottom of excavation. Excavate by hand to final grade just before placing concrete reinforcement. Trim bottoms to required lines and grades to leave solid base to receive other work.
- B. Excavations at Edges of Tree- and Plant-Protection Zones:
  - 1. Excavate by hand or with an air spade to indicated lines, cross sections, elevations, and subgrades. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
  - 2. Cut and protect roots according to requirements in Section 01 5639 "Temporary Tree and Plant Protection."

### **3.06 EXCAVATION FOR WALKS AND PAVEMENTS**

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

### **3.07 EXCAVATION FOR UTILITY TRENCHES**

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.
  - 1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.
- B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.
  - 1. Clearance: 12 inches each side of pipe or conduit.
- C. Trench Bottoms:
  - 1. Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.
    - a. For pipes and conduit less than 6 inches in nominal diameter, hand-excavate trench bottoms and support pipe and conduit on an undisturbed subgrade.
    - b. For pipes and conduit 6 inches or larger in nominal diameter, shape bottom of trench to support bottom 90 degrees of pipe or conduit circumference. Fill depressions with tamped sand backfill.
    - c. For flat-bottomed, multiple-duct conduit units, hand-excavate trench bottoms and support conduit on an undisturbed subgrade.
    - d. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

2. Excavate trenches 4 inches deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.
  - a. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.
- D. Trenches in Tree- and Plant-Protection Zones:
  1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
  2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.
  3. Cut and protect roots according to requirements in Section 01 5639 "Temporary Tree and Plant Protection."

### **3.08 SUBGRADE INSPECTION**

- A. Notify Architect when excavations have reached required subgrade.
- B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
- C. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices.

### **3.09 STORAGE OF SOIL MATERIALS**

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
  1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

### **3.10 BACKFILL**

- A. Place and compact backfill in excavations promptly, but not before completing the following:
  1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
  2. Surveying locations of underground utilities for Record Documents.
  3. Testing and inspecting underground utilities.
  4. Removing concrete formwork.
  5. Removing trash and debris.
  6. Removing temporary shoring, bracing, and sheeting.
  7. Installing permanent or temporary horizontal bracing on horizontally supported walls.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

### **3.11 UTILITY TRENCH BACKFILL**

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Trenches under Footings: Backfill trenches excavated under footings and within 18 inches of bottom of footings with satisfactory soil; fill with concrete to elevation of bottom of footings. Concrete is specified in Section 03 3000 "Cast-in-Place Concrete."
- D. Backfill voids with satisfactory soil while removing shoring and bracing.
- E. Initial Backfill:
  1. Soil Backfill: Place and compact initial backfill of satisfactory soil, free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.

- a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.
  2. Controlled Low-Strength Material: Place initial backfill of controlled low-strength material to a height of 12 inches over the pipe or conduit. Coordinate backfilling with utilities testing.
- F. Final Backfill:
1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.
- G. Warning Tape: Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

### **3.12 SOIL FILL**

- A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.
- B. Place and compact fill material in layers to required elevations as follows:
  1. Under grass and planted areas, use satisfactory soil material.
  2. Under walks and pavements, use satisfactory soil material.
  3. Under steps and ramps, use engineered fill.
  4. Under building slabs, use engineered fill.
  5. Under footings and foundations, use engineered fill.
- C. Place soil fill on subgrades free of mud, frost, snow, or ice.

### **3.13 SOIL MOISTURE CONTROL**

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
  1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
  2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

### **3.14 COMPACTION OF SOIL BACKFILLS AND FILLS**

- A. Place backfill and fill soil materials in layers not more than 8 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D698:
  1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
  2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 92 percent.
  3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
  4. For utility trenches, compact each layer of initial and final backfill soil material at 95 percent.

### **3.15 GRADING**

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
  1. Provide a smooth transition between adjacent existing grades and new grades.

2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:
  1. Turf or Unpaved Areas: Plus or minus 1 inch.
  2. Walks: Plus or minus 1 inch.
  3. Pavements: Plus or minus 1/2 inch.
- C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

### **3.16 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS**

- A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:
  1. Shape subbase course and base course to follow final elevations and cross-slope grades.
  2. Place subbase course and base course 6 inches or less in compacted thickness in a single layer.
  3. Place subbase course and base course that exceeds 6 inches in compacted thickness in layers of equal thickness, with no compacted layer more than 6 inches thick or less than 3 inches thick.
  4. Compact subbase course and base course at optimum moisture content to required grades, lines, cross sections, and thickness to not less than 95 percent of maximum density according to ASTM D698.

### **3.17 FIELD QUALITY CONTROL**

- A. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- B. Footing Subgrade: At footing subgrades, at least one test of each soil stratum will be performed to verify design bearing capacities. Subsequent verification and approval of other footing subgrades may be based on a visual comparison of subgrade with tested subgrade when approved by Architect.
- C. Testing agency will test compaction of soils in place according to ASTM D1556, ASTM D2167, ASTM D2937, and ASTM D6938, as applicable. Tests will be performed at the following locations and frequencies:
  1. Paving Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab but in no case fewer than three tests.
  2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 100 feet or less of wall length but no fewer than two tests.
  3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150 feet or less of trench length but no fewer than two tests.
- D. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

### **3.18 PROTECTION**

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
  - 1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
  - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

**3.19 DISPOSAL OF SURPLUS AND WASTE MATERIALS**

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

**END OF SECTION**

**SECTION 32 9200  
TURF AND GRASSES**

**PART 1 - GENERAL**

**1.01 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

**1.02 SUMMARY**

- A. Section Includes:
  - 1. Sodding.
  - 2. Erosion-control materials.

**1.03 DEFINITIONS**

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.
- E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

**1.04 PREINSTALLATION MEETINGS**

- A. Preinstallation Conference: Conduct conference at Project site.

**1.05 INFORMATIONAL SUBMITTALS**

- A. Qualification Data: For landscape Installer.
- B. Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
  - 1. Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier.
- C. Product Certificates: For fertilizers, from manufacturer.
- D. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.

**1.06 CLOSEOUT SUBMITTALS**

- A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf during a calendar year. Submit before expiration of required maintenance periods.

### 1.07 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.
  - 1. Professional Licensure: Installer must be licensed by the State Board of Contractors for the State of Mississippi and have a Mississippi Landscape Gardener's License.
  - 2. Experience: Five years' experience in turf installation in addition to requirements in Section 01 4000 "Quality Requirements."
  - 3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
  - 4. Pesticide Applicator: State licensed, commercial.

### 1.08 DELIVERY, STORAGE, AND HANDLING

- A. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.
- B. Bulk Materials:
  - 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
  - 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
  - 3. Accompany each delivery of bulk materials with appropriate certificates.

### 1.09 FIELD CONDITIONS

- A. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

## PART 2 - PRODUCTS

### 2.01 TURFGRASS SOD

- A. Turfgrass Sod: Certified, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish cultivated, viable sod of uniform density, color, and texture, containing no more than 5 weeds per 1000 sq ft, with a minimum age of 18 months, that is strongly rooted and capable of vigorous growth and development when planted.
- B. Turfgrass Species, Warm-Season Grass: St. Augustine grass (*Stenotaphrum secundatum*); Palmetto cultivar.

### 2.02 TOPSOIL

- A. Topsoil: Fertile, agricultural soil, typical for locality, capable of sustaining vigorous plant growth, taken from drained site; free of subsoil, clay, or impurities, plants, weeds and roots; pH value of minimum 5.4 and maximum 7.0.

### 2.03 FERTILIZERS

- A. Commercial Fertilizer: Provide fertilizer recommended by TPI for the specified grass type; recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil, as indicated by analysis.

**2.04 PESTICIDES**

- A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

**2.05 EROSION-CONTROL MATERIALS**

- A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.
- B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb/sq. yd., with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.

**2.06 EXAMINATION**

- A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.
  - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
  - 2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
  - 3. Uniformly moisten excessively dry soil that is not workable or which is dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

**2.07 PREPARATION**

- A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
  - 1. Protect adjacent and adjoining areas from hydroseeding and hydromulching overspray.
  - 2. Protect grade stakes set by others until directed to remove them.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

**2.08 TURF AREA PREPARATION**

- A. General: Prepare planting area for soil placement and mix planting soil according to Section 32 9113 "Soil Preparation."
- B. Placing Planting Soil: Place and mix planting soil in place over exposed subgrade.
  - 1. Reduce elevation of planting soil to allow for soil thickness of sod.
- C. Moisten prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- D. Before planting, obtain Architect's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

## 2.09 PREPARATION FOR EROSION-CONTROL MATERIALS

- A. Prepare area as specified in "Turf Area Preparation" Article.
- B. For erosion-control mats, install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.
- C. Fill cells of erosion-control mat with planting soil and compact before planting.
- D. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
- E. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

## 2.10 SODDING

- A. Lay sod within 24 hours of harvesting. If not possible, sod may be stored on site for up to 36 hours after harvesting provided sod is properly protected: unstack, unroll, and place in shade and keep moist until installation.
- B. Do not lay sod if dormant or if ground is frozen or muddy.
- C. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod; do not stretch or overlap. Stagger sod strips or pads to offset joints in adjacent courses a minimum of 12 inches.
- D. Where new sod adjoins existing grass areas, align top surfaces.
- E. Where sod is placed adjacent to hard surfaces, such as curbs, pavements, etc., place top elevation of sod 1/2 inch (13 mm) below top of hard surface.
- F. Avoid damage to soil or sod during installation.
- G. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface.
- H. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
- I. Lay sod perpendicular to slope direction on slopes exceeding 1:3.
- J. Anchor sod on slopes exceeding 1:6 with wood pegs spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent slippage. Drive pegs flush with soil portion of sod.
- K. Saturate sod with fine water spray within two hours of planting. During first week after planting, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.
- L. After sod and soil have dried, roll sodded areas to ensure good bond between sod and soil and to remove minor depressions and irregularities. Roll sodded areas lightly to ensure contact with subgrade.

## 2.11 TURF RENOVATION

- A. Renovate turf damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.
  - 1. Reestablish turf where settlement or washouts occur or where minor regrading is required.
  - 2. Install new planting soil as required.
- B. Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.
- C. Remove topsoil containing foreign materials, such as oil drippings, fuel spills, stones, gravel, and other construction materials resulting from Contractor's operations, and replace with new planting soil.

- D. Mow, dethatch, core aerate, and rake existing turf.
- E. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.
- F. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Owner's property.
- G. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches.
- H. Apply initial fertilizer required for establishing new turf and mix thoroughly into top 4 inches of existing soil. Install new planting soil to fill low spots and meet finish grades.
  - 1. Initial Fertilizer: Commercial fertilizer applied according to manufacturer's recommendations.
- I. Apply sod as required for new turf.
- J. Water newly planted areas and keep moist until new turf is established.

## **2.12 TURF MAINTENANCE**

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
  - 1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
  - 2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
  - 3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
  - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
  - 2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.
- C. Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
  - 1. Mow St. Augustinegrass to a height of 2 to 3 inches.
- D. Turf Postfertilization: Apply commercial fertilizer after initial mowing and when grass is dry.

## **2.13 SATISFACTORY TURF**

- A. Turf installations shall meet the following criteria as determined by Architect:
  - 1. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
- B. Use specified materials to reestablish turf that does not comply with requirements and continue maintenance until turf is satisfactory.

## **2.14 PESTICIDE APPLICATION**

- A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations.

Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.

- B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

#### **2.15 CLEANUP AND PROTECTION**

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.
- C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
- D. Remove nondegradable erosion-control measures after grass establishment period.

**END OF SECTION**