PROJECT MANUAL
for

Winton Woods Improvements

North Campus Athletic Renovations
1231 W. Kemper Road, Cincinnati, Ohio 45240

Intermediate School Freezer Addition
825 Waycross Road, Cincinnati, Ohio 45240

for the

Winton Woods City School District
825 Waycross Road, Suite A, Cincinnati, Ohio 45240

January 29, 2021

312 Plum Street, Suite 700
Cincinnati, Ohio 45202
(513) 381-2112

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DOCUMENT 00 11 13 – NOTICE TO BIDDERS

Separate, sealed bids for each of the requirements set forth below will be received at the Office of the Treasurer of the Board of Education of the **Winton Woods City School District, 825 Waycross Road, Suite A, Cincinnati, Ohio 45240** until:

2:00 p.m. – local time
February 16, 2021

and will be publicly opened and read immediately thereafter and read aloud via Zoom video conference call, and a report thereof made to the board at their next meeting. Zoom meeting information is as follows:

https://us02web.zoom.us/j/82815443378

Said work consisting of two projects:

North Campus Athletic Renovations
Locker room and athletic office interior improvements at the North Campus.

Intermediate School Freezer Addition
Addition of an exterior walk-in freezer at the Intermediate School.

Bids will be accepted for each project individually as well as for an optional combination bid.

Pre-bid meeting:
Prospective bidders are encouraged to attend a **virtual pre-bid meeting** to be held **February 9** at **2:00 p.m.** at the following access information:

https://us02web.zoom.us/j/89768418703

Copies of the proposal documents and specifications may be obtained on or after January 29, 2021 by contacting the Winton Woods City Schools Business Office or from:

www.wintonwoods.org > PUBLIC NOTICES/BIDDING > PUBLIC NOTICES

The Contract Documents are available for purchase from: Key Blue Prints Inc., 411 Elliott Ave, Cincinnati, Ohio 45215, 513-821-2111 www.keycompanies.com. Documents will be forwarded at bidder's expense.

Bids shall be submitted on the form furnished with each set of bid documents or on a photographic copy of that form. Each bid shall be accompanied by a bid guarantee meeting requirements of Section 153.54 of the Ohio Revised Code. Said guarantee may be in the form of a bond (ORC 153.571) or a certified check, cashiers check, or letter of credit meeting requirements of 153.54. Bids received after the time and date set for bid opening will be returned to the bidder unopened. PROPOSALS SHOULD BE HAND-DELIVERED to the above address.

The said Board of Education reserves the right to waive informalities, and to accept or reject any and all, or parts of any and all bids.

No bids may be withdrawn for at least 60 days after the scheduled closing time for receipt of bids.

The probable construction cost estimate for this work is:

North Campus Athletic Renovations: $200,000 BASE BID

Intermediate School Freezer Addition: $105,000 BASE BID

Advertisement in publication of general circulation: Monday, February 1, 2021.

The second advertisement shall be posted on the Winton Woods City School District website shown above throughout the proposal time period and until February 16, 2021.

Winton Woods City School District

By: Steve Denny, Executive Director of Business Affairs

END OF DOCUMENT 00 11 13

AIA® Document A701™ – 2018

Instructions to Bidders

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

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

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

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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□ □2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

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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.)

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§ 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.)

§ 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.

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§ 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.)

§ 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.)

§ 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.

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§ 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 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.)

§ 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.)

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.

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§ 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.

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§ 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.)

.4 AIA Document E203 2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013.)

.5 Drawings

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User Notes: (1750493016)

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda:

Number	Date	Pages

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

[ ] AIA Document E204□ □2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017.)

[ ] The Sustainability Plan:

Title	Date	Pages

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents listed below:
(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

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DOCUMENT 00 21 14 - SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

NOTE:
This section shall serve to supplement, modify, change and/or clarify provisions of the Instructions to Bidders (AIA Document A-701, 2018 Edition, "Instructions to Bidders"). Where an Article of the Instructions to Bidders is not modified or a Paragraph, Subparagraph, or Clause thereof is not modified or deleted by these supplements, the unaltered provisions of that Article, Paragraph, Subparagraph, or Clause shall remain in effect. Where items of this section directly conflict with those of the Instructions to Bidders, the provisions of this section shall prevail.

ARTICLE 2 BIDDER'S REPRESENTATION

Add the following to Article 2:
"2.2 Bidders shall refer to the "Notice to Bidders" for Pre-Bid Meeting requirements."

ARTICLE 3 BIDDING DOCUMENTS

3.1 Distribution

Delete Paragraph 3.1.1 and replace with the following:
"3.1.1 Bidders shall obtain complete Bidding Documents from the issuing office designated in the Notice to Bidders."

Delete Paragraph 3.1.2 in its entirety.

3.2 Modification or Interpretation of Bidding Documents

Add Paragraph 3.2.1.1 as follows:
"3.2.1.1 Each Bidder is responsible for calling to the attention of the Architect any ambiguities, inconsistencies, errors, or omissions which may occur in the documents for their part of the Work. If Bidder fails to request clarification, the Bidder will be expected to overcome such conditions without additions to the bid amount."

Add Paragraph 3.2.2.1 as follows:
"3.2.2.1 Clarification or interpretation can be made via e-mail to Allison McKenzie, amckenzie@shp.com or telephone, 513-381-2112."

3.4 Addenda

Delete Paragraph 3.4.3 and replace with the following:
"3.4.3 If an Addendum is issued within 72 hours prior to the published time for the opening of bids (excluding Saturdays, Sundays, and legal holidays), the time for opening of bids shall be extended one (1) week with no further advertising required."

ARTICLE 4 BIDDING PROCEDURES

4.1 Preparation of Bids

Add Paragraph 4.1.1.1 as follows:
"4.1.1.1 Any change or alteration to the wording of the bid form may cause a Bid to be rejected as non-responsive."

Delete Paragraph 4.1.3 and replace with the following:
"4.1.3 Sums shall be expressed in both words and figures and in figures only where no space is provided for words. In case of discrepancy, the amount written in words shall govern."

Add paragraph 4.1.5.1 and 4.1.5.2 as follows:
"4.1.5.1 A blank entry or an entry of "No Bid", "N/A", or similar entry for any Alternate will cause a Bid to be rejected as non-responsive if that Alternate is selected.

4.1.5.2 If an Alternate is not selected and an entry of "No Bid", "N/A", or similar entry for the Alternate is listed, this action, by itself, will not render the Bid as non-responsive."

Add Paragraph 4.1.9 as follows:
"4.1.9 The Bidder shall include a signed copy of the Bidder's Qualifications and Non-Collusion Affidavit with their Bid; a copy of each form is included in Division 00 of the Project Manual."

4.2 Bid Security

Delete Paragraphs 4.2.1, 4.2.2, 4.2.3 and 4.2.4 and replace with the following:

"4.2.1 Each Bid shall be accompanied by a bid security, in accordance with the Ohio Revised Code (ORC) Section 153.54(B), in the amount of the Base Bid plus ADD Alternates or;

4.2.2 a signed bond in the form of a certified check, cashier's check or letter of credit, as provided in ORC Section 153.54(C). The amount of the certified check, cashier's check or letter of credit shall be equal to ten (10) percent of the Base Bid plus ADD Alternates or;

4.2.3 a bid guaranty and contract bond in accordance with ORC Section 153.571 in the amount of 100 percent of the total Base Bid plus ADD Alternates. If the dollar space on the bid guaranty is left blank, the penal sum will be the full amount of the Base Bid plus ADD Alternates, stated in dollars and cents. A percentage is not acceptable, pursuant to ORC Section 153.571.

4.2.4 The bond shall serve as an assurance that the Bidder will, upon acceptance of the Bid, comply with all conditions precedent for Contract execution, within the time specified.

4.2.5 The bond must be issued by a surety authorized by the Department of Insurance to transact business in Ohio. The bond must be issued by a surety capable of demonstrating a record of competent underwriting, efficient management, adequate reserves, and sound investments. These criteria will be met if the surety currently has an A.M. Best Company Policy Holders Rating of "A+", "A" or "A-" or better and has or exceeds the Best Financial Size Category of Class VII. The bond must be signed by an authorized agent, with Power of Attorney, from a surety.

4.2.6 Bond will be returned to all unsuccessful Bidders after Contract is awarded. If used, a certified check, cashier's check or letter of credit will be returned to the successful Bidder upon providing the bond required by ORC Section 153.54(C).

4.2.7 If for any reason, other than as authorized by Article 4.4, Modifications or Withdrawal of Bid, the Bidder fails to enter into a Contract, and the Owner awards the Contract to the next lowest responsive and responsible Bidder, the Bidder who failed to enter into a Contract shall be liable to the Owner for the difference between the Bidder's Bid and the Bid of the next lowest responsive and responsible Bidder, or for a penal sum not to exceed ten (10) percent of the Bid amount, whichever is less, pursuant to ORC Section 153.54."

4.3 Submission of Bids

Add Paragraph 4.3.1.1 as follows
"4.3.1.1 Submit Bid(s) in paper form, in duplicate, in sealed envelope, at time and place stipulated."

4.4 Modification or Withdrawal of Bid

Delete Paragraph 4.4.3 and replace with the following:
"4.4.3 All Bids are valid for (60) days after the opening of bids. A Bid may be extended thereafter upon mutual agreement, in writing, between the Owner and Contractor. Awards beyond the sixty (60) day period shall be reviewed for increased cost of the Contract only if the cause for delay is no fault of the Contractor and substantiated."

Add Paragraph 4.4.4 as follows:
"4.4.4 A Bidder may withdraw a Bid from consideration after the bid opening if the bid amount was substantially lower than the amounts of other Bids, providing the Bid was submitted in good faith, and the reason for the bid amount being substantially lower was a clerical mistake as opposed to a judgement mistake, and was actually due to an unintentional and substantial arithmetic error or an unintentional omission of a substantial quantity of Work, labor or material made directly in the compilation of the bid amount. Request to withdraw Bid must be made in writing filed with the Owner and Architect within two business days after conclusion of the bid opening."

ARTICLE 5 CONSIDERATION OF BIDS

5.2 Rejection of Bids

Add Paragraphs 5.2.1, 5.2.2 and 5.2.3 as follows
"5.2.1 If the lowest Bidder is not responsive or responsible, the Owner may reject such Bid and shall notify the Bidder the reasons for the finding.

5.2.2 A Bidder notified that they are not responsive or responsible may object to the Owner's decision by filing a written request for reconsideration, which must be received by the Owner within five (5) days of the date of the notice from the Owner.

5.2.3 Upon receipt of a timely request, the Owner shall meet with the Bidder to listen to the Bidder's objections.

.1 No award of contract shall become final until the Owner has met with all Bidders who have filed timely request for reconsideration.

.2 If all request for reconsideration are rejected in the Owner's discretion, the award of contract shall become final, or the Owner, in its discretion, may reject all bids.

.3 If a request for reconsideration is not rejected, any procedures for the determination of the lowest responsible Bidder that have not already been completed concerning the applicable Bidder shall be completed. Following the completed procedures and evaluation of the Bidder, the Bidder will be notified of the findings."

5.3 Acceptance of Bid (Award)

Add Paragraphs 5.3.1.1, 5.3.1.2 and 5.3.1.3 as follows:

"5.3.1.1 Pursuant to ORC Section 153.52, the Contract will be awarded to the lowest responsive and responsible Bidder.

5.3.1.2 In determining the lowest Bidder, the Owner shall consider the Base Bid and any selected Alternates which the Owner determines to accept, and may result in an award to a Bidder other than the Bidder that submitted the lowest Base Bid. Voluntary Alternates will not be considered in determining the lowest amount.

5.3.1.3 The Bidder acknowledges that although there is an estimate for the cost of the Project, the market conditions may and frequently do result in the estimate being different from the sum of the Bids received, either higher or lower. The Bidder understands that the Owner has included alternatives, which include deduct and add Alternates, to give flexibility in building the Project with funds available. The Bidder further understands and acknowledges that the use of add and deduct Alternates is a long held customary practice in the construction industry in the State of Ohio. The Bidder also acknowledges that the Owner will not make a decision about what Alternates on which to base the award of contracts until the Bids are received, and the Owner can compare its available funds with the Base Bids and the cost or savings from selecting different Alternates. No Contract(s) shall be entered into if the total price of all Contracts for the Project that is bid on the same day, are in excess of ten (10) percent above the entire estimate thereof, in accordance with ORC Section 153.12. Project estimate is listed in the Notice to Bidders."

Delete Paragraph 5.3.2 and replace with the following:

"5.3.2 Subject to the right of the Owner to reject each and every Bid, the Owner will determine the lowest responsive Bid by taking into consideration not only the amount of the Bid but such of the following criteria as it, in its discretion, deems appropriate and may give such weight thereto as it deems appropriate in determining the responsibility of the Bidder:

.1 the Bidder's financial ability to complete the Contract;

.2 the Bidder's experience with projects of similar size and scope and more complex projects;

.3 the conduct and performance of the Bidder on previous contracts completed in a timely manner;

.4 the Bidder's facilities and equipment;

.5 the adequacy, in numbers and experience, of the Bidders work force to complete the Contract successfully on time and on budget;

.6 the ability of the Bidder to execute the Contract properly; and

.7 the evaluation of the Bid substantially below the median of other Bids."

Add Paragraphs 5.3.3, 5.3.4 and 5.3.5 as follows:

"5.3.3 The Owner shall obtain from the lowest Bidder any information the Owner deems appropriate to the consideration of factors showing responsibility. The failure to submit requested information on a timely basis may result in the determination that the Bidder is not responsible.

5.3.4 The Bidder authorizes the Owner and its representatives to contact owners, construction managers, contractors, and design professionals on projects on which the Bidder has worked and authorizes and requests such owners, construction managers, contractors, and design professionals to provide a candid evaluation of Bidder's performance. By submitting a Bid, the Bidder agrees that if they or any person at their urging, directly or indirectly, brings action against any of such owners, construction managers, contractors, and design professionals or their employees as a result of or related to such candid elevation and such action is not successful, the Bidder will reimburse such owners, design professionals and/or their employees for all legal fees and expenses incurred by them that are related to such legal action, including the cost of collection. This obligation is expressly intended for the benefit of such owners, construction managers, contractors, design professionals and their employees.

5.3.5 The number of consecutive calendar days required to complete the Work shall be considered by the Owner in determining the lowest and responsive Bidder."

ARTICLE 6 POST-BID INFORMATION

6.2 Owner's Financial Capability

Delete Paragraph 6.2 in its entirety.

6.3 Submittals

Add the following Paragraph after Paragraph 6.3.1.3 as follows:
".4 a list of proposed Contractors and Suppliers."

ARTICLE 7 PERFORMANCE AND PAYMENT BOND

7.1 Bond Requirements

Delete Paragraphs 7.1.1, 7.1.2, 7.1.3, and 7.1.4 and replace with the following:
"7.1.1 The Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

7.1.1.1 Bonds shall be written in conformance with the Bond Form provided in the Project Manual and in compliance with ORC Section 153.571.

7.1.2 Prior to award of contract, successful Bidders who provided a cashier's check, certified check or letter of credit as bid security shall submit a contract bond in the form of a performance and payment bond in an amount equal to 100% of the contract sum. The performance and payment bond must be signed by an authorized agent of an acceptable surety bonding company and by the Bidder. Bond must be issued by a surety company authorized by Ohio Department of Insurance to transact business in the State of Ohio. The bond shall be issued by a surety company which can adequately demonstrate a record of competent underwriting, efficient management, adequate reserves and soundness of investments. These criteria will be met if the surety currently has an A.M. Best Company Policyholder Rating of "A+", "A", or "A-" or better and has or exceeds the Best Financial Size Category of Class VII.

7.1.3 Bond must be countersigned by an Ohio resident agent if bond is issued by an out-of-state agent.

7.1.4 Performance and payment bond must be supported by credentials showing power of attorney and corporate seals to each copy. Bonds shall remain in effect for 12 months after date of Substantial Completion is issued by the Owner. Certificate by bonding company of compliance is required prior to final acceptance of Project."

7.2 Time of Delivery and Form of Bonds

Delete Paragraph 7.2 in its entirety.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

Delete Article 8 in its entirety, and replace with the following:
"**ARTICLE 8 SUPPLEMENTAL BIDDING INFORMATION**

8.1 If the Owner and Bidder enter into a Contract within 60 days of the bid opening, the Contractor shall pay any and all material, labor or subcontract cost increases which have occurred since the bid opening. Contract entered into beyond 60 day period may contain additional amounts for cost increases if the cause for delay is not the fault of the Contractor.

8.2 Prior to the signing of a Contract, the successful Bidder shall furnish:

(i) Certificate of Insurance meeting the requirements of the General Conditions;
(ii) Ohio Workers' Compensation Certificates;
(iii) Ohio Secretary of State Certification;
(iv) Delinquent Personal Property Tax Affidavit as required by ORC Section 5719.042 (form included in Division 00 of the Project Manual);
(v) Campaign Contributions Affidavit as required by ORC Section 3517.13 (form included in Division 00 of the Project Manual);
(vii) Contractor Consent to Escrow Agent/Agreement or waiver of Escrow (form included in Division 00 of the Project Manual); and
(viii) Proof of enrollment in good standing in the Ohio Bureau of Workers' Compensation (BWC) Drug-Free Workplace Program (DFWP) or an equivalent BWC approved DFWP in accordance with ORC Sections 153.03 to 153.031 (form included in Division 00 of the Project Manual).

8.2.1 The award of the Contract and the execution of the Contract are based upon the expectation that the lowest responsible Bidder will comply with the conditions of Section 8.2.

8.2.2 Non-compliance with the conditions within five (5) days of the date that the Bidder is notified of the notice of intent to award the Contract shall be cause for the Owner to cancel the award for the Bidder's lack of responsibility and award the Contract to another Bidder which the Owner determines is the next lowest responsive and responsible Bidder, or resubmit the Contract for bidding, at the discretion of the Owner.

8.3 Upon the signing of a Contract, the Owner shall notify the Surety and Surety Agent of the award of the contract in compliance with ORC Section 9.32."

END OF DOCUMENT 00 21 14

DOCUMENT 00 41 16 - BID FORM

Winton Woods Improvements

North Campus Athletic Renovations
1231 W. Kemper Road, Cincinnati, Ohio 45240

Intermediate School Freezer Addition
825 Waycross Road, Cincinnati, Ohio 45240

For

Winton Woods City School District

SUBMITTED NO LATER THAN

2:00 p.m. - Local Time
February 16, 2021

AT THE OFFICE OF:

Steve Denny, Executive Director of Business Affairs

Winton Woods City School District

825 Waycross Road, Suite A
Cincinnati, Ohio, 45240

DOCUMENTS PREPARED BY:

SHP

312 Plum Street, Suite 700

Cincinnati, Ohio 45202

Bid Form continues on next page

PART A - GENERAL NOTES

The attention of the bidder is called to Notice to Bidders / Instructions to Bidders / Supplementary Instructions to Bidders / Standard Form of Agreement Between Owner and Contractor / General Conditions / Supplementary General Conditions for specific items relating to the execution of the Bid Form. In submitting this bid, the bidder represents that they have carefully reviewed and understands these documents and agrees to the conditions of these documents. Non-compliance with any of the provisions of these documents may constitute sufficient cause for rejection of a bid.

Execute duplicate Bid Form in original for each bid submitted.

Attach Bid Security to first Bid Form.

Attach the following forms to the first Bid Form:

- Bidder's Qualifications
- Non-Collusion Affidavit

Do Not alter the wording of the Bid Form.

Bidders may attach typewritten sheet(s) providing any additional information, voluntary substitutions, or voluntary alternates for the Owner's consideration but the bid amounts contained herein must be based on the bid documents, not such voluntary substitutions or voluntary alternates.

Submit completed Bid Form along with all other required information in a sealed envelope plainly identified as to items being bid and name of bidder. See Instructions to Bidders.

The Owner reserves the right to award separate contracts for each individual item bid or to award combination bids if provided for in this form.

Bidders may submit on any or all of the three items on the bid form.

It is understood and agreed that each Bid Package will achieve **Substantial Completion by July 2, 2021** and **Final Completion by July 23, 2021**, per definition of AIA General Conditions. See Section 00 73 01 "Supplementary General Conditions" Article 8 – Time, including liquidated damages information.

PART B - RECEIPT OF ADDENDA

The following addenda have been received and taken into account in preparation of this bid:

Addenda No.: _____ Addenda No.: _____

Addenda No.: _____ Addenda No.: _____

Bid Form continues on next page

PART C - PROPOSAL

We, the undersigned bidder have fully examined the Contract Documents and do hereby propose to perform all Work for the applicable Contract, in accordance with the Contract Documents, for the amounts as follows:

ITEM 1: NORTH CAMPUS ATHLETIC RENOVATIONS

BASE BID

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words:_____

ALTERNATES

Alternate No. 1: Additional lockers in room 114

Add to _____ Deduct from _____ Base Bid (check one).

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words:_____

Add to _____ Deduct from _____ Contract Time (calendar days).

Alternate No. 2: Locker room benches

Add to _____ Deduct from _____ Base Bid (check one).

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words:_____

Add to _____ Deduct from _____ Contract Time (calendar days).

Alternate No. 3: Painting of corridor 116

Add to _____ Deduct from _____ Base Bid (check one).

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words:_____

Add to _____ Deduct from _____ Contract Time (calendar days).

ITEM 2: INTERMEDIATE SCHOOL FREEZER ADDITION

BASE BID

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words:_____

ITEM 3: ATHLETICS AND FREEZER ADDITION VOLUNTARY COMBINATION

COMBINED BASE BID

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words:_____

ALTERNATES

Alternate No. 1: Additional lockers in room 114

Add to _____ Deduct from _____ Base Bid (check one).

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words:_____

Add to _____ Deduct from _____ Contract Time (calendar days).

Alternate No. 2: Locker room benches

Add to _____ Deduct from _____ Base Bid (check one).

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words:_____

Add to _____ Deduct from _____ Contract Time (calendar days).

Alternate No. 3: Painting of corridor 116

Add to _____ Deduct from _____ Base Bid (check one).

ALL LABOR AND MATERIALS, for the sum of: $ _____

Sum in words:_____

Add to _____ Deduct from _____ Contract Time (calendar days).

Bid Form continues on next page

PART D – BIDDER'S CERTIFICATION

The bidder hereby acknowledges that the following representations in this bid are material and not mere recitals:

1. Bidder has read and understands the Contract Documents and agrees to comply with all requirements of the Contract Documents, regardless of whether the bidder has actual knowledge of the requirements and regardless of any statement or omission made by the bidder which might indicate a contrary intention.
2. Bidder represents that the bid is based upon the Standards specified by the Contract Documents.
3. Bidder has visited the Project site, become familiar with local conditions and has correlated personal observations about the requirements of the Contract Documents. The bidder has no outstanding questions regarding the interpretation of the Contract Documents.
4. Bidder understands domestic steel use requirements as specified in Ohio Revised Code Section 153.011 apply to this project.
5. Bidder will enter into and execute the agreement with the Owner, if a contract is awarded on the basis of this bid, and if the bidder does not execute an agreement for any reason, other than as authorized by law, the bidder and the bidder's Surety are liable to the Owner as provided in the Ohio Revised Code and as applicable to the Owner.
6. Bidder certifies that the upon the award of a contract, it will make a good faith effort to ensure that all of its employees, while working on the site of the Project, will not purchase, transfer, use or possess illegal drugs or alcohol or abuse prescription drugs in any way.
7. Bidder agrees to furnish any information requested by the Owner to evaluate the responsibility of the bidder.
8. It is understood and agreed that the work embodied in this contract shall be substantially completed per definition of the AIA General Conditions by the milestone dates indicated in the Contract Documents.
9. Costs, per day as shown in the Table of Liquidated Damages (Section 00 73 01 – Supplementary General Conditions) will be accumulated and assessed to all prime contractors (unless specifically released in writing by the Architect or an extension of time is approved by the Architect) after this date until Substantial Completion and Final

Bid Form continues on next page

PART E - SIGNATURE PAGE & INFORMATION ABOUT BIDDER

Legal Name of Business _____.

Name of President _____.

Name(s) of Owner (If not Corporation)

_____.

_____.

_____.

Main Office Address _____.

_____.

Company Tax identification Number:_____.

Company Website (if available): _____.

Main Office Telephone Number _____.

Main Office Fax Number _____.

Main Office Contact Person _____.

Main Contact Person E-mail Address _____.

Authorized Signature_____.

Printed name and Title_____.

Date of Signature:_____ .

Attach other documents required

END OF DOCUMENT 00 41 16

DOCUMENT 00 43 13 - BID GUARANTY AND CONTRACT BOND (ORC § 153.571)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned _____

_____ ("Contractor") as principal and

_____ as sureties are hereby held and

firmly bound unto the **Board of Education of the Winton Woods City School District, Hamilton County, Ohio**, as obligee in the penal sum of the dollar amount of the bid submitted by the principal to the

obligee on _____, 20____, to undertake the project known as:

"_____" ("Project")

The penal sum referred to herein shall be the dollar amount of the principal's bid to the obligee, incorporating any additive or deductive Alternates made by the principal on the date referred to above to the obligee, which are accepted by the obligee. In no case shall the penal sum exceed the amount of

_____Dollars ($_____).

(If the foregoing blank is not filled in, the penal sum will be the full amount of the principal's bid, including add Alternates. Alternatively, if the blank is filled in the amount stated must not be less than the full amount of the bid including add Alternates, in dollars and cents. A percentage is not acceptable.) For the payment of the penal sum well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

Signed this _____ day of _____, 20____.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the above named principal has submitted a bid for work on the Project.

Now, therefore, if the obligee accepts the bid of the principal and the principal fails to enter into a proper contract in accordance with the bid, plans, details, specifications, and bills of material; and in the event the principal pays to the obligee the difference not to exceed ten percent (10%) of the penalty hereof between the amount specified in the bid and such larger amount for which the obligee may in good faith contract with the next lowest bidder to perform the work covered by the bid; or in the event the obligee does not award the contract to the next lowest bidder and resubmits the project for bidding, the principal pays to the obligee the difference not to exceed ten percent (10%) of the penalty hereof between the amount specified in the bid, or the costs, in connection with the resubmission, of printing new contract documents, required advertising, and printing and mailing notices to prospective bidders, whichever is less, then this obligation shall be null and void, otherwise to remain in full force and effect; if the obligee accepts the bid of the principal and the principal within ten (10) days after the awarding of the contract enters into a proper contract in accordance with the bid, plans, details, specifications, and bills of material, which said contract is made a part of this bond the same as though set forth herein.

Now also, if the said principal shall well and faithfully do and perform the things agreed by said principal to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, materialmen, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any materialman or laborer having a just claim, as well as for the obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; and surety shall indemnify the obligee against all damage suffered by failure of the principal to perform the contract according to its provisions and in accordance with the plans, details, specifications, and bills of material therefore and to pay all lawful claims of subcontractors, materialmen, and laborers for labor performed or material furnished in carrying forward, performing, or completing the contract and surety further agrees and assents that this undertaking is for the benefit of any subcontractor, materialman, or laborer having a just claim, as well as for the obligee; it being expressly understood and agreed that the liability of the

surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said surety hereby stipulates and agrees that no modifications, omissions, or additions in or to the terms of the said contract or in or to the plans or specifications therefore shall in any wise affect the obligations of said surety on its bond. The said surety further stipulates that it is authorized to execute bonds in the State of Ohio and that the liability incurred is within the limits of Section 3929.02 of the Ohio Revised Code.

Signed and sealed this _____ day of _____, 20____.

_____
(PRINCIPAL) (Seal)

By: _____

Printed Name & Title: _____

_____
(SURETY) (Seal)

By: _____

Printed Name & Title: _____

_____
NAME OF SURETY'S AGENT

Surety's Agent's Address: _____

_____

Surety's Agent's Telephone Number: _____

Surety's Agent's E-mail: _____

END OF DOCUMENT 00 43 13

DOCUMENT 00 45 13 – BIDDER'S QUALIFICATIONS

Project Number: _____

Project Name: _____

1. **Company Name**: _____

   Physical Address: _____
   Street, Building, Unit

   _____
   City, State, Zip

   Mailing Address (if different):_____
   P.O. Box

   _____
   City, State, Zip

   Telephone Number (w/ Area Code): (_____) _____

   Email address: _____

2. **Overall Experience.** Indicate Bidder's overall experience performing the trades bid, including the years in business performing the trade under present and former business names.

3. **Financial.** The apparent low Bidder shall submit, upon request of the Contracting Authority, either:

   a) An annual financial statement prepared within the 12 months prior to the bid opening by an independent licensed accounting firm; and the name, address, contact person and phone number of the bank normally used by the Bidder for its primary banking; or,

   b) A financial report generated within 30 days prior to the bid opening from Standard and Poor's Financial Services LLC (S&P), Dun & Bradstreet, or a similar company acceptable to the Contracting Authority documenting the financial condition of the Bidder; and the name, address, contact person and phone number of the bank normally used by the Bidder for its primary banking;

   This information is not a public record under Ohio Revised Code Section 149.43; and shall remain confidential, except under proper order of a court.

4. **Facilities & Equipment**. Indicate Bidder's relevant facilities and major equipment (leased or owned).

5. **Ongoing & Relevant Projects.** List all ongoing projects and projects completed in the last 5 years, which are similar in cost and type to the Project. Include scope of Work, Contract value, and project name/contact person/address/phone number for each owner and architect or engineer for each project.

6. **Regulatory / Contractual.** Indicate all occurrences of the following in the last 5 years (indicate if none). For verification, attach documentation, and/or provide sufficient and appropriate detail information such as: project name, owner, contact person and phone number, amount of contract, etc.

   a) Affirmative Action violations (Attach Certificate of Compliance with Affirmative Action Programs, issued pursuant to Ohio Revised Code Section 9.47)

   b) Contract abandonment, Contract termination, as either a prime- or sub-contractor, or Surety takeover

   c) Debarment by state, federal or local jurisdictions

   d) EPA/OSHA violations

   e) Liquidated damages and Statutory Delay Forfeiture assessed

   f) Drug-Free Safety Program and Drug Free Workplace Program violations

7. **Management.** Identify individuals assigned to this Project.

   Principal _____Years with firm _____ Total Exp._____

   Project Manager _____Years with firm _____ Total Exp._____

   Field Superintendent _____ Years with firm _____ Total Exp._____

8. Certification. I hereby certify that the information in this entire Bidder's Qualifications form, including all attachments and referenced information, is factual and complete.

Company Name

_____

Authorized Official (please print or type)

_____

Signature of Authorized Official _____
Date_____

END OF DOCUMENT 00 45 13

DOCUMENT 00 45 14 - NON-COLLUSION AFFIDAVIT

State of _____)

) SS:

County of _____)

The Bidder and each person signing on behalf of the Bidder certifies, and in the case of a joint bid, each party thereto certifies as to such party's organization, under penalty of perjury, that to the best of the undersigned's knowledge and belief:

1. The Base Bid, Unit Prices or any Alternate bid in the bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition as to any matter relating to such Base Bid, Unit Prices or Alternate bid with any other Bidder.
2. Unless otherwise required by law, the Base Bid, Unit Prices or Alternate bid which have been quoted in the bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to the opening, directly or indirectly, to any other Bidder that would have any interest in the Base Bid, Unit Prices or Alternate bid.
3. No attempt has been made or will be made by the Bidder to induce any other individual, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.

Authorized Signature: _____

Print Name: _____ Title: _____

Company Name: _____

ADDITIONAL SIGNATURE FOR JOINT VENTURE:

Authorized Signature: _____

Print Name: _____ Title: _____

Company Name: _____

Sworn to and subscribed before me this _____ day of _____ , 20_____

_____
Notary Public

My Commission Expires_____

END OF DOCUMENT 00 45 14

DOCUMENT 00 45 15 - DELINQUENT PERSONAL PROPERTY TAX AFFIDAVIT

State of _____)
) SS:
County of _____)

Bid identification –

CONTRACTOR _____

being first duly sworn, deposes and says that he is

_____
(sole owner, a partner, president, secretary, etc.)

of _____ , the party making the forgoing BID; hereby affirms under oath, pursuant to Section 5719.042 of the Ohio Revised Code, that at the time the BID was submitted, my company (was) (was not) charged with delinquent personal property taxes on the General Tax List of Personal Property for _____ County, Ohio, the amount of such due and unpaid delinquent taxes, including due and unpaid penalties and interest shall be set forth below.

A copy of this statement shall be transmitted by the Fiscal Officer to the County Treasurer within 30 days of the date it is submitted.

Delinquent Personal Property Tax	$ _____
Penalties	$ _____
Interest	$ _____

Signed:

_____

Sworn to and subscribed before me this _____ day of _____ , 20_____

_____
Notary Public

My Commission Expires_____

END OF DOCUMENT 00 45 15

DOCUMENT 00 45 17 – UNRESOLVED FINDINGS FOR RECOVERY AFFIDAVIT

State of _____)
) SS:
County of _____)

I / WE _____

after being duly sworn, do hereby submit this Affidavit to the **Board of Education of the Winton Woods School District, Hamilton County, Ohio.**

Neither the undersigned nor the entity which has submitted the low bid to the **Board of Education of the Winton Woods City School District**

For the following project: "_____".

Has any unresolved findings for recovery by the Auditor of State, pursuant to Section 9.24 of the Ohio Revised Code, at the time this bid was submitted for the project.

Signed:

_____

_____
(Printed Name and Title)

_____
(Address)

_____
(City) (State) (Zip Code)

END OF DOCUMENT 00 45 17

DOCUMENT 00 45 18 - CAMPAIGN CONTRIBUTIONS AFFIDAVIT

State of _____)
) SS:
County of _____)

Personally appeared before me the undersigned, a bidder in the competitive bidding for

_____ for a _____
(Name of Entity) (Type of Product or Service)

contract let by the **Board of Education of the Winton Woods City School District** who, being duly cautioned and sworn, makes the following statement with respect to prohibited activities constituting a conflict of interest or other violation under Ohio Revised Code Section 3517.13 (campaign contributions and reporting) and further states that the undersigned has the authority to make the following representation on behalf of himself or herself or of the business entity:

1. That no person or persons, whom are owners of at least twenty percent of the above named business or corporation nor any spouse of such person, has made, as an individual, within the two previous calendar years, one or more contributions totaling in excess of one thousand dollars to a candidate for or the holder of a public office having ultimate responsibility for the award of this contract, or to his/her campaign Committee nor have they aggregately given contributions totaling more than one thousand dollars.

2. That no person or persons employed by the above named firm, not their spouses are in violation of any provision of Ohio Revised Code Section 3517.13.

BIDDER:

SIGNATURE: _____

NAME: _____

TITLE: _____

DATE: _____

Sworn to and subscribed before me this _____ day of _____ , 20_____

_____
Notary Public

My Commission Expires_____

END OF DOCUMENT 00 45 18

AIA® Document A101® – 2017

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

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)

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)

The Owner and Contractor agree as follows.

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.

The parties should complete A101®–2017, Exhibit A, Insurance and Bonds, contemporaneously with this Agreement. AIA Document A201®–2017, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

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EXHIBIT A INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary, and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement, and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

The Contractor shall fully execute the Work described in the Contract Documents, except as specifically indicated in the Contract Documents to be the responsibility of others.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be:
(Check one of the following boxes.)

[ ] The date of this Agreement.

[ ] A date set forth in a notice to proceed issued by the Owner.

[ ] Established as follows:
(Insert a date or a means to determine the date of commencement of the Work.)

If a date of commencement of the Work is not selected, then the date of commencement shall be the date of this Agreement.

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 Substantial Completion

§ 3.3.1 Subject to adjustments of the Contract Time as provided in the Contract Documents, the Contractor shall achieve Substantial Completion of the entire Work:
(Check one of the following boxes and complete the necessary information.)

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

[ ] By the following date:

§ 3.3.2 Subject to adjustments of the Contract Time as provided in the Contract Documents, if portions of the Work are to be completed prior to Substantial Completion of the entire Work, the Contractor shall achieve Substantial Completion of such portions by the following dates:

Portion of Work	Substantial Completion Date

§ 3.3.3 If the Contractor fails to achieve Substantial Completion as provided in this Section 3.3, liquidated damages, if any, shall be assessed as set forth in Section 4.5.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be (($), subject to additions and deductions as provided in the Contract Documents.

§ 4.2 Alternates

§ 4.2.1 Alternates, if any, included in the Contract Sum:

Item	Price

§ 4.2.2 Subject to the conditions noted below, the following alternates may be accepted by the Owner following execution of this Agreement. Upon acceptance, the Owner shall issue a Modification to this Agreement.
(Insert below each alternate and the conditions that must be met for the Owner to accept the alternate.)

Item	Price	Conditions for Acceptance

§ 4.3 Allowances, if any, included in the Contract Sum:
(Identify each allowance.)

Item	Price

§ 4.4 Unit prices, if any:
(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)

§ 4.5 Liquidated damages, if any:
(Insert terms and conditions for liquidated damages, if any.)

§ 4.6 Other:
(Insert provisions for bonus or other incentives, if any, that might result in a change to the Contract Sum.)

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ARTICLE 5 PAYMENTS

§ 5.1 Progress Payments

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment of the amount certified shall be made by the Owner not later than ( ) days after the Architect receives the Application for Payment. *(Federal, state or local laws may require payment within a certain period of time.)*

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form, and supported by such data to substantiate its accuracy, as the Architect may require. This schedule of values shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 In accordance with AIA Document A201 2017, General Conditions of the Contract for Construction, and subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

§ 5.1.6.1 The amount of each progress payment shall first include:

.1 That portion of the Contract Sum properly allocable to completed Work;

.2 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; and

.3 That portion of Construction Change Directives that the Architect determines, in the Architect's professional judgment, to be reasonably justified.

§ 5.1.6.2 The amount of each progress payment shall then be reduced by:

.1 The aggregate of any amounts previously paid by the Owner;

.2 The amount, if any, for Work that remains uncorrected and for which the Architect has previously withheld a Certificate for Payment as provided in Article 9 of AIA Document A201 2017;

.3 Any amount for which the Contractor does not intend to pay a Subcontractor or material supplier, unless the Work has been performed by others the Contractor intends to pay;

.4 For Work performed or defects discovered since the last payment application, any amount for which the Architect may withhold payment, or nullify a Certificate of Payment in whole or in part, as provided in Article 9 of AIA Document A201 2017; and

.5 Retainage withheld pursuant to Section 5.1.7.

§ 5.1.7 Retainage

§ 5.1.7.1 For each progress payment made prior to Substantial Completion of the Work, the Owner may withhold the following amount, as retainage, from the payment otherwise due:

(Insert a percentage or amount to be withheld as retainage from each Application for Payment. The amount of retainage may be limited by governing law.)

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§ 5.1.7.1.1 The following items are not subject to retainage:
(Insert any items not subject to the withholding of retainage, such as general conditions, insurance, etc.)

§ 5.1.7.2 Reduction or limitation of retainage, if any, shall be as follows:
(If the retainage established in Section 5.1.7.1 is to be modified prior to Substantial Completion of the entire Work, including modifications for Substantial Completion of portions of the Work as provided in Section 3.3.2, insert provisions for such modifications.)

§ 5.1.7.3 Except as set forth in this Section 5.1.7.3, upon Substantial Completion of the Work, the Contractor may submit an Application for Payment that includes the retainage withheld from prior Applications for Payment pursuant to this Section 5.1.7. The Application for Payment submitted at Substantial Completion shall not include retainage as follows:
(Insert any other conditions for release of retainage upon Substantial Completion.)

§ 5.1.8 If final completion of the Work is materially delayed through no fault of the Contractor, the Owner shall pay the Contractor any additional amounts in accordance with Article 9 of AIA Document A201 2017.

§ 5.1.9 Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

§ 5.2 Final Payment

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

.1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Article 12 of AIA Document A201 2017, and to satisfy other requirements, if any, which extend beyond final payment; and

.2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 5.3 Interest

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

%

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 Initial Decision Maker

The Architect will serve as the Initial Decision Maker pursuant to Article 15 of AIA Document A201 2017, unless the parties appoint below another individual, not a party to this Agreement, to serve as the Initial Decision Maker.
(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)

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§ 6.2 Binding Dispute Resolution

For any Claim subject to, but not resolved by, mediation pursuant to Article 15 of AIA Document A201□2017, the method of binding dispute resolution shall be as follows:
(Check the appropriate box.)

[ ] Arbitration pursuant to Section 15.4 of AIA Document A201□2017

[ ] Litigation in a court of competent jurisdiction

[ ] Other *(Specify)*

If the Owner and Contractor do not select a method of binding dispute resolution, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201□2017.

§ 7.1.1 If the Contract is terminated for the Owner□s convenience in accordance with Article 14 of AIA Document A201□2017, then the Owner shall pay the Contractor a termination fee as follows:
(Insert the amount of, or method for determining, the fee, if any, payable to the Contractor following a termination for the Owner□s convenience.)

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201□2017.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201□2017 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner□s representative:
(Name, address, email address, and other information)

§ 8.3 The Contractor□s representative:
(Name, address, email address, and other information)

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§ 8.4 Neither the Owner's nor the Contractor's representative shall be changed without ten days' prior notice to the other party.

§ 8.5 Insurance and Bonds

§ 8.5.1 The Owner and the Contractor shall purchase and maintain insurance as set forth in AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum, Exhibit A, Insurance and Bonds, and elsewhere in the Contract Documents.

§ 8.5.2 The Contractor shall provide bonds as set forth in AIA Document A101™–2017 Exhibit A, and elsewhere in the Contract Documents.

§ 8.6 Notice in electronic format, pursuant to Article 1 of AIA Document A201–2017, may be given in accordance with AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, if completed, or as otherwise set forth below:
(If other than in accordance with AIA Document E203–2013, insert requirements for delivering notice in electronic format 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.)

§ 8.7 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 This Agreement is comprised of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor

.2 AIA Document A101™–2017, Exhibit A, Insurance and Bonds

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction

.4 AIA Document E203™–2013, Building Information Modeling and Digital Data Exhibit, dated as indicated below:
(Insert the date of the E203-2013 incorporated into this Agreement.)

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda, if any:

Number	Date	Pages

Portions of Addenda relating to bidding or proposal requirements are not part of the Contract Documents unless the bidding or proposal requirements are also enumerated in this Article 9.

.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

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[ ] AIA Document E204 2017, Sustainable Projects Exhibit, dated as indicated below:
(Insert the date of the E204-2017 incorporated into this Agreement.)

[ ] The Sustainability Plan:

Title	Date	Pages

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

.9 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201 2017 provides that the advertisement or invitation to bid, Instructions to Bidders, sample forms, the Contractor's bid or proposal, portions of Addenda relating to bidding or proposal requirements, and other information furnished by the Owner in anticipation of receiving bids or proposals, are not part of the Contract Documents unless enumerated in this Agreement. Any such documents should be listed here only if intended to be part of the Contract Documents.)

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

OWNER *(Signature)*	**CONTRACTOR** *(Signature)*
(Printed name and title)	*(Printed name and title)*

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AIA® Document A201® – 2017

General Conditions of the Contract for Construction

for the following PROJECT:
(Name and location or address)

North Campus Athletic Renovations
1231 W. Kemper Road, Cincinnati, OH 45240

AND/OR

Intermediate School Freezer Addition
825 Waycross Road, Cincinnati, OH 45240

THE OWNER:
(Name, legal status and address)

Winton Woods City Schools
825 Waycross Road, Suite A,
Cincinnati OH, 45240

THE ARCHITECT:
(Name, legal status and address)

SHP
312 Plum Street, Suite 700
Cincinnati, Ohio 45202

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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.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503□ , Guide for Supplementary Conditions.

Init.
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User Notes: (1815705155)

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 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.

§ 1.1.6 The Specifications

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

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 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; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

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§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect s consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect s or Architect s consultants reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect s consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203 2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development, use, transmission, and exchange of digital data.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to protocols governing the use of, and reliance on, the information contained in the model and without having those protocols set forth in AIA Document E203 2013, Building Information Modeling and Digital Data Exhibit, and the requisite AIA Document

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G202□ □2013, Project Building Information Modeling Protocol Form, shall be at the using or relying party□s sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner□s approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner□s authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic□s lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner□s interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by 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. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by 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 only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner□s ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor□s request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor□s reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days□notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

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§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly 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 Section 6.1.3.

§ 2.5 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 ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

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

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§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 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 under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, 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.

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

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special 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 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 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 appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

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§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

.1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;

.2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and

.3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall 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.

§ 3.10.2 The Contractor, promptly 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.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and

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delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will

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specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

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§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, 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. 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 Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 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 Section 3.18.1 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.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise 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.

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§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 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.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

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ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 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.

§ 5.1.2 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.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 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.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- **.1** assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- **.2** assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

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When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

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§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

.1 The change in the Work;
.2 The amount of the adjustment, if any, in the Contract Sum; and
.3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
.2 Unit prices stated in the Contract Documents or subsequently agreed upon;
.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
.4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

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.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers compensation insurance, and other employee costs approved by the Architect;

.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and

.5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor s agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor s agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 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. 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.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect s professional judgment, to be reasonably justified. The Architect s interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may 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. The Architect s order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect s order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

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§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

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§ 9.3.1.2 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.

§ 9.3.2 Unless otherwise provided in the Contract Documents, 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 suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

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

§ 9.4 Certificates for Payment

§ 9.4.1 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; or (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 of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; 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 as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- **.1** defective Work not remedied;
- **.2** third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- **.3** failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;

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.4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
.5 damage to the Owner or a Separate Contractor;
.6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
.7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 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 Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

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§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 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 that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; 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.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

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§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (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 of 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 and 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.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- **.1** liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- **.2** failure of the Work to comply with the requirements of the Contract Documents;
- **.3** terms of special warranties required by the Contract Documents; or
- **.4** audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a 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 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

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.1 employees on the Work and other persons who may be affected thereby;

.2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and

.3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will

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promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or

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expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

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§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during

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that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

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

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 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. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

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§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- **.1** Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- **.2** An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- **.3** Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- **.4** The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

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§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 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 or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- **.3** repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- **.4** otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner 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' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- **.1** Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- **.2** Accept assignment of subcontracts pursuant to Section 5.4; and
- **.3** Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- **.1** that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- **.2** that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- **.1** cease operations as directed by the Owner in the notice;

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.2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and

.3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

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§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data 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.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

.1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and

.2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

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§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

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§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

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SECTION 00 73 01 - SUPPLEMENTARY GENERAL CONDITIONS

NOTE:
This section shall serve to supplement, modify, change and/or clarify provisions of the General Conditions (AIA Document A201, 2017 Edition, "General Conditions of the Contract for Construction"). Where an Article of the General Conditions is not modified or a Paragraph, Subparagraph, or Clause thereof is not modified or deleted by these supplements, the unaltered provisions of that Article, Paragraph, Subparagraph, or Clause shall remain in effect. Where items of this section directly conflict with those of the General Conditions, the provisions of this section shall prevail.

ARTICLE 1: GENERAL PROVISIONS

1.1.3 THE WORK

1.1.3 (Add the following text to the end of the paragraph) "The Contractor shall familiarize himself with the Contract Documents and complete the work intended to be described to the entire satisfaction of the Owner and Architect and shall not avail himself of any manifest error or omission should such exist. The Contractor acknowledges and agrees that the Contract Documents are sufficient to provide for the completion of the work and include work, whether or not shown or described, which reasonably may be inferred to be required or useful for the completion of the work in accordance with applicable laws, codes and customary standards of the construction industry."

1.1.8 INITIAL DECISION MAKER – delete this entire paragraph.

1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

1.2.4 (Add) "If the Drawings or Specifications conflict, the Contractor is required to provide the greater quantity or higher quality of work called for. When a duplication of material, equipment or task occurs in the Drawings or Specifications by assignment of work to separate Prime Contracts, each Prime Contractor shall be deemed to have bid on the basis of each providing such material, equipment or task. The Architect will decide which Prime Contractor shall provide the same and which Prime Contract amount shall be adjusted, for not incorporating such into the Project. However it is highly recommended that these discrepancies be brought to the Architect's attention prior to bidding."

1.2.5 (Add) "It is the intent of the Contract Documents to accomplish a complete and first-grade installation in which there shall be installed new products of the latest and best design and manufacturer, and workmanship shall be thoroughly first class, executed by competent and experienced workmen.

.1 Details of preparations, construction, installation, and finishing encompassed by the Contract Documents shall conform to the best practices of the respective trades, and that workmanship, construction methods, shall be of quality so as to accomplish a neat and quality finished job.

.2 Where specific recognized standards are mentioned in the Specifications, it shall be interpreted that such requirements shall be complied with.

.3 The intent of the Contract Documents is to include all labor, equipment, and materials necessary for the proper and timely execution and completion of the Work, even though such labor, equipment, and materials are not expressly included in the Contract Documents.

.4 The Contractor will be required to perform all parts of the Work, regardless of whether the parts of the Work are described in Sections of the Contract Documents applicable to other trades."

1.7 DIGITAL DATA USE AND TRANSMISSION
Delete the original text in this section and replace with the following:

1.7.1 (Add) "The Architect, at his sole discretion and without obligation, may make the Contract Documents available for use by Contractors for the purpose of facilitating the coordination process in electronic format. These electronic documents remain the Architect's Instruments of Service and shall be for use solely with respect to this Project, as provided in the Standard Form of Agreement Between Owner and Architect and Article 1.5 herein. The parties shall agree upon protocols governing the transmission and use of Instruments of Service or any other information or documentation in digital form. The parties will use AIA Document E203-2013, Building Information Modeling and Digital Data Exhibit, to establish the protocols for the development , use, transmission, and exchange of digital data."

1.7.2 (Add) "Where the parties come to agreement per paragraph 1.7.1, the electronic documents shall be made available in RVT or DWG format, as determined by the Architect. They are available through the

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Architect's office upon request. A sample of the format will be provided by the Architect upon request by the Contractor, for the purpose of testing the compatibility of the format to Contractor's systems."

1.7.3 (Add) "The Architect reserves the right to strip the files of the Project's name and address, the Architect's and his consultant's name and address, and any professional licenses indicated on the Contract Documents, and all dimensions, verbiage, and statistical information. Use of these electronic documents is solely at the Contractor's risk, and shall in no way alter the Contractor's Contract for Construction."

1.7.4 (Add) "The Architect shall not be responsible or liable for errors, defects, inexactitudes, or anomalies in the data, information, or documents (including drawings and specifications) caused by the Architect's or its consultant's computer software or hardware defects or errors; the Architect's or its consultant's electronic or disk transmittal of data, information or documents; or the Architect's or its consultant's reformatting or automated conversion of data, information or documents electronically or disk transmitted from the Architect's consultants to the Architect. The Contractor waives all claims against the Architect, its employees, officers and consultants for any and all damages, losses, or expenses the Contractor incurs from such defects or errors in the electronic documents. Furthermore, the Contractor shall indemnify, defend, and hold harmless the Architect, and its consultants together with their respective employees and officers, harmless from and against any claims, suits, demands, causes of action, losses, damages or expenses (including all attorney's fees and litigation expenses) attributed to errors or defects in data, information or documents, including drawings and specifications, resulting from the Contractor's distribution of electronic documents to other contractors, persons, or entities."

ARTICLE 2: OWNER

2.3 Information and Services Required of the Owner

2.3.1 (Delete the text in this paragraph and replace with the following) "Except for permits, fees, design review fees, inspections, meter costs, licensing, taxes, and other service fees that are assigned to the Contractor as enumerated in paragraph 3.7.1, the Owner shall secure and pay any additional easements, assessments and charges not specifically assigned to the Contractor.

2.3.6 (Add the following text to the end of the paragraph) "The cost of Contractor's reproductions shall be borne by the Contractor at no additional cost to the Owner."

2.4 OWNER'S RIGHT TO STOP THE WORK
Delete the word "repeatedly" from paragraph 2.3. (Add the following text to the end of the paragraph) "This right shall be in addition to, and not in limitation of, the Owner's rights under Paragraph 12.2."

2.5 OWNER'S RIGHT TO CARRY OUT THE WORK
(Delete the text in this paragraph and replace with the following) "If the Contractor defaults or neglects to carry out the Work, in any respect, in accordance with the Contract Documents by either (1) failing to commence to correct such default or neglect within 48 hours after written notice thereof from the Architect or the Owner, (except such period shall be 7 days if the notice is given after final payment), or (2) fails to use its best efforts to continue to correct such default or neglect to the satisfaction of the Owner and Architect, or (3) fails to fully correct such default or neglect within 30 days of such notice to the satisfaction of the Architect and the Owner, then the Owner may, upon written notice of the Contractor and without prejudice to the other remedies the Owner may have, carry out the Work referenced in the written notice to the Contractor; provided that if such default or neglect results in a threat to the safety of persons or property, the Contractor shall immediately commence to correct such default or neglect upon receipt of written or oral notice thereof. If the notice is given before final payment, an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the costs of correcting such deficiencies, including compensation for the Architect's additional services made necessary by such default, neglect, or failure and the Owner's administrative and legal expense, including the time of the Owner's personnel in dealing with such default. If payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner. The time of the Owner's personnel in dealing with such default will be calculated at the rate of $65.00 per hour."

ARTICLE 3: CONTRACTOR

3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

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3.2.5 (Add) “Before ordering material or performing any Work, the Contractor shall verify all measurements at the Project site. Any difference between dimensions on the Drawings and actual measurements shall be brought to the Architect's attention for consideration before the Work proceeds. Where actual measurements require more material and work than the Drawings call for, such material and Work shall be supplied at the cost of the Contractor. No extra compensation will be allowed because of difference between actual measurements and dimensions indicated on the Drawings. The Contractor shall assume full responsibility for accuracy of measurements obtained at the work site.”

3.2.6 (Add) “Mechanical and Electrical Drawings are diagrammatic only. Actual work involved shall be installed from approved Shop Drawings with all measurements obtained at the Project Site by the Contractor.”

3.2.7 (Add) “Dimensions which are lacking from the Drawings shall be obtained from the Architect. In no case will the Contractor assume that the Drawings are scaled.”

3.2.8 (Add) “All Contractor inquiries of Owner/Architect shall be in writing and in the form of an RFI (Request for Information). RFI forms can be that of Prime Contractors standard or of a form prepared by the Architect. RFI’s are to come direct from the Prime Contractor (not Subcontractor or supplier) and all RFI’s are to be numbered and tracked by the Prime Contractor.”

3.5 WARRANTY

3.5.1 (Delete the text in this paragraph and replace with the following) “In addition to any other warranties, guarantees, or obligations set forth in the Contract Documents or applicable as a matter of law and not in limitation of the terms of the Contract Documents, the Contractor warrants and guarantees that:

.1 The Owner will have good title to the Work and materials and equipment incorporated into the Work will be new.
.2 The Work and materials and equipment incorporated into the Work will be free from defects, including defects in the workmanship or materials.
.3 The Work and equipment incorporated into the Work will be fit for the purpose for which they are intended.
.4 The Work and materials and equipment incorporated into the Work will be merchantable.
.5 The Work and materials and equipment incorporated into the Work will conform in all respects to the Contract Documents.
.6 All work performed under the terms of this contract will be guaranteed for a minimum period of one (1) year from the date of Substantial Completion.
.7 Partial occupancy of the premises use of the equipment shall not constitute the beginning of the guarantee period(s), unless agreed to by the Owner in writing.”

3.5.3 (Add) “Upon notice of the breach of the foregoing warranties or guarantees or other warranties or guarantees under the Contract Documents, the Contractor, in addition to other requirements in the Contract Documents, will commence to correct such breach and damage resulting therefrom within 48 hours after written notice thereof, thereafter will use its best efforts to correct such breach and damage to the satisfaction of the Owner and, except where an extension of time is granted in writing by the Owner, correct such breach and damage to the satisfaction of the Owner within 30 days of such notice; provided that if such notice is given after final payment hereunder, such 48 hour period shall be extended to 7 days. If the Contractor fails to commence to correct such breach and damage, or correct such breach and damage as provided above, the Owner, upon written notice to the Contractor and without prejudice to its other written notice to the Contractor and without prejudice to his other rights or remedies, may correct the deficiencies. The Contractor upon written notice from the Owner shall pay the Owner, within 10 days after the date of such notice, the Owner’s costs and expenses incurred in connection with such correction, including without limitation the Owner's administrative and legal expenses. The foregoing warranties and obligations of the Contractor shall survive the final payment and termination of the Contract.”

3.6 TAXES

3.6 (Delete the text in this paragraph and replace with the following) “Materials purchased for use or consumption with the proposed work will be exempt from the State of Ohio Sales Tax as provided for in Section 5739.02 of the Revised code of Ohio and also from the State of Ohio Use Tax, Section 5741.01. Purchases by the Contractor of expendable items such as form lumber, tools, oils, grease, fuel, or equipment rentals, are subject to the application of Ohio Sales or Use Tax.”

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3.7 PERMITS, FEES AND NOTICES AND COMPLIANCE WITH LAW

3.7.1 (Delete the text in this paragraph and replace with the following:) “The process of reviewing and the subsequent awarding of a Building Permit can take an extended period of time, depending on a Building Department's current workload. Realizing that a delay in this process may delay the final completion date of the Work if it is not applied for until after the Contractor is awarded the Contract, SHP shall expedite the Building Permit process by submitting a general Building Permit Application with the required number of Contract Documents to the appropriate Building Department. The submittal for general Building Permit in no way alters the Contract between the Owner and the Contractor, nor does it relieve the Contractor of his or her responsibilities concerning the terms of AIA General Conditions. The Owner shall pay for the General Building Permit. The Contractor shall secure and pay for all other permits, design review fees, inspections, meter costs, licensing, taxes, and other service fees required by authorities having jurisdiction over work related to each specific contract shall be included in that specific contract (unless specifically noted otherwise in Contract Documents). Contractor is responsible for scheduling all inspections and must notify Architect in writing of any design modifications required by local jurisdiction. Contractor shall be responsible for all additional costs resulting out of improper notifications as it relates to Owner, Architect, or other Prime Contractors.”

3.7.4 Concealed or Unknown Conditions. Replace “14 days” with “7 days”.

3.9 SUPERINTENDENT

3.9.4 (Add) “The Contractor’s Superintendent shall be satisfactory to the Architect and the Owner, and the Architect and Owner shall have the right to require the Contractor to remove a Superintendent from the Project whose performance is not satisfactory, and to replace the Superintendent with a Superintendent who is satisfactory to the Architect and Owner. The Contractor shall be required to have a full time Superintendent on the Project every day during the course of the Project.”

3.10 CONTRACTOR’S CONSTRUCTION AND SUBMITTAL SCHEDULES

3.10.4 (Add) “The job progress schedule shall be in form as prescribed or approved by the Architect.”

3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.12.5 (Add the following to the end of this paragraph) “Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect without action.”

3.18 INDEMNIFICATION

3.18.1 (Delete the text in this paragraph and replace with the following) "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 them from and against claims, damages, losses and expenses, including but not limited to attorneys' and consultants' fees and the cost of their staff, arising out of or related to the performance of the Work, including but not limited to claims for bodily injury, sickness, disease or death, or to injury to or destruction of or loss of use of real or personal property, claims due to delays in or acceleration of the work of other Contractors, claims for loss of productivity, claims for additional storage and handling charges, claims for escalation of the cost of labor and materials, claims for home office overhead, liens against funds, and claims related to the removal, handling or use of hazardous materials. The Owner may set off an amount equal to the sums for which it is entitled to be indemnified from the amounts otherwise due the Contractor under the Contract Documents. The time of the Owner's personnel in dealing with such default will be calculated at the rate of $65.00 per hour."

3.18.3 (Add) "The Contractor will be held responsible for all damage to the Work under construction during the performance and until Substantial Completion and acceptance, even though partial payments have been made under the Contract. He will be held answerable for all damages that may occur to persons, to property, animals or vehicles from want of proper shoring, bracing, lighting, watching, boarding, or enclosing; and for any accident arising from defective apparatus or any negligence on the part of himself or his employees. The Contractor covenants and agrees to pay all damages for injury to real or personal property or for any injury or death sustained by any person growing out of any act or deed of the Contractor or of his employees or any of his Subcontractors or their employees.”

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3.19 (Add) “UNDERGROUND UTILITY FACILITIES”

3.19.1 (Add) “The Contractor, at least two (2) working days prior to commencing construction in an area which may involve underground utility facilities, shall give notice to the Owner, to the registered underground utility protection services, and the Owners of underground utility facilities shown on the Plans and Specifications. The Contractor shall alert immediately the Owner, the occupants of any premises near the Work, and the Architect as to any emergency that it may create or discover. The Contractor shall notify the Owner, the operator of the underground facility, and the Architect of any break or leak in the utility lines or any dent, gouge, groove, or other damage to such lines or to their rating or cathodic protection, made or discovered in the course of excavation.”

3.20 (Add) “LIEN WAIVERS AND NOTICES OF COMMENCEMENT”

3.20.1 (Add) “The Contractor will obtain from all its Subcontractors and suppliers, regardless of tier, a lien waiver, at the time they submit for final payment for all labor, materials, equipment, and/or supplies provided for the Project, of all lien rights they have with respect to the Project in the form of the Lien Waiver included in the Contract Documents or in such other form requested by the Architect and immediately deliver a copy of the executed lien waivers to the Architect with Final Request for Payment. The Contractor will provide all Subcontractors and suppliers a copy of its Bid Guaranty and Performance Bond/Contract Bond. By entering into an agreement to provide labor, materials, equipment and/or supplies for the Project, such Subcontractors and suppliers agree to provide such lien waiver to the Contractor. Upon receipt of Notices of Furnishing, the Contractor will deliver copies of the Notices of Furnishing to the Owner.”

ARTICLE 4: ARCHITECT

4.2.1 (Add the following text to the end of the first sentence) “…and with the Owner’s concurrence, from time to time during the one-year period for correction of work described in Article 12.”

4.2.4 Delete the last sentence of this paragraph.

4.2.10 Add the following at the end of the last sentence: “as set forth in the Owner-Architect Agreement.”

ARTICLE 5: SUBCONTRACTORS

5.3.1 (Add) “All subcontracts are to be in writing, and the Contractor shall be responsible to forward copies to the Owner upon request.”

ARTICLE 6: CONSTRUCTION BY OWNER OR SEPARATE CONTRACTORS

6.2 MUTUAL RESPONSIBILITY

6.2.3 (Delete the second sentence and replace with the following) “Claims and other disputes and matters in question between the Contractor and other Contractors shall be subject to the provisions of Article 15. If such other Contractors initiate legal or other proceedings against the Owner on account of damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor who shall defend such proceedings at its own expense, and if judgment or award against the Owner arises therefrom, the Contractor shall pay or satisfy it and shall reimburse the Owner for attorneys’ fees and court or other costs which the Owner has incurred over and above those paid for directly by the Contractor. The Contractor, by execution of this contract, agrees and fully understands the risks and responsibilities associated with this mutual responsibility and has bid accordingly. All costs incurred by the Owner and/or Architect resulting from Contractors filing claims against the Owner for damages caused by another Contractor, shall be borne by that Contractor filing claim.”

6.2.4 Delete the word . . . “wrongfully” . . . in this paragraph.

ARTICLE 7: CHANGES IN THE WORK

7.2.2 (Add) "Change orders shall be executed on AIA Document G701-2001. Methods used in determining adjustments to the Contract Sum shall be those listed in paragraph 7.3.3."

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7.3 CONSTRUCTION CHANGE DIRECTIVES

7.3.4 (Change the phrase in the first sentence) . . . "or if no such amount is set forth in the agreement, a reasonable amount." . . . to read . . . "in accordance with the schedule set forth in this paragraph 7.3.12 below."

7.3.8 (Revise the last sentence of paragraph 7.3.8 to read as follows) . . . 'When both additions and deletions are involved in any one change, the allowance for overhead and profit shall be figured on the basis of net increase or decrease, if any with respect to that change."

7.3.10 (Add the following at the end of this paragraph) “When either the Owner or the Contractor disagree with the determination made by the Architect concerning adjustments in the Contract Sum and Contract Time, such disagreement shall be resolved in the manner set forth in Article 15."

7.3.11 (Add) "In paragraphs 7.3.3 and 7.3.4, the allowance for overhead and profit combined, included in the total cost to the Owner, shall be based on the following formula for changes.

.1 Cost to which overhead and profit is to be applied shall be determined in accordance with paragraph 7.3.4.

.2 In order to facilitate checking of quotations for extras or credits, 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. The Architect will prepare all Change Orders for the Owner's authorization."

7.3.12 (Add) "The cost or credit to the Owner as provided in Clause 7.3.3.3 and Clause 7.3.3.5 shall be determined in the following manner:

.1 Labor - all field and shop labor at the base rate without fringe benefits. (The payroll to be based on straight time only.)
a). Foreman shall be included at actual time involved and at normal foreman rates.
b). Supervisor's time shall not be included, but shall be part of the Overhead (subparagraph .5).

.2 All established payroll taxes, assessments and fringe benefits. This may include FICA, Federal unemployment, local health and welfare, local pension fund, State unemployment, workers' compensation, public liability and property, and local apprentice fund.

.3 Materials:
a). Agreed-on value of materials taken from the Contract Work, either as used or unused materials.
b). The net cost of all materials purchased for this work.

.4 Actual rental charges for rented equipment.

.5 10% (percent) Overhead on items .1, .2, .3, and 4.

.6 5% (percent) profit on Items .1, .2, .3, .4, and .5.

.7 Work computed by Subcontractors shall be computed in the same manner as above.

.8 A maximum of 5 percent of Subcontractor's Work (applicable only where the Work performed by Subcontractors is supervised by the Contractor for all other costs and expenses including administrative overhead, profit, and supervision).

.9 Other reimbursable items (without overhead or profit).
a). Extra "out-of-pocket" insurance premiums.
b). Fees for extra permits, licenses, inspections, etc.
c). Premium payments for overtime work or special conditions with prior written consent of the Owner.

.10 The use of the Contractors and Subcontractor's small tools, lightweight equipment, gear, simple scaffolds, etc., shall be considered a part of the overhead cost."

7.3.13 (Add) "Contractors overhead and profit for Change Orders, on Work by his own forces, shall be limited to 10 percent overhead and 5 percent profit. Contractors’ overhead and profit for Change Orders for Work by Subcontractor shall be limited to 5 percent total overhead and profit. Any Subcontractor's overhead and profit for Change Orders shall be limited to 10 percent overhead and 5 percent profit."

7.3.14 (Add) “Where the Contractor bids with respect to an alternate which is not accepted at the time of the entry into the Owner-Contractor Agreement and the Owner subsequently desires to proceed with the Work described in the alternate, the amount of the Change Order for such alternate will not exceed the Contractor's bid on such alternate, except where the Architect determines an equitable adjustment is required."

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7.3.15 (Add) “In order to facilitate checking of quotations for extras or credits, 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 $500 be approved without such itemization. The Contractor shall submit same to the Architect within 14 days after receipt of proposal request."

ARTICLE 8: TIME

8.2 PROGRESS AND COMPLETION

8.2.4 (Add) “If the Architect determines that the Contractor is not cooperating or coordinating its work properly with other Contractors, not supplying sufficient skilled workers, not cleaning up the Project, not furnishing the necessary materials, equipment, or any temporary services or facilities to perform the Work in strict conformance with the Contract Documents or the Contractor is not on schedule, or is not otherwise performing its obligations under the Contract Documents, THE CONTRACTOR WILL IMMEDIATELY, AND IN NOT LESS THAN FORTY-EIGHT HOURS AFTER NOTICE OF SUCH DETERMINATION, OR SUCH OTHER TIME AS MAY BE PROVIDED IN THE CONTRACT DOCUMENTS, (1) COMMENCE SUCH ACTION AS IS NECESSARY TO CORRECT THE DEFICIENCIES NOTED BY THE ARCHITECT, (2) PROCEED TO USE ITS BEST EFFORTS TO CORRECT SUCH DEFICIENCIES TO THE SATISFACTION OF THE ARCHITECT AND THE OWNER, AND (3) IF THE ARCHITECT INSTRUCTS THE CONTRACTOR TO TAKE SPECIFIED CORRECTIVE ACTION, THE CONTRACTOR IMMEDIATELY WILL TAKE SUCH CORRECTIVE ACTION, including, but not limited to, increasing the number of skilled workers, providing temporary services or facilities, and cleaning up the Project. Such action will be taken and continued uninterrupted without waiting to initiate any dispute under the General and Supplementary General Conditions of the Contract for the Project or the resolution of any dispute initiated thereunder.”

8.2.5 (Add) “The Contractor, i) will cooperate with the Architect by providing timely information for the scheduling of the times and sequence of the operations required for the Work to be substantially complete as required by the Contract Documents, ii) will continuously monitor the current progress schedule so as to be fully familiar with the timing, phasing, and sequence of the operations of the Work and to the other Work on the Project, and iii) will execute the Work in accordance with the requirements of the current progress schedule.”

8.3 DELAYS AND EXTENSIONS OF TIME

8.3.1 (Delete the text in this paragraph and replace with the following) “If the Contractor is delayed at any time in its progress of the Work by one of the delays for which an extension of time is permitted and gives the Architect written notice specifically describing the delay within 48 hours of its commencement, the date for the Substantial Completion of the Work will be extended by Change Order for such reasonable time as the Architect may determine. The failure to give such notice will constitute an irrevocable waiver of the Contractor's right to seek an extension for such delay. The only delays for which the Contractor will be entitled to an extension of the time for completion will be delays caused by the, i) Architect or the Owner, ii) physical damage to the Project over which the Contractor has no control, iii) labor disputes beyond the control of the Contractor, and iv) unusually severe weather conditions not reasonably anticipatable (temperature, rain, or other precipitation within a range of twenty percent of normal amounts for the time of the year covered by the Agreement shall not be considered unusually severe weather conditions). Extensions of time will only be granted pursuant to the procedures for Change Orders set forth in the General Conditions. The Contractor agrees not to make claims for compensation for delays or acceleration in the performance of the Work resulting from acts or failure to act by the Owner, the Architect, or the employees, agents, or representatives of the Owner, or the Architect and agrees that such claim shall be fully compensated by an extension of time to complete the Work, regardless of when granted.”

8.3.3 (Delete the text in this paragraph and replace with the following) “The Contractor's sole remedy in the event of a delay shall be an extension of time, and in such event, the Contractor shall not be entitled to any damages.”

8.4 (Add) “COMPLETION OF WORK AND LIQUIDATED DAMAGES”

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8.4.1 (Add) "Damages for Delays for Substantial Completion and for Project Closeout shall be in accordance with Article 8 and the following provisions: (The length of time for each is noted in the Bid Form)."

8.4.2 (Add) "Substantial Completion: If the Contractor shall neglect, fail, or refuse to achieve Substantial Completion as herein specified, or fail to secure an extension of time for delays from the Owner, then the Contractor does hereby agree, as a part consideration for the awarding of the Contract, to pay the Owner the amount specified in the Table of Liquidated Damages, not as a penalty, but as liquidated damages for such breach of Contract as hereinafter shall be in default after the time stipulated in the Bid Form for completing the work."

8.4.3 (Add) "Project Closeout: Inasmuch as failure to complete project closeout within the time fixed in the Certificate of Substantial Completion (45 calendar days maximum) will result in substantial injury to the Owner, and as damages arising from such failure cannot be calculated with any degree of certainty, it is hereby agreed that if the Project is not fully and finally completed according to the requirements issued in the Certificate of Substantial Completion including all listed work (punch list) attached to the Certificate and including all project closeout documents listed in the Project Manual, the Contractor shall pay to the Owner the amount specified in the Table of Liquidated Damages, not as a penalty, but as liquidated damages for such breach of Contract as hereinafter shall be in default after the time stipulated in the Contract and Bid Form for completing project closeout."

8.4.4 (Add) "These project closeout liquidated damages shall be paid in addition to any other liquidated damages, penalties, excess expenses or costs payable by the Contractor to the Owner under the provisions of the General Conditions, and shall not exclude the recovery of damages by the Owner under other provisions of the Contract Documents except for Contractors delay. This provision of liquidated damages for project closeout delay shall in no manner affect the Owner's right to terminate the Contract as provided in the General Conditions or elsewhere in the Contract Documents. The Owner's exercise of the right to terminate shall not release the Contractor from his obligation to pay said liquidated damages in the amounts set forth in the Table of Liquidated Damages up to the point of termination."

8.4.5 (Add) "It is further agreed that the Owner may deduct from the balance retained by the Owner, under the provisions above, all liquidated damages stipulated herein for delay or termination, as the case may be, or such portions thereof as the said retained balance will cover."

8.4.6 (Add) "The said amount is fixed and agreed upon by and between the Contractor and the Owner would in such event sustain, and said amount is agreed to be the amount of damages which the Owner would sustain and said amount shall be deducted from any payment due or to become due to the Contractor."

8.4.7 (Add) "Table of Liquidated Damages is as follows:

Table of Liquidated Damages

Total Contract Amount at time of Substantial Completion	Dollars per Day Substantial Completion Delay	Dollars per day Project Closeout Delay
$ 1.00 to $ 50,000.00	$ 200.00	$ 1,000.00
$ 50,000.01 to $ 150,000.00	$ 350.00	$ 1,000.00
$ 150,000.01 to $ 500,000.00	$ 500.00	$ 1,000.00
$ 500,000.01 to $ 2,000,000.00	$ 1,000.00	$ 1,000.00
$ 2,000,000.01 to $ 5,000,000.00	$ 2,000.00	$ 1,000.00
$ 5,000,000.01 to $ 10,000,000.00	$ 2,500.00	$ 1,000.00
$ 10,000,000.01 or more	$ 5,000.00	$ 1,000.00

ARTICLE 9: PAYMENTS AND COMPLETION

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9.2 SCHEDULE OF VALUES

(Add the following to the end of this paragraph) “Progress payments and retainage provisions shall be in accordance with the provisions of the Ohio Revised Code pertaining to this matter. The form of the Contractors' Applications for Payment shall be as approved by the Owner.”

9.3 APPLICATIONS FOR PAYMENT

9.3.1 (Delete the text in this paragraph and replace with the following) "Applications for payment shall be made at approximately 30 day intervals in accordance with the dates established in the Standard Form of Agreement Between Owner and Contractor. At least 15 days before each progress payment falls due, the Contractor shall submit to the Architect, in triplicate, an itemized Application for Payment, notarized, and supported by such data substantiating the Contractor's right to payment as the Owner or the Architect may require. The form of Application for Payment shall be AIA Document G702 (1992) - Application and Certification for Payment, supported by AIA Document G703 (1992) - Continuation Sheet. No other forms of Application for Payment will be acceptable. Continuation Sheet (G703) shall be prepared the same as in the Schedule of Values submitted by the Contractor. Provided the Contractor's payment application has been submitted on a timely basis and is complete, the Owner will pay the Contractor within thirty (30) days after the Contractor's payment application is approved by the Architect. The Contractor will only be entitled to payment to the extent such approval is given. Payment and retainage shall be as described in the Owner-Contractor Agreement. Such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives but not yet included in Change Orders."

9.3.1.1 (Delete the text in this paragraph, and replace with the following) "Upon request, the Contractor shall submit with each monthly Application for Payment, 1) an Affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the previous Application, was submitted and the Owner or his property might in any way be responsible, have been paid or otherwise satisfied, and 2) release or waivers of liens arising out of the Contract from each Subcontractor, materialmen, supplier, and laborer of the Contractor in the form of Partial Lien Waiver or such other form as the Architect may require.”

9.3.1.2 (Delete the text in this paragraph, and replace with the following) “Upon request, the Contractor immediately will supply the Architect with such information as may be requested so as to verify the amounts due the Contractor including, but not limited to, original invoices for materials and equipment and documents showing that the Contractor has paid for such materials and equipment, and so as to verify that amounts due laborers, Subcontractors, and materialmen have been paid to them."

9.3.2 (Add the following to the end of this paragraph) “Payment to Contractor for materials stored off site is discouraged. Where circumstances indicate that the Owner’s best interest is served by off-site storage, the Contractor shall make written request to the Architect for approval to include such material costs in his next progress payment. The Contractor’s request shall include the following information:

.1 A list of the fabricated materials consigned to the Project (which shall be clearly identified), giving the place of storage, together with copies of invoices and reasons why materials cannot be delivered to the site.

.2 Certification that items have been tagged for delivery to the Project and that they will not be used for another purpose.

.3 A letter from the Bonding Company indicating agreement to the arrangements and that payment to the Contractor shall not relieve either party or their responsibility to complete the facility.

.4 Evidence of adequate insurance covering the material in storage, which shall name the Owner as additionally insured.

.5 Evidence that the Architect has visited the Contractor’s place of storage and checked all items on the Contractor’s certificate. Costs incurred by the Architect to inspect material in off-site storage shall be paid by the Contractor.

.6 Subsequent pay requests shall itemize the materials and their cost which were approved on previous pay requests and remain in off-site storage.

.7 When a partial payment is allowed on account of material delivered on the site of the Work or in the vicinity thereof or under possession and control of the Contractor but not yet incorporated therein, such material shall become the property of the Owner, but if such material is stolen, destroyed, or damaged by casualty before being used, the Contractor will be required to replace it at his own expense.

.a Subsequent Pay Requests shall itemize the materials and their cost which were approved on previous Pay Requests and remain in off-site storage.

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.8 Contractors application for payment shall reflect an equal percentage amount (within 2 - 3 percent) for labor and materials for Work completed. The Architect may adjust applications where labor exceeds materials or where materials exceed labor quantities in the Work completed columns.

.9 If the Contractor disputes a determination by Architect with regard to Certificate of Payment, and during any related dispute resolution, litigation, or other proceeding, the Contractor nevertheless shall continue to prosecute the Work."

9.8 SUBSTANTIAL COMPLETION

9.8.1 After the words "Contract Documents", insert the following: ...."and when all required occupancy permits, if any, have been issued"…..

9.8.3 (Add the following at the end of this paragraph) "At the time the Architect commences the Substantial Completion Inspection, if the Architect discovers excessive additional items requiring completion or correction, the Architect may decline to continue the inspection, instructing the Contractor as to the general classification of deficiencies which must be corrected before the Architect will resume the Substantial Completion Inspection. If the Contractor fails to pursue the Work so as to make it ready for Substantial Completion Inspection in a timely fashion, the Architect shall, after notifying the Contractor, conduct inspections and develop a list of items to be completed or corrected. This list of items shall be furnished to the Contractor who shall proceed to correct such items within 14 days. The Architect will conduct additional inspections as required to determine that the Work is ready for Substantial Completion Inspection. The Architect will invoice the Owner for 1) The cost of inspections between the termination of the initial Substantial Completion Inspection and the commencement of the satisfactory Substantial Completion Inspection, 2) The cost of inspection or review after the 14 day period established for the completion of the list by the Contractor. The Contractor shall reimburse the Owner for such cost, and the Owner may offset the amounts payable to the Architect for such services from the amounts due the Contractor under the Contract Documents."

9.8.4 (Add the following at the end of this paragraph) "The Architect shall stipulate the time for the Contractor to complete all items on the list accompanying the Certificate of Substantial Completion, such time shall not be greater than 45 days. The Contractor shall complete items on the list within the stipulated period. If the Contractor fails to do so, the Owner in its discretion may perform the Work by itself or others and the cost thereof shall be charged against the Contractor. If more than one inspection by the Architect for the purpose of evaluating corrected work is required by the subject list of items to be completed or corrected, it will be performed at the Contractor's expense. In addition, liquidated damages shall accrue as stipulated in Paragraphs 8.4.1 through 8.4.6."

9.8.6 (Add) "The Contractor shall guarantee all work performed under terms of this contract for a minimum period of one (1) year from the date of Substantial Completion of the work."

9.10 FINAL COMPLETION AND FINAL PAYMENT

9.10.2 (Add the following at the end of this paragraph) "The Contractor shall furnish such evidence as may be necessary to show that any out-of-state Subcontractor or supplier has fully met the requirements of payment of taxes as established in any law of the State or local subdivision thereof which may be in effect at the time of final payment. The Owner will require the submission of such proof or evidence before final payment will be approved or made. The following must be submitted to the Architect before approval of final payment:

.1 Affidavit of payment as required under this Paragraph shall be in the form of AIA Document G706 - Contractor's Affidavit of Payment of Debt and Claims.

.2 Release of liens as required under this Paragraph shall be in the form of AIA Document G706A - Contractor's Affidavit of Release of Liens.

.3 Consent of Surety as required under this Paragraph shall be in the form of AIA Document G707 - Consent of Surety Company to Final Payment.

.4 Submit releases and final unconditional waivers of lien from major Subcontractor and supplier.

.5 Submit certification stating that no materials containing asbestos were incorporated into the Work.

.6 Submit certification that all punch list items have been completed."

ARTICLE 10: PROTECTION OF PERSONS AND PROPERTY

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10.2 SAFETY OF PERSONS AND PROPERTY

10.2.1 (Add the following after Paragraph 10.2.1, subparagraph .3):

".4 Protect excavations, trenches, buildings, and grounds from water damage of any sort. Furnish necessary equipment to provide this protection during the life of the Contract. Construct and maintain necessary temporary drainage to keep excavations free of water.

.5 Provide protection for the Work against wind, storms, cold, or heat. At the end of each day's work, cover new work likely to be damaged. If low temperatures make it impossible to continue operations safely in spite of cold weather precautions, cease work and notify the Architect.

.6 Provide shoring and bracing required for safety and for the proper execution of the Work and have same removed when the Work is completed.

.7 Protect, maintain, and restore benchmarks, monuments, and other reference points affected by this work. If benchmarks, monuments, or other reference points are displaced or destroyed, the benchmarks, monuments, and/or reference points shall be re-established and markers reset under the supervision of a licensed surveyor, who shall furnish certificates of his work."

10.2.9 (Add) "The Contractor acknowledges that the safety of the Owner's students, employees, and guests is of the utmost importance. The Contractor will take no action which would jeopardize the safety of the Owner's students, employees, or guests and, without the Owner's written approval, shall take no action which would interfere with the Owner's activities."

10.2.10 (Add) "The structure is designed to be self-supporting and stable after the Work is fully completed. Except as otherwise provided in 4.3.1 with respect to certain sequencing, it is solely the Contractor's responsibility to determine erection procedures and sequence, and to insure the safety of the building and its component parts during erection. This includes, but is not limited to, the addition of whatever temporary bracing, guys, or tie-downs might be necessary. Such material shall be removed and remain the Contractor's property after completion of the Work."

10.2.11 (Add) "Asbestos products of any kind are not allowed in this Project."

10.5 (Add) "PROJECT SAFETY PROGRAM"

10.5.1 (Add) "Each Contractor will develop a written safety and health plan for the Project ("Plan"), applicable to all Contractors and their Subcontractors and suppliers, regardless of tier, and will designate an individual on its staff, who will have responsibility to implement the Plan ("Project Safety Coordinator"). Such implementation will include inspections of the Project Site at least once each week during major construction activity, and notification of employers of hazardous conditions and noncompliance with the Plan. The Plan will conform to all OSHA statutory or regulatory requirements now or hereafter in effect. Each Contractor will provide a copy of the Plan to the Architect for reference."

ARTICLE 11: INSURANCE AND BONDS

11.1 CONTRACTOR'S INSURANCE AND BONDS

11.1.1 After the word "companies" in Line 4, add the following Phrase. . . "Rated A++, A+, A, or A- by Best Insurance Reports and ". . .

11.1.1 (After the phrase "Contract Documents" in Line 6 add the following:)

".1 Liability insurance shall include all major divisions of coverage and be on a comprehensive basis including:

a. Premises' Operations (including X, C, and U coverages as applicable)
b. Owner's and Contractor's Protective
c. Products and Completed Operations
d. Contractual - including specific provisions for the Contractor's obligations under Paragraph 3.18
e. Any owned, non-owned, and hired motor vehicles
f. Broad Form Property Damage including Completed Operations
g. Personal Injury Liability, coverages A, B, and C, with Fellow Employee Exclusion deleted
h. Stopgap liability for $100,000.00 limit.
i. Umbrella Excess Liability. Minimum limit of $2,000,000.00, except that if the initial Contract Sum is $300,000 or less, the Contractor does not have to provide umbrella excess liability coverage.

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j. An endorsement (G2010) including the Owner as an additional insured.

.2 The Contractor's Commercial Liability Insurance shall be written on an occurrence basis, if reasonable available. However, if the general liability coverages are provided by a Commercial Liability policy on a claims-made basis, the policy date or retroactive date shall predate the contract; the termination date of the policy or applicable extended reporting period shall be no earlier than two years after the termination date of coverages required to be maintained after final payment, certified in accordance with paragraph 9.10.2.

.3 The Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending coverage or limits."

.4 "The insurance required by paragraph 11.1.1 shall be written for not less than the following, or as required by law, whichever is greater."

".1 Workers' Compensation:
a. State: Statutory
b. Applicable Federal (e.g., Longshoremen's): Statutory
c. Employer's Liability: Statutory

.2 COMPREHENSIVE GENERAL LIABILITY INSURANCE INCLUDING CONTRACTUAL LIABILITY INSURANCE AGAINST THE LIABILITY ASSUMED HEREIN ABOVE, and including CONTRACTORS' PROTECTIVE LIABILITY INSURANCE if the Contractor sublets to another all or any portion of the Work, with the following minimum limits:
a. $2,000,000.00.

.3 COMPREHENSIVE AUTOMOBILE LIABILITY INSURANCE covering all owned, non-owned, and hired automobiles used in connection with the Work, with the following minimum limits:
a. Bodily injury (including death) and property damage with a combined single limit of $1,000,000.00.
b. The Contractor shall maintain the foregoing coverage for not less than the duration of the warranty period. The foregoing policy limits may be provided in conjunction with an umbrella policy. The Contractor shall continue to provide evidence of coverage to the Owner on an annual basis during the aforementioned period."

.5 "The Contractor shall submit to the Architect a copy of Certificate of Insurance for the Architect's review and the Owner's approval prior to commencement of the Work, and thereafter upon renewal or replacement of each required policy of insurance. The form of certificate preferred is AIA Document G705, Certificate of Insurance of Accord Form 25 S. Certificates shall include each and every type of coverage specified. Such certificates shall name the Owner, the Architect, their respective board members, employees, agents, and consultants (and their consultants employees and agents) as additional insureds, and shall contain the following statement: It is hereby agreed that the Owner and the Architect will be notified 60 days prior to the cancellation of, expiration of, material alteration of, and/or the election not to renew any insurance policy evidenced by this certificate."

.6 "The Contractor shall require all Subcontractors to provide Workers' Compensation, Comprehensive General Liability, and Automobile Liability Insurance with the same minimum limits specified herein."

.7 "The Contractor shall not commence work under the Contract until he has obtained all insurance required under this heading and such insurance has been approved by the Owner; no such work shall be commenced until the Contractor has filed with the Architect 2 copies of the necessary certificates evidencing that all required insurance in the requisite amounts, placed with satisfactory carriers, has been obtained. Should any coverage approach expiration during the contract period, it shall be renewed prior to its expiration date and certificates again filed with the Architect. Failure to renew and file new certificates with the Architect shall be just cause to withhold periodic payment request until these requirements are met. All insurance shall be maintained in full force and effect until the Contract has been fully and completely performed."

11.1.2.1 (Add) "All performance bonds if required shall name the Owner as Obligee and shall include the following conditions:

.1 Each selected Bidder shall provide a bond covering the faithful performance of the Contract. Bond shall be in the amount of 100% of the Principal's bid plus accepted add alternates stated in dollars

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and cents. A percentage is NOT acceptable.

.2 For bidders who provided the Bid Guaranty and Contract Bond with their bid, their form of bond shall be the Bid Guaranty and Contract Bond as described in the Instructions to Bidders. (Bid Guaranty and Contract Bond Form is attached).

.3 Bidders who provided a certified check, cashier's check, or irrevocable letter of credit as bid security shall furnish and pay for a Contract Bond in accordance with Ohio Revised Code Section 153.57. The Owner shall be named as Obligee on the Contract Bond.

.4 Contract Bond shall be supported by credentials showing the power of attorney for the attorney-in-fact of the Surety.

.5 The Bid Guaranty and Contract Bond and, if used, the Contract Bond, shall be signed by an authorized agent of an acceptable surety bonding company and by the bidder. The bond shall be issued by a surety company authorized by the Ohio Department of Insurance to transact business in the State of Ohio. Provide certification as described in the Instructions to Bidders. It is essential that the bond be issued by a surety company which can adequately demonstrate a record of competent underwriting, efficient management, adequate reserves, and soundness of investments.

.6 Bond(s) shall be executed on a form specifically meeting all provisions of the Ohio Revised Code Section 153.57 and others as applicable. Said conformance shall be specifically noted clearly on face of the bond.

.7 Furnish, along with the Bond, a Certificate of Compliance from the State of Ohio Superintendent of Insurance certifying that the surety is authorized to transact business in the State of Ohio."

11.2 Owner's Insurance

11.2.1.1 (Add) "Unless specifically stated otherwise in the Agreement or other Contract Documents, the Owner shall maintain property insurance on the Project. The Owner also shall maintain all-risk "Builder's Risk" insurance, in an amount of 100 percent of the insurable value of the entire structure, on which the Work of this Contract is to be done, against "loss or damage." Such insurance shall be on the "estimated completed value form" including items of labor and materials connected therewith, including materials in place or stored on the site of the structure insured, which are to be used as part of the permanent construction including surplus materials, shanties, protective fences, or temporary structure, miscellaneous materials and supplies, incident to the work and such scaffolding, staging, towers, forms, and equipment as are now owned or rented by the Contractor, the cost of which is included in the cost of the Work. The policy shall insure the Owners and shall also include the interest of the Contractors during course of construction until completed and accepted by the Owners. Certificates for this insurance shall name the Architect as additionally insured. The Owner will make the property insurance policy available for inspection and copying by the Contractor. This insurance is not intended to cover and will not cover machinery, tools, and equipment which will not be a permanent part of the Project. The Contractor shall bear the entire risk of loss with respect to such machinery, tools, and equipment. Any loss insured under Paragraph 11.2 is to be adjusted with the Owner and made payable to the Owner as trustee for the insureds, as their interests may appear. The Owner, as trustee, will have the power to adjust and settle any loss with its insurers."

11.2.1.2 (Add:) "The above policies in §11.2 shall carry a deductible up to a maximum of $5,000 and the deductible shall be paid for by the Contractor."

11.2.1.3 (Add) "The above policies in §11.2 shall name the following as additionally insured:

.1 Architect, its employees, its consultants, and their employees."

ARTICLE 12: UNCOVERING AND CORRECTION OF WORK

12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

(Delete the text in this paragraph and replace with the following) "Within 48 hours after written notice from the Architect, or the Owner (except such period shall be 7 days when notice is given after final payment) that the work does not conform to the Contract Documents, or immediately upon oral notice, if the non-conformance constitutes a threat to the safety of persons or property, the Contractor, without waiting for the resolution of disputes that may exist, i) shall commence to correct such non-conformance, ii) shall thereafter use its best efforts to correct such non-conformance to the satisfaction of the Architect

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and the Owner, and iii) except where an extension of time is granted in writing by the Owner, shall complete necessary corrections so that the non-conformance is eliminated to the satisfaction of the Architect, and the Owner within 7 days of such notice. The Contractor shall bear all costs of correcting the non-conformance, including additional testing and inspections and additional service fees of the Architect. The notice provided for in this paragraph 12.2.1 may be given at any time. It is the intent that the obligations under this paragraph 12.2.1 shall continue to apply after final completion and final payment."

12.2.2 AFTER SUBSTANTIAL COMPLETION Delete this paragraph and 12.2.2.1 in its entirety.

ARTICLE 13: MISCELLANEOUS PROVISIONS

13.1 GOVERNING LAW

13.1.2 (Add) "Jurisdiction. Any suit, which may be brought to enforce any provision of this Agreement or any remedy with respect hereto, shall be brought in the Common Pleas Court, Hamilton County, Ohio, and each party hereby expressly consents to the jurisdiction of such court."

13.4 TESTS AND INSPECTIONS

13.4.4 (Delete the text in this paragraph and replace with the following) "Certificates of inspection, testing, or approval, as required by Paragraphs 13.4.1 or 13.4.2, shall be secured by the Contractor using an independent agency, subject to the approval of the Architect, , and Owner. The independent agency shall complete field work, testing, and prepare the test reports, logs, and certificates promptly; and deliver the required number of copies directly to the Architect."

13.5 INTEREST Delete this Paragraph in its entirety. References to Paragraph 13.5 elsewhere in the Contract Documents shall also be deleted.

13.6 (Add) “CONSTRUCTION”

13.6.1 (Add) “The parties acknowledge that each party has reviewed this Agreement and the other Contract Documents and voluntary entered into this Agreement.”

13.7 (Add) “APPROVALS”

13.7.1 (Add) “Except as may be expressly provided herein, the approvals and determinations of the Owner, or Architect will be subject to the sole discretion of the respective person and be valid and binding on the Contractor, provided only that they be made in good faith, i.e., honestly. If the Contractor challenges any such approval or determination, the Contractor will have the burden of proving that it was not made in good faith by a preponderance of the evidence.”

13.8 (Add) “PARTIAL INVALIDITY”

13.8.1 (Add) “If any term or provision of this Agreement is found to be illegal, unenforceable or in violation of any laws, statutes, ordinances, or regulations of any public authority having jurisdiction, then, notwithstanding such term or provision, this Agreement will remain in full force and effect and such term will be deemed stricken; provided this Agreement will be interpreted, when possible, so as to reflect the intentions of the parties as indicated by any such stricken term or provision.”

13.9 (Add) “PROPERTY TAX AFFIDAVIT”

13.9.1 (Add) “The Contractor's affidavit given under Section 5719.024, Ohio Revised Code, is incorporated herein.”

13.10 (Add) “ENTIRE AGREEMENT”

13.10.1 (Add) “This Agreement and the other Contract Documents constitute the entire agreement among the parties with respect to their subject matter and supersede all prior and contemporaneous, oral or written, agreements, negotiations, communications, representations, and understandings with respect to such

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subject matter, and no person is justified in relying on such agreements, negotiations, communications, representations, or understandings."

13.1 (Add) "SCHOOL DISTRICT RESOLUTION"

13.11.1 (Add) "No alcohol, drugs, firearms or smoking is permitted on property owned by the School District. Compliance with all Owner policies covering these items is mandatory."

ARTICLE 14: TERMINATION OR SUSPENSION OF THE CONTRACT

(Delete the entire contents of this Article (14.1 through 14.4) and replace with the following:

14.1 (Add) "DEFAULT OF THE CONTRACTOR"

14.1.1 (Add) "Events of Default; each of the following constitutes an event of default of the Contractor:

.1 The failure of the Contractor, i) to perform its obligation under the Contract Documents or under the Contract Documents pertaining to other agreement which the Contractor may have with the Owner and to proceed to commence to correct such failure within 48 hours after written notice thereof from the Owner, or the Architect or such lesser time as is provided in the Contract Documents, or ii) thereafter to use its best efforts to correct such failure to the satisfaction of the Owner, or, iii) except where an extension of time is granted in writing by the Owner, to correct such failure within 30 days after written notice thereof.

.2 The failure of the Contractor to pay its obligations as they become due, or the insolvency of the Contractor."

14.1.2 (Add) "Owner's Remedies; upon the occurrence of an event of default the Owner will have the following remedies, which will be cumulative:

.1 To order the Contractor to stop the Work or part of it, in which case the Contractor will do so immediately;

.2 To perform through others all or part of the Work remaining to be done and to deduct the cost thereof from the unpaid balance of the Contract Price;

.3 To terminate this Agreement and take possession, for the purpose of completing the Work or part of it, materials, equipment, scaffolds, tools, appliances, and other items belonging to or possessed by the Contractor, of which the Contractor hereby transfers and assigns to the Owner for such purpose, and to employ a person or persons to complete the Work, including the Contractor's employees, and the Contractor will not be entitled to receive further payment until the Work is completed;

.4 Other remedies which the Owner may have at law or in equity or otherwise under the Contract Documents."

14.1.3 (Add) "Payments Due Contractor: If the unpaid balance of the Contract Sum exceeds the cost of finishing the Work, including compensation of the Architect's additional services and costs, expenses, or damages incurred by the Owner as a result of the event of default, including attorney's fees and the administrative expensive of the Owner's staff, such excess will be paid by the Contractor. If such costs exceed the unpaid balance, the Contractor will pay the difference to the Owner. The amounts to be paid by the Owner or the Contractor will be certified by the Architect, and such certification will be the final determination of the amount owed, except for sums coming due thereafter. The obligations under this paragraph will survive the termination of this Agreement."

14.2 (Add) "DEFAULT OF THE OWNER"

14.2.1 (Add) "Events of Default; except of the failure to pay the Contractor which will be subject to the terms of the General Conditions and Supplementary General Conditions of the Contract, the following constitutes the exclusive event of default of the Owner:

.1 The failure of the Owner to perform its obligations under the Contract Documents and to correct such failure within 90 days after written notice thereof from the Contractor."

14.2.2 (Add) "Contractor's Remedies; upon the occurrence of an event of default by the Owner, unless the Owner admits in writing that it is in default, except as expressly provided in the General Conditions or the Supplementary Conditions of the Contract, the Contractor's sole and exclusive remedy will be to submit the dispute to the Architect for its decision under Article 4.4 of the General and Supplementary Conditions of the Contract for the Project, and then provided the Contractor is entitled to do so under the

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terms of the Contract Documents to litigate the dispute. If the Owner admits in writing that it is in default, then the Contractor will be entitled to remedies which it would otherwise have at law or in equity."

14.3 (Add) "TERMINATION FOR THE CONVENIENCE OF THE OWNER"

14.3.1 (Add) "The Owner may, in its discretion and without cause, by written notice to the Contractor terminate the Contract for the Owner's convenience."

14.3.2 (Add) "Upon receipt of a written notice from the Owner terminating the Contract without cause and for the Owner's convenience, the Contractor will i) immediately cease performing the Work, unless otherwise directed by the Owner, in which case the Contractor will take the action directed by the Owner, ii) take reasonable and necessary action to protect and preserve the Work, and iii) unless otherwise directed by the Owner, terminate agreements with Subcontractors and suppliers."

14.3.3 (Add) "If the Contract is terminated without cause and for the Owner's convenience and there exists no event of the Contractor's default, as defined in Paragraph 14.1 of these Supplementary Conditions, the Owner will pay the Contractor, i) for Work performed under the Contract up to the date the notice of termination is received by the Contractor at the rates for Work performed under the Contract, including overhead and profit up to the date of termination, ii) for Work performed at the direction of the Owner on and after the date on which the notice of termination is received by the Contractor, as determined by the procedures applicable to Change Orders under paragraph 7.3.3, iii) for Work necessary to protect and preserve the Work, as determined by the procedures applicable to Change Orders under paragraph 7.3.3, iv) the reasonable and necessary costs of terminating the Contractor's agreements with Subcontractors and suppliers, and other costs incurred by the Contractor directly as a result of the termination of the Contract."

14.3.4 (Add) "If the Contract is terminated without cause and for the Owner's convenience and there exists an event of the Contractor's default, as defined in Paragraph 14.2 of these Supplementary Conditions, the Contractor will be entitled to receive only such sums as it would be entitled to receive following the occurrence of an event of default under Paragraph 14.2."

14.3.5 (Add) "The termination of the Contract shall be with or without prejudice to rights or remedies which exist at the time of termination."

ARTICLE 15: CLAIMS AND DISPUTES

15.1.6 CLAIMS FOR ADDITIONAL TIME

15.1.6.1 (Delete the text in this paragraph and replace with the following) "If claims for additional time are submitted by the Contractor and are substantiated as per contract requirements, a change order extending contract time only will be issued by the Architect. However, under no circumstances will the Contractor be entitled to any damages or additional compensation related to or for contract time extensions or delays."

15.1.6.2 (Delete the text in this paragraph and replace with the following) "Claims for additional time based on adverse weather conditions will be considered only if the Contractor provides evidence that monthly precipitation and temperature averages vary significantly from those of the norm. The norm shall be defined as those monthly precipitation and temperature averages indicated by the National Oceanic and Atmospheric Administration averaged over the past 30 years, at the location closest to the site. Weather conditions will be considered for all months affecting the critical path, and determined once the critical path is no longer affected by weather conditions. Both, months with conditions better than the norm, and those with adverse conditions will be considered in summation of the delay. Notifications of delay to be in accord with related articles of General Conditions."

15.2 INITIAL DECISION
In paragraphs 15.2.1 through 15.2.8, replace the words "Initial Decision Maker" each and every time with the words "Architect".

15.2.5 In the last sentence, delete the phrase "mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution." with the word "litigation".

15.2.6 Delete this paragraph in its entirety.

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15.2.6.1 Delete this paragraph in its entirety.

15.3 MEDIATION
Delete Paragraph 15.3 in its entirety. Mediation is not applicable to this Project.

15.4 ARBITRATION
Delete Paragraph 15.4 in its entirety. Arbitration is not applicable to this Project.

(Add) "ARTICLE 16: EQUAL OPPORTUNITY"

16.1 (Add) "POLICIES OF EMPLOYMENT"

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

16.1.2 (Add) "The Contractor shall not, and it will ensure that its Subcontractors, regardless of tier, shall, in solicitations or advertisements for employees placed by them or on their behalf, state that qualified applicants will receive consideration for employment without regard to race, religion, color, sex, or national origin."

END OF SECTION 00 73 01

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DOCUMENT 00 73 03 - DRUG-FREE WORKPLACE CERTIFICATION

(1) Contractor is required to be enrolled and in good standing in the Ohio Bureau of Workers' Compensation (BWC) Drug-Free Workplace Program (DFWP) or an equivalent BWC approved DFWP throughout the entire Project, in accordance with Ohio Revised Code Section 153.03-153.031, including the placement of its employees in a pool with a random drug testing rate of at least 5%.

(2) Each contractor shall require all subcontractors with whom the contractor is in contract for the public improvement to be enrolled in and be in good standing in the Bureau of Workers' Compensation's Drug-Free Workplace Program or a comparable program approved by the Bureau that meets the requirements specified in Section 153.03 of the Ohio Revised Code, including the placement of its employees in a pool with a random drug testing rate of at least 5%, prior to a subcontractor providing labor at the project site of the public improvement.

(3) Each subcontractor shall require all lower-tier subcontractors with whom the subcontractor is in contract for the public improvement to be enrolled in and be in good standing in the Bureau of Workers' Compensation's Drug-Free Workplace Program or a comparable program approved by the Bureau that meets the requirements specified in Section 153.03 of the Ohio Revised Code, including the placement of its employees in a pool with a random drug testing rate of at least 5%, prior to a lower-tier subcontractor providing labor at the project site of the public improvement.

(4) Failure of a contractor to require a subcontractor to be enrolled in and be in good standing in the Bureau of Workers' Compensation's Drug-Free Workplace Program or a comparable program approved by the Bureau that meets the requirements specified in Section 153.03 of the Ohio Revised Code, including the placement of its employees in a pool with a random drug testing rate of at least 5%, prior to the time that the subcontractor provides labor at the project site will result in the contractor being found in breach of the contract and that breach shall be used in the responsibility analysis of that contractor or the subcontractor who was not enrolled in a program for future contracts with the state for five years after the date of the breach."

(5) Failure of a subcontractor to require a lower-tier subcontractor to be enrolled in and be in good standing in the Bureau of Workers' Compensation's Drug-Free Workplace Program or a comparable program approved by the Bureau that meets the requirements specified in Section 153.03 of the Ohio Revised Code, including the placement of its employees in a pool with a random drug testing rate of at least 5%, prior to the time that the lower-tier subcontractor provides labor at the project site will result in the subcontractor being found in breach of the contract and that breach shall be used in the responsibility analysis of that subcontractor or the lower-tier subcontractor who was not enrolled in a program for future contracts with the state for five years after the date of the breach.

Complete and submit certification form on next page:

DRUG FREE WORKPLACE PROGRAM CERTIFICATION

Project Name and Location: _____

Contractor Name: _____

The above referenced Contractor hereby certifies that it is enrolled and in good standing in the Ohio Bureau of Workers' Compensation (BWC) Drug-Free Workplace Program (DFWP) or an equivalent BWC approved DFWP in accordance with the requirements of Ohio Revised Code Section 153.03-153.031, including the placement of its employees in a pool with a random drug testing rate of at least 5%.

_____
Contractor Signature Date

_____
Name/Title (Print or Type)

END OF DOCUMENT 00 73 03

DOCUMENT 00 73 04 - WAIVER OF ESCROW AGREEMENT

The undersigned Contractor has entered into a contract with the **Board of Education of the Winton Woods City School District** (the "School District") for certain improvements as described below. In connection therewith, the Contractor and the School District acknowledge that the School District is obligated by Sections 153.12 and 153.14 of the Revised Code to retain a certain percentage of funds that would otherwise be paid to the Contractor until the work is completed. However, the Contractor hereby waives any and all rights that it may have relating to the establishment of a separate escrow account for the deposit of the retained funds. The Contractor also waives any and all claims it may have to interest on that separate escrow account under Section 153.63(D) of the Revised Code or other provisions of law, and agrees to accept from the District in lieu thereof the net income and earnings on the investment of the retained funds by the School District. In consideration of the waivers herein contained, the School District agrees to keep a separate accounting of the net income and earnings on the investment of the retained funds and pay such income and earnings to the Contractor when the retained funds are ultimately paid to the Contractor.

_____	_____
Printed Name of Contractor	Bid Package
_____	_____
Signature and Title of Authorized Officer	Contract Date

Dated:_____, 20____

BOARD OF EDUCATION WINTON WOODS CITY SCHOOL DISTRICT

By: _____
Treasurer, Board of Education

Dated:_____, 20_____

END OF DOCUMENT 00 73 04

SECTION 01 10 00 – SUMMARY – NORTH CAMPUS ATHLETIC IMPROVEMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Project information.
2. Work covered by Contract Documents.
3. Completion times and milestone dates.
4. Contractor's use of site and premises.
5. Coordination with occupants.
6. Work restrictions.
7. Contractor background check.
8. Specification and Drawing conventions.

B. Related Requirements:
1. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: North Campus Athletic Renovations.
1. Project Location: North Camus Multipurpose and Athletic Buildings, 1231 W. Kemper Road, Cincinnati, Ohio, 45240.

B. Owner: Winton Woods City Schools.
1. Owner Location: 825 Waycross Road, Suite A, Cincinnati, Ohio, 45240.
2. Telephone: 513-619-2300.
3. Website: www.wintonwoods.org

C. Architect: SHP.
1. Architect’s Location: 312 Plum Street, Suite 700, Cincinnati, Ohio 45202.
2. Architect’s Construction Representative: Allison McKenzie.
3. Telephone: 513-381-2112.
4. Website: www.shp.com

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:
1. Work includes new lockers and minor building improvements at two existing athletic buildings and other Work indicated in the Contract Documents.

B. Type of Contract.
1. Project will be constructed under a single prime contract.

1.4 COMPLETION TIMES AND MILESTONE DATES

A. The following dates have been established for the Project. Contractors shall meet all dates, except for adjustments and extensions of time granted by the Owner under the provisions of the Contract Conditions. All Contractor dates are predicated on Notice to Proceed being issued by the Owner on or before March 19, 2021; if Notice to Proceed is issued later than this date, all subsequent dates shall be adjusted by negotiation with all contracts.

Start of Work at Project Site .....April 1, 2021
Substantial Completion.....July 2, 2021
Final Completion.....July 23, 2021

1.5 CONTRACTOR'S USE OF SITE AND PREMISES

A. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Limits on Use of Site: Limit use of Project site to Work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
   1. Driveways, Walkways, and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
      a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
      b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and adjacent building(s), as well as any portions of the impacted building where no work is occurring, during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
   1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
   2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.7 WORK RESTRICTIONS

A. Comply with restrictions on construction operations.
   1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Work shall be generally performed during normal daylight working hours Monday through Friday. Saturday work is permitted if Contractor determines this necessary to attain the indicated schedule and shall be considered part of the Work without claim for extra compensation. Sunday and Holiday work may be permitted with advance request and approval.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated.
   1. Notify Owner not less than two days in advance of proposed utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
   1. Notify Owner not less than two days in advance of proposed disruptive operations.

E. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Owner's property is not permitted.

F. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

1.8 CONTRACTOR BACKGROUND CHECK

A. All contractors working on-site will be subjected to background checks.
   1. Contractor shall perform or cause to be performed an Ohio Bureau of Criminal Investigation and Identification criminal background check of the employees of the Contractor or of any subcontractor or sub-subcontractor that will perform Work or services or otherwise be present at the Project site. Prior to the performance of any services by such employees, the criminal background check shall be performed and completed at the Contractor’s sole cost and expense. No person shall be

employed by the Contractor, subcontractor or sub-subcontractor who has been found guilty of any of the criminal offenses enumerated in Ohio Revised Code Section 3319.39 or the laws of any of the other states. The Contractor shall remove (and shall cause its subcontractors and sub-subcontractors to remove) any person from the Project site found (during the criminal background check or otherwise) to have violated any of the offenses listed in Section 3319.39 of the Ohio Revised Code or equivalent provisions thereof under the laws of any of the other states. The foregoing shall not (i) be cause for any claim against the Owner for any reason, including without limitation, interference or delay, and (ii) excuse the Contractor, subcontractor and/or sub-subcontractor from meeting the construction schedule. Without limiting any other remedy the Owner may have for failure of the Contractor to comply with these provisions, the Owner may suspend the processing of Applications for Payment until the Contractor complies. (If requested, the Owner may require a Federal Bureau of Investigation criminal background check of the employees of the Contractor or of any subcontractor or sub-subcontractor. If the Owner requests such additional investigations, the Owner will do so at their own expense).

2. Contractors shall use: SELECTION.COM • 1-800-325-3609 to perform these services. An identification badge will be issued to all approved workers. **This badge will be required to be worn at all times.**
3. The Owner will allow the use of existing, completed background checks from companies who already have them for their employees. These existing background checks must have been issued no later than 9 months prior to bid opening. Existing background checks must have been issued by a certified company. The Owner has the final determination if these existing background checks will be allowed to be used. The Contractor is responsible for any rejections. New badges for this Project will still need to be obtained from SELECTION.COM.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
   1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
   2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
   3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
   4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
   1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
   2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 10 00 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Project information.
2. Work covered by Contract Documents.
3. Completion times and milestone dates.
4. Contractor's use of site and premises.
5. Coordination with occupants.
6. Work restrictions.
7. Contractor background check.
8. Specification and Drawing conventions.

B. Related Requirements:
1. Section 01 50 00 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.2 PROJECT INFORMATION

A. Project Identification: Intermediate School Freezer Addition.
1. Project Location: Winton Woods Intermediate School, 825 Waycross Road, Ohio, 45240.

B. Owner: Winton Woods City Schools.
1. Owner Location: 825 Waycross Road, Suite A, Ohio, 45240.
2. Telephone: 513-619-2300.
3. Website: www.wintonwoods.org

C. Architect: SHP.
1. Architect’s Location: 312 Plum Street, Suite 700, Cincinnati, Ohio 45202.
2. Architect’s Construction Representative: Allison McKenzie.
3. Telephone: 513-381-2112.
4. Website: www.shp.com

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:
1. Work includes addition of a new exterior walk-in freezer, including required concrete and electrical work and other Work indicated in the Contract Documents.

B. Type of Contract.
1. Project will be constructed under a single prime contract.

1.4 COMPLETION TIMES AND MILESTONE DATES

A. The following dates have been established for the Project. Contractors shall meet all dates, except for adjustments and extensions of time granted by the Owner under the provisions of the Contract Conditions. All Contractor dates are predicated on Notice to Proceed being issued by the Owner on or before March 19, 2021; if Notice to Proceed is issued later than this date, all subsequent dates shall be adjusted by negotiation with all contracts.

Start of Exterior Work at Project Site.....April 1, 2021
Start of Interior Work at Project Site.....May 31, 2021
Substantial Completion.....July 2, 2021
Final Completion.....July 23, 2021

1.5 CONTRACTOR'S USE OF SITE AND PREMISES

A. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Limits on Use of Site: Limit use of Project site to Work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
   1. Driveways, Walkways, and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.
      a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
      b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Occupancy of Existing Building: The Intermediate School will be fully occupied until May 30, 2021. Exterior work can commence prior to May 31, 2021, but any work required inside of the existing building will need to occur no earlier than May 31, 2021. Exceptions for extensions of systems or other work that can be performed after hours without impacting kitchen operations may be made but must be approved and coordinated with Owner.

D. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

E. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and adjacent building(s) during entire construction period.The Intermediate School will be fully occupied and operational until May 30, 2021. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
   1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
   2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.7 WORK RESTRICTIONS

A. Comply with restrictions on construction operations.
   1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Work shall be generally performed during normal daylight working hours Monday through Friday. Saturday work is permitted if Contractor determines this necessary to attain the indicated schedule and shall be considered part of the Work without claim for extra compensation. Sunday and Holiday work may be permitted with advance request and approval.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated.
   1. Notify Owner not less than two days in advance of proposed utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
   1. Notify Owner not less than two days in advance of proposed disruptive operations.

E. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Owner's property is not permitted.

F. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

1.8 CONTRACTOR BACKGROUND CHECK

A. All contractors working on-site will be subjected to background checks.
1. Contractor shall perform or cause to be performed an Ohio Bureau of Criminal Investigation and Identification criminal background check of the employees of the Contractor or of any subcontractor or sub-subcontractor that will perform Work or services or otherwise be present at the Project site. Prior to the performance of any services by such employees, the criminal background check shall be performed and completed at the Contractor's sole cost and expense. No person shall be employed by the Contractor, subcontractor or sub-subcontractor who has been found guilty of any of the criminal offenses enumerated in Ohio Revised Code Section 3319.39 or the laws of any of the other states. The Contractor shall remove (and shall cause its subcontractors and sub-subcontractors to remove) any person from the Project site found (during the criminal background check or otherwise) to have violated any of the offenses listed in Section 3319.39 of the Ohio Revised Code or equivalent provisions thereof under the laws of any of the other states. The foregoing shall not (i) be cause for any claim against the Owner for any reason, including without limitation, interference or delay, and (ii) excuse the Contractor, subcontractor and/or sub-subcontractor from meeting the construction schedule. Without limiting any other remedy the Owner may have for failure of the Contractor to comply with these provisions, the Owner may suspend the processing of Applications for Payment until the Contractor complies. (If requested, the Owner may require a Federal Bureau of Investigation criminal background check of the employees of the Contractor or of any subcontractor or sub-subcontractor. If the Owner requests such additional investigations, the Owner will do so at their own expense).
2. Contractors shall use: SELECTION.COM • 1-800-325-3609 to perform these services. An identification badge will be issued to all approved workers. **This badge will be required to be worn at all times.**
3. The Owner will allow the use of existing, completed background checks from companies who already have them for their employees. These existing background checks must have been issued no later than 9 months prior to bid opening. Existing background checks must have been issued by a certified company. The Owner has the final determination if these existing background checks will be allowed to be used. The Contractor is responsible for any rejections. New badges for this Project will still need to be obtained from SELECTION.COM.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 23 00 – ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.2 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
   1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
   2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.3 CLARIFICATIONS

A. Extent of work for each alternate is indicated on the drawings and/or in the associated technical specification sections; in case of any uncertainty request clarification from Architect before bidding, in time for addendum preparation.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.
   1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of alternate.

B. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

C. Execute accepted alternates under the same conditions as other Work of the Contract.

D. Schedule: A Part 3 “Schedule of Alternates” Article is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate materials and their installation for each alternate with related materials and installation under other subcontracts to ensure each item is completely integrated and interfaced with related work of same and other contracts and all costs for such integration are included in the alternate Work amount.

3.2 SCHEDULE OF ALTERNATES FOR NORTH CAMPUS ATHLETIC RENOVATIONS

A. Alternate No.1: Each bidder is requested to state the addition in cost to provide the additional 19 Type C lockers in room 114 labeled as alternate.

B. Alternate No. 2: Each bidder is requested to state the addition in cost to provide all locker room benches shown in rooms 112, 113, 114 and 162.

C. Alternate No. 3: Each bidder is requested to state the addition in cost to provide new paint on all visible wall surfaces in corridor 116.

3.3 SCHEDULE OF ALTERNATES FOR INTERMEDIATE SCHOOL FREEZER ADDITION

A. No alternates

END OF SECTION 01 23 00

SECTION 01 25 00 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
1. Administrative and procedural requirements for **Substitution requests**.
2. Administrative and procedural requirements for **Comparable Product requests**.

B. Request Form
1. Form that must be used for initiating a Substitution request or a Comparable Product request is included at the end of this Section; the use of any other form or format or process for considering a product change will be rejected without review.
a. READ AND FOLLOW THE INSTRUCTIONS FOR USE OF THIS FORM!

C. Related Requirements:
1. Section 01 60 00 "Product Requirements" for requirements applicable to products to be selected for use on the Project including those listed in individual specification Sections and those proposed by the Contractor as comparable products.

1.2 DEFINITIONS

A. **Substitutions**: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
1. **Substitutions for Cause**: Changes proposed by Contractor that are required due to changed Project conditions such as unavailability of product, regulatory changes, or unavailability of required warranty terms. Changes proposed by Contractor that offer Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume.
2. **Substitutions for Convenience**: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

B. **Comparable Product**: Product that is demonstrated and approved, through the substitution process, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of a specified product.

C. Request for Substitution and Comparable Product Request: Written request from the Contractor to the Architect seeking the use of a product, material, equipment, or method of construction that differs from the one indicated in the Construction Documents.

1.3 ACTION SUBMITTALS

A. Substitution for Cause, Substitutions for Convenience, and Comparable Product Requests.
1. Submit fully executed request form and all substantiation documentation of each request for consideration. Do not combine multiple requests on one form.

B. Request Form: Use copy of the form provided in Part 4 of this Section only; no other form will be accepted.

C. Documentation: Type and format required to completely prove equality to specified products, materials and systems. Reference to the proposed product manufacturer’s website or catalog will not be considered responsive to this requirement.

D. Submission of a Substitution for Convenience Request or a Comparable Product Request does not mandate its review or approval. Architect has no obligation to justify or explain acceptance or rejection of any product change request; Contractor shall not protest Architect’s decision relative to this project but may discuss the proposed product with the Architect for consideration on future projects.

1.4 QUALITY ASSURANCE

A. Failure to Procure: The failure of the Contractor to procure a product or material on schedule will not be considered adequate reason for submitting a substitution request or a comparable product request unless the time required for procuring such product or material by reasonable means exceeds the time available at the Contractor's earliest opportunity to order.
   1. Contractor’s failure to make submittals in a timely manner to attain a favorable review shall not be considered justification to extend Contractor’s ‘earliest opportunity’.

B. Compatibility of Substitutions and Comparable Products: Investigate and document compatibility of proposed substitution and comparable product with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

C. Product Change after Award of Contracts: Regardless of Architect’s review and acceptance, all changes and associated cost or schedule effects required to associated materials caused by a product change after Award of Contract are the responsibility of the contractor initiating the product change. Submitter of product change request after Award of Contracts is responsible for notifying all associated work contractors of the change and for negotiating with them all differences and costs in their work.

1.5 PROCEDURES

A. Coordination: Revise or adjust all affected Work as necessary to integrate work of the approved substitutions and comparable products.

1.6 SUBSTITUTIONS FOR CAUSE REQUESTS

A. Substitutions for Cause:
   1. Will be considered after Award of Contract but no later than 30 days prior to the time required for preparation and review of related submittals.
   2. Will be considered only if submitted by a Prime Contractor.
   3. Will be considered only when accompanied by the fully executed form required (see Part 4 of this Section) and with all substantiating documentation provided by the Contractor.
      a. Reference to the proposed product manufacturer’s website or catalog will not be considered responsive to this requirement.

B. Conditions: Architect will consider Contractor's request for substitution for cause when a preponderance of the following conditions are satisfied. If applicable conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements.
   1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
   2. Equal product available for lesser cost, in which case the savings to Owner shall be indicated.
   3. Specified product not available due to discontinuance or other circumstance beyond the Contractor's control.
   4. Specified product not recommended or warranted by manufacturer for intended application.
   5. Specified product not approved for use by federal, state, or local authorities having jurisdiction; provide documentation or written statement of the authority.
   6. None of the products specified meet performance or warranty requirements specified.
   7. Requested substitution does not require extensive revisions to the Contract Documents.
   8. Requested substitution is consistent with the design intent and the Contract Documents and will produce indicated results.
   9. Requested substitution will not adversely affect Project Construction Schedule.
   10. Requested substitution has received necessary approvals of authorities having jurisdiction.
   11. Requested substitution is compatible with other portions of the Work.
   12. Requested substitution provides specified performance and warranty.
   13. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

C. Documentation: In addition to information requirements stated in the form included in Part 4, provide greater detail about the following:

1. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
2. Coordination information, including a list of changes or revisions needed to other parts of the Work including that of separate Prime Contractors that will be necessary to accommodate proposed substitution.
    a. Failure to document changes that will be required to other work will result in the cost of such changes being back-charged to the contractor submitting the request.
3. Detailed side-by-side comparison listing significant qualities of proposed substitution and those of the Work specified as indicated in the Form in Part 4. Provide a separate sheet if the form does not provide enough spaces. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
    a. Attach product data and, if applicable, drawings and descriptions of products and fabrication and installation procedures of the proposed substitution and the same information of at least one of those named in the specifications, for comparison and substantiation of the data listed in the form.
4. Samples, where applicable or requested.
5. Certificates and qualification data, where applicable or requested.
6. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
7. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
8. Research reports evidencing compliance with building code in effect for Project.
9. Detailed comparison of Project construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
10. Cost information, including a proposal of change, if any, in the Contract Sum.
11. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
12. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

D. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 15 days of receipt of a request for substitution for cause. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
    1. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.

E. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.
    1. Regardless of any conflicting statement elsewhere in the Project Manual, Architect shall not be obligated to justify either a favorable or an unfavorable review decision.

1.7 SUBSTITUTION FOR CONVENIENCE REQUESTS

A. Substitutions for Convenience (see separate paragraph for comparable product requests):
    1. Will be considered only prior to Bidding.
    2. Will be considered only if submitted by a Prime Contract Bidder.
    3. Will be considered only when received in time for a thorough review by the Architect before deadline for issuance of an addendum is reached.
    4. Will be considered only when accompanied by the form required (see Part 4 of this Section) and with all substantiating documentation provided by the Contractor.
        a. Reference to the proposed product manufacturer’s website or catalog will not be considered responsive to this requirement.

B. Conditions: Architect may consider Contractor's request for substitution for convenience when one or more of the following conditions are satisfied. If applicable conditions are not satisfied, Architect will take no action or may return requests without action except to record noncompliance with requirements.

1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume.
    a. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
2. Requested substitution does not require extensive revisions to the Contract Documents.
3. Requested substitution is consistent with the design intent and the Contract Documents and will produce indicated results.
4. Requested substitution will not adversely affect the Project Construction Schedule.
5. Requested substitution has received necessary approvals of authorities having jurisdiction.
6. Requested substitution is compatible with other portions of the Work.
7. Requested substitution has been coordinated with other portions of the Work.

C. Documentation: In addition to information requirements stated in the form included in Part 4, provide the following:
1. Statement indicating why specified product or fabrication or installation is being proposed.
2. Coordination information, including a list of changes or revisions needed to other parts of the Work including that of separate Prime Contractors that will be necessary to accommodate proposed substitution.
    a. Failure to document changes that will be required to other work will result in the cost of such changes being back-charged to the Contractor submitting the request.
3. Detailed side-by-side comparison listing significant qualities of proposed substitution and those of the Work specified as indicated in the Form in Part 4. Provide a separate sheet if the form does not provide enough spaces. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
    a. Attach product data and, if applicable, drawings and descriptions of products and fabrication and installation procedures of the proposed substitution and the same information of at least one of those named in the specifications, for comparison and substantiation of the data listed in the form.
4. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
5. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of substitution to produce indicated results.

D. Architect's Action:
1. If necessary, Architect will request additional information or documentation for evaluation.
2. Form of Acceptance: Inclusion of the requested product, material, or method in an addendum issued to all bidders prior to Bidding.
3. Regardless of any conflicting statement elsewhere in the Project Manual, Architect shall not be obligated to justify either a favorable or an unfavorable review decision.

E. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.8 COMPARABLE PRODUCT REQUESTS

A. Comparable Product Requests:
1. Will be considered only prior to Bidding.
2. Will be considered only when received in time for a thorough review by the Architect before deadline for issuance of an addendum is reached;
3. **Will be considered only when accompanied by the fully executed form required** (see Part 4 of this Section) and with all substantiating documentation provided by the Contractor.
    a. Reference to the proposed product manufacturers website or catalog will not be considered responsive to this requirement.
4. Submit a separate request package for consideration of each individual comparable product desired.

B. Conditions: Architect may consider Contractor's request for comparable product when one or more of the following conditions is satisfied. If applicable conditions are not satisfied, Architect will take no action or may return requests without action except to record noncompliance with requirements.

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, including the work of others, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
2. Documentation that comparable product will not adversely affect any sustainable design credit being sought for the Project.
3. Evidence that proposed product provides specified warranties.

C. Architect's Action:
1. If necessary, Architect will request additional information or documentation for evaluation.
2. Form of Acceptance: Inclusion of the requested product, material, or method in an addendum issued to all bidders prior to Bidding.
3. Regardless of any conflicting statement elsewhere in the Project Manual, Architect shall not be obligated to justify either a favorable or an unfavorable review decision.

D. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

PART 4 - FORMS

A. Form begins on the next page. Use separate additional pages if necessary to list all performance criteria.

B. Use a separate form for each individual Product for which consideration of a change is being requested. Any written justifications, reasons, explanations, or statements relative to the request shall be provided on the Contractor’s letterhead, dated and signed.

C. DIRECTIONS for use of Form:
1. Contractor must submit a side-by side comparison of all pertinent specification criteria listing the performance criteria of one of the specified products along side of the same criteria of the product the Contractor would like to use instead. Use the form.
   a. In the first column, re-state the performance requirements given in the specification. List all performance, strength, size, thickness, material, warranty requirements, sustainable design contribution, selection options, and so forth specified; not just one or two.
   b. In the second column, select one of the products named in the specification section and list the corresponding performance values of that product.
   c. In the third column. list the corresponding performance values of the product being submitted for consideration.
2. Architect will review Requests for Substitution for Cause, Requests for Substitution for Convenience, and for use of Comparable Products only when submitted using this form and with all supporting documentation included.
3. Regardless of any conflicting statement elsewhere in the Project Manual, Architect shall not be obligated to justify either a favorable or an unfavorable review decision.

continued

SUBSTITUTION REQUEST FORM

Project:_____

SHP Project Number:_____date_____

NOTE:

This form is to be used for Substitutions and Comparable Product Requests during bidding. Substitution-for-Cause Requests after bidding will be considered only for extreme justification and substantial benefit to the Owner as described elsewhere in the Documents, and with compensation to the Architect for evaluation time.

We hereby request the following be considered as an acceptable product / material / manufacturer for the above referenced project.

Section and Paragraph No.	Specified Manufacturer and Product	Proposed Substitution
_____	_____	_____

***DIRECTIONS**: List **all** specified performance criteria of **one of the products named** in the specification and then the corresponding criteria of the proposed substitution product. Include performance criteria, referenced standards, codes, color / texture selection availabilities, sustainable design criteria, and warranty data. Provide a separate form for each product to be considered.*

Criteria Description	Specified Product Provides / Meets	Proposed Product Provides / Meets
1_____	_____	_____
2_____	_____	_____
3_____	_____	_____
4_____	_____	_____
5_____	_____	_____
6_____	_____	_____
7_____	_____	_____
8_____	_____	_____
9_____	_____	_____
10_____	_____	_____
11_____	_____	_____
12_____	_____	_____

It is understood and expressly agreed that the submitter has investigated the potential effects of the use of the comparable product / substitution and accepts full responsibility for all consequential affects including but not necessarily limited to the following relative to the use of the proposed item:

Effects on other construction including other Contracts; Effects on the Project Construction Schedule; Fitness for the use intended; Equivalency to that specified; Acceptability by authorities having jurisdiction; Safety when used as indicated.

In submitting this form, Contractor understands and agrees that the Architect has no obligation to justify or explain acceptance or rejection of a substitution or comparable product request.

Substitution Request Form – page 1 of 2

For Requests considered after Award of Contract, the Contractor's responsibility includes but is not necessarily limited to: Cost of adjustments to other Work including modifications to work in place; compensation for construction delays, compensation for evaluations by the Architect, consultants and other contractors. *(Complete entire Substitution Request Form)*

Justification: *For Request **after bidding** list at least three significant reasons and Owner benefits for why the proposed substitution should be considered; Architect may request additional justifications*:

1 _____

_____

_____

2 _____

_____

_____

3 _____

_____

_____

Include with this form all additional product literature and information necessary for the Architect to verify data stated in this form and to properly compare the requested product with the specified product. The Architect will not be responsible for delays caused by lack of information. Architect makes no assurances that proposed comparable product will be evaluated in time to be included in the Project by Addendum; Bid Date will not be extended for comparable product / substitution request consideration.

Submitted by:

_____
Company

_____
Address 1

_____
Address 2

_____
Phone

_____
Fax

_____
E-mail

_____
Name and Signature

SHP ACTION:

☐ Approved ☐ Rejected By: _____ Date: _____

Note:
Regardless of action indicated, return or non-return of this form to the submitter has no legal bearing on acceptance or rejection of a proposed product, manufacturer, or method. Proposed changes are officially accepted for use in the Project only when included in the Contract during bidding by Addendum or (after award) in the Contract by Change Order.

Substitution Request Form – page 2 of 2

END OF SECTION 01 25 00

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710-2017, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
   1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
   2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
      a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
      b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
      c. Include costs of labor and supervision directly attributable to the change.
      d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
      e. Quotation Form: Use forms acceptable to Architect.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
   1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
   2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
   3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
   4. Include costs of labor and supervision directly attributable to the change.
   5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
   6. Comply with requirements in Section 01 25 00 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
   7. Proposal Request Form: Use forms acceptable to Architect.

1.4 ADMINISTRATIVE CHANGE ORDERS

A. Allowance Adjustment: See Section 01 21 00 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

B. Unit-Price Adjustment: See Section 01 22 00 "Unit Prices" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect measured scope of unit-price work.

1.5 CHANGE ORDER PROCEDURES

A. Comply with requirements of Division 00 Section “General Conditions” article 7 as amended by Supplementary General Conditions.

B. On Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
   1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
   1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:
1. Section 01 26 00 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
2. Section 01 32 00 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.2 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.3 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
   a. Project name and location.
   b. Owner's name.
   c. Name of Architect.
   d. Architect's project number.
   e. Contractor's name and address.
   f. Date of submittal.
2. Arrange schedule of values consistent with format of AIA Document G703.
3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
4. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
   a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
5. Overhead Costs, Proportional Distribution: Include total cost and proportionate share of general overhead and profit for each line item.
6. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
7. In addition to the Contractor’s construction activities, the Contract Cost Breakdown must include the following line items with the associated percentage of the contract value allocated to that activity.
   a. Progress Meeting Attendance - 0.5% of the Contract.
   b. Record Drawing Updates.
   c. Allowances.

d. Temporary Facilities.
e. Correction of punchlist items - 0.5% of the Contract.
f. Specified Training – 1% of the Contract.
g. Bonds: Insurance, permits and tests.
h. Mobilization.
i. Demobilization.
j. Submittals in the amount of 2% of the Contract; however, not less than $1,000.00 nor more than $10,000.00.
k. Daily clean up.
l. Final Cleaning.
m. Closeout costs in an amount equal to 1% of the Contract amount; however, not less than $500.00 or more than $10,000.00.

8. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
9. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.4 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by Architect and paid for by Owner.

B. Payment Application Times: The date for each progress payment is indicated in the Owner/Contractor Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.

C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:
a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

F. Transmittal: Submit one signed and notarized original copy of each Application for Payment to Architect by e-mail by agreed upon monthly submittal date. Include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. Executed contract.
2. List of subcontractors.
3. Schedule of values.
4. Contractor's construction schedule (preliminary if not final).
5. Products list (preliminary if not final).
6. Submittal schedule (preliminary if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Copies of building permits.
10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
11. Initial progress report.
12. Report of preconstruction conference.
13. Certificates of insurance and insurance policies.
14. Performance and payment bonds.

I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 01 77 00 "Closeout Procedures."
2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
2. Certification of completion of final punch list items.
3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
4. Updated final statement, accounting for final changes to the Contract Sum.
5. AIA Document G706-1994, "Contractor's Affidavit of Payment of Debts and Claims."
6. AIA Document G706A-1994, "Contractor's Affidavit of Release of Liens."
7. AIA Document G707-1994, "Consent of Surety to Final Payment."
8. Evidence that claims have been settled.
9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
10. Final liquidated damages settlement statement.
11. Proof that taxes, fees, and similar obligations are paid.
12. Waivers and releases.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. General coordination procedures.
   2. RFIs.
   3. Project meetings.

B. Related Requirements:
   1. Section 01 32 00 "Construction Progress Documentation" for preparing and submitting Contractor's Construction Schedule.
   2. Section 01 73 00 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
   3. Section 01 77 00 "Closeout Procedures" for coordinating closeout of the Contract.

1.2 DEFINITIONS

A. RFI: Request for Information. Request from Contractor seeking information required by or clarifications of the Contract Documents.

1.3 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
   1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
   2. Number and title of related Specification Section(s) covered by subcontract.
   3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses, cellular telephone numbers, and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
   1. Post copies of list in Project meeting room, in temporary field office, and in prominent location inbuilt facility. Keep list current at all times.

1.4 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
   1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.
   4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
   1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.5 REQUESTS FOR INTERPRETATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
2. Owner name
3. Name of Architect.
4. Architect's Project number.
5. Date.
6. Name of Contractor.
7. RFI number, numbered sequentially.
8. RFI subject.
9. Specification Section number and title and related paragraphs, as appropriate.
10. Drawing number and detail references, as appropriate.
11. Field dimensions and conditions, as appropriate.
12. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
13. Contractor's signature.
14. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.
1. Attachments shall be electronic files in PDF format.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow three working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.
    d. Requests for coordination information already indicated in the Contract Documents.
    e. Requests for adjustments in the Contract Time or the Contract Sum.
    f. Requests for interpretation of Architect's actions on submittals.
    g. Incomplete RFIs or inaccurately prepared RFIs.
2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01 26 00 "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 5 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Include the following:
1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number, including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within three days if Contractor disagrees with response.

1.6 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of seven days prior to meeting.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
a. Responsibilities and personnel assignments.
b. Tentative construction schedule.
c. Phasing.
d. Critical work sequencing and long lead items.
e. Designation of key personnel and their duties.
f. Lines of communications.
g. Procedures for processing field decisions and Change Orders.
h. Procedures for RFIs.
i. Procedures for testing and inspecting.
j. Procedures for processing Applications for Payment.
k. Distribution of the Contract Documents.
l. Submittal procedures.
m. Preparation of Record Documents.
n. Use of the premises and existing building.
o. Work restrictions.
p. Working hours.
q. Owner's occupancy requirements.
r. Responsibility for temporary facilities and controls.
s. Procedures for moisture and mold control.
t. Procedures for disruptions and shutdowns.
u. Construction waste management and recycling.
v. Parking availability.
w. Office, work, and storage areas.
x. Equipment deliveries and priorities.
y. First aid.

z. Security.
aa. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other Sections and when required for coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
a. Contract Documents.
b. Options.
c. Related RFIs.
d. Related Change Orders.
e. Purchases.
f. Deliveries.
g. Submittals.
h. Review of mockups.
i. Possible conflicts.
j. Compatibility requirements.
k. Time schedules.
l. Weather limitations.
m. Manufacturer's written instructions.
n. Warranty requirements.
o. Compatibility of materials.
p. Acceptability of substrates.
q. Temporary facilities and controls.
r. Space and access limitations.
s. Regulations of authorities having jurisdiction.
t. Testing and inspecting requirements.
u. Installation procedures.
v. Coordination with other work.
w. Required performance results.
x. Protection of adjacent work.
y. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than 30 days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
a. Preparation of Record Documents.
b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
c. Submittal of written warranties.
d. Requirements for preparing operations and maintenance data.
e. Requirements for delivery of material samples, attic stock, and spare parts.
f. Requirements for demonstration and training.
g. Preparation of Contractor's punch list.
h. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
i. Submittal procedures.

j. Coordination of separate contracts.
k. Owner's partial occupancy requirements.
l. Installation of Owner's furniture, fixtures, and equipment.
m. Responsibility for removing temporary facilities and controls.

4. Minutes: Entity conducting meeting will record and distribute meeting minutes.

E. Progress Meetings: Conduct progress meetings at weekly intervals.
1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
1) Review schedule for next period.
b. Review present and future needs of each entity present, including the following:
1) Interface requirements.
2) Sequence of operations.
3) Status of submittals.
4) Deliveries.
5) Off-site fabrication.
6) Access.
7) Site use.
8) Temporary facilities and controls.
9) Progress cleaning.
10) Quality and work standards.
11) Status of correction of deficient items.
12) Field observations.
13) Status of RFIs.
14) Status of Proposal Requests.
15) Pending changes.
16) Status of Change Orders.
17) Pending claims and disputes.
18) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

F. Coordination Meetings: Conduct Project coordination meetings at weekly intervals. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.
1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meetings shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
a. Combined Contractor's Construction Schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

b. Schedule Updating: Revise combined Contractor's construction schedule after each coordination meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
c. Review present and future needs of each contractor present, including the following:
   1) Interface requirements.
   2) Sequence of operations.
   3) Status of submittals.
   4) Deliveries.
   5) Off-site fabrication.
   6) Access.
   7) Site use.
   8) Temporary facilities and controls.
   9) Work hours.
   10) Hazards and risks.
   11) Progress cleaning.
   12) Quality and work standards.
   13) Status of RFIs.
   14) Proposal Requests.
   15) Change Orders.
   16) Pending changes.

3. Reporting: Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
   1. Contractor's construction schedule.
   2. Daily construction reports.
   3. Existing condition reports.
   4. Unusual event reports.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
   1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
   2. Predecessor Activity: An activity that precedes another activity in the network.
   3. Successor Activity: An activity that follows another activity in the network.

1.3 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:
   1. PDF file.

B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

C. Daily Construction Reports: Submit at weekly intervals.
   1. Existing Condition Reports: Submit at time of discovery of differing conditions.

D. Unusual Event Reports: Submit at time of unusual event.

1.4 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
   1. Secure time commitments for performing critical elements of the Work from entities involved.
   2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

B. Time Frame: Extend schedule from date established for commencement of the Work to date of Final Completion.
   1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities:
   1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
   2. Indicate start and completion dates for the following as applicable:
      a. Securing of approvals and permits required for performance of the Work.
      b. Submittal review time.
      c. Regulatory agency approvals.
      d. Punch list.

3. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and Final Completion.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion

E. Cost Correlation: Superimpose a cost correlation timeline, indicating planned and actual costs. On the line, show planned and actual dollar volume of the Work performed as of planned and actual dates used for preparation of payment requests.
1. See Section 01 29 00 "Payment Procedures" for cost reporting and payment procedures.

F. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. As the Work progresses, indicate Final Completion percentage for each activity.

G. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

H. Distribution: Distribute copies of approved schedule to Architect, Owner, and other parties identified by Contractor with a need-to-know schedule responsibility.

1.6 GANTT-CHART SCHEDULE REQUIREMENTS

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 15 days of date established for the Notice to Proceed.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
1. For construction activities that require two months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

1.7 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. Approximate count of personnel at Project site.
2. Material deliveries.
3. High and low temperatures and general weather conditions, including presence of rain or snow.
4. Testing and inspection.
5. Accidents.
6. Unusual events.
7. Orders and requests of authorities having jurisdiction.
8. Equipment or system tests and startups.

B. Existing Condition Reports: Immediately on discovery of a difference between existing conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

C. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

1. Submit unusual event reports directly to Owner within one day of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 32 00

SECTION 01 32 33 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:
   1. Preconstruction photographs.

B. Related Requirements:
   1. Section 02 41 19 "Selective Demolition" for photographic documentation before selective demolition operations commence.

1.2 INFORMATIONAL SUBMITTALS

A. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation.

B. Digital Photographs: Submit image files within three days of taking photographs.
   1. Submit photos by uploading to web-based Project management software site. Include copy of key plan indicating each photograph's location and direction.
   2. Identification: Provide the following information with each image description in file metadata tag:
      a. Name of Project.
      b. Name of Architect.
      c. Name of Contractor.
      d. Date photograph was taken.
      e. Description of location, vantage point, and direction.
      f. Unique sequential identifier keyed to accompanying key plan.

1.3 RIGHTS

A. Ownership and copyright privileges of photographic images belong to the Owner and the Architect. Under penalty of Law, the Contractor shall not provide or transmit in any manner construction photographs to any entities except the Owner and the Architect without written authorization from the Architect.

1.4 FORMATS AND MEDIA

A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.

B. Digital Images: Submit digital media as originally recorded in the digital camera, without alteration, manipulation, editing, or modifications using image-editing software.

C. Metadata: Record accurate date and time from camera.

D. File Names: Name media files with date, Project area, and sequential numbering suffix.

1.5 CONSTRUCTION PHOTOGRAPHS

A. General: Take photographs with maximum depth of field and in focus.
   1. Maintain key plan with each set of construction photographs that identifies each photographic location.

B. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points.
   1. Take photographs of existing buildings on property to accurately record physical conditions at start of construction.

2. Take photographs of existing pavements, landscaping, and lawn areas to accurately record physical conditions, especially settlement or cracking, at start of construction.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 32 33

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Administrative and procedural requirements for submittals.
2. Web-based file sharing system.
3. Use of digital data files.

B. Related Requirements:
1. Section 01 31 00 "Project Management and Coordination" for submitting coordination drawings.
2. Section 01 40 00 "Quality Requirements" for submitting test and inspection reports.
3. Section 01 77 00 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
4. Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
5. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

C. BIM: Building Information Modeling.

D. ShareFile: Web-based file sharing site, owned by Citrix Systems, which will be utilized to organize and exchange submittals. Access to ShareFile is available through Architect at no cost.

1.3 SUBMITTAL FORMATS

A. Transmittal: Include the following information on transmittal form:
1. Project name.
2. Date.
3. Name of Architect.
4. Name of Contractor.
5. Name of firm or entity that prepared submittal.
6. Names of subcontractor, manufacturer, and supplier.
7. Unique submittal number, including revision identifier.
    1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Maintain a single numeric sequence regardless of whether an individual submittal is physical or electronic.
    2) Resubmittals shall include an alphanumeric suffix after another decimal point (e.g., 061000.01.R1).
8. Category and type of submittal.
9. Submittal purpose and description.
10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
11. Drawing number and detail references, as appropriate.
12. Location(s) where product is to be installed, as appropriate.
13. Other necessary identification.
14. Remarks.
15. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

1.4 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Submit all submittal items required for each Specification Section concurrently.
   3. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.
      a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received. Processing time starts when related submittals are received.

B. Processing Time: Allow time for submittal review, including time for resubmittals, as follows.
   1. Time for review shall commence on Architect's receipt of submittal whether physically delivered to Architect’s office or electronically delivered to ShareFile.
   2. Review time concludes upon Architect’s date of return-transmittal form whether physically delivered to Contractor or electronically delivered to ShareFile.
   3. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
   4. Required processing times are as follows regardless of any conflicting statement made elsewhere:
      a. Initial Review: Allow 14 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
         1) Color selections: For submittals that require a color or texture selection by the Architect, submit physical samples in advance of electronic submission.
      b. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
      c. Resubmittal Review: Allow 14 days for review of each resubmittal.
      d. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.

C. Resubmittals: Make resubmittals in same form as initial submittal.
   1. Note date and content of previous submittal.
   2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
   3. **Repetitious resubmittals** not complying with previous submittal annotations will result in back-charges against the Contractor for excessive Architect / Consultant review time.
      a. This applies whenever a resubmittal must be revised and resubmited due to non-compliance with a previous annotation. If there is any question about an annotation that the submitter feels cannot be followed, the submitter must initiate discussion with the Architect, not simply ignore the annotation.
      b. Back-charges assessed for these reasons must be paid directly to the reviewing entity in advance of the Contractor’s next partial Application for Payment or payment request will not be processed.

D. Processing Electronic Submittals:
   1. Assemble all documents of a submittal, including transmittal, into a single PDF. Do not combine multiple submittals into the same PDF. Before creating PDF, ensure the following:
      a. Documentation is complete and in compliance with the Contract Documents.
      b. Product selections and options intended to be provided are *clearly* selected and identified in the submittal.
         1) Failure to identify selections may result in rejection of the submittal without further review.
      c. Where Architect selections are needed, ensure the available selections are clearly identified in the submittal; where color or texture selections by the Architect are needed, Contractor is

required to submit actual physical samples; no color will be selected from electronic submissions.

d. Contractor has stamped, signed, and dated their confirmation that the submittal is correct, complete, and in compliance with Contract Documents.

2. Ensure PDF is legible in both electronic (screen) version AND printed version.
   a. In general, create PDF from an original electronic file rather than from a scanning process.
   b. Illegible PDFs will be returned to Contractor without review.
   c. No change in Contract Time will be authorized for Contractor's failure to provide actionable PDF submittals.
3. Upload PDF to designated folder on ShareFile website and email Architect accordingly. Architect will email Contractor when submittal review is complete and ready for Contractor's download. Architect will provide ShareFile access instructions and detailed submittal routing procedures at pre-construction meeting.
4. Retrieve completed submittals from the ShareFile website, maintain its own electronic file of all completed submittals, and shall provide paper copies of submittals as may be needed for field installation or its own purposes.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
1. For Construction: Provide paper copies of shop drawings, wiring diagrams, and other submittals containing installation requirements for use on the project site.
   a. Provide additional sets or partial sets needed by the Contractor's own workers while performing the installation. Do not perform installation without having paper copy of final shop drawings present in the work area.
   b. Use only final submittals bearing the stamp mark of the Architect indicating that the submittal is acceptable for construction use under the conditions indicated.
2. For Authorities having Jurisdiction: For contractor-obtained permits and other contractor provided information required by authorities having jurisdiction, assemble complete documentation, drawings, and forms for the submission into a single PDF as required by the authority for electronic submission. Attach a signed transmittal form or cover letter on contractor's letterhead addressed to the authority; include information on method of payment of fees where applicable. Transmit to authority electronically with copy to Architect unless:
   a. If Authority requires submission be made by the Architect or engineer of record: Provide to Architect who will review the submittal and then forward it (including Contractor's cover letter) to the Authority under Architect's transmittal form.
   b. If Authority requires hardcopies: provide number of physical copies required by the authority and process direct or via Architect as indicated above.
3. For Operation and Maintenance Manuals: Provide 'clean' paper copies of all electronic submittals required and integrate with documents that were processed originally as physical submittals. Do not provide paper copies that have been damaged or marked-up by construction use.
   a. Additionally, for all submittals that were processed electronically, include all final submittals on a CD, cataloged in the same order as required for the physical O&M manual, and furnish to Owner as part of the Manual.

1.5 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:
   a. Manufacturer's catalog cuts.
   b. Manufacturer's installation instructions.
   c. Color samples.
   d. Statement of compliance with specified referenced standards.
   e. Testing by recognized testing agency.
   f. Application of testing agency labels and seals.
   g. Notation of coordination requirements.
   h. Availability and delivery time information.
4. For equipment, include the following in addition to the above, as applicable:
   a. Wiring diagrams that show factory-installed wiring.
   b. Printed performance curves.

c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
a. Project name and submittal number.
b. Generic description of Sample.
c. Product name and name of manufacturer.
d. Sample source.
e. Number and title of applicable Specification Section.
f. Specification paragraph number and generic name of each item.
3. Processing:
a. Submit actual-material Samples, with transmittal, to Architect for review and action.
b. Upload PDF of transmittal to ShareFile website including digital image file illustrating Sample characteristics and identification information for record.
c. Architect will transmit review action to Contractor through ShareFile.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected rom manufacturer's product line. Architect will return submittal with options selected.
6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
a. Number of Samples: Submit two sets of Samples. Architect will retain one Sample set; remainder will be returned to jobsite.
1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:
1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
    a. Name of evaluation organization.
    b. Date of evaluation.
    c. Time period when report is in effect.
    d. Product and manufacturers' names.
    e. Description of product.
    f. Test procedures and results.
    g. Limitations of use.

I. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.

5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

J. Material Safety Data Sheets (MSDSs): Submit information directly to Owner; do not submit to Architect.
1. Architect will not review submittals that include MSDSs and will return the entire submittal for resubmittal to proper entity.

1.6 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.
2. If Specifications require that the actual shop drawings or actual calculations pages be signed and sealed by the delegated design professional, in addition to the above, provide three paper copies of the final reviewed documents bearing the engineer’s seal and signature directly on each document.

1.7 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
1. Do not process submittals that do not comply with requirements.
2. Do not process submittals that are not clearly marked to indicate the specific products and specific product options.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.8 ARCHITECT'S REVIEW

A. Requirements of this Section are intended to supplement requirements of the General and Supplementary Conditions. Any reference herein, in the General Conditions, or elsewhere in the Project Manual, to Architect’s “Approval” of any submittal shall not be construed as the Architect assuming any responsibility of the Contractor or any other entity, nor acceptance of any product or work not in conformance with the Contract Documents.

B. Action Submittals: Architect will review each submittal, indicate corrections or revisions required, and return. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken.

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Incomplete submittals, including submittals that do not highlight specific product choices or options, are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Submittals not required by the Contract Documents will be returned by Architect without action.

F. Submittal of un-named products when a Section includes a list of acceptable products will be returned by Architect without review. Comply with Section 01 25 00 “Substitution Procedures” for *consideration* of substitutions and comparable products.

G. Architect will not review submittals that do not bear Contractor's approval stamp and will return them ‘rejected’ without further action.

1.9 ARCHITECT’S DIGITAL DATA FILES

A. Architect's Digital Data Files: Electronic copies of individual Contract Drawing Plan Sheets *may* be furnished upon request solely for Contractor's use in preparing submittals and solely for use on this project. Any other use of these drawings is a prosecutable violation of terms of use.
1. **For Architect’s drawings**, Contractor must make written request for specific sheets and comply with all requirements indicated in the “Agreement and Waiver for Use of Architect’s Electronic Documents” form in Part 4 of this Section.
2. **For other Consultants’** (Non-SHP) drawings, contact the individual consultant and comply with that consultant’s separate waivers, and agreements.
3. Availability and format depends on drawing type and drawing production methods used. Availability is not guaranteed.
4. Drawings will be stripped of all titles, seals, dimensional and text information.
5. Active BIM Model is not available for Contractor use.
6. No claims for additional time will be accepted from any Contractor for the time it takes the Architect or their consultants to prepare and transmit the requested electronic files for the Contractor’s use.

B. Photocopy the appropriate Agreement / Waiver form starting at the end of this Section. Provide all information requested completely. Sign and date at the bottom to indicate understanding and acceptance of all terms and conditions contained in the form.

C. Indicate the desired electronic format and version and the sheet numbers of the desired sheets in the spaces allotted at the bottom of the form.

D. Submit form to the Architect or consultant as appropriate following directions on the form.

E. For use of other Consultant’s electronic documents, contact the consultant directly and comply with their requirements and waivers.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

PART 4 - FORMS

4.1 Agreement and Waiver form begins on next page.

AGREEMENT AND WAIVER FOR USE OF ARCHITECT'S ELECTRONIC DOCUMENTS

This agreement is made on: (date) _____.

By Contractor: (company name) _____.

Address,
City, State, Zip: _____.

To the Architect: SHP, 312 Plum Street, Suite 700
Cincinnati, Ohio 45202 (fax 513-381-5121)

In consideration of the Contractor's limited use of copies of the Architect's electronic documents, the Contractor agrees as follows:

OWNERSHIP AND USE OF ARCHITECT'S DRAWINGS

1 Electronic Documents

1.1 The Architect, at their sole discretion and without obligation, will make graphic portions of plan-view Contract Drawings available for use by the Contractor in electronic format. These electronic documents shall be for use solely with respect to this single Project as provided in the Standard Form of Agreement between Owner and Architect.

1.2 These electronic documents will be provided in .DWG format for AutoCAD 2013.

1.3 The electronic documents provided will be stripped of the Project's name and address, the Architect's and their consultant's name and address, any professional licenses indicated on the Contract Documents, and all dimensions, verbiage, and statistical information. Detail drawings are not available in electronic format.

1.4 Use of these electronic documents is solely at the Contractor's risk, and shall in no way alter the Contractor's Contract for Construction.

1.5 The Architect makes no representation regarding fitness for any particular purpose, or suitability for use with any software or hardware, and shall not be responsible or liable for errors, defects, inexactitudes, or anomalies in the data, information, or documents (including drawings and specifications) caused by the Architect's or its consultant's computer software or hardware defects or errors; the Architect's or its consultant's electronic or disk transmittal of data, information or documents; or the Architect's or its consultant's reformatting or automated conversion of data, information or documents electronically or disk transmitted from the Architect's consultants to the Architect. The Contractor waives all claims against the Architect, its employees, officers and consultants for any and all damages, losses, or expenses the Contractor incurs from defects or errors in the electronic documents. Furthermore, the Contractor shall indemnify, defend, and hold harmless the Architect, and its consultants together with their respective employees and officers, from and against any claims, suits, demands, causes of action, losses, damages or expenses (including all attorney's fees and litigation expenses) attributed to errors or defects in data, information or documents, including drawings and specifications, resulting from the Contractor's use or distribution of electronic documents to other contractors, persons, or entities.

The undersigned agrees to the terms and conditions contained herein.
Contractor Signature:

By: _____.

Title: _____.

Electronic Format Desired: _____.

Email address to send electronic documents: _____

Sheets Desired:

_____. _____. _____. _____. _____. _____. _____.

_____. _____. _____. _____. _____. _____. _____.

END OF SECTION 01 33 00

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.2 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).

D. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.

E. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

F. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).

G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" shall have the same meaning as the term "testing agency."

H. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

I. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.3 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
   1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Statement: Submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.4 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

C. During construction, Contractor will be instructed to provide the greater quantity or quality. No increase in the Contract Amount will be considered for Contractor bidding the lower quality and lesser quantity instead of seeking clarification during bidding.

1.5 INFORMATIONAL SUBMITTALS.

A. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
   1. Specification Section number and title.
   2. Entity responsible for performing tests and inspections.
   3. Description of test and inspection.
   4. Identification of applicable standards.
   5. Identification of test and inspection methods.
   6. Number of tests and inspections required.
   7. Time schedule or time span for tests and inspections.
   8. Requirements for obtaining samples.
   9. Unique characteristics of each quality-control service.

C. Reports: Prepare and submit certified written reports and documents as specified.

D. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.6 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
   1. Date of issue.
   2. Project title and number.
   3. Name, address, telephone number, and email address of testing agency.

4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement of whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

1.7 QUALITY ASSURANCE

A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following Contractor's responsibilities, including the following:
1. Provide test specimens representative of proposed products and construction.
2. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
3. Provide sizes and configurations of test assemblies and mockups to adequately demonstrate capability of products to comply with performance requirements.
4. Build site-assembled test assemblies and mockups, using installers who will perform same tasks for Project.
5. When testing is complete, remove test specimens, test assemblies, and mockups; do not reuse products on Project.
6. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Integrated Exterior Mockups: Construct integrated exterior mockup according to approved Shop Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials. Comply with requirements in "Mockups" Paragraph.
1. Coordinate construction of the mockup to allow observation of air barrier installation, flashings, air barrier integration with fenestration systems, and other portions of the building air/moisture barrier and drainage assemblies, prior to installation of veneer, cladding elements, and other components that will obscure the work.

1.8 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner’s responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
2. Payment for these services will be made by the Owner.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Engage a qualified testing agency to perform quality-control services.
a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 33 00 "Submittal Procedures."

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.9 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as indicated in the Statement of Special Inspections, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.
4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
6. Where tests reveal non-compliant work, Owner's testing agency will perform retesting and reinspection of corrected Work at Contractor's expense.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and authorities' having jurisdiction reference during normal working hours.
1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 73 00 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 40 00

SECTION 01 42 00 - REFERENCES

PART 1 - GENERAL

1.1 DEFINITIONS

A. General: Basic Contract definitions are included in the General Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.2 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
1. For standards referenced by applicable building codes, comply with dates of standards as listed in building codes.

C. Copies of Standards: Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
1. Where copies of standards are needed to perform a required construction activity or to resolve any construction activity uncertainty or dispute, contractor shall immediately obtain copies of the relevant standard directly from publication source and keep on site for reference by all entities. Retain list of standards and regulations below if required. The Section Text in MASTERSPEC Sections is prepared assuming list is retained.

1.3 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.
1. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
2. ICC - International Code Council; www.iccsafe.org.
3. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.
4. DIN - Deutsches Institut fur Normung e.V.; www.din.de.
5. OBC – Ohio Building Code.

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.
1. COE - Army Corps of Engineers; www.usace.army.mil.
2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
4. DOD - Department of Defense; www.quicksearch.dla.mil.
5. DOE - Department of Energy; www.energy.gov.
6. EPA - Environmental Protection Agency; www.epa.gov.
7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov/fdsys.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeial Convention; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.
1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.govinfo.gov.
2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
    a. Available from Defense Standardization Program; www.dsp.dla.mil.
    b. Available from General Services Administration; www.gsa.gov.
    c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org.
6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:
1. Section 01 10 00 "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, occupants of Project, testing agencies, and authorities having jurisdiction.

B. Water Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

C. Electric Power Service from Existing System: 120 volt electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

D. No other public utilities are provided on the site; all other utilities required for construction shall be provided by the Contractor as temporary facilities.

1.3 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

C. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.
1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
2. Indicate sequencing of work that requires water and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
3. Indicate methods to be used to avoid trapping water in finished work.

D. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation.

E. Noise and Vibration Control Plan: Identify construction activities that may impact the occupancy and use of existing spaces within the building or adjacent existing buildings, whether occupied by others, or occupied by the Owner. Include the following:
1. Indicate activities that may disturb building occupants and that are planned to be performed during non-standard working hours as coordinated with the Owner.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete or galvanized-steel bases for supporting posts.

2.2 TEMPORARY FACILITIES

A. General: Contractor is responsible for all temporary facilities needed including but not limited to:
1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
3. Hoses for water to location needed.
4. Storage and fabrication sheds.
5. All safety devices and precautions necessary for operations and work.
6. Provide, maintain and perform protection and prevention of fires or fire hazards during the construction period for its construction material and personnel in accordance with Federal, State and Local laws and regulations. This includes but is not limited to fire extinguishers, special signs and removal of combustible materials.
7. Staging and scaffolding for its own construction activities.
8. Waste disposal facilities, including collection and legal disposal of its own waste materials. Daily cleanup of Contractor's trash & debris is mandatory for this project and is included in the Contract.
9. Secure lockup of tools, materials, and equipment.
10. Construction aids and miscellaneous services and facilities necessary exclusively for construction activities.
11. Means and methods of construction and jobsite safety.
12. Contractor is similarly responsible for the activities of its subcontractors.

B. Common-Use Field Office is contractor option; progress meetings may be held in the existing building in lieu of on-site if scheduled in advance with the Owner; or may be held on site in the open. If provided, office trailer shall be of sufficient size to accommodate needs of construction personnel, inspectors, architect, and contractor's office activities and to accommodate Project meetings. Furnish and equip offices as follows:
1. Location: Parking lot; position as approved by Owner.
2. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
3. Provide secure location for copy of reviewed submittals, permits, permit drawing sets and other official documents, and for as-built markup drawings and specification sets.
4. Provide tackboard for posting required documents, project information, telephone lists including emergency numbers for fire, police and life squad, safety posters and the like.
5. Desks for contractor.
6. Area of sufficient size to accommodate meetings of 10 individuals.
7. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
8. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

C. IF NO field office is provided: Provide weather-tight lockable gang box of sufficient size to accommodate record documents, permit drawings, shop drawings, notice board and other required informational documents.
1. This document gang box shall be a separate dedicated item, not part of contractor's tool and equipment gang box. Furnish with combination padlock and advise owner and architect of combination or provide key padlock with keys issued to owner and architect.
2. Contractor is responsible to ensure gang box is secured on site against theft and damage.
3. Document gang box shall be available to all authorized entities during construction hours.

D. Sanitary Facilities: Provide and maintain temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

E. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Remove trash from site daily or provide dumpster adequate for all waste material and debris at end of each day; service as required.
   1. Allow no loose material piles or fenced debris containment areas.

F. Enclosure Fence: Contractor option to enclose staging area. Use portable chain link fencing that does not penetrate or damage pavement.

G. Barricades, Warning Signs, and Lights: Provide safety devices and protections as required by work or by authorities having jurisdiction including but not limited to structurally adequate barricades, fences, warning signs and lighting.

H. Storage and Fabrication Sheds: Contractor may provide sheds sized, furnished, and equipped to accommodate materials and equipment for their construction operations.
   1. Store combustible materials apart from building.
   2. Locate as directed by Construction Coordinator.

I. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

J. First Aid: Maintain first aid kit adequate for all common construction needs and injuries. Kit must be unlocked and accessible for quick retrieval at all times construction is underway.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
   1. Locate facilities to limit site disturbance as specified in Section 01 10 00 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

D. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations if requirements exceed the capacity of Owner’s existing 120 volt electric power service. Maintain Owner’s existing power equipment in a condition acceptable to Owner.

3.3 SUPPORT FACILITIES INSTALLATION

A. Temporary Use of Existing Permanent Drives, Walks, and Paved Areas: Photo-document condition of existing driveways, parking lots and sidewalks used for construction purposes and access. Show in particular any condition that may later be interpreted as construction damage.
   1. Maintain paved areas in good undamaged condition. Review conditions daily and immediately assess any inadvertent damage and identify cause / responsible contractor.
   2. Contractor shall provide protective means they deem necessary to protect against pavement damage from their operations.

B. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

C. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 01 73 00 "Execution."

D. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

E. Existing Stair Usage: Use of Owner's existing stairs will be permitted, provided stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.
1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If stairs become damaged, restore damaged areas so no evidence remains of correction work.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

C. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.

D. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

E. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

F. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire prevention program.
1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.

2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 77 00 "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
1. Administrative and procedural requirements for selection of products for use in Project.
2. Product delivery, storage, and handling.
3. Manufacturers' standard warranties on products.
4. Special warranties.

B. Related Requirements:
1. Section 01 25 00 "Substitution Procedures" for requests to submit consideration of **comparable products**.
2. Section 01 25 00 "Substitution Procedures" for requests for **substitutions**.
3. Section 01 42 00 "References" for applicable industry standards for products specified.
4. Section 01 77 00 "Closeout Procedures" for submitting warranties.

1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, which is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products, unless indicated otherwise.
3. Comparable Product: Product that is demonstrated and approved through Section 01 25 00 “Substitution Procedures” process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of a specified product.
a. Comparable products are allowed only under conditions and processes described in Section 01 25 00 “Substitution Procedures”.

B. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis-of-design” product, including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating equivalent features of products of other manufacturers named in the specification.
1. Designating one product or manufacturer as the “Basis-of-Design” does not either directly or unintentionally establish a proprietary specification. It is fully expected that the other named manufacturers have standard or modified products, with or without accessory and supplementary items or methods of installation that provide equivalent utility, function, properties and design intent to the basis of design.
2. Any Contractor needing clarification about the acceptability of a product or method of installation of one of the other named manufacturers shall seek clarification from the architect during bidding by submitting complete documentation for the intended product and a written statement of intent. Submit full substantiating documents in time for Architect’s review and analysis before the cutoff date for issuing an Addendum.
3. If clarification is not requested as required during bidding, comply with the Architect’s instructions during Submittals Process that establish other named manufacturer product equivalency to the basis-of-design product; or provide the basis-of-design product.

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications.

1.3 SUBSTITUTIONS / COMPARABLE PRODUCTS

A. Contractor substitution requests for convenience or for cause; and requests to use comparable products, will be considered only when presented in compliance with Section 01 25 00 “Substitution Procedures”.

B. Failure to process or order in a timely manner:
1. Failure to process product submittals or to order materials, in time to meet construction schedule requirements is not justification for providing any product or method that differs from the Construction Documents.
2. IF a substitution for cause is acceptable to the Architect, any and all costs associated with the substitution including but not limited to, providing a superior product to the one specified, expedited deliveries, special production runs, custom modifications or finishes, and adjustments to other Work in place or yet to be installed, shall be paid by the Contractor who’s failure to process or order in a timely manner has caused the change. In no case shall any cost be passed on to the Owner for such failure.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other Contractors. Date of Architect’s favorable review shall be the date used in determining precedence.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used. Provide products determined by architect with no additional cost to Owner.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service- or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
a. Name of product and manufacturer.
b. Model and serial number.
c. Capacity.
d. Speed.
e. Ratings.
3. See individual identification Sections in Divisions 21, 22, 23, and 26 for additional equipment identification requirements.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:
1. Provide a secure location and enclosure at Project site for storage of materials and equipment.
2. Store products to allow for inspection and measurement of quantity or counting of units.

3. Store materials in a manner that will not endanger Project structure.
4. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.
5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
   1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of the Owner or endorsed by manufacturer to Owner.
   2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of the Owner or endorsed by manufacturer to Owner.
   3. Warranty initiation date shall be the date indicated in the applicable specification section. Contractor shall obtain any additional, supplemental, or extended insurance necessary to cover insurances for the time period indicated if manufacturer-provided insurance does not cover the full timeframe required.
   4. There shall be no delay in the initial start and continuation in effect of any warranty required by the Specifications for any cause, including but not limited to any obligations of performance or payment of fee(s), or other requirement between the Contractor and the product manufacturer / warranty provider.
      a. Where a fee is required to initiate and bring into effect or to maintain a Warranty, the Contractor shall pay such fee(s) as part of the Work and shall provide proof of payment of fees and proof of initiation of Warranty before Final Payment request will be processed.
   5. Warranties shall not be suspended, terminated, or revoked due to any failure of the Contractor or their sub-contractor to pay premiums or initiation-of-warranty fees.
   6. For the full duration of the warranty period, an executed warranty as delivered to the Owner shall not be suspended, terminated or revoked by the manufacturer or Contractor without written documentation signed by an officer of the manufacturer and delivered to the Owner by registered mail.
   7. Manufacturer Direct Inspections for Warranty Continuance: All fees for the product manufacturer’s inspections required to maintain a warranty in full force and effect throughout the warranty period shall be waived or be pre-paid and included as part of the construction Work; this applies whether the manufacturer uses their own forces or contracts with an inspection agency. This does not apply to regular maintenance inspections and service obligations of the Owner.
   8. Contractor is responsible to pay all fees and to obtain any and all additional warranties or warranty extensions necessary to fulfill the requirements of this section and of specific Product Section warranties including but not limited to warranty initiation date, warranty initiation fee payments, periodic inspection costs if required by the warranty, warranty termination date, and warranty work coverage, as part of the Work without additional cost to the Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms, dates, and identification, ready for execution.
   1. Manufacturer's Standard Form: Modified or appended to include Project-specific information and requirements, properly executed.
      a. Modifications of standard form to be initialed by all parties to the agreement.
      b. Appended documents to be referenced by modification to the standard form and both documents to be cross-referenced by title and date.
   2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
   3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time:
   1. Sample Warranty / Form: un-executed, but with terms clearly indicated, when listed in a specification Section under Part 1 article “Informational Submittals”.

2. Executed Warranty / Form: Comply with requirements in Section 01 77 00 "Closeout Procedures."

D. Product Warranty Prerequisite: Specified warranties are as much a requirement of products as performance criteria. Do not submit products that cannot be covered by the specified warranty whether or not listed in the specification section; seek clarification from Architect in advance. See Section 01 25 00 “Substitution Procedures”.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Provide anchorage devices suited to conditions and that will maintain strength throughout the life of the installation without loosening, failure, deterioration, rust or staining.
3. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
4. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
5. Where products are accompanied by the term "as selected," Architect will make selection.
6. Where products are accompanied by the term "match sample," sample to be matched is Architect's; or Architect will advise specific location / criteria to be matched.
7. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
8. Or Equal: For products specified by name and accompanied by the term "or equal," "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article in Section 01 25 00 “Substitution Procedures” to obtain approval for use of a particular unnamed product.

B. Product Selection Procedures:
1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor convenience will not be considered.
   a. Sole product may be indicated by the phrase "Subject to compliance with requirements, provide the following."
2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   a. Sole manufacturer/source may be indicated by the phrase "Subject to compliance with requirements, provide products by the following."
3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor convenience will not be considered.
   a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."
4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed or an unnamed product that complies with requirements.
   a. Non-limited list of products is indicated by the phrase "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following."
   b. Provision of an unnamed product is not considered a substitution, if the product complies with requirements.
5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
   a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."
6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed or a product by an unnamed manufacturer that complies with requirements.

a. Non-limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following."
b. Provision of products of an unnamed manufacturer is not considered a substitution, if the product complies with requirements.

7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named.
   a. Any contractor needing clarification about the acceptability of a product or method of installation of one of the other named manufacturers shall seek clarification from the Architect during bidding by submitting complete documentation for the intended product and a written statement of intent.
      1) Submit full substantiating documents in time for Architect's review and analysis before the cutoff date for issuing an addendum.
      2) If clarification is not requested as required during bidding, comply with the Architect's instructions during the Submittals Process that establish other named manufacturer product equivalency to the basis-of-design product; or provide the basis-of-design product.

C. Visual Matching Specification: Where Specifications require "match Architect's sample" including to "match an established sample or element of an existing building" provide a product that complies with requirements and also matches Architect's sample or indicated element. Architect's decision will be final on whether a proposed product matches.
   1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 25 00 "Substitution Procedures" for proposal of another product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's 'Standard', 'Full', or 'Industry' range of colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements and the following:
   1. Standard Range: Or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items / finishes.
   2. Full Range: Or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items / finishes.
   3. Industry Range: Or similar phrase, Architect will select a product from the manufacturer indicated and that is a regular offering in the industry even if it may be a special offering by the named manufacturer.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: ONLY as indicated and following the processes stated in Section 01 25 00 "Substitution Procedures."

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 60 00

SECTION 01 73 00 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
1. Installation of the Work.
2. Cutting and patching procedures applicable to **ALL Divisions of the Work**.
3. Coordination of Owner's portion of the Work.
4. Progress cleaning.
5. Protection of installed construction.

B. Related Requirements:
1. Section 01 77 00 "Closeout Procedures" for replacing defective work and final cleaning.
2. Section 02 41 19 "Selective Demolition" for demolition and removal of selected portions of the building.
3. Section 07 84 13 "Penetration Firestopping" for patching penetrations in fire-rated construction.

1.2 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

C. "Cutting and patching" is performed for coordination of the work, to uncover work for access or inspection, to obtain samples for testing, to permit alterations to be performed, and for other similar purposes.

D. Cutting and patching performed during the manufacturer of products or during the initial fabrication, erection, or installation processes is not considered to be "cutting and patching" under this definition. Drilling of holes to install fasteners and similar operations are also not considered to be "cutting and patching".

1.3 PREINSTALLATION MEETINGS

A. Cutting and Patching Conference: Conduct conference at Project site.
1. Prior to commencing work requiring cutting and patching, review extent of cutting and patching anticipated and examine procedures for ensuring satisfactory result from cutting and patching work. Inform Architect of scheduled meeting. Require representatives of each entity directly concerned with cutting and patching to attend, including the following:
a. Contractor's superintendent.
b. Trade supervisor responsible for cutting operations.
c. Trade supervisor(s) responsible for patching of each type of substrate.
d. Mechanical, electrical, and utilities subcontractors' supervisors, to the extent each trade is affected by cutting and patching operations.
2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

B. Layout Conference: Conduct conference at Project site.
1. Prior to establishing layout of new perimeter and structural column grid(s), review building location requirements. Review benchmark, control point, and layout and dimension requirements. Inform Architect of scheduled meeting. Require representatives of each entity directly concerned with Project layout to attend, including the following:
a. Contractor's superintendent.
b. Professional surveyor responsible for performing Project surveying and layout.
c. Professional surveyor responsible for performing site survey serving as basis for Project design.
2. Review meanings and intent of dimensions, notes, terms, graphic symbols, and other layout information indicated on the Drawings.

3. Review requirements for including layouts on Shop Drawings and other submittals.
4. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.4 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
   1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
   2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
      a. For proposed structural cutting or change, submit detailed structural engineering drawings and calculations signed and sealed by the Contractor's delegated design engineer for review.
      b. For operational changes proposed, submit to Engineer for review.
      c. For appearance changes proposed, submit to Architect for review.
   3. Products: List products to be used for patching and firms or entities that will perform patching work.
   4. Dates: Indicate when cutting and patching will be performed.
   5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
      a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.
   6. Comply with any changes indicated by the Architect / Engineer's review of the cutting and patching proposal.

1.5 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
   1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
   2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
      a. Primary operational systems and equipment.
      b. Fire separation assemblies.
      c. Air or smoke barriers.
      d. Fire-suppression systems.
      e. Plumbing piping systems.
      f. Mechanical systems piping and ducts.
      g. Control systems.
      h. Communication systems.
      i. Fire-detection and -alarm systems.
      j. Conveying systems.
      k. Electrical wiring systems.
      l. Operating systems of special construction.
   3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
      a. Water, moisture, or vapor barriers.
      b. Membranes and flashings.
      c. Exterior curtain-wall construction.
      d. Sprayed fire-resistive material.
      e. Equipment supports.
      f. Piping, ductwork, vessels, and equipment.
      g. Noise- and vibration-control elements and systems.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with requirements specified in other Sections.
1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing site survey, topography, and subsurface conditions: Existing conditions presented in drawing, report or specification form are believed accurate within normal industry tolerances but are not guaranteed. Investigate, survey, confirm and verify all conditions bearing on the Work by any means necessary before starting any Work that changes existing conditions. Report any unacceptable discrepancies to the architect in writing before beginning operations.
1. Written claims of difference shall be accompanied by all substantiating evidence necessary to document such claim.
2. Claims of difference shall be resolved, including determination of quantities and costs and methods of Contract Modification, before work that alters such existing conditions is started.
3. Initiation of site-clearing, soil-moving operations, demolition or other activity that alters existing conditions shall be evidence that Contractor has made all investigations and evaluations it deems necessary and has accepted all existing conditions present whether or not they conform exactly to the Contract Documents.
4. Without advance written notification of unacceptable discrepancy, no claim for extra will be considered for a claim of difference between documents and actual conditions after the contractor has altered existing conditions.

B. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, and other construction affecting the Work.
1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services, and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

D. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
   1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
   2. List of detrimental conditions, including substrates.
   3. List of unacceptable installation tolerances.
   4. Recommended corrections.

E. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

F. Concealed Conditions: Concealed conditions that the Contractor believes to differ substantially from Contract requirements, that change the products or performance requirements indicated, or that otherwise have a time / cost impact on the Contractor's work shall be brought to the attention of the Architect immediately upon discovery.
   1. Verbal or written claims of difference shall be accompanied by all substantiating evidence necessary to document such claim. Verbal claims shall be documented in writing by the Contractor following discussions including full description of claim and points of understanding.
   2. Claims of difference shall be resolved in writing, including determination of quantities and costs and methods of Contract Modification, before work that alters such existing conditions is started.
      a. When actual quantities remain concealed at time of discovery, the unknown quantities shall be estimated and a unit price agreed upon; as work progresses, Contractor shall track and document actual quantities to the Architect daily and shall not exceed estimated quantities without specific notification and further discussion.
   3. Without such written agreement no claim for extra will be considered for a claim of difference between documents and actual conditions after the Contractor has altered existing conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect in accordance with requirements in Section 01 31 00 "Project Management and Coordination."

E. Drawings:
   1. Although Drawings are grouped and identified by classification of the Work, Contractors are responsible for their Work as it may be indicated on any and all of the Drawings regardless of drawing number prefix.
   2. Although the majority of the Drawings are "to scale," Contractors are directed to use indicated written dimensions along with their own field measurements and verifications for determining locations, material quantities and for other reasons.
      a. Most plan drawings have a one-inch 'reference line' left of the title block box containing the sheet number. Be aware that if this reference line does not measure exactly one inch in length, the sheet has not been reproduced at a correct size.

3.3 INSTALLATION

A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.

4. Maintain minimum headroom clearance of 108 inches in occupied spaces and 96 inches in unoccupied spaces, unless otherwise indicated on Drawings.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations, so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. 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.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect, as judged by Architect. Fit exposed connections together to form hairline joints.

J. Repair or remove and replace damaged, defective, or nonconforming Work.
1. Comply with Section 01 77 00 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.4 CUTTING AND PATCHING

A. Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching with Owner.

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
   a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
   b. Restore damaged pipe covering to its original condition.
3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
   a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
   a. Use containers intended for holding waste materials of type to be stored.
4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
5. Contractors failing to clean their work areas as indicated and directed will be back-charged costs for having the work performed.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 PROTECTION AND REPAIR OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.

C. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

D. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 73 00

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for Contract closeout including, but not limited to, the following:
   1. Substantial Completion procedures.
   2. Final completion procedures.
   3. Warranties.
   4. Final cleaning.

B. Related Requirements:
   1. Section 01 29 00 "Payment Procedures" for requirements for Applications for Payment for Substantial Completion and Final Completion.
   2. Section 01 78 23 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
   3. Section 01 78 39 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
   4. Section 01 79 00 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.2 DEFINITIONS

A. List of Incomplete Items: Contractor-prepared list of items to be completed or corrected, prepared for the Architect's use prior to Architect's inspection, to determine if the Work is substantially complete.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of cleaning agent.

B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

A. Certificates of Release: From authorities having jurisdiction.

B. Certificate of Insurance: For continuing coverage.

C. Field Report: For pest control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
   1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.

2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, and similar final record information.
3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
   a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Owner's signature for receipt of submittals.
5. Submit testing, adjusting, and balancing records.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
3. Complete startup and testing of systems and equipment.
4. Perform preventive maintenance on equipment used prior to Substantial Completion.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 79 00 "Demonstration and Training."
6. Advise Owner of changeover in heat and other utilities.
7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
9. Complete final cleaning requirements.
10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.7 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:
1. Submit a final Application for Payment in accordance with Section 01 29 00 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
   1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor, listed by room or space number.
   2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
   3. Include the following information at the top of each page:
      a. Project name.
      b. Date.
      c. Name of Architect.
      d. Name of Contractor.
      e. Page number.
   4. Submit list of incomplete items in the following format:
      a. PDF Electronic File: Architect will return annotated file.

1.9 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
   1. Submit by uploading to web-based project software site.

E. Provide one paper copy of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
   1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
      a. Clean Project site of rubbish, waste material, litter, and other foreign substances.
      b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
      c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
      d. Remove tools, construction equipment, machinery, and surplus material from Project site.

e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
g. Clean flooring, removing debris, dirt, and staining; clean according to manufacturer's recommendations.
h. Vacuum and mop concrete.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove labels that are not permanent.
l. Wipe surfaces of mechanical and electrical equipment, elevator equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
    1) Clean HVAC system in compliance with NADCA ACR. Provide written report on completion of cleaning.
p. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
q. Clean strainers.
r. Leave Project clean and ready for occupancy.

C. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using environmentally safe materials.

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations required by Section 01 73 00 "Execution" before requesting inspection for determination of Substantial Completion.

END OF SECTION 01 77 00

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
   1. Operation and maintenance documentation directory manuals.
   2. Emergency manuals.
   3. Systems and equipment operation manuals.
   4. Systems and equipment maintenance manuals.
   5. Product maintenance manuals.

B. Related Requirements:
   1. Section 01 33 00 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.

1.2 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.3 CLOSEOUT SUBMITTALS

A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
   1. Architect and Commissioning Authority will comment on whether content of operation and maintenance submittals is acceptable.
   2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operation and maintenance manuals in the following format:
   1. Submit by uploading to web-based project software site. Enable reviewer comments on draft submittals.

C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect and Commissioning Authority will comment on whether general scope and content of manual are acceptable.

D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect and Commissioning Authority will return copy with comments.
   1. Correct or revise each manual to comply with Architect's and Commissioning Authority's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's and Commissioning Authority's comments and prior to commencing demonstration and training.

E. Comply with Section 01 77 00 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.4 FORMAT OF OPERATION AND MAINTENANCE MANUALS

A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
   1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
   2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the

system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

1.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.
   1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
   2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.

C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
   1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
      a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
   2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
   3. Identification and nomenclature of parts and components.
   4. List of items recommended to be stocked as spare parts.

E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
   1. Test and inspection instructions.
   2. Troubleshooting guide.
   3. Precautions against improper maintenance.
   4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
   5. Aligning, adjusting, and checking instructions.
   6. Demonstration and training video recording, if available.

F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
   1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
   2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
   1. Include procedures to follow and required notifications for warranty claims.

J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
   1. Do not use original project record documents as part of maintenance manuals.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 78 23

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:
   1. Record Drawings.
   2. Record Specifications.
   3. Record Product Data.

B. Related Requirements:
   1. Section 01 77 00 "Closeout Procedures" for general closeout procedures.
   2. Section 01 78 23 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Submit PDF electronic files of scanned Record Prints. Print each drawing, whether or not changes and additional information were recorded.

B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and Contract modifications.

C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.

1.3 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
   1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
      a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
      b. Accurately record information in an acceptable drawing technique.
      c. Record data as soon as possible after obtaining it.
      d. Record and check the markup before enclosing concealed installations.
      e. Cross-reference record prints to corresponding photographic documentation.
   2. Content: Types of items requiring marking include, but are not limited to, the following:
      a. Dimensional changes to Drawings.
      b. Revisions to details shown on Drawings.
      c. Depths of foundations.
      d. Locations and depths of underground utilities.
      e. Revisions to routing of piping and conduits.
      f. Revisions to electrical circuitry.
      g. Actual equipment locations.
      h. Duct size and routing.
      i. Locations of concealed internal utilities.
      j. Changes made by Change Order or Construction Change Directive.
      k. Changes made following Architect's written orders.
      l. Details not on the original Contract Drawings.
      m. Field records for variable and concealed conditions.
      n. Record information on the Work that is shown only schematically.
   3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
   4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
   5. Mark important additional information that was either shown schematically or omitted from original Drawings.

6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1.4 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

B. Format: Submit record specifications as annotated PDF electronic file.

1.5 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and revisions to Project Record Documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

C. Format: Submit Record Product Data as annotated PDF electronic file.
1. Include Record Product Data directory organized by Specification Section number and title, electronically linked to each item of Record Product Data.

1.6 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 78 39

SECTION 02 41 19 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Demolition and removal of selected site elements.
2. Salvage of existing items to be reused or recycled.

B. Related Requirements:
1. Section 01 77 00 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
2. Section 31 10 00 "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. Include fasteners or brackets needed for reattachment elsewhere.

C. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged.

D. 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. Provide and confirm list of such items as are visually observable or otherwise known as part of pre-demolition conference.
2. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.
1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review and finalize protection requirements.
5. Review procedures for noise control and dust control.
6. Review areas where existing construction is to remain and requires protection.
7. Review items to be salvaged and returned to Owner.

1.5 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. Schedule of Selective Demolition Activities: Indicate the following:
1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Temporary interruption of utility services. Indicate how long utility services will be interrupted.
3. Shutoff, capping, or re-routing and continuation of utility services.

C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Submit before Work begins.

D. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation. Provide PDF of key plan along with each set of electronic images.

1.6 **RIGHTS**

A. Ownership and copywrite privileges of photographic images belong to the Owner and the Architect. Under penalty of Law, the contractor shall not provide or transmit in any manner construction photographs to any entities except the Owner and the Architect without written authorization from the Architect.

1.7 CLOSEOUT SUBMITTALS

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

1.8 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

A. Owner will occupy school buildings and site areas immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.
2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.
a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.

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.

D. On-site storage or sale of removed items or materials is not permitted.

E. 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.

1.10 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with operations of Owner's adjacent occupied buildings and site areas.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

2.2 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, with minimum size of 4 megapixels.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

B. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs or video.
   1. Record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
   2. General: Take photographs with maximum range depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted and will require replacement with acceptable images.
   3. Maintain key plan (electronic format or scanned PDF image) with each set of construction photographs that identifies each photographic location.
   4. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without **a**lteration, manipulation, editing, or modifications using image-editing software, except rotate images where necessary for correct up/down orientation.
      a. Date and Time: Include date and time in filename for each image.
      b. Field Office Images: Maintain one set of images on CD-ROM in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Architect.
   5. Preconstruction Photographs: Before commencement of any work, take color, digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as required for the contractor's own purposes and as may be be additionally directed by the Architect.
      a. Flag excavation areas before taking construction photographs and be sure flag identifiers and site conditions within the flagged area are visible in the photographs.
      b. Take photographs to show existing conditions adjacent to property, driveways and roadways before starting the Work.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

3.3 PROTECTION

A. Existing Utilities: Maintain utility services to remain and protect from damage during demolition operations.

1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.

B. 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 50 00 "Temporary Facilities and Controls."

C. Remove temporary barricades and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.4 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. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
3. Maintain adequate ventilation when using cutting torches.
4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

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.
1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

C. Salvaged Items; comply with the following:
1. Clean salvaged items.
2. Store items in a secure area until delivery to Owner.
3. Transport items to Owner's storage area designated by Owner.
4. Protect items from damage during transport and storage.

D. 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 reinstalled in their original locations after selective demolition operations are complete.

E. Explosives: Use of explosives is not permitted.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Remove concrete and asphalt pavement as indicated.

1. Unless existing, full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.
3. Concrete and asphalt pavement may **not** be used as backfill within building footprint.

3.6 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.

B. Burning: Do not burn demolished materials.

3.7 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 02 41 19

SECTION 04 20 00 - UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Concrete masonry units (CMU) standard types.
2. Mortar.
3. Grout.
4. Miscellaneous masonry accessories.

B. Related Requirements:
1. Section 07 92 00 "Joint Sealants" for sealing control and expansion joints in unit masonry.

C. Products installed, but not furnished, under this Section include the following:
1. Steel lintels for unit masonry, furnished under Section 05 50 00 "Metal Fabrications."
2. Hollow-metal frames in unit masonry openings, furnished under Section 08 11 13 "Hollow Metal Doors and Frames".

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

1.3 ACTION SUBMITTALS

A. Product Data: For each different masonry unit, accessory, and other manufactured product specified. Include structural properties of precast masonry lintels.

1.4 QUALITY ASSURANCE

A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

B. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6.unless modified by requirements in the Contract Documents.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
1. Protect concrete masonry units from moisture absorption so that, at the time of installation, the moisture content is not more than the maximum allowed at the time of delivery.

B. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.

C. Store packaged cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

D. Store masonry sand on protective membrane that separates sand from the ground moisture and contaminants and does not retain water.

E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.6 FIELD CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
   1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

B. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required. Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
   1. When ambient temperature exceeds 100 deg F, or 90 deg F with a wind velocity greater than 8 mph, do not spread mortar beds more than 48 inches ahead of masonry. Set masonry units within one minute of spreading mortar.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 PERFORMANCE REQUIREMENTS

A. Provide unit masonry that develops indicated net-area compressive strengths at 28 days.
   1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to TMS 602/ACI 530.1/ASCE 6.
   2. Determine net-area compressive strength of masonry by testing masonry prisms according to ASTM C 1314.

2.3 MASONRY UNITS, GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work or will impair the quality of completed masonry.

2.4 CONCRETE MASONRY UNITS

A. Regional Materials: CMUs shall be manufactured within 500 miles of Project site from aggregates that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site.

B. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
   1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
   2. Provide square-edged units for outside corners, unless otherwise indicated.

C. Manufacturers for standard CMU: Subject to compliance with requirements provide products by industry recognized regional manufacturer with production capabilities that ensure availability of all required standard sizes, special shapes and precast CMU lintels and delivery to the jobsite in compliance with the Project Schedule.

D. Standard CMUs: ASTM C 90.

1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2000 psi.
2. Density Classification: Provide lightweight, maximum density not more than 105 lbs. per cubic foot, typical throughout building for interior work including the CMU wythe in exterior cavity walls.
   a. Provide normal weight for below grade work and work exposed to the exterior.
3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
4. Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.
5. At time of delivery to jobsite, linear shrinkage of units shall not exceed 0.065%.

2.5 CONCRETE AND MASONRY LINTELS

A. Concrete Lintels: ASTM C 1623, matching CMUs in color, texture, and density classification; and with reinforcing bars indicated.
   1. Provide concrete lintels where shown and where openings of more than 12 inches for block units are shown without structural steel or other supporting lintels.
   2. Lintels shall obtain f'c = 4,000 psi at 28 days. Reinforcement shall comply with ASTM A 615, grade 60.

B. Masonry Lintels: Built-in-place masonry lintels made from bond beam CMUs with reinforcing bars placed as indicated and filled with coarse grout. Temporarily support built-in-place lintels until cured.

C. Provide minimum bearing of 8 inches at each jamb, unless greater bearing is indicated.

2.6 MORTAR FOR UNIT MASONRY

A. Masonry Cement: ASTM C91.
   1. Subject to compliance with requirements, provide one of the following:
      a. Cemex S.A.B. de C.V.; Richmortar.
      b. Essroc, Italcementi Group; Brixment.
      c. LafargeHolcim; Masonry Cement.
      d. Lehigh Hanson HeidelbergCement Group; Lehigh Masonry Cement.
   2. Aggregate for Mortar: Masonry sand, ASTM C 144.
   3. Mortar Mixing: Provide one of the following mortar mixes.
      a. Add masonry cement to mixer in full bag quantities. Measure dry masonry sand in box with volume of one cubic foot as often as necessary to maintain consistent proportions and at least once daily and every 4 hours of mixing. Add water and mix for 3-5 minutes.
      b. Add preblended, dry mortar mix to the mixer. Furnish dry mortar ingredients (masonry cement and sand) in form of a preblended mix, ASTM C1714. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site. Add water and mix for 3-5 minutes.
   4. Application: Provide for all cmu work and where non-pigmented mortar is required.

B. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
   1. Use of cold-weather admixtures in mortar is not a substitution for compliance with TMS 602/ACI 530.1/ASCE 6 cold weather construction requirements
   2. Cold-weather admixture (if used) shall be factory blended into the mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
   3. Products: Subject to compliance with requirements, provide one of the following:
      a. Euclid Chemical Company (The); Accelguard 80.
      b. GCP Applied Technologies; Morset.
      c. BASF Construction Chemicals; Trimix-NCA.
      d. Spec Mix Inc.; Spec Mix Non-Chloride Accelerator.

C. Water: Potable.

D. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated:

LOCATION		

Exterior, above grade	Load-bearing wall Non load-bearing wall	
Exterior, at or below grade		
	Load-bearing wall	N
Interior, at or below grade	Foundation wall, retaining wall	S

2.7 GROUT FOR UNIT MASONRY

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
   1. Do not use calcium chloride in grout.

B. Grout for Unit Masonry: Comply with ASTM C 476.
   1. Use grout that has been factory pre-blended and delivered to project site.
      a. On-site field mixing of Portland cement and fine or coarse aggregate will NOT be permitted.
   2. Use grout that will comply with Table 7 of TMS 602/ACI 530.1/ASCE 6. Use fine grout in grout spaces less than 2 inches in horizontal dimension, unless otherwise indicated.
   3. Use coarse grout in grout spaces 2 inches or more in least horizontal dimension. Coarse grout shall be used for filling bond beams and for grouting cores of CMU with reinforcing bars.
   4. Proportion grout in accordance with ASTM C 476, paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 3000 psi nor more than 5000 psi.
   5. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143.

C. Aggregate for Grout: ASTM C 404.

D. Water: Potable.

2.8 MISCELLANEOUS ANCHORS

A. Anchor Bolts: Headed or L-shaped steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C; of dimensions indicated.

B. Postinstalled Anchors: Provide chemical anchors, with capability to sustain, without failure, a load equal to six times the load imposed when installed in solid or grouted unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
   1. Corrosion Protection: Carbon-steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (5 microns) for Class SC 1 service condition (mild).
   2. Adhesive: Two-component, formulated to include resin, hardener, cement and water to provide optimal curing speed as well as high strength and stiffness.
   3. Products: length as indicated or required; 3/8-inch minimum diameter.
      a. Hilti, Inc. “HIT HY 270” in grout filled or hollow CMU.
      b. Powers Fasteners “AC100+ Gold Acrylic Adhesive in grout filled or hollow CMU.
      c. Simpson “AT-XP” in grout filled CMU. Simpson “Set-XP” in hollow CMU.
   4. Provide umbrella inserts where recommended by the manufacturer for use in hollow-core CMU.

2.9 MISCELLANEOUS MASONRY ACCESSORIES

A. Wire Mesh Ties: 1/2-inch mesh, 16 gage steel wire, hot dip galvanized.

B. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
1. Mix units from several pallets or cubes as they are placed.

3.3 TOLERANCES

A. Comply with construction tolerances in TMS 602/ACI 530.1/ASCE 6 and with the following:
1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet1/4 inch in 20 feet or 1/2 inch maximum.
2. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet or 1/2 inch maximum.
3. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet1/4 inch in 20 feet or 1/2 inch maximum.
4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.
5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.
7. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.4 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
1. Do not use units with less than nominal 4-inch horizontal face dimension.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in the following bond patterns:
1. Interior CMU walls: Standard running bond.

C. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

D. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items whether or not specifically so detailed. Provide clearance at structural members and metal deck as indicated below.

E. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.

G. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

3.5 MORTAR BEDDING AND JOINTING

A. Lay hollow CMUs as follows:
   1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
   2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
   3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
   4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

D. Cut joints flush for masonry walls to receive direct-applied finishes (other than paint) unless otherwise indicated.

3.6 MASONRY JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
   1. Space reinforcement not more than 16 inches o.c.
   2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
   3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings.
      a. Reinforcement above is in addition to continuous reinforcement.

B. Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

C. Provide continuity at corners by using prefabricated L-shaped units.

D. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, and other special conditions.

3.7 LINTELS

A. Install steel lintels where indicated.

B. Where lintels occur at masonry control joints, place bond breaker at bearing; hold back bond breaker 1/2-inch from opening and face of wall. Rake out mortar at lintel 1/2-inch for sealant application.

3.8 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
   1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
   2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.

3. Protect adjacent nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.9 MASONRY WASTE DISPOSAL

A. Excess Masonry Waste: Remove excess clean masonry waste and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 04 20 00

SECTION 05 50 00 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Steel framing and supports for applications where framing and supports are not specified in other Sections.
2. Loose steel lintels.

B. Products furnished, but not installed, under this Section:
1. Loose steel lintels.
2. Anchor bolts and inserts indicated to be cast into concrete or built into unit masonry.

C. Related Requirements:
1. Section 04 20 00 "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 recommendations to ensure that shop primers and topcoats are compatible with one another.

B. Coordinate installation of anchorages. 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 FIELD CONDITIONS

A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

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. Steel Plates, Shapes, and Bars: ASTM A 36.

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 B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.

B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.

C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593; with hex nuts, ASTM F 594; and, where indicated, flat washers; Alloy Group 1.

D. Anchor Bolts: ASTM F 1554, Grade 36, of dimensions indicated; with nuts, ASTM A 563; 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: Anchors 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 according to ASTM E 488, conducted by a qualified independent testing agency.

F. Machine Screws: ASME B18.6.3.

G. Plain Washers: Round, ASME B18.22.1.

H. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, 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 according to ASTM E 488, conducted by a qualified independent testing agency.
1. Material for Anchors in Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material for Anchors in Exterior Locations: Alloy Group 1stainless-steel bolts complying with ASTM F 593and nuts complying with ASTM F 594.

2.3 MISCELLANEOUS MATERIALS

A. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

B. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.4 FABRICATION, GENERAL

A. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.

B. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

C. Form exposed work with accurate angles and surfaces and straight edges.

D. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required and accepted by the architect, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous and only as approved in advance by the Architect.

E. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

F. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

G. 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.
1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.5 MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
   1. Cut, drill, and tap units to receive hardware, hangers, and similar items.
   2. Furnish inserts for units installed after concrete is placed.

C. Galvanize exterior miscellaneous framing and supports and elsewhere as indicated.

D. Prime miscellaneous framing and supports except where galvanized finish is indicated.

E. Provide welded stud anchors or bars where indicated for embedding miscellaneous steel shape anchorages into cast-in-place concrete. Space and size as indicated or as indicated in reviewed shop drawings.

2.6 LOOSE STEEL LINTELS

A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where multiple members are indicated.

B. Size loose lintels to provide 8 inches bearing length at each side of openings unless indicated otherwise on the Drawings.

C. Hot-dip galvanize loose steel lintels located in exterior walls after fabrication.

2.7 FINISHES, GENERAL

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Finish metal fabrications after assembly.

C. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.8 STEEL AND IRON FINISHES

A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153 for steel and iron hardware and with ASTM A 123for other steel and iron products.
   1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.

B. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.

C. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with minimum requirements indicated:
   1. Exteriors (SSPC Zone 1B): SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
   2. Interiors (SSPC Zone 1A): SSPC-SP 3, "Power Tool Cleaning."

D. 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 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.

3.3 ADJUSTING AND CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

C. Test and service all operating components to ensure proper smooth operation and fit.

END OF SECTION 05 50 00

SECTION 07 92 00 – JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Urethane joint sealants.
2. Immersible joint sealants.
3. Mildew-resistant joint sealants.
4. Butyl joint sealants.
5. Latex joint sealants.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples for Initial Selection: Manufacturer's 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- wide joints formed between two 6-inch- 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 color.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For installer.

B. Sample Warranties: For special warranties.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

B. Mockups: 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.

1.6 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.
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.

1.7 WARRANTY

A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 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. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Part 59, Subpart D (EPA Method 24):
1. Architectural Sealants: 250 g/L.
2. Sealant Primers for Nonporous Substrates: 250 g/L.
3. Sealant Primers for Porous Substrates: 775 g/L.

C. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 MILDEW-RESISTANT JOINT SEALANTS

A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.

B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 25, Use NT.
1. Applications: Interior joints in vertical surfaces of:
a. Ceramic tile
b. Non-porous surfaces in areas of moisture and high humidity including toilet rooms, showers and kitchens;
2. Products: Subject to compliance with requirements, provide one of the following:
a. Dow Corning Corporation; 786 Silicone Sealant.
b. Momentive; GE Sanitary SCS1700.
c. Pecora Corporation; 898NST.
d. Tremco Incorporated; Tremsil 200 Sanitary.

2.3 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.
1. Applications:
a. Interior vertical and overhead surfaces at perimeter of wall surfaces and frames of interior doors and borrowed lights.
b. Perimeter of gypsum board surfaces where they abut another material.
c. Perimeter joints between interior wall surfaces and countertops, backsplashes, fixed equipment, and other elements to produce a finished, cleanable, craftsman-like appearance.
d. All other interior nontraffic joints not included otherwise.
2. Products: Subject to compliance with requirements, provide one of the following:
a. BASF Building Systems; Sonolac.
b. Bostik, Inc.; Chem-Calk 600.
c. Pecora Corporation; AC-20 +Silicone.

d. Tremco Incorporated; Tremflex 834.

2.4 JOINT-SEALANT BACKING

A. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), 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:

C. 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.

2.5 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 joint-sealant performance.

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.

B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer. 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 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 C 1193 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 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 configuration per Figure 8A in ASTM C 1193, unless otherwise indicated.

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 Contract Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 92 00

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Standard hollow metal doors and frames.
2. Standard hollow metal borrowed lights.
3. Standard hollow metal door frames with integrated electrical conduit / wiring pathways (E-frames).

B. Related Requirements:
1. Section 04 20 00 "Unit Masonry" for installing anchors and grouting frames in masonry construction.
2. Section 08 71 10 "Door Hardware" for door hardware and weather stripping for hollow metal doors and frames.
3. Section 09 91 12 "Painting" for field painting factory-primed hollow metal doors and frames.

1.2 DEFINITIONS

A. Minimum Thickness: Minimum thickness of base metal without coatings according to NAAMM-HMMA 803 or SDI A250.8.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, fire-resistance rating, and finishes.

B. Shop Drawings: Include the following:
1. Elevations of each door design and each frame type.
2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of anchorages, joints, and connections.
6. Details of accessories.

C. Schedule: Provide a schedule of hollow metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with door hardware schedule.

1.4 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each type of hollow-metal door and frame assembly, for tests performed by a qualified testing agency.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.

B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch- high wood blocking. Do not store in a manner that traps excess humidity.
1. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide hollow metal doors and frames designated on drawings as “HM” by one of the following:
1. Ceco Door Products; an Assa Abloy Group Co.
2. Curries Company; an Assa Abloy Group Co.
3. Daybar Industries Ltd.
4. Pioneer Industries, Inc.
5. Republic Doors and Frames.
6. Security Metal Products Corp. an Assa Abloy Group Co.
7. Steelcraft; an Allegion company.

B. Source Limitations: Obtain hollow-metal work from single source from single manufacturer.

2.2 INTERIOR DOORS AND FRAMES

A. Construct interior doors and frames to comply with the standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.

B. Provide all hollow metal doors receiving electrified hardware with conduit for field wiring of door by door hardware supplier.

C. Extra-Heavy-Duty Doors and Frames: SDI A250.8, Level 3; SDI A250.4, Level A.
1. Doors:
   a. Type: As indicated in the Door and Frame Schedule.
   b. Thickness: 1-3/4 inches.
   c. Face: Uncoated, cold-rolled steel sheet, minimum thickness of 0.053 inch.
   d. Edge Construction: Model 2, Seamless.
   e. Core: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core at manufacturer's discretion.
   f. Fire-Rated Core: Manufacturer's standard core for fire-rated doors.
2. Frames:
   a. Materials: Uncoated, steel sheet, minimum thickness of 0.053 inch.
   b. Construction: Face welded.
3. Exposed Finish: Prime.

2.3 FRAME ANCHORS

A. Jamb Anchors:
1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than 0.042 inch thick.
3. At frames with integrated electrical conduit / wiring pathways, provide jamb anchor type that does not interfere with conduit and box components.

B. Floor Anchors: Formed from same material as frames, not less than 0.042 inch thick, and as follows:
1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.

2.4 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.

C. Frame Anchors: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.

D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

E. Grout: ASTM C 476, except with a maximum slump of 4 inches, as measured according to ASTM C 143/C 143M.

2.5 FABRICATION

A. Fabricate hollow-metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for metal thickness. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.

B. Hollow-Metal Doors:
1. Steel-Stiffened Door Cores: Provide minimum thickness 0.026 inch, steel vertical stiffeners of same material as face sheets extending full-door height, with vertical webs spaced not more than 6 inches apart. Spot weld to face sheets no more than 5 inches o.c. Fill spaces between stiffeners with glass- or mineral-fiber insulation.
2. Vertical Edges for Single-Acting Doors: Provide beveled or square edges at manufacturer's discretion.
3. Top Edge Closures: Close top edges of doors with inverted closures, except provide flush closures at exterior doors of same material as face sheets.
4. Bottom Edge Closures: Close bottom edges of doors where required for attachment of weather stripping with end closures or channels of same material as face sheets.

C. Hollow-Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
4. Floor Anchors: Weld anchors to bottoms of jambs with at least four spot welds per anchor.
5. Jamb Anchors: Provide number and spacing of anchors as follows:
   a. Masonry Type: Locate anchors not more than 16 inches from top and bottom of frame. Space anchors not more than 32 inches o.c., to match coursing, and as follows:
      1) Three anchors per jamb from 60 to 90 inches high.
      2) Four anchors per jamb from 90 to 120 inches high.
      3) Four anchors per jamb plus one additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
6. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
   a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
   b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

D. Fabricate concealed stiffeners and edge channels from either cold- or hot-rolled steel sheet.

E. Hardware Preparation: Factory prepare hollow-metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.
1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with applicable requirements in SDI A250.6 and BHMA A156.115 for preparation of hollow-metal work for hardware.

2.6 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

2.7 ACCESSORIES

A. Grout Guards: Formed from same material as frames, not less than 0.016-inch thick.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.

B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with SDI A250.11.
1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.
   a. Install frames with removable stops located on secure side of opening.
   b. Install door silencers in frames before grouting.
   c. Remove temporary braces necessary for installation only after frames have been properly set and secured.
   d. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
4. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
   a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
   b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
   c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
   d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
1. Non-Fire-Rated Standard Steel Doors:
   a. Between Door and Frame Jambs and Head: 1/8 inch plus or minus 1/32 inch.
   b. Between Edges of Pairs of Doors: 1/8 inch to 1/4 inch plus or minus 1/32 inch.
   c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
   d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.
   e. Between Door Face and Stop: 1/16 inch to 1/8 inch plus or minus 1/32 inch.

3.2 ADJUSTING AND CLEANING

A. Remove grout and other bonding material from hollow metal work immediately after installation.

B. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

END OF SECTION 08 11 13

SECTION 08 71 00 – DOOR HARDWARE

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. Mechanical and electrified door hardware for:

a. Swinging doors.

2. Electronic access control system components, including:

a. Electronic access control devices.

3. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.

B. Exclusions: Unless specifically listed in hardware sets, hardware is not specified in this section for:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.

1.03 REFERENCES

A. UL - Underwriters Laboratories

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Key Systems and Nomenclature

C. ANSI - American National Standards Institute

1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties

1.04 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 requirements.
2. Highlight, encircle, or otherwise specifically identify on submittals deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.
3. Prior to forwarding submittal, comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, “EXAMINATION” article, herein.

B. Action Submittals:

1. Product Data: Technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated, and tagged with full description for coordination with schedule.

    a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.

3. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:

    a. Door Index; include door number, heading number, and Architects hardware set number.
    b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
    c. Quantity, type, style, function, size, and finish of each hardware item.
    d. Name and manufacturer of each item.

e. Fastenings and other pertinent information.
f. Location of each hardware set cross-referenced to indications on Drawings.
g. Explanation of all abbreviations, symbols, and codes contained in schedule.
h. Mounting locations for hardware.
i. Door and frame sizes and materials.
j. Name and phone number for local manufacturer's representative for each product.
k. Operational Description of openings. Operational description should include operational descriptions for: egress, ingress (access), and fire/smoke alarm connections.
   1) Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.

4. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory or shop prepared for door hardware installation.

C. Informational Submittals:

1. Qualification Data: For Supplier, Installer and Architectural Hardware Consultant.
2. Product data for electrified door hardware:

   a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.

3. Warranty: Special warranty specified in this Section.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:

   a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
   b. Catalog pages for each product.
   c. Factory order acknowledgement numbers (for warranty and service)
   d. Name, address, and phone number of local representative for each manufacturer.
   e. Parts list for each product.
   f. Final approved hardware schedule, edited to reflect conditions as-installed.
   g. Final keying schedule
   h. Copies of floor plans with keying nomenclature
   i. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.05 QUALITY ASSURANCE

A. Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.

1. Warehousing Facilities: In Project's vicinity.
2. Scheduling Responsibility: Preparation of door hardware and keying schedules.

3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
4. Coordination Responsibility: Assist in coordinating installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.

    a. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.

B. Architectural Hardware Consultant Qualifications: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:

1. For door hardware, DHI-certified, Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC).
2. Can provide installation and technical data to Architect and other related subcontractors.
3. Can inspect and verify components are in working order upon completion of installation.
4. Capable of producing wiring diagrams.
5. Capable of coordinating installation of electrified hardware with Architect and electrical engineers.

C. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

D. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in “REFERENCES” article, herein.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.

B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.

1. Deliver each article of hardware in manufacturer’s original packaging.

C. Project Conditions:

1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
2. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

D. Protection and Damage:

1. Promptly replace products damaged during shipping.
2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

1.07 COORDINATION

A. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

B. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

1.08 WARRANTY

A. Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Beginning from date of Substantial Completion, for durations indicated.

a. Locksets:
1) Mechanical: 3 years.
2) Electrified: 1 year.

2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

1.09 MAINTENANCE

A. Maintenance Tools: Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Approval of manufacturers and/or products other than those listed as “Scheduled Manufacturer” or “Acceptable Manufacturers” in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.

B. Approval of products from manufacturers indicated in “Acceptable Manufacturers” is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer’s product.

C. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fasteners

1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.

2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru-bolts are required.
4. Install hardware with fasteners provided by hardware manufacturer.

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Ives 5BB series.
2. Acceptable Manufacturers and Products: Hager BB series, McKinney TA/T4A series, Stanley FBB Series.

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:

a. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high

3. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
4. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
5. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:

a. Steel Hinges: Steel pins
b. Non-Ferrous Hinges: Stainless steel pins
c. Out-Swinging Exterior Doors: Non-removable pins
d. Out-Swinging Interior Lockable Doors: Non-removable pins
e. Interior Non-lockable Doors: Non-rising pins

6. Width of hinges: 4-1/2 inches (114 mm) at 1-3/4 inch (44 mm) thick doors, and 5 inches (127 mm) at 2 inches (51 mm) or thicker doors. Adjust hinge width as required for door, frame, and wall conditions to allow proper degree of opening.

2.04 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: Schlage L9000 series.
2. Acceptable Manufacturers and Products: Best 45H series, Sargent 8200 series.

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3 hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2 inch x 1/2 inch with 180 degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.

    a. Outside Occupancy Indicator: Provide indicator above cylinder or emergency release for visibility while operating the lock that identifies an occupied/unoccupied status of the lock or latch.

3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to “KEYING” article, herein.
5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1 inch (25 mm) throw, constructed of stainless steel.
6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
7. Provide electrified options as scheduled in the hardware sets. Where scheduled, provide switches and sensors integrated into the locks and latches.
8. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece spindles.

    a. Lever Design: Schlage Rhodes 06A.

2.05 CYLINDERS

A. Manufacturers:

1. Scheduled Manufacturer: Schlage.
2. Acceptable Manufacturers: Best, Sargent.

B. Requirements:

1. Provide small format interchangeable cylinders/cores to match Owner’s existing key system, compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset, manufacturer’s series as indicated. Refer to “KEYING” article, herein.

2.06 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product: LCN 4010/4110/4020 series.
2. Acceptable Manufacturers and Products: Corbin-Russwin DC8000 series, Sargent 281 series.

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. Certify surface mounted mechanical closers to meet fifteen million (15,000,000) full load cycles. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.
3. Cylinder Body: 1-1/2 inch (38 mm) diameter with 11/16 inch (17 mm) diameter double heat-treated pinion journal.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers. When closers are parallel arm mounted, provide closers which mount within 6-inch (152 mm) top rail without use of mounting plate so that closer is not visible through vision panel from pull side.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI/BHMA Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.07 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer: Ives.
2. Acceptable Manufacturers: Burns, Rockwood.

B. Requirements:

1. Provide kick plates, mop plates, and armor plates minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes of plates:

    a. Kick Plates: 10 inches (254 mm) high by 1-1/2 inches (38 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
    b. Armor Plates: 34 inches (863 mm) high by 1-1/2 inches (38 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs

2.08 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

1. Scheduled Manufacturers: Glynn-Johnson.
2. Acceptable Manufacturers: Rixson, Sargent.

B. Requirements:

1. Provide heavy duty concealed mounted overhead stop or holder as specified for single acting doors.
2. Where overhead holders are specified provide friction type at doors without closer and positive type at doors with closer.

2.09 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer: Ives.
2. Acceptable Manufacturers: Burns, Rockwood.

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide convex type where mortise type locks are used and concave type where cylindrical type locks are used.
2. Where wall stop cannot be used, provide overhead stop.

2.10 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer: Zero International.
2. Acceptable Manufacturers: National Guard, Pemko.

B. Requirements:

1. Provide thresholds, weather-stripping (including door sweeps, seals, and astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Size of thresholds:

    a. Saddle Thresholds: 1/2 inch (13 mm) high by jamb width by door width
    b. Bumper Seal Thresholds: 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width

4. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.

2.11 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer: Ives.
2. Acceptable Manufacturers: Burns, Rockwood.

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.12 FINISHES

A. Finish: BHMA 626/652 (US26D); except:

1. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
2. Protection Plates: BHMA 630 (US32D)
3. Overhead Stops and Holders: BHMA 630 (US32D)
4. Door Closers: Powder Coat to Match
5. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.01 EXAMINATION

A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.

1. Standard Steel Doors and Frames: ANSI/SDI A250.8.

B. Install each hardware item in compliance with manufacturer’s instructions and recommendations, using only fasteners provided by manufacturer.

C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.

D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.

G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

H. Lock Cylinders: Install construction cores to secure building and areas during construction period.

1. Replace construction cores with permanent cores as indicated in keying section.

I. Closer/Holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

J. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.

K. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."

L. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.

M. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

N. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

O. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.03 FIELD QUALITY CONTROL

A. Engage qualified manufacturer trained representative to perform inspections and to prepare inspection reports.

1. Representative will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.04 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, Installer's Architectural Hardware Consultant must examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.05 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.06 DOOR HARDWARE SCHEDULE

A. Hardware items are referenced in the following hardware. Refer to the above-specifications for special features, options, cylinders/keying, and other requirements.

B. Hardware Sets:

Hardware Set No. 01
For use on mark/door #(s):
113, 160
Each to have:

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	CLASSROOM SECURITY	L9071BDC 06A	626	SCH
2	EA	PERMANENT CORE	1C7-2 (PROVIDED BY WCCC)	626	BES
1	EA	ARMOR PLATE	8400 34" X 1 1/2" LDW B-CS	630	IVE
1	EA	FLOOR STOP			

END OF SECTION

SECTION 09 91 12 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes surface preparation and the application of paint systems on the following exterior and interior substrates:
1. Concrete.
2. Concrete masonry units (CMU).
3. Ferrous metal.
4. Galvanized metal.
5. Wood.
6. Gypsum board.
7. Cotton or canvas insulation jacket.

B. Related Sections include the following:
1. Section 01 40 00 “Quality Requirements” for additional definitions including ‘mock-ups’; ‘benchmark painting samples’; ‘experienced’, ‘manufacturer’s technical representative’, ‘factory authorized service representative’ .
2. Section 09 96 00 "High-Performance Coatings" for general field painting of all “HPC” designated coatings.

1.2 DEFINITIONS

A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
1. Flat refers to a lusterless or matte finish with a gloss range below 15 when measured at an 85-degree meter.
2. Eggshell refers to low-sheen finish with a gloss range between 20 and 35 when measured at a 60-degree meter.
3. Semigloss refers to medium-sheen finish with a gloss range between 35 and 70 when measured at a 60-degree meter.
4. Full gloss refers to high-sheen finish with a gloss range more than 70 when measured at a 60-degree meter.

1.3 PREINSTALLATION CONFERENCE

A. Before applying painting systems, conduct conference at Project site. Notify participants at least 5 working days before conference.
1. Meet with Owner; Architect; Interior Designer; Construction Manager; Painting Contractor; and Paint Manufacturer’s Representative.
2. Review methods and procedures related to surface preparation and paint application, including manufacturer’s written instructions.
3. Examine substrate conditions to be painted for compliance with requirement including adhesion and compatibility of coating with substrate.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

B. For any listed paint system where the installer or manufacturer believes the specified system is incompatible or not the best system for the substrate and installation conditions indicated. Bring these concerns to the architect’s attention for discussion and resolution before making product submittals.

C. For any listed paint system where the film thickness is not indicated or where the installer / manufacturer recommend a different thickness, clearly indicate the thickness intended and clearly point out differences from the specified system. Architect will accept or correct proposed changes in the submission.

D. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
1. Acceptance of verification sample colors is tentative, pending final color review on in-place mockups under actual installation conditions.

E. Product List: For each product indicated, include the following:
1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. VOC content.

1.5 MATERIALS MAINTENANCE SUBMITTALS

A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
1. Quantity: Furnish an additional 5 gallons of the primary neutral color and 1 gallon of each other color and product type applied.

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.
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.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers' Names: Subject to compliance with requirements, provide products by one of the following:
1. Benjamin Moore & Co.
2. PPG Architectural Coatings.
3. Sherwin-Williams Company (The).

2.2 PAINT MATERIALS, GENERAL

A. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Anti-Corrosive Coatings: 250 g/L.
4. Floor Coatings: g/L.
5. Waterproofing Sealers: 250 g/L.
6. Sanding Sealers: 275 g/L.
7. All other Sealers: 200 g/L.
8. Pigmented Shellac: 550 g/L.
9. Stains: 250 g/L.

D. Colors: Match Architect’s samples. Provide color selections made by the Architect and accepted after review of in-place mock-ups.

2.3 CONCRETE UNIT MASONRY BLOCK FILLERS

A. Concrete Unit Masonry Block Filler: Factory-formulated high-performance latex block fillers.
1. Benjamin Moore; M88 Latex Block Filler.
3. PPG; 6-15 Speedhide, Int/Ext Acrylic Masonry Block Filler.
4. Sherwin-Williams; PrepRite Block Filler, B25W25 Series.

2.4 CONCRETE FLOOR SLABS

A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of lithium silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
1. Use treatments with a VOC content of 100 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Use Locations: All cured interior concrete slabs to be exposed as a finish.
3. Products: Subject to compliance with requirements, provide the following or a pre-approval equal:
a. Key Resin; Key 804 Acrylic Sealer.
1) Minimum 2 coats, apply until an even sheen is achieved across the slab

2.5 INTERIOR PRIMERS

A. Interior Gypsum Board Primer: Factory-formulated latex-based primer for interior application.
1. Benjamin Moore; Eco Spec Interior Latex Primer Sealer 231.
2. PPG; 6-2 Speedhide Interior Primer Sealer.
3. Sherwin-Williams; ProGreen 200 Interior Latex Primer B28W600.

B. Interior Wood Primer for Acrylic-Enamel Finishes: Factory-formulated acrylic-latex-based interior wood primer.
1. Benjamin Moore; Eco Spec Interior Latex Primer Sealer 231.
2. PPG; 17-955 SealGrip Acrylic Undercoat.
3. Sherwin-Williams; ProGreen 200 Interior Latex Primer B28W600.

C. Interior Zinc-Coated Metal Primer: Factory-formulated galvanized metal primer.
1. Benjamin Moore; Moore's IMC Acrylic Metal Primer No. M04.
2. PPG; 90-712 Series Pitt-Tech Int/Ext Industrial DTM Primer/Finish Enamel.
3. Sherwin-Williams; Pro-Industrial Pro-Cryl Universal Primer B66-310 Series.

2.6 INTERIOR FINISH COATS

A. Interior Flat or Eggshell Acrylic Paint (Dryfall): Factory-formulated flat or eggshell acrylic latex paint for interior application.
1. Benjamin Moore; M53 Sweep-Up Latex Flat.
2. PPG; 6-715 xi Speedhide Interior Dry-Fog Spray Paint Flat Latex.
3. Sherwin-Williams; Waterborne Acrylic Dry Fall Eg-Shel B42W2.

B. Interior Flat Acrylic Paint: Factory-formulated flat acrylic-emulsion latex paint for interior application.
1. Benjamin Moore; Eco Spec Interior Latex Flat 219.
2. PPG; 6-70 Series SpeedHide Interior Wall Flat-Latex.
3. Sherwin-Williams; ProMar 200 Zero VOC Latex Flat B30-2600 Series.

C. Interior Flat Latex-Emulsion Size: Factory-formulated flat latex-based interior paint.
1. Benjamin Moore; Eco Spec Interior Latex Flat 219.
2. PPG; 6-70 Series SpeedHide Interior Wall Flat-Latex.
3. Sherwin-Williams; ProMar 200 Zero VOC Latex Flat B30-2600 Series.

D. Interior Low-Luster Acrylic Enamel: Factory-formulated eggshell acrylic-latex interior enamel.
1. Benjamin Moore; Moorcraft Super Spec Latex Eggshell Enamel 274.
2. PPG; 6-411 Series SpeedHide Interior Enamel Eggshell Latex.
3. Sherwin-Williams; ProMar 200 Zero VOC Latex Eg-Shel B20-2600 Series.

E. Interior Semigloss Acrylic Enamel: Factory-formulated semigloss acrylic-latex enamel for interior application.

1. Benjamin Moore; Moorcraft Super Spec Latex Semi-Gloss Enamel 276.
2. PPG; 6-500 Series SpeedHide Interior Semi-Gloss Latex.
3. Sherwin-Williams; ProMar 200 Zero VOC Latex Semi-Gloss B31-2600 Series.

F. Interior Semigloss Acrylic-Modified Alkyd Enamel: Factory-formulated semigloss acrylic-modified alkyd enamel for interior application.
1. Benjamin Moore; M29 D.T.M. Acrylic Semi-Gloss.
2. PPG; Speedhide WR Alkyd Finish.
3. Sherwin-Williams; Pro Industrial Zero VOC Semi-Gloss, B66-600 Series.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
1. Notify Architect about anticipated problems when using the materials specified over substrates primed by others.

B. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

C. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
1. Concrete: 12 percent.
2. Masonry (Clay and CMU): 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.

D. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

E. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

F. 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. 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 if any.

B. 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 indicated.

C. 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.

D. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces or mortar joints exceed that permitted in manufacturer's written instructions.

E. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.

F. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

G. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

H. Wood Substrates:
1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

I. Cotton or Canvas Insulation Covering Substrates: Remove dust, dirt, and other foreign material that might impair bond of paints to substrates.

3.3 APPLICATION

A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.
1. Paint colors, surface treatments, and finishes are indicated in the paint schedules.
2. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
3. Provide finish coats that are compatible with primers used.
4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
5. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
6. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
7. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
8. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
9. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
10. Sand lightly between each succeeding enamel coat.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. 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.

D. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
2. Omit primer over metal surfaces that have been shop primed and touchup painted.
3. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure that edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.
4. Allow sufficient time between successive coats to permit proper drying. Do not recoat surfaces until paint has dried to where it feels firm, and does not deform or feel sticky under moderate thumb

pressure, and until application of another coat of paint does not cause undercoat to lift or lose adhesion. Allow finished coats to cure a minimum of 24 hours before applying another coat.

E. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for type of material applied. Use brush of appropriate size for surface or item being painted.
2. Rollers: Use rollers of carpet, velvet-back, or high-pile sheep's wool as recommended by manufacturer for material and texture required.
3. Spray Equipment: Use airless spray equipment with orifice size as recommended by manufacturer for material and texture required.
4. Touch-up: Touch-up damaged areas of painting using only the same type of application equipment as was used for the original application. If differences of appearance – including sheen and light reflectance – appear in the repaired area due to different application methods, sand the defective work area and repaint the entire surface (not just the original damage area) between normal surface breaks (E.G.: between wall corners, control joints, frames).

F. Minimum Coating Thickness: Apply paint materials in coats no thinner (and not excessively thicker) than manufacturer's recommended spreading rate to achieve dry film thickness indicated. Provide total dry film thickness of the entire system as recommended by manufacturer.

G. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.

H. Mechanical items to be painted include, but are not limited to, the following:
1. Uninsulated metal piping.
2. Uninsulated plastic piping.
3. Pipe hangers and supports.
4. Tanks that do not have factory-applied final finishes.
5. Visible portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets.
6. Duct, equipment, and pipe insulation having "all-service jacket" or other paintable jacket material.
7. Mechanical equipment that is indicated to have a factory-primed finish for field painting.

I. Electrical items to be painted include, but are not limited to, the following:
1. Panelboards.
2. Electrical equipment that is indicated to have a factory-primed finish for field painting.
3. Conduit and fittings.

J. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.

K. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

L. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

M. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements.

3.4 FIELD QUALITY CONTROL

A. Owner reserves the right to invoke the following test procedure at any time and as often as Owner deems necessary during the period when paint is being applied:
1. Owner will engage a qualified independent testing agency to sample paint material being used. Samples of material delivered to Project will be taken, identified, sealed, and certified in the presence of Contractor.
2. Testing agency will perform appropriate tests for the following characteristics as required by Owner:
a. Alkali and mildew resistance.

b. Quantitative material analysis.
c. Abrasion resistance.
d. Apparent reflectivity.
e. Flexibility.
f. Washability.
g. Absorption.
h. Accelerated weathering.
i. Dry opacity.
j. Accelerated yellowness.
k. Recoating.
l. Skinning.
m. Color retention.

3. Owner may direct Contractor to stop painting if test results show any material being used does not comply with specified requirements.
   a. Contractor shall remove noncomplying paint from Project site, pay for testing, and properly re-prepare, and repaint surfaces previously coated with the noncomplying paint.
   b. If necessary, Contractor may be required to remove noncomplying paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site. Do not allow accumulation of used rags on site even if placed in air-tight containers.

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.

PART 4 - SCHEDULES

4.1 GENERAL

A. Verify painting schedule and requirements for each surface and each area. Coordinate with Section 09 96 00 – High Performance Coatings.

4.2 INTERIOR PAINT SCHEDULE

A. Concrete Unit Masonry: Provide the following finish systems over interior concrete and concrete masonry:
   1. Semigloss Acrylic Enamel Finish: Two finish coats over a block filler.
      a. Block Filler: Concrete unit masonry block filler.
      b. Finish Coats: Interior semigloss acrylic enamel.

B. CONCRET FLOOR SLABS
   1. Penetrating Liquid Floor Treatment: Two coats.

C. Gypsum Board: Provide the following finish systems over interior gypsum board surfaces:
   1. Flat Acrylic Finish at ceilings, bulkheads and soffits: Two finish coats over a primer.
      a. Primer: Interior gypsum board primer.
      b. Finish Coats: Interior flat acrylic paint.
   2. Low-Luster Acrylic Enamel Finish at wall surfaces: Two finish coats over a primer.
      a. Primer: Interior gypsum board primer.
      b. Finish Coats: Interior low-luster acrylic enamel.

D. Wood: Provide the following paint finish systems over new interior wood surfaces:
   1. Semigloss Acrylic Enamel Finish: Two finish coats over a wood undercoater.
      a. Primer: Interior wood primer for acrylic-enamel finishes.

b. Finish Coats: Interior semigloss acrylic enamel.

E. Ferrous Metal: Provide the following finish systems over ferrous metal:
1. Flat or Eggshell Acrylic Finish (Dryfall) at exposed roof structure only at Contractor's option: One finish coat over factory-primed surfaces.
a. Finish Coat: Interior flat or eggshell acrylic (dryfall) paint.
2. Semigloss Acrylic-Modified Alkyd Enamel Finish: Two finish coats over factory-primed surfaces.
a. Finish Coats: Interior semigloss acrylic-modified alkyd enamel.

F. Zinc-Coated Metal: Provide the following finish systems over interior zinc-coated metal surfaces:
1. Semigloss Acrylic-Modified Alkyd Enamel Finish: Two finish coats over a primer.
a. Primer: Interior zinc-coated metal primer.
b. Finish Coats: Interior semigloss acrylic-modified alkyd enamel.

G. Cotton and Canvas Insulation Jacket: Provide the following finish system on cotton or canvas insulation covering:
1. Flat Acrylic Finish: Two finish coats. Add fungicidal agent to render fabric mildew proof.
a. Finish Coats: Interior flat latex-emulsion size.

END OF SECTION 09 91 12

SECTION 10 51 13 - METAL LOCKERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Welded athletic lockers.
2. Locker benches.

1.2 ACTION SUBMITTALS

A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal locker.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
1. Show sloping tops, filler panels, trim, and other accessories where indicated.
2. Include locker identification system and numbering sequence.

C. Samples for Initial Selection: Manufacturers color selector showing full range of standard colors available for units with factory-applied color finishes.

D. Samples for Verification: Actual material sample approximately 6-inches square of colors and finishes selected for metal lockers.

E. Product Schedule: For lockers. Use same designations indicated on Drawings.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Sample Warranty: For special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals.

1.5 MATERIALS MAINTENANCE 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. Provide full-size units of the following metal locker hardware items equal to 8 percent of amount installed for each type and finish installed, but no fewer than 10 units:
a. Identification plates.
b. Hooks.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative of metal locker manufacturer for installation and maintenance of units required for this Project.

B. Product Options: Drawings indicate size, profiles, and dimensional requirements of metal lockers and are based on the specific system indicated.
1. Do not modify intended aesthetic effects, as judged solely by Architect, except with Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver metal lockers until spaces to receive them are clean, dry, and ready for metal locker installation.

1.8 FIELD CONDITIONS

A. Field Measurements: Verify the following by field measurements before fabrication and indicate measurements on Shop Drawings:
1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish recessed opening dimensions and proceed with fabricating metal lockers without field measurements. Coordinate wall and floor construction to ensure that actual recessed opening dimensions correspond to established dimensions.

1.9 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship, excluding finish, within specified warranty period.
1. Failures include, but are not limited to, the following:
a. Structural failures.
b. Faulty operation of latches and other door hardware.
2. Damage from deliberate destruction and vandalism is excluded.
3. Warranty Period for Knocked-Down Metal Lockers: Two years from date of Contract Completion.
4. Warranty Period for Welded Metal Lockers: 10 years from date of Contract Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain metal lockers and accessories from single source from single locker manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Accessibility Requirements: For lockers indicated to be accessible, comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines and ICC A117.1.

2.3 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008, Commercial Steel (CS) Type B, suitable for exposed applications.

B. Stainless-Steel Sheet: ASTM A 666, Type 304.

C. Fasteners: Zinc- or nickel-plated steel, slotless-type exposed bolt heads, and self-locking nuts or lock washers for nuts on moving parts.

D. Anchors: Select material, type, size, and finish required for secure anchorage to each substrate.
1. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls for corrosion resistance.
2. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.4 LOCKER TYPES AS INDICATED ON THE DRAWINGS

A. Locker Type ‘C’: Double tier.
1. Welded athletic lockers.
2. Each locker to be 24-inches wide by 18-inches deep by 72-inches high.
3. Sloped top, metal base.
4. Color: As selected by Architect from Manufacturer’s full line.

2.5 WELDED ATHLETIC LOCKERS

A. Products:
1. DeBourgh Mfg. Co.
2. List Industries Inc.
3. Lyon Workspace Products.
4. Penco Products, Inc.
5. Republic Storage Systems.

B. Locker Plan Arrangement: As indicated on Drawings. Provide trim and fillers as required.

C. Doors: One piece; fabricated from 0.075-inch nominal-thickness steel sheet; formed into channel shape with double bend at vertical edges and with right-angle single bend at horizontal edges.
1. Reinforcement: Manufacturer's standard reinforcing angles, channels, or stiffeners for doors more than 15 inches wide; welded to inner face of doors.
2. Door Style: Vented panel as follows:
a. Louvered Vents: No fewer than six louver openings at top and bottom for single-tier or two louver openings at top and bottom for four-tier lockers.

D. Body: Assembled by welding body components together. Fabricate from unperforated steel sheet with thicknesses as follows:
1. Tops, Bottoms, and Sides: 0.060-inch nominal thickness.
2. Backs: 0.048-inch nominal thickness.
3. Shelves: 0.060-inch nominal thickness, with double bend at front and single bend at sides and back.

E. Frames: Channel formed; fabricated from 0.060-inch nominal-thickness steel sheet; lapped and factory welded at corners; with top and bottom main frames factory welded into vertical main frames. Form continuous, integral, full-height door strikes on vertical main frames.
1. Cross Frames between Tiers: Channel formed and fabricated from same material as main frames; welded to vertical main frames.

F. Hinges: Welded to door and attached to door frame with no fewer than two factory-installed rivets per hinge that are completely concealed and tamper resistant when door is closed; fabricated to swing 180 degrees; self-closing.
1. Knuckle Hinges: Steel, full loop, five or seven knuckles, tight pin; minimum 2 inches high. Provide no fewer than three hinges for each door more than 42 inches high.
2. Continuous Hinges: Manufacturer's standard, steel, full height.

G. Recessed Door Handle and Latch: Stainless steel cup with integral door pull, recessed so locking device does not protrude beyond door face; pry and vandal resistant.
1. Multipoint Latching at Single-Tier Units: Finger-lift latch control designed for use with built-in combination locks or padlocks; positive automatic latching and prelocking.
a. Latch Hooks: Equip doors 48 inches and higher with three latch hooks and doors less than 48 inches high with two latch hooks; fabricated from 0.120-inch nominal-thickness steel sheet; welded to full-height door strikes; with resilient silencer on each latch hook.
b. Latching Mechanism: Manufacturer's standard, rattle-free latching mechanism and moving components isolated to prevent metal-to-metal contact, and incorporating a prelocking device that allows locker door to be locked while door is open and then closed without unlocking or damaging lock or latching mechanism.
2. Single-Point Latching at Multiple-Tier Units: Nonmoving latch hook designed to engage bolt of built-in combination or cylinder lock.
a. Latch Hook: Equip each door with one latch hook, fabricated from 0.120-inch nominal-thickness steel sheet; welded midway up full-height door strike; with resilient silencer.

H. Identification Plates: Manufacturer's standard, etched, embossed, or stamped aluminum plates, with numbers and letters at least 3/8 inch high.

I. Hooks: Manufacturer's standard ball-pointed, aluminum or steel; zinc plated.

J. Continuous Zee Base: Fabricated from, 16-guage steel sheet.
1. Height: 4 inches.

K. Continuous Sloping Tops at Multiple-Tier Units: Fabricated from 0.048-inch nominal-thickness steel sheet, with a pitch of approximately 20 degrees.
1. Closures: Vertical-end type.
2. Sloping-top corner fillers, mitered.

L. Filler Panels: Fabricated from 0.048-inch nominal-thickness steel sheet.

M. Boxed End Panels: Fabricated from 0.060-inch nominal-thickness steel sheet.

N. Finish: Baked enamel or powder coat.
1. Color(s): As indicated in Locker Types article above.

2.6 LOCKS
1. All Locations: Combination Padlock Provided by Owner.

2.7 FABRICATION

A. General: Fabricate metal lockers square, rigid, and without warp; with metal faces flat and free of dents or distortion. Make exposed metal edges free of sharp edges and burrs, and safe to touch.
1. Form body panels, doors, shelves, and accessories from one-piece steel sheet, unless otherwise indicated.
2. Provide fasteners, filler plates, supports, clips, and closures as required for a complete installation.

B. Unit Principle: Fabricate each metal locker with an individual door and frame; individual top, bottom, and back; and common intermediate uprights separating compartments.

C. Knocked-Down Construction: Fabricate metal lockers for nominal assembly at Project site using nuts, bolts, screws, or rivets. Factory weld frame members together to form a rigid, one-piece assembly.

D. Welded Construction: Factory preassemble metal lockers by welding all joints, seams, and connections; with no bolts, nuts, screws, or rivets used in assembly of main locker groups. Factory weld main locker groups into one-piece structures. Grind exposed welds smooth and flush.

E. Accessible Lockers: Fabricate as follows:
1. Locate bottom shelf no lower than 15 inches above the floor.
2. Where hooks, coat rods, or additional shelves are provided, locate no higher than 48 inches above the floor.

F. Equipment: Provide each locker with an identification plate and the following equipment:
1. One double-prong ceiling hook and two single-prong wall hooks.

G. Identification Plates: Manufacturer's standard etched, embossed, or stamped aluminum plates; with numbers and letters at least 3/8 inch high.

H. Continuous Base: Formed into channel or Z profile for stiffness, and fabricated in lengths as long as practicable to enclose base and base ends of metal lockers; finished to match lockers.

I. Continuous Sloping Tops: Fabricated in lengths as long as practicable, without visible fasteners at splice locations; finished to match lockers.
1. Sloped top corner fillers, mitered.

J. Boxed End Panels: Fabricated with 1-inch- wide edge dimension, and designed for concealing fasteners and holes at exposed ends of non-recessed metal lockers; finished to match lockers.

2.8 LOCKER BENCHES

A. Provide bench units with overall assembly height of 17-1/2 inches.

B. Bench Tops: Manufacturer's standard one-piece units, with rounded corners and edges.
1. Size: Minimum 9-1/2 inches wide by 1-1/4 inches thick except provide 20- to 24-inch-wide tops where accessible benches are indicated.

2. Laminated maple with one coat of clear sealer on all surfaces and one coat of clear lacquer on top and sides.

C. Fixed-Bench Pedestals: Manufacturer's standard supports, with predrilled fastener holes for attaching bench top and anchoring to floor, complete with fasteners and anchors, and as follows:
1. Tubular Steel: 1-1/2-inch-diameter steel tubing threaded on both ends, with standard pipe flange at top and bell-shaped cast-iron base; with baked-enamel or powder-coat finish; anchored with exposed fasteners.
a. Color: As selected by Architect from manufacturer’s full range.

2.9 STEEL SHEET FINISHES

A. General: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Factory finish steel surfaces and accessories except stainless-steel and chrome-plated surfaces.

C. Surface Preparation: Clean surfaces of dirt, oil, grease, mill scale, rust, and other contaminants that could impair paint bond. Use manufacturer's standard methods.

D. Finish: To be selected from manufacturer’s standard finishes.
1. Baked-Enamel Finish: Immediately after cleaning, pretreating, and phosphatizing, apply manufacturer's standard thermosetting baked-enamel finish. Comply with paint manufacturer's written instructions for application, baking, and minimum dry film thickness.
2. Powder-Coat Finish: Immediately after cleaning and pretreating, electrostatically apply manufacturer's standard baked-polymer thermosetting powder finish. Comply with resin manufacturer's written instructions for application, baking, and minimum dry film thickness.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine walls, floors, and support bases, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install level, plumb, and true; shim as required, using concealed shims.
1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches o.c. Install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion, using concealed fasteners.
2. Anchor single rows of metal lockers to walls near top of lockers and to floor.

B. Welded Lockers: Connect groups together with manufacturer's standard fasteners, with no exposed fasteners on face frames.

C. Equipment and Accessories: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.
1. Attach hooks with at least two fasteners.
2. Identification Plates: Identify metal lockers with identification indicated on Drawings.
a. Attach plates to each locker door, near top, centered, with at least two aluminum rivets.
b. Attach plates to upper shelf of each open-front metal locker, centered, with a least two aluminum rivets.
3. Attach sloping top units to metal lockers, with closures at exposed ends.
4. Attach boxed end panels with concealed fasteners to conceal exposed ends of nonrecessed metal lockers.

D. Fixed Benches: Provide no fewer than two pedestals for each bench, uniformly spaced not more than 72 inches apart. Securely fasten tops of pedestals to undersides of bench tops, and anchor bases to floor.

3.3 ADJUSTING, CLEANING, AND PROTECTION

A. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding. Verify that integral locking devices operate properly.

B. Protect metal lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit metal locker use during construction.

C. Touch up marred finishes, or replace metal lockers that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by metal locker manufacturer.

END OF SECTION 10 51 13

SECTION 02 41 19 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Demolition and removal of selected site elements.
2. Salvage of existing items to be reused or recycled.

B. Related Requirements:
1. Section 01 77 00 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.

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. Include fasteners or brackets needed for reattachment elsewhere.

C. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged.

D. 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. Provide and confirm list of such items as are visually observable or otherwise known as part of pre-demolition conference.
2. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.
1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review and finalize protection requirements.
5. Review procedures for noise control and dust control.
6. Review areas where existing construction is to remain and requires protection.
7. Review items to be salvaged and returned to Owner.

1.5 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. Schedule of Selective Demolition Activities: Indicate the following:
   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
   2. Temporary interruption of utility services. Indicate how long utility services will be interrupted.
   3. Shutoff, capping, or re-routing and continuation of utility services.

C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Submit before Work begins.

D. Key Plan: Submit key plan of Project site and building with notation of vantage points marked for location and direction of each photograph. Indicate elevation or story of construction. Include same information as corresponding photographic documentation. Provide PDF of key plan along with each set of electronic images.

1.6 **RIGHTS**

A. Ownership and copywrite privileges of photographic images belong to the Owner and the Architect. Under penalty of Law, the contractor shall not provide or transmit in any manner construction photographs to any entities except the Owner and the Architect without written authorization from the Architect.

1.7 CLOSEOUT SUBMITTALS

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

1.8 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

A. Owner will occupy school buildings and site areas immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
   1. Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.
   2. Maintain access to existing walkways, exits, and other facilities used by occupants of adjacent buildings.
      a. Do not close or obstruct walkways, exits, or other facilities used by occupants of adjacent buildings without written permission from authorities having jurisdiction.

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.

D. On-site storage or sale of removed items or materials is not permitted.

E. 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.

1.10 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with operations of Owner’s adjacent occupied buildings and site areas.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

2.2 PHOTOGRAPHIC MEDIA

A. Digital Images: Provide images in JPG format, with minimum size of 4 megapixels.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

C. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs or video.
1. Record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
2. General: Take photographs with maximum range depth of field, and that are in focus, to clearly show the Work. Photographs with blurry or out-of-focus areas will not be accepted and will require replacement with acceptable images.
3. Maintain key plan (electronic format or scanned PDF image) with each set of construction photographs that identifies each photographic location.
4. Digital Images: Submit digital images exactly as originally recorded in the digital camera, without **a**lteration, manipulation, editing, or modifications using image-editing software, except rotate images where necessary for correct up/down orientation.
    a. Date and Time: Include date and time in filename for each image.
    b. Field Office Images: Maintain one set of images on CD-ROM in the field office at Project site, available at all times for reference. Identify images same as for those submitted to Architect.
5. Preconstruction Photographs: Before commencement of any work, take color, digital photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points, as required for the contractor’s own purposes and as may be be additionally directed by the Architect.
    a. Flag excavation areas before taking construction photographs and be sure flag identifiers and site conditions within the flagged area are visible in the photographs.
    b. Take photographs to show existing conditions adjacent to property, driveways and roadways before starting the Work.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

3.3 PROTECTION

A. Existing Utilities: Maintain utility services to remain and protect from damage during demolition operations.
1. Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.
2. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities having jurisdiction.

B. 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 50 00 "Temporary Facilities and Controls."

C. Remove temporary barricades and protections where hazards no longer exist. Where open excavations or other hazardous conditions remain, leave temporary barriers and protections in place.

3.4 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. Do not use cutting torches until work area is cleared of flammable materials. Maintain portable fire-suppression devices during flame-cutting operations.
   3. Maintain adequate ventilation when using cutting torches.
   4. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

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.
   1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
   2. Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations. Do not use water when it may damage adjacent construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.

C. Salvaged Items; comply with the following:
   1. Clean salvaged items.
   2. Store items in a secure area until delivery to Owner.
   3. Transport items to Owner's storage area designated by Owner.
   4. Protect items from damage during transport and storage.

D. 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 reinstalled in their original locations after selective demolition operations are complete.

E. Explosives: Use of explosives is not permitted.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Remove concrete and asphalt pavement as indicated.
   1. Unless existing, full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
   2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3. Concrete and asphalt pavement may **not** be used as backfill within building footprint.

3.6 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.

B. Burning: Do not burn demolished materials.

3.7 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 02 41 19

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
1. Footings.
2. Foundation walls.
3. Slabs-on-grade.
4. Vapor retarders and vapor barriers for under-slab applications.

B. Applicable requirements of this section apply to concrete work of ALL Trades including slab-on-grade cutting and patching requirements of MEPT contracts.

C. Related Sections:
1. Section 07 17 00 “Bentonite Waterproofing” for waterproof coatings applied to concrete (and masonry) retaining sub-grade walls after form removal.
2. Section 31 20 00 “Earth Moving” for drainage fill under slabs-on-grade.
3. Section 32 13 13 "Concrete Paving" for concrete pavement and walks.

1.2 DEFINITIONS

A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.
1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
a. Contractor's superintendent.
b. Independent testing agency responsible for concrete design mixtures.
c. Ready-mix concrete manufacturer.
d. Concrete subcontractor.
2. Review special inspection and testing and inspecting agency procedures for field quality control, concrete finishes and finishing, cold- and hot-weather concreting procedures, curing procedures, construction contraction and isolation joints, and joint-filler strips, semirigid joint fillers, forms and form removal limitations, shoring and reshoring procedures, vapor-retarder installation, anchor rod and anchorage device installation tolerances, steel reinforcement installation, methods for achieving specified floor and slab flatness and levelness floor and slab flatness and levelness measurement, concrete repair procedures, and concrete protection.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement, prepared according to ACI 315, “Details and Detailing of Concrete Reinforcement.” Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer, manufacturer, and testing agency.

B. Material Certificates: For each of the following, signed by manufacturers:
1. Cementitious materials.

C. Material Test Reports: For the following, from a qualified testing agency, indicating compliance with requirements:
1. Aggregates. Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.

D. Copy of ACI 301 “Specifications for Structural Concrete” for reference on site by contractor, Owners Agent, Architect, Engineer and inspectors.

E. Minutes of preinstallation conference.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.

B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
1. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician - Grade I. Testing Agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician - Grade II.

1.7 PRECONSTRUCTION TESTING

A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on concrete mixtures.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

B. Waterstops: Store waterstops under cover to protect from moisture, sunlight, dirt, oil, and other contaminants.

1.9 FIELD CONDITIONS

A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.

B. Hot-Weather Placement: Comply with ACI 301 and as follows:

1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

A. ACI Publications: Provide reference copies on site and comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301-10, "Specification for Structural Concrete", Sections 1 thru 5.
2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
3. ACI 304, "Guide for Measuring, Mixing, Transporting and Placing Concrete."
4. ACI 318, "Building Code Requirements for Structural Concrete."

2.2 FORM-FACING MATERIALS

A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
1. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
a. Exposed-to-view concrete surfaces: Medium-density overlay Class 1 or better; mill-release agent treated and edge sealed.
b. Other locations: B-B (Concrete Form) Class 1 or better; mill oiled and edge sealed for surfaces to receive waterproofing.

B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.

C. High-Profile Formed Finished Concrete: High-density overlay, Class 1 or better, form-facing panels that will provide continuous, true, repetitive, and highly smooth concrete surfaces, with concealed cone snap ties, cast rustication joints, uniformly spaced in patterns as indicated on the drawings, rubbed smooth, for a highly finished, exposed concrete surface.

D. Void Forms: Biodegradable paper surface, treated for moisture resistance, structurally sufficient to support weight of plastic concrete and other superimposed loads.

E. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.

F. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
1. Formulate form-release agent with rust inhibitor for steel form-facing materials.

G. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
3. Furnish ties with integral water-barrier plates to walls indicated to receive waterproofing.

2.3 STEEL REINFORCEMENT

A. Reinforcing Bars: ASTM A 615, Grade 60, deformed.

B. Plain-Steel Wire: ASTM A 1064, as drawn.

C. Plain-Steel Welded Wire Reinforcement: ASTM A 1064, plain, fabricated from as-drawn steel wire into flat sheets.
1. Size unless otherwise indicated: WWF 6 by 6 W2.9 by W2.9.
2. Size at metal pan stair platforms: WWF 6 by 6 W1.4 by W1.4.

2.4 REINFORCEMENT ACCESSORIES

A. Joint Dowel Bars: ASTM A 615, Grade 60, plain-steel bars, cut true to length with ends square and free of burrs.

B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.5 CONCRETE MATERIALS

A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.

B. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
1. Portland Cement: ASTM C 150, Type I.
a. Fly Ash: ASTM C 618, Class F or C.

C. Normal-Weight Aggregates: ASTM C 33, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.
1. Maximum Coarse-Aggregate Size: 3/4-inch nominal. At stair pan slabs, use maximum aggregate size of No. 8.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

D. Air-Entraining Admixture: ASTM C 260.

E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
1. Water-Reducing Admixture: ASTM C 494, Type A.
2. Retarding Admixture: ASTM C 494, Type B.
3. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.
4. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494, Type G.
6. Plasticizing and Retarding Admixture: ASTM C 1017, Type II.

F. Water: ASTM C 94 and potable.

2.6 CONTROLLED DENSITY FILL

A. Backfilling material where required or allowed by other Specification Sections, proportioned per yard as follows:
1. 50 lbs Portland Cement.
2. 250 lbs. Fly Ash.
3. 2910 lbs. Fine Aggregate.
4. 500 lbs. Water producing 7-9 inch slump.
5. 0% Entrained Air.

2.7 WATERSTOPS

A. Flexible Rubber Waterstops: CE CRD-C 513, for embedding in concrete to prevent passage of fluids through joints. Factory-fabricate corners, intersections, and directional changes.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Greenstreak Group, Inc.
b. Progress Unlimited, Inc.
c. Williams Products, Inc.
2. Profile: Ribbed with center bulb.
3. Dimensions: 6 inches by 3/8 inch thick; nontapered.

B. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.
1. Products:
a. Carlisle Coatings & Waterproofing, Inc.; MiraSTOP.
b. CETCO; Volclay Waterstop-RX.
c. Concrete Sealants Inc.; Conseal CS-231.
d. Henry Company, Sealants Division; Hydro-Flex.
e. JP Specialties, Inc.; Earth Shield Type 20.
f. Sika Greenstreak Group, Inc.; Sika Swellstop Waterstop.
2. Application: between footing and cast in place concrete walls and cast in place concrete walls abutting other construction where slab elevation differs between one side of wall and the other (such as elevator pits, raised platforms, and similar applications).

2.8 VAPOR RETARDERS AND VAPOR BARRIERS

A. Sheet Vapor Retarder: Minimum 15 mil thickness, ASTM E 1745, Class A, except with maximum perm rating of 0.01 after in-service condition testing per ASTM E154 Sections 8, 11, 12, and 13. Include manufacturer's recommended adhesive or pressure-sensitive tape. Plastic vapor retarder is required under all interior slabs-on-grade.
1. Products:
a. Insulation Solutions,Inc.; Viper VaporCheck II, 15 mils.
b. Interplast Group; Barrier-Bac VB-350 (16 mil).
c. Meadows, W. R., Inc.; Perminator 15 mil.
d. Raven Industries; Vaporblock VB15.
e. Reef Industries, Inc.; Vapor Guard.
f. Stego Industries, LLC; Stego Wrap, 15 mils.

B. Bituminous Vapor Barrier: ASTM E1993, 110-mil-thick, semiflexible, 5 or 7-ply sheet membrane consisting of reinforced core and carrier sheet with fortified asphalt layers, protective weathercoating, and removable plastic release liner. Furnish manufacturer's accessories including bonding asphalt, pointing mastics, and self-adhering joint tape. Bituminous vapor barrier is required under slabs to receive wood floors.
1. Water-Vapor Permeance: 0.00 grains/h x sq. ft. x inches Hg; ASTM E 154.
2. Tensile Strength: 140 lbf/in.; ASTM E 154.
3. Puncture Resistance: 90 lbf; ASTM E 154.
4. Product: Subject to compliance with requirements provide one of the following:
a. Meadows, W. R., Inc.; “Premoulded Membrane Vapor Seal”.
b. Right Pointe “Vapor Barrier – 5 Ply”.

2.9 LIQUID FLOOR TREATMENTS

A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of lithium silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
1. Use treatments with a VOC content of 100 g/L when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
2. Use Locations: All cured interior concrete slabs to be exposed as a finish.
3. Products: Subject to compliance with requirements, provide one of the following:
a. Dayton Superior; Pentra-Hard Densifier.
b. Euclid Chemical Company; UltraSil Li+.
c. Laticrete International; L&M LiON Hard.
d. Nox-Crete Products Group; Duro-Nox LS.

e. Prosoco; Consolideck LS.
f. US SPEC, Division of US Mix Products Company; Permalith.

2.10 CURING MATERIALS

A. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

2.11 RELATED MATERIALS

A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber or ASTM D 1752, cork or self-expanding cork.

B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, epoxy resin with a Type A shore durometer hardness of 80 per ASTM D 2240.
1. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
a. Architectural Sealants: 250 g/L.
b. Sealant Primers for Porous Substrates: 775 g/L.

C. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

D. Epoxy Bonding Adhesive: ASTM C 881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade to suit requirements, and as follows:
1. Types I and II, non-load bearing and Types IV and V, load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.12 REPAIR MATERIALS

A. Repair Underlayment allowed where repaired concrete will be covered by a finish material: Cement-based, epoxy polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8–inch maximum size or coarse sand as recommended by underlayment manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109.

B. Repair Overlayment for use where concrete surface will remain exposed to view without a concealing finish: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch and that can be filled in over a scarified surface to match adjacent floor elevations.
1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
3. Aggregate: Well-graded, washed gravel, 1/8-inch maximum size or coarse sand as recommended by topping manufacturer.
4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109.

2.13 CONCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301and ACI 318.
1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
1. Fly Ash: When used, fly ash-to-total cementitious ratio shall be 15% minimum. When used in interior slabs, fly ash-to-total cementitious ratio shall be 25% maximum.

C. Limit water-soluble, chloride-ion content in hardened concrete to the limit in Table 4.2.2.6 of ACI 301.

D. Admixtures: Use admixtures according to manufacturer's written instructions.
1. Use water-reducing; high-range water-reducing; or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete and concrete with a water-cementitious materials ratio below 0.50.

E. Slump Limits:
1. Proportion and design mixes to result in concrete slump at point of placement as follows:
   a. Ramps, slabs, and sloping surfaces: Not more than 3 inches.
   b. Reinforced foundation systems: Not less than 1 inch and not more than 3 inches.
   c. Concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8 inches after adding admixture to site verified 2-to-3-inch slump concrete.
   d. Other concrete: Not more than 4 inches.
2. Slump at point of placement must comply with specified requirements. Concrete arriving at point of delivery not able to attain point-of-placement requirements may be adjusted one time on site only as follows:
   a. Concrete delivery equipment must be designed and intended to provide capability of thorough mixing of the concrete.
   b. Controlled addition of superplasticizers.
      1) After plasticizing or water reducing admixtures are added to the concrete at the site to achieve flowable concrete, do not add water to the concrete.
3. Measure and document slump (and air content of air entrained concrete) prior to the addition of admixtures and again after the addition of admixtures.
4. Do not use concrete that is outside the allowable limits.

2.14 CONCRETE MIXTURES FOR BUILDING ELEMENTS

A. Concrete Schedule:

ITEM OR STRUCTURE		COMPRESSIVE STRENGTH & OTHER REQUIREMENTS
1. Suspended slabs and concrete not otherwise indicated	RfFm-Fn SmFm-Fn, if	3500 P.S.I. at 28 days Normal Weight Concrete: Minimum Cementitious Content: ACI minimum requirements
2. Trench footings, footings	Cast against	3000 P.S.I. at 28 days Max W/C Ratio = 0.50
3. Foundation and retaining walls	RfFm-Fn, SmFm-Fn if	4500 P.S.I. at 28 days 4.5%-7.0% air entrainment Max W/C Ratio = 0.45 Mid-Range Water Reducer Required
4. Metal stair pan fill		3500 P.S.I. at 28 days #8 Aggregate (maximum)
5. Lean concrete fill at soft soils or over excavations		1500 P.S.I. at 28 days
6. Controlled density fill		50-100 P.S.I. at 28 days Unconfined compressive strength per ASTM D4832

7.	Tr-Fn1 Tr-Fn2 Tr-Fn3 Tr-Fn4	4000 P.S.I. at 28 days Max W/C Ratio = 0.45

2.15 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.16 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.
   1. Delete the references for allowing additional water to be added to the batch for material with insufficient slump.
   2. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 SLAB ON GRADE PREPARATIONS

A. Verify drainage course thickness and conditions before placing vapor retarders and vapor barriers.
   1. Verify correct drainage gravel is installed and is complete and tested before concreting.
   2. If necessary, remove sub-base as required to install full 6 inches of drainage fill beneath all slabs including in particular those areas to have a recessed concrete slab.
      a. Provide thicker drainage gravel course if indicated.
   3. Remove and replace drainage gravel that has been contaminated by unsuitable soils and materials.
   4. Restore surface to proper uniform grade compacted per requirements.
   5. Verify locations and provide sharply trimmed recesses for thickened slabs.

B. Verify precise locations and provision by the appropriate trade of all slab-penetrating pipes, conduits, in-slab boxes, and the like.

C. REQUEST DIMENSIONED FLOOR OUTLET PLAN AT LEAST ONE FULL WEEK IN ADVANCE OF SCHEDULED FLOOR SLAB POUR.
   1. Locate in-slab electrical and data-technology boxes from NEW **dimensioned plans furnished by the Architect <u>during construction</u>**; do not rely on dimensioned or scaled locations shown in the bid documents. Final locations may have changed due to Owner request or furnishing changes. Actual locations based on actual furnishings, and materials to be provided are necessary.
   2. Same obligation applies for conduits to be stubbed up into casework. Precise access points are usually required and the accessible portion may differ from what it appears in plan; consult with architect / interior designer before proceeding.
   3. Any corrective measures necessary to adjust for the Contractor’s failure to coordinate and verify floor slab penetration locations and in-floor devices, require the Architect’s direct review and acceptance and shall be performed at the Contractor’s sole expense; including compensation to the Architect for the time required to evaluate alternatives and accept a solution.
      a. Architect’s standard hourly rates apply and shall be paid direct to the Architect prior to submission of contractor’s next partial payment request.

D. Locate and prepare for floor drains as indicated in ‘Slab Finishing’ article below.

3.2 PROTECTION

A. No satisfactory chemical or cleaning procedure is available to remove petroleum stains from exposed concrete surface. Prevention is therefore essential.

B. Comply with the following requirements wherever concrete is indicated to remain exposed or is to have a thin-coat finish such as painting or stain, or is to be polished:
   1. Diaper all hydraulic powered equipment to avoid staining of the concrete.
   2. Permit no trade to park vehicles on the inside slab. If necessary to bring vehicles inside to complete their scope of work, require placement of drop cloths under vehicles at all times.
   3. Allow no pipe cutting machine to be used on the inside floor slab.
   4. Do not allow steel including steel pipe to be placed or stored on interior slab (to avoid rust staining).
   5. Do not allow acids and acidic detergents to come in contact with the slab.
   6. As part of preconstruction meeting or project progress meeting inform all trades of these requirements and that these slabs must be protected at all times.

3.3 FORMWORK

A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.

B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.

C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
   1. Class A, 1/8 inch for smooth-formed finished surfaces.
   2. Class C, 1/2 inch for rough-formed finished surfaces.

D. Construct forms tight enough to prevent loss of concrete mortar.

E. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
   1. Install keyways, reglets, recesses, and the like, for easy removal.
   2. Do not use rust-stained steel form-facing material.

F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.

G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.

H. Chamfer exterior corners and edges of permanently exposed concrete.

I. Earth Forms where allowed: Provide hand-trimmed straight lines excavations with sides vertical and true. Hand clean bottoms just before pouring to provide sharp corners and excavations free of loose earth and foreign materials.
   1. Provide wood forms for portions of foundations exposed above finish grade.
   2. Provide accurately located blockouts for roof drain leaders and other penetrating items.

J. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.

K. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

L. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

M. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.4 EMBEDDED ITEM INSTALLATION

A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
   1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.5 REMOVING AND REUSING FORMS

A. General: Formwork for walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
   1. Leave formwork for structural elements that supports weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
   2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.

C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.6 VAPOR RETARDER AND VAPOR BARRIER INSTALLATION

A. Sheet Vapor Retarders: Place, protect, and repair vapor retarders according to ASTM E 1643 and manufacturer's written instructions.
   1. Lap joints 6 inches and seal with manufacturer's recommended tape.
   2. Turn vapor retarder membrane up face of intervening walls to form a bond break. Maintain in place until slab is poured and set, then trim flush with top of slab.

B. Bituminous Vapor Barriers: Place, protect, and repair bituminous vapor barriers according to manufacturer's written instructions.

3.7 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
   1. Do not cut or puncture vapor retarder or vapor barrier. Repair damage and reseal vapor retarder/barrier before placing concrete.

B. Clean reinforcement of loose rust, earth, ice, and other foreign materials that would reduce bond to concrete.

C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.

D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.

E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

F. Reinforce all interior slabs in compliance with requirements indicated on structural drawings.

G. Lap reinforcing steel in compliance with requirements indicated on structural drawings.

H. At slab and wall opening corners and reentrant corners, provide (1) #5 bar in each face parallel to each edge extending a minimum of 2'-0" past edge of opening.

3.8 JOINTS

A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.

B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
3. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
4. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
1. Grooved Joints for exterior walks and pavements, coordinate with Section 32 13 13 "Concrete Paving".
2. Sawed Joints for Interior Slabs: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
   a. Unless otherwise noted on plans, space contraction joints at 10'-0" maximum spacing in both directions.
      1) For rooms scheduled to have exposed concrete floor finish, obtain joint pattern and layout from Architect at least 7-days in advance of pouring such slab. Seal exposed joints with semi-rigid joint filler.
3. Locate control (contraction) joints as shown on the Drawings. In the absence of information on Drawings, locate at openings, walls, columns, grid lines, and inside corners.

D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants are indicated.
3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together. Install full thickness of slab; allow no holes or gaps in or below filler strips that permit impervious, solid contact between slab edges.

E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate one-half of dowel length, or provide dowel caps, to prevent concrete bonding to one side of joint.

3.9 WATERSTOP INSTALLATION

A. Flexible Waterstops: Install in concrete wall construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions.

B. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest lengths practicable.

3.10 CONCRETE PLACEMENT

A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

B. Do not add water to concrete during delivery, at Project site, or during placement.

C. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

D. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
2. Maintain reinforcement in position on chairs during concrete placement.
3. Screed slab surfaces with a straightedge and strike off to correct elevations.
4. Slope surfaces uniformly to drains where required.
5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
6. Produce elevated slabs on metal deck with top surfaces flat and level in compliance with requirements regardless of any supporting metal deck, structural steel, or joist deflection. Include any additional concrete thickness necessary due to any such deflection; maintain slab thickness indicated in the documents as the minimum thickness.

3.11 FINISHING FORMED SURFACES

A. Rough-Formed Finish (RfFm-Fn): As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces not exposed to view.

B. Smooth-Formed Finish (SmFm-Fn): As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
1. Apply to concrete surfaces exposed to view or to be covered with a coating or covering material applied directly to concrete, such as paint, special coating or waterproofing.

C. High-Profile Formed Finish(HpFm-Fn): As-cast concrete texture imparted by high density plywood form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams, and cast-in-place rustications joints and snap-tie cones. Immediately after stripping formwork, rub entire wall surface to provide highly smooth, uniform surface, with no visible butt joints in the field. Repair and patch all cast in place defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to high-profile concrete surfaces exposed to view or to be covered with a coating or covering material applied directly to concrete, such as paint or special coating.

D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.12 FINISHING FLOORS AND SLABS

A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.

B. Float and trowel finishes shall be completed using **combination blades**. Finish blades are not acceptable.

C. Floor Drains:
1. Verify elevations of floor drain rough-in work in advance of concreting operations and initiate any corrections necessary.
2. Unless otherwise indicated, ensure that floor drains are placed ¾-inch below finish floor line. Uniformly slope slab surfaces to drains including drains. Start slope to drains 3- to 5-feet away from drain in all directions.
3. For rooms and spaces with floor drains take extra precautions to ensure against ponding water in any location. Test surfaces before floor finishes are applied and grind as necessary to provide complete drainage throughout the room or space.
4. Unless otherwise instructed **do NOT slope kitchen floors** to floor drains or floor sinks; maintain drain rim flush with or only very slightly below plane of finish floor in kitchens. Reconfirm exact drain locations with Kitchen Equipment drawings / contractor before placing and finishing concrete slabs.

D. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture.
1. Apply a float finish to monolithic slab surfaces that are to receive trowel finish.

E. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
1. Finish surfaces to the following tolerances, according to ASTM E 1155 for a randomly trafficked floor surface:
a. Trowel Finish 1 (Tr-Fn1):
1) Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20.
2) Minimum local values of flatness, F(F) 17; and of levelness, F(L) 14.
3) Apply trowel finish to monolithic slab surfaces that are scheduled to receive carpet flooring and where slabs remain exposed to view.
b. Trowel Finish 2 (Tr-Fn2):
1) Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25.
2) Minimum local values of flatness, F(F) 24; and of levelness, F(L) 17.
3) Apply trowel finish to monolithic slab surfaces that are scheduled to receive thin-set tile flooring, resilient flooring, and other thin-film flooring types.
a) At thin-set tile floors, maximum permissible variation shall be ¼ inch in 10 feet from required plane. After surface is steel troweled, apply a fine broom finish.
c. Trowel Finish 3 (Tr-Fn3): Spaces with wood flooring:
1) The slab shall be troweled to a true level and finished smooth and straight to a tolerance of 1/8 inch in any 10 foot radius. High spots shall be ground level and low spots filled with approved leveling compound to full approval of wood flooring contractor.
d. Trowel Finish 4 (Tr-Fn4): Elevated floor slabs:
1) Specified overall values of flatness, F(F) 25.

F. Trowel and Fine-Broom Finish (TrFbrm-Fn): Apply a first trowel finish to surfaces indicated and to surfaces where ceramic tile is to be installed by thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.

3.13 MISCELLANEOUS CONCRETE ITEMS

A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.

B. Leveling fill: Use repair materials suited to the exposure conditions indicated in Part 2 – Products. Install per manufacturers recommendations including slab preparations, primers and bonding agents as appropriate to the substrate conditions. Provide a smooth and level surface feathered into slab to remain.

C. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

D. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.
   1. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates from manufacturer furnishing machines and equipment.

E. Steel Pan Stairs: Provide welded wire reinforcement and concrete fill for steel pan stair treads, platforms, and associated items. Cast-in inserts and accessories as shown on Drawings. Screed, tamp, and trowel-finish concrete surfaces.

3.14 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 AND 318 for hot-weather protection during curing.

B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.

C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.

D. Cure concrete according to ACI 308.1, by the following method:
   1. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

E. Moisture Mitigation: Contractor shall be responsible for means and methods necessary to meet the concrete moisture testing requirements per the Division 9 specifications. This shall include, but is not limited to, mechanical grinding, shot-blasting, commercial dehumidification, fluid applied membrane, etc. Coordinate and comply with all flooring manufacturer’s recommendations and requirements.

3.15 LIQUID FLOOR TREATMENT APPLICATION

A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment according to manufacturer's written instructions.
   1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
   2. Do not apply to concrete that is less than seven days old.
   3. Apply liquid with a low pressure sprayer at sufficient rate to uniformly wet the surface of the concrete without producing puddles. Allow treated surfaces to dry. Remove any dried powder residue. Apply a second coat in a similar manner.

3.16 JOINT FILLING

A. At concrete floor slabs to remain exposed as a finish, prepare, clean, and install joint filler according to manufacturer's written instructions.
   1. Defer joint filling until concrete has aged at least six month(s). Do not fill joints until construction traffic has permanently ceased.

B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.

C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.17 CONCRETE SURFACE REPAIRS

A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
   1. Comply with floor-drain slope and anti-ponding requirements specified above in floor finishing article. Slabs that cannot be made free of ponding water in rooms containing floor drains will be considered defective.

B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.

C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
   1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete, but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
   2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
   3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. **Correct low and high areas which fail to achieve the specified minimum local values of flatness and levelness**. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
   1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
   2. After concrete has cured at least 14 days, correct high areas by grinding.
   3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
   4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
   5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
   6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inchclearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of

same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.

F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.18 FIELD QUALITY CONTROL

A. “Special Inspections” Testing and Inspecting: Owner will engage a special inspector to perform field tests and inspections defined as Special Inspections” in the Ohio Building Code and prepare test reports indicated for special inspections on the structural drawings and in the plans-review application.

B. Testing and Inspecting other than listed as special inspections: Contractor shall engage a qualified testing and inspecting agency to perform following tests and inspections and to submit reports.

C. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:

1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
   a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
5. Compression Test Specimens: ASTM C 31/C 31M.
   a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
6. Compressive-Strength Tests: ASTM C 39; test one laboratory-cured specimen at 7 days, test two specimens at 28 days, and retain one specimen in reserve for later testing if required.
   a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
7. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
8. Test results shall be reported in writing to Architect, Structural Engineer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
9. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
10. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Architect.
11. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

12. Correct deficiencies in the Work that test reports and inspections indicate does not comply with the Contract Documents.

D. Measure floor and slab flatness and levelness according to ASTM E 1155 within 24 hours of finishing.

3.19 PROTECTION OF LIQUID FLOOR TREATMENTS

A. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.

END OF SECTION 03 30 00

SECTION 04 20 00 - UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Concrete masonry units (CMU) standard types.
2. Clay Face Brick.
3. Mortar.
4. Grout.
5. Steel reinforcing bars.
6. Masonry joint reinforcement.
7. Ties and anchors.
8. Embedded flashing.
9. Miscellaneous masonry accessories.
10. Cavity-wall insulation / board-stock air barrier.
11. Masonry cleaners.

B. Related Requirements:
1. Section 07 92 00 "Joint Sealants" for sealing control and expansion joints in unit masonry.

1.2 DEFINITIONS

A. CMU(s): Concrete masonry unit(s).

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted vertical and horizontal CMU cells.

1.3 PERFORMANCE REQUIREMENTS

A. Provide unit masonry that develops indicated net-area compressive strengths at 28 days.
1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in TMS 602/ACI 530.1/ASCE 6.

B. Wherever an exterior masonry wall system includes a cavity 4-3/4-inches wide or greater provide Professional Engineer certification for the state of Ohio that the adjustable two-piece veneer tie system (adjustable ties and cross tabs, and any other veneer tie component) is sized and spaced to withstand a 90 mph, component in cladding wind load across the actual masonry cavity width of the Project.
1. Comply with design requirements of TMS 402 Chapter 6.

1.4 ACTION SUBMITTALS

A. Product Data: For each different masonry unit, accessory, and other manufactured product specified. Include structural properties of precast masonry lintels.

B. Shop Drawings: For the following:
1. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls, including reinforcement for bond beams.
2. Fabricated Flashing: Detail flashing installation details, formed corner units, formed end-dam units, and other special applications.

C. Samples for Initial Selection:
1. Weep holes/vents; actual units showing full range of colors available.
2. Colored mortar samples showing the full range of colors available but not less than (50) fifty.

1.5 INFORMATIONAL SUBMITTALS

A. List of Materials Used in Constructing Mockups: List generic product names together with manufacturers, manufacturers' product names, model numbers, lot numbers, batch numbers, source of supply, and other

information as required to identify materials used. Include mix proportions for mortar and grout and source of aggregates.

1. Submittal is for information only. Neither receipt of list nor approval of mockup constitutes approval of deviations from the Contract Documents unless such deviations are specifically brought to the attention of Architect and approved in writing.

B. Qualification Data: For testing agency.

C. Dated, signed and sealed delegated design engineer calculations for masonry ties when required by Performance Requirements article in this Section.

D. Material Certificates: Include statements of material properties indicating compliance with requirements including compliance with standards and type designations within standards. Provide for each type and size of the following:

1. Masonry units.
   a. Include material test reports substantiating compliance with requirements.
   b. For bricks, include size-variation data verifying that actual range of sizes falls within specified tolerances.
   c. For exposed brick, include material test report for efflorescence according to ASTM C 67.
   d. For masonry units used, include data and calculations establishing average net-area compressive strength of units.

E. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109 for compressive strength, ASTM C 1506 for water retention, and ASTM C 91 for air content.
2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

F. Statement of Compressive Strength of Masonry: For each combination of masonry unit type and mortar type, provide statement of average net-area compressive strength of masonry units, mortar type, and resulting net-area compressive strength of masonry determined according to Tables 1 and 2 in TMS 602/ACI 530.1/ASCE 6.

G. Cold-Weather and Hot-Weather Procedures: Detailed description of methods, materials, and equipment to be used to comply with requirements.

1.6 CLOSEOUT SUBMITTALS

A. Flashing Installation Certification: Submit signed inspection report from the Owner's testing agency certifying that flashing is complete and correctly installed, end laps are sealed, and dams are properly formed at head and sills of openings and elsewhere as may be required, prior to proceeding with installation of veneer above flashings.

1.7 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM C 1093 for testing indicated.

B. Delegated Design Engineer: Experienced structural engineer licensed to practice in the State where the Project is located.

C. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

D. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including colored mortar for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

E. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6.unless modified by requirements in the Contract Documents.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
   1. Protect concrete masonry units from moisture absorption so that, at the time of installation, the moisture content is not more than the maximum allowed at the time of delivery.

B. Deliver preblended, dry mortar mix in moisture-resistant containers designed for use with dispensing silos. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in covered weatherproof dispensing silos.

C. Store packaged cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.

D. Store masonry sand on protective membrane that separates sand from the ground moisture and contaminants and does not retain water.

E. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

F. Protect foam-plastic insulation as follows:
   1. Do not expose to sunlight, except to extent necessary for period of installation and concealment.
   2. Protect against ignition at all times. Do not deliver foam-plastic insulation materials to Project site before installation time.
   3. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

1.9 FIELD CONDITIONS

A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
   1. Extend cover a minimum of 24 inches down both sides of walls and hold cover securely in place.
   2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
   3. If covering is temporarily removed to perform certain wall operations (such as air barrier / insulation installation) restore complete covering as soon as operations are complete and at end of workday; allow NO water intrusion into the masonry or the cavity.

B. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
   1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
   2. Protect sills, ledges, and projections from mortar droppings.
   3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
   4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

C. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.
   1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

D. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required. Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

1. When ambient temperature exceeds 100 deg F, or 90 deg F with a wind velocity greater than 8 mph, do not spread mortar beds more than 48 inches ahead of masonry. Set masonry units within one minute of spreading mortar.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, from single source from single manufacturer for each product required.

B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from single manufacturer for each cementitious component and from single source or producer for each aggregate.

2.2 PERFORMANCE REQUIREMENTS

A. Provide unit masonry that develops indicated net-area compressive strengths at 28 days.
1. Determine net-area compressive strength of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to TMS 602/ACI 530.1/ASCE 6.
2. Determine net-area compressive strength of masonry by testing masonry prisms according to ASTM C 1314.

2.3 MASONRY UNITS, GENERAL

A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the completed Work or will impair the quality of completed masonry.

B. Fire-Resistance Ratings: Where indicated, provide units that comply with requirements for fire-resistance ratings indicated as determined by testing according to ASTM E 119, by equivalent masonry thickness, or by other means, as acceptable to authorities having jurisdiction.

2.4 CONCRETE MASONRY UNITS

A. Regional Materials: CMUs shall be manufactured within 500 miles of Project site from aggregates that have been extracted, harvested, or recovered, as well as manufactured, within 500 miles of Project site.

B. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.
1. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide square-edged units for outside corners, unless otherwise indicated.

C. Manufacturers for standard CMU: Subject to compliance with requirements provide products by industry recognized regional manufacturer with production capabilities that ensure availability of all required standard sizes, special shapes and precast CMU lintels and delivery to the jobsite in compliance with the Project Schedule.

D. Standard CMUs: ASTM C 90.
1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2000 psi.
2. Density Classification: Provide lightweight, maximum density not more than 105 lbs. per cubic foot, typical throughout building for interior work including the CMU wythe in exterior cavity walls.
a. Provide normal weight for below grade work and work exposed to the exterior.
3. Size (Width): Manufactured to dimensions 3/8 inch less than nominal dimensions.
4. Exposed Faces: Manufacturer's standard color and texture, unless otherwise indicated.
5. At time of delivery to jobsite, linear shrinkage of units shall not exceed 0.065%.

2.5 CONCRETE AND MASONRY LINTELS

A. Concrete Lintels: ASTM C 1623, matching CMUs in color, texture, and density classification; and with reinforcing bars indicated.
   1. Provide concrete lintels where shown and where openings of more than 12 inches for block units are shown without structural steel or other supporting lintels.
   2. Lintels shall obtain f'c = 4,000 psi at 28 days. Reinforcement shall comply with ASTM A 615, grade 60.

B. Masonry Lintels: Built-in-place masonry lintels made from bond beam CMUs with reinforcing bars placed as indicated and filled with coarse grout. Temporarily support built-in-place lintels until cured.

C. Provide minimum bearing of 8 inches at each jamb, unless greater bearing is indicated.

2.6 BRICK

A. General: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:
   1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
   2. Provide special shapes for applications requiring brick of size, form, color, and texture on exposed surfaces that cannot be produced by sawing.
   3. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view.
   4. Provide 100% solid units at outside corners at soldier courses.

B. Clay Face Brick: ASTM C 216, Grade SW, Type FBS unless noted otherwise.
   1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 3350 psi.
   2. Initial Rate of Absorption: Less than 20 g/30 sq. in. per minute when tested per ASTM C 67.
   3. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated "not effloresced."
   4. Brick shall be a minimum 75 percent solid, unless noted otherwise on Drawings.
   5. See Drawings for locations of each brick Type. Request clarification from Architect in the case of any uncertainty of brick type intended for a particular location or use.
   6. See Drawings for locations and sizes of special shapes.
   7. Size (Actual Dimensions): To match existing.
   8. Provide brick units from the listed manufacturers or substitutions of units of similar colors and textures manufactured by General Shale, Belden Brick, Interstate Brick, or Bowerston Shale Company. Any proposed substitutions must be pre-approved during the bidding process.

      a. Brick Type MV-1
         1) Color and texture to match existing.

2.7 MORTAR FOR UNIT MASONRY

A. Masonry Cement: ASTM C91.
   1. Subject to compliance with requirements, provide one of the following:
      a. Cemex S.A.B. de C.V.; Richmortar.
      b. Essroc, Italcementi Group; Brixment.
      c. LafargeHolcim; Masonry Cement.
      d. Lehigh Hanson HeidelbergCement Group; Lehigh Masonry Cement.
   2. Aggregate for Mortar: Masonry sand, ASTM C 144.
   3. Mortar Mixing: Provide one of the following mortar mixes.
      a. Add masonry cement to mixer in full bag quantities. Measure dry masonry sand in box with volume of one cubic foot as often as necessary to maintain consistent proportions and at least once daily and every 4 hours of mixing. Add water and mix for 3-5 minutes.
      b. Add preblended, dry mortar mix to the mixer. Furnish dry mortar ingredients (masonry cement and sand) in form of a preblended mix, ASTM C1714. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site. Add water and mix for 3-5 minutes.
   4. Application: Provide for all cmu work and where non-pigmented mortar is required.

B. Colored Masonry Cement: Packaged blend made from masonry cement and mortar pigments, all complying with specified requirements, and containing no other ingredients.
   1. Subject to compliance with requirements, provide one of the following:
      a. Cemex S.A.B. de C.V.; Richcolor Masonry Cement.
      b. Essroc, Italcementi Group; Flamingo-Brixment.
      c. LafargeHolcim; Custom Color Masonry Cement.
   2. Pigments shall not exceed 5 percent of masonry cement by weight.
   3. The Architect will select three (3) grey-based cement mortar colors.
      a. Manufacturer of colored masonry cement shall submit a minimum of fifty (50) colors for selection by the Architect.
   4. Aggregate for Mortar: Masonry sand, ASTM C 144.
   5. Mortar Mixing: Provide one of the following mortar mixes.
      a. Add packaged colored masonry cement blend to mixer in full bag quantities. Measure dry masonry sand in box with volume of one cubic foot as often as necessary to maintain consistent proportions and at least once daily and every 4 hours of mixing. Add water and mix for 3-5 minutes.
      b. Add preblended, dry mortar mix to the mixer. Furnish dry mortar ingredients (packaged colored masonry cement and sand) in form of a preblended mix, ASTM C1714. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site. Add water and mix for 3-5 minutes.
   6. Application: Provide for all brick work.

C. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.
   1. Use of cold-weather admixtures in mortar is not a substitution for compliance with TMS 602/ACI 530.1/ASCE 6 cold weather construction requirements
   2. Cold-weather admixture (if used) shall be factory blended into the mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
   3. Products: Subject to compliance with requirements, provide one of the following:
      a. Euclid Chemical Company (The); Accelguard 80.
      b. GCP Applied Technologies; Morset.
      c. BASF Construction Chemicals; Trimix-NCA.
      d. Spec Mix Inc.; Spec Mix Non-Chloride Accelerator.

D. Water: Potable.

E. Mortar for Unit Masonry: Comply with ASTM C 270, Property Specification. Provide the following types of mortar for applications stated:

LOCATION		
Exterior, above grade	Load-bearing wall Non load-bearing wall	
Exterior, at or below grade		
	Load-bearing wall	N
Interior, at or below grade	Foundation wall, retaining wall	S

2.8 GROUT FOR UNIT MASONRY

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
   1. Do not use calcium chloride in grout.

B. Grout for Unit Masonry: Comply with ASTM C 476.
   1. Use grout that has been factory pre-blended and delivered to project site.
      a. On-site field mixing of Portland cement and fine or coarse aggregate will NOT be permitted.
   2. Use grout that will comply with Table 7 of TMS 602/ACI 530.1/ASCE 6. Use fine grout in grout spaces less than 2 inches in horizontal dimension, unless otherwise indicated.
   3. Use coarse grout in grout spaces 2 inches or more in least horizontal dimension. Coarse grout shall be used for filling bond beams and for grouting cores of CMU with reinforcing bars.
   4. Proportion grout in accordance with ASTM C 476, paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 3000 psi nor more than 5000 psi.

5. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143.

C. Aggregate for Grout: ASTM C 404.

D. Water: Potable.

2.9 REINFORCEMENT

A. Uncoated Steel Reinforcing Bars: ASTM A 615or ASTM A 996, Grade 60.

B. Masonry Joint Reinforcement, General: ASTM A 951.
1. Hot-dip galvanized, carbon steel.
2. Wire Size for Cross Rods and Side Rods: W1.7 or 0.148-inch diameter.
3. Wire Size for Cavity Adjustable Tie and Cross Tabs: Minimum W2.8 or 0.188-inch diameter.
4. Spacing of Cross Rods, Tabs, and Cross Ties: Not more than 16 inches o.c. each way and closer on center surrounding all openings.
5. Provide in lengths of not less than 10 feet, with prefabricated corner and tee units.

C. Masonry Joint Reinforcement for Single-Wythe Masonry: Ladder type with single pair of side rods and cross rods spaced not more than 16 inches o.c.

D. Masonry Joint Reinforcement for Multiwythe Masonry:
1. For **Masonry Veneer / CMU cavity** walls: Adjustable (2-piece) type with single pair of side rods, and cross tabs spaced not more than 16 inches o.c. and with separate adjustable ties engaging the cross tabs.
a. Adjustable ties and cross tabs shall be rectangular and 0.188-inch diameter minimum. Space side rods for embedment within each face shell of CMU wythe and size adjustable ties to extend at least halfway through masonry veneer wythe but with at least 5/8-inch cover on outside face. Assembly shall provide 100% protection against separation of adjustable ties from cross tabs and shall not allow the adjustable ties to be installed beyond allowable eccentricity.
b. Products: Subject to compliance with requirements including size and spacing strength design of the delegated design engineer, provide one of the following:
1) Blok-Lok; BL-42 with System 2000 Adjustable Tie.
2) Hohmann and Barnard, Inc.; Catalog No. 265 Ladder Style with Winged Loops and Pintles.
3) Wire-Bond; Series 600 Ladder Type with Adjustable Tab.

2.10 TIES AND ANCHORS

A. Materials: Provide ties and anchors specified in this Section that are made from materials that comply with subparagraphs below, unless otherwise indicated.
1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153, Class B-2 coating.
2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008, Commercial Steel, hot-dip galvanized after fabrication to comply with ASTM A 153.

B. Actual size and spacing of all ties where cavity exceeds 4-3/4-inches shall be as determined by the delegated design engineer as required in Part 1 “Performance Requirements” of this Section.

C. Adjustable Anchors for Connecting to Structure: Provide anchors that allow vertical or horizontal adjustment but resist tension and compression forces perpendicular to plane of wall.
1. Anchor Section for Welding to Steel Frame: Crimped 1/4-inch-diameter, hot-dip galvanized steel wire.
2. Tie Section for Steel Frame: Triangular-shaped wire tie, sized to extend within 1 inch of masonry face, made from minimum 0.188-inch-diameter, hot-dip galvanized steel wire. Where column web ties are indicated, provide 1/4-inch diameter x 12-inches long ties made from hot-dip galvanized steel.

D. Partition Top anchors: As detailed on the drawings.

2.11 MISCELLANEOUS ANCHORS

A. Anchor Bolts: Headed or L-shaped steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C; of dimensions indicated.

B. Postinstalled Anchors: Provide chemical anchors, with capability to sustain, without failure, a load equal to six times the load imposed when installed in solid or grouted unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
   1. Corrosion Protection: Carbon-steel components zinc plated to comply with ASTM B 633, Class Fe/Zn 5 (5 microns) for Class SC 1 service condition (mild).
   2. Adhesive: Two-component, formulated to include resin, hardener, cement and water to provide optimal curing speed as well as high strength and stiffness.
   3. Products: length as indicated or required; 3/8-inch minimum diameter.
      a. Hilti, Inc. “HIT HY 270” in grout filled or hollow CMU.
      b. Powers Fasteners “AC100+ Gold Acrylic Adhesive in grout filled or hollow CMU.
      c. Simpson “AT-XP” in grout filled CMU. Simpson “Set-XP” in hollow CMU.
   4. Provide umbrella inserts where recommended by the manufacturer for use in hollow-core CMU.

2.12 EMBEDDED FLASHING MATERIALS

A. Flexible Flashing: For flashing not exposed to the exterior, use the following:
   1. Self-Adhering, Non-asphaltic, Copper-Laminated Flashing: 3-oz./sq. ft. copper sheet bonded with adhesive between 2 layers of glass-fiber cloth; adhesive-backed with removable release liner. Use only where flashing is fully concealed in masonry.
      a. Product: Subject to compliance with requirements, provide products by one of the following:
         1) Advanced Building Products; Copper Sealtite 2000.
         2) Hohmann & Barnard, Inc.; Copper-Tuff SA.
         3) York Manufacturing; Multi-Flash 500.

B. Adhesives, Primers, and Seam Tapes for Flashings: Flashing manufacturer's standard products or products recommended by flashing manufacturer for bonding flashing sheets to each other and to substrates.

C. Metal Termination Bars: Predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

2.13 MISCELLANEOUS MASONRY ACCESSORIES

A. Wire Mesh Ties: 1/2-inch mesh, 16 gage steel wire, hot dip galvanized.

B. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene.

C. Preformed Control-Joint Gaskets: Made from styrene-butadiene-rubber compound, complying with ASTM D 2000, Designation M2AA-805 and designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.

D. Bond-Breaker Strips: Dense neoprene rubber (ASTM D-2000, Grade BC610) bearing pad; 1/8-inch thick. Use at steel wide flange beam and precast masonry lintel bearing end coinciding with control joint location.

E. Weep Products: Use the following unless otherwise indicated:
   1. Cellular Plastic Weep: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, 3/8 inch width by 3-1/2 inch height and depth 1/8 inch less than depth of outer wythe, in color selected from manufacturer's standard.
      a. Products: Subject to compliance with requirements, provide one of the following:
         1) Advanced Building Products Inc.; Mortar Maze weep vent.
         2) Heckmann Building Products Inc.; No. 85 Cell Vent.
         3) Hohmann & Barnard, Inc.; Quadro-Vent.
         4) Wire-Bond; Cell Vent.

F. Cavity Drainage Material: Free-draining mesh, made from polymer strands that will not degrade within the wall cavity.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Advanced Building Products Inc.; Mortar Break.
      b. CavClear; Masonry Mat MD.
      c. Hohmann & Barnard, Inc.; Mortar Web.
      d. Keene Building Products; Driwall Mortar Deflection.
      e. Mortar Net USA, Ltd.; Mortar Net.
      f. Wire-Bond; Cavity Net.
   2. Provide one of the following configurations:
      a. Strips, full-depth of cavity and 10 inches high, with dovetail shaped notches 7 inches deep that prevent clogging with mortar droppings.
      b. Strips, not less than 3/4 inch thick and 10 inches high, with dimpled surface designed to catch mortar droppings and prevent weep holes from clogging with mortar.
      c. Provide thinner strips where required at reduced cavity widths and no thicker than cavity width less ¼ inch.

G. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and hold reinforcing bars in center of cells. Units are formed from 0.148-inch steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
   1. Products: Subject to compliance with requirements, provide one of the following:
      a. Heckmann Building Products Inc.; No. 376 Rebar Positioner.
      b. Hohmann & Barnard, Inc.; #RB or #RB-Twin Rebar Positioner.
      c. Wire-Bond; #3401 Figure 8 or #3402 Double Figure 8.

H. Injection Adhesive Anchor: Injectable adhesive shall be used for installation of reinforcing steel dowels into concrete, ONLY when doweling into footing was not completed per plan or misaligned.
   1. Adhesive: two-component, formulated to include resin, hardener, cement and water to provide optimal curing speed as well as high strength and stiffness.
   2. Products:
      a. Hilti, Inc. “HIT HY 200 Max”.
      b. Red Head “Epcon A7 Acrylic Adhesive”.
      c. Powers Fasteners “AC100+ Gold Acrylic Adhesive”.

2.14 CAVITY-WALL INSULATION / BOARD-STOCK AIR BARRIER

A. Manufacturers: Subject to compliance with requirements, provide systems by the following:
   1. Dow Chemical Company (The); Thermax XArmor.

B. Polyisocyanurate Board, Foil-Faced: Glass-fiber-reinforced enhanced polyisocyanurate foam core insulation faced with nominal 4 mil embossed acrylic-coated aluminum on one side and 1.25 mil embossed aluminum on the other side, complying with ASTM C 1289, Type I, Class 2.
   1. Fire Propagation Characteristics: Passes NFPA 285 testing as part of an approved assembly.
   2. Compressive Strength: 25 psi minimum.
   3. Water Absorption: Maximum 0.1 percent by volume, ASTM C 209.
   4. Water Vapor Permeance: Maximum 0.03 perms, ASTM E 96.
   5. Liquid Spray Flashing: Provide insulation manufacturer’s recommended board joint commercial liquid flashing and sealant for sealing joints, seams, openings, membrane flashings, and penetrations through the insulation layer.
   6. Insulation Fasteners: Manufacturer’s recommended polymer coated steel screw and plastic washer.
   7. Penetration Filler: Manufacturer’s recommended polyurethane foam for sealing penetrations and joints of insulation boards.

2.15 MASONRY CLEANERS

A. Proprietary Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. Diedrich Technologies, Inc.
      b. EaCo Chem, Inc.

c. ProSoCo, Inc.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
   1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
   2. Verify that foundations are within tolerances specified.
   3. Verify that reinforcing dowels are properly placed.

B. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 COORDINATION OF THRU-WALL RECEIVER AND COUNTER FLASHING

A. Coordinate locations of thru-wall receiver and counter flashing as indicated in Section 07 71 00 well in advance of performing masonry work where this flashing is indicated.
   1. Joint elevation for thru-wall receiver and counter flashing as determined by procedures of Section 07 71 00 may supersede elevations and joints indicated on drawings.

B. Receive and install thru-wall receiver specified in Section 07 71 00.

3.3 INSTALLATION, GENERAL

A. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.

B. Build chases and recesses to accommodate items specified in this and other Sections.

C. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.

D. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

E. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
   1. Mix units from several pallets or cubes as they are placed.

F. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. per minute when tested per ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.4 TOLERANCES

A. Comply with construction tolerances in TMS 602/ACI 530.1/ASCE 6 and with the following:
   1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet1/4 inch in 20 feet or 1/2 inch maximum.
   2. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet or 1/2 inch maximum.
   3. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet1/4 inch in 20 feet or 1/2 inch maximum.
   4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.

5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/16 inch except due to warpage of masonry units within tolerances specified for warpage of units.
7. For exposed bed joints and head joints of stacked bond, do not vary from a straight line by more than 1/16 inch from one masonry unit to the next.

3.5 LAYING MASONRY WALLS

A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
   1. Do not use units with less than nominal 4-inch horizontal face dimension.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in the following bond patterns:
   1. Exterior brickwork: One-third running bond.
   2. Interior CMU walls: Standard running bond.

C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 4-inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.

D. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.

E. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items whether or not specifically so detailed. Provide clearance at structural members and metal deck as indicated below.

F. Fill space between steel frames and masonry solidly with mortar unless otherwise indicated.

G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.

H. Fill cores in hollow CMUs with grout 24 inches under bearing plates, beams, lintels, posts, and similar items unless otherwise indicated.

I. Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above unless otherwise indicated.
   1. Maintain a one inch joint between partition and penetrating structural framing. Install compressible filler in joint between top of partition and underside of structure above.
   2. Laterally brace partitions with steel angle restraints as detailed.
   3. At fire-rated and smoke-rated partitions, treat joint between top of partition and underside of structure above and between partitions and penetrating structural framing to comply with Drawings.

J. Grout solid all cores of CMU below floor line, and grout solid all collar joints in CMU work below floor line, whether indicated on details or not.

K. Ease the exterior corners of all CMU walls and partitions in occupied rooms and corridors, by rubbing with an abrasive stone, removing sharp corners and providing an approximate 1/4-inch radius.

3.6 MORTAR BEDDING AND JOINTING

A. Lay hollow CMUs as follows:
   1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
   2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
   3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
   4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.

B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

C. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.
   1. Strike mortar joints flush at brick where Drawings indicate “Masonry Veneer – Type 5”.

D. Cut joints flush for masonry walls to receive direct-applied finishes (other than paint) unless otherwise indicated.

3.7 CAVITY WALLS

A. Bond wythes of cavity walls together using:
   1. Masonry Joint Reinforcement: Installed in horizontal CMU mortar joints.
   2. See Anchoring Masonry Veneers Article in this Section. Use adjustable (two-piece) type ties to allow for differential movement regardless of whether bed joints align.

B. Seal expansion, control and building control joints in the CMU wythe of cavity walls on the interior room face, full height – slab to underside of deck above, including all above-ceiling portions of the joint and joints concealed in a pipe chase or similar inaccessible space**.**

C. Keep cavities clean of mortar droppings and other materials during construction. Bevel beds away from cavity, to minimize mortar protrusions into cavity. Strike mortar joints flush with cmu.

D. Seal all openings between cavity and building interior with masonry, mortar, sealant or tightly-packed mineral-fiber insulation (in that order of preference). Maintain clearances with structural members as specified above and fill openings with mineral-fiber insulation.
   1. Any structural tube sections penetrating cavity walls shall have tightly packed mineral fiber insulation at least 6-inches thick to plug the interior of the member against air movement.

E. Installing Cavity-Wall Insulation: Place small dabs of adhesive, spaced approximately 12 inches o.c. both ways, on inside face of insulation boards, or attach with plastic fasteners designed for this purpose. Fit courses of insulation between wall ties and other confining obstructions in cavity, with edges butted tightly both ways. Press units firmly against inside wythe of masonry or other construction as shown.
   1. Fill all joints and open gaps in insulation with low-rise, expanding foam compatible with insulation and sheathing.
   2. Install air barrier flashings from face of insulation board into all window, door and similar head, jamb and sill openings and at roof to ensure tie-in and complete closure of the whole-building air barrier system.
   3. Install air barrier flashings from face of insulation, crossing face of metal Z furring, to face of insulation.

3.8 MASONRY JOINT REINFORCEMENT

A. General: Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcement a minimum of 6 inches.
   1. Space reinforcement not more than 16 inches o.c.
   2. Space reinforcement not more than 8 inches o.c. in foundation walls and parapet walls.
   3. Provide reinforcement not more than 8 inches above and below wall openings and extending 12 inches beyond openings.
      a. Reinforcement above is in addition to continuous reinforcement.

B. Interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.

C. Provide continuity at corners by using prefabricated L-shaped units.

D. Cut and bend reinforcing units as directed by manufacturer for continuity at returns, offsets, and other special conditions.

3.9 TIEING MASONRY TO STRUCTURAL MEMBERS

A. Tie masonry to structural members where masonry abuts or faces structural members to comply with the following:
   1. Provide an open space between masonry and structural member, unless otherwise indicated. Keep open space free of mortar and other rigid materials.
   2. Anchor masonry to each face of structural members with 1/4-inch diameter weld-on anchor rods and 3/16-inch diameter triangular ties at 16-inch vertical and 24-inch horizontal spacing whether or not indicated on the Drawings.

3.10 ANCHORING MASONRY VENEERS

A. Anchor masonry veneers to CFMF stud walls with masonry-veneer anchors to comply with the following requirements:
   1. Connecting to CFMF stud walls: Fasten screw-attached anchors through sheathing and insulation to wall framing with metal fasteners of type indicated.
   2. Locate anchor sections to allow maximum vertical differential movement of ties up and down.
   3. Space anchors as indicated, but not more than 16 inches o.c. vertically and 24 inches o.c. horizontally with not less than 1 anchor for each 2.67 sq. ft. of wall area. Install additional anchors within 12 inches of openings and at intervals, not exceeding 8 inches, around perimeter.

3.11 CONTROL AND EXPANSION JOINTS

A. General: Install control and expansion joints in unit masonry where indicated. Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

B. Form control joints in concrete masonry units as follows:
   1. Install preformed control-joint gaskets designed to fit standard sash block.
   2. Install temporary foam-plastic filler in head joints and remove filler when unit masonry is complete and ready for sealant specified in other sections. Filler and sealant shall extend full height of interior face of cavity wall CMU wythe regardless of ceiling height.

C. Form expansion joints in brick made from clay as follows:
   1. Form open joint of width indicated for installation of expanding foam sealant specified in Section 07 92 00 "Joint Sealants." Keep joint free and clear of mortar.

3.12 LINTELS

A. Install steel lintels where indicated.

B. Where lintels occur at masonry control joints, place bond breaker at bearing; hold back bond breaker 1/2-inch from opening and face of wall. Rake out mortar at lintel 1/2-inch for sealant application.

3.13 FLASHING, WEEP HOLES, AND CAVITY DRAINAGE

A. General: Install embedded flashing, cavity drainage material, and weep holes in masonry at lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

B. Provide special lipped or saw-cut masonry veneer below lintel where necessary to maintain consistent mortar joint height dimension.

C. Install flashing as follows, unless otherwise indicated:
   1. Prepare masonry surfaces so they are smooth and free from projections that could puncture flashing. Where flashing is within mortar joint, place through-wall flashing on sloping bed of mortar and cover with mortar. Before covering with mortar, seal penetrations in flashing with adhesive, sealant, or tape as recommended by flashing manufacturer.
   2. Allow no penetrations through flashings. Coordinate in advance with all trades to ensure placement of all wall-penetrating work to be above or below flashings. Do not flash and/or seal around such items if discovered when installing flashings; notify Architect and have such work relocated.

3. At multiwythe masonry walls, including cavity walls, install flashing as indicated on the drawings and any other interruption in the downward flow of moisture in the cavity, Provide weeps and cavity drainage material at all across-cavity flashings.
4. At wall caps and under copings install continuous single width membrane flashing full thickness of wall; turn down face if concealed or provide drip edge if exposed.
5. Under sills of aluminum windows, storefront and curtainwall systems install membrane flashing from inside edge of aluminum member to outside face of masonry (or slab), or extent of substrate concealed by the aluminum sill.
6. In cavities including behind brick veneer, turn flashing up substrate surface at least 8-inches (higher if recommended by the manufacturer) then terminate and seal top of flexible flashings and mechanically anchor to substrate through termination bars.
7. At lintels, extend flashing full length of lintel bearing into masonry at each end. At heads and sills, extend flashing 6 inches at ends and turn up not less than 2 inches to form end dams.
8. Special condition for flashing of walls above adjacent roof, roof edges and parapets:
   a. Extend all through-wall flashings located above roof lines at least 6-inches beyond the roof edge and not less distance than the projection of roof edge metal trim, fascia, coping, or gutter.
   b. Overlap flashing steps 6-inches minimum.
   c. Do not terminate through wall flashings or provide a flashing step at inside or outside wall corners; wrap around corners at least 6-inches.
   d. At abutting parapet walls, step through-wall flashings around and above parapet in a manner that enables proper roof membrane flashing and termination.
9. Roll overlaps in self-adhering membrane flashings with 2-inch wide neoprene roller and firm pressure to ensure proper adhesion of the lap.
10. Prime surfaces of substrates to receive self-adhered membrane flashings if flashing manufacturer indicates in their literature this operation will produce superior bonding of the membrane to the substrates indicated for the project. Do not spread bonding agents onto insulation.
11. At openings in cavity walls, extend air barrier flashings continuously from face of insulation to interior face of fenestration systems.

D. Install weep holes in head joints in exterior wythes of first course of masonry immediately above embedded flashing and as follows:
   1. Use weep types in locations as indicated in Part 2.
   2. Space weep holes maximum 32 inches on center.

E. Place cavity drainage material in cavities to comply with configuration requirements for cavity drainage material in Part 2 "Miscellaneous Masonry Accessories" Article.

3.14 REINFORCED UNIT MASONRY INSTALLATION

A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
   1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
   2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction. Above windows and doors limit deflection of formwork and shores to 1/16-inch.

B. Placing Reinforcement: Comply with requirements in TMS 602/ACI 530.1/ASCE 6.

C. Grouting: Do not place grout until entire height of masonry to be grouted has attained sufficient strength to resist grout pressure.
   1. Comply with requirements in TMS 602/ACI 530.1/ASCE 6 for cleanouts and for grout placement.

   2. Limit height of vertical grout pours to not more than 56 inches.

3.16 INJECTION ADHESIVE ANCHOR INSTALLATION

A. Only injection tools and static mixing nozzles as recommended by manufacturer shall be used. Comply with manufacturer’s instructions and recommendations.

3.17 FIELD QUALITY CONTROL

A. **Contractor's Performance Testing:** Water-test cavity to verify all water is draining to the exterior through the weeps before continuing with exterior wythe or capping wall.
   1. Perform tests in presence of Owners Agent, Architect, and testing agency representative. Representative of general contractor and masonry contractor must be in attendance and perform the test. Provide at least 5-days advance notice of time a scheduled test will be performed.
   2. Perform tests at locations selected by the Architect. At least three tests will be required. At least one test will be at an above-roof location. Architect may require an additional unscheduled next-day test at any time, after flashing is placed and veneer above flashing is just starting; regardless of unanticipated interruption of veneer work, comply with test procedures.
   3. Test Procedures:
      a. Extend veneer wythe 8-inches minimum and 12-inch maximum, above flashing to perform test.
      b. Hold water hose and continuously discharge at standard water pressure force into the cavity at a cell vent so that water can be observed discharging from adjacent weeps for a period of five minutes minimum.
      c. Continue down the wall to the next cell vent where water has not been observed discharging and repeat the test for the same time period.
      d. Continue repeating this process until entire flashing length has been tested and passed.
      e. Photo-document the testing in compliance with Division 01 Section "Photographic Documentation". Permit and assist other test observers to photograph test.
      f. Water observed inside the building, or water outside the building at locations other than at weeps will constitute a test failure.
   4. In event of test failure, remove the masonry veneer down to the flashing, inspect and repair or replace the flashing, relay veneer to required test-height and re-perform the water test.
   5. Failure of one test location will mandate higher frequency and number of tests to be performed at no additional cost to Owner or others.

B. **Testing and Inspecting**: Contractor will engage special inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

C. Inspections: Level 1 special inspections according to the "Ohio Building Code."
   1. Payment for these services will be made by ***Contractor***.
   2. Retesting of materials failing to comply with specified requirements shall be done at Contractor's expense.

D. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.

E. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.

F. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for compressive strength.

3.18 REPAIRING, POINTING, AND CLEANING

A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.

B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.

D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
3. Protect adjacent nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
5. Clean brick by bucket-and-brush hand-cleaning method described in BIA Technical Notes 20.
6. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.19 MASONRY WASTE DISPOSAL

A. Excess Masonry Waste: Remove excess clean masonry waste and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 04 20 00

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Wood blocking and nailers.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: 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. Dress lumber, S4S, unless otherwise indicated.

B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

2.2 WOOD-PRESERVATIVE-TREATED MATERIALS

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground and Use Category UC3b for exterior construction not in contact with ground.
1. 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. Mark plywood with appropriate classification marking of an inspection agency acceptable to authorities having jurisdiction.

E. Application: Treat items indicated on Drawings, and the following:
1. Wood blocking, plywood, and similar members in connection with roofing.
2. Wood blocking, plywood, and similar concealed members in contact with masonry or concrete.

2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.

B. Dimension Lumber Items: Construction or No. 2 grade lumber of any species.

2.4 FASTENERS

A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.
1. Where rough carpentry is pressure-preservative treated, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers.

C. Drilled-in Expansion Anchors: Expansion anchors complying with FS FF-S-325, Group ll, Type 4, Class 1.
   1. Products:
      a. Hilti; Kwik Bolt 3.
      b. ITW Ramset/Red Head; Trubolt.
      c. Powers Fasteners; Power-Stud.

2.5 MISCELLANEOUS MATERIALS

A. Adhesives for Gluing Panels to Framing or to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
   1. Adhesives shall have a VOC content of 70 g/L or less.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry 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, and similar supports to comply with requirements for attaching other construction.

B. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

C. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated.

D. Fit rough carpentry to other construction. Correlate location of blocking, and similar supports to allow attachment of other construction.

E. If not otherwise indicated, bolt wood to steel members with ½-inch diameter bolts spaced 32-inches on center maximum.

F. Provide washers under bolt heads and nuts in contact with wood.

G. Counterbore for bolt heads, nuts and washers, flush with surface where indicated or required.

END OF SECTION 06 10 00

SECTION 07 54 23 - THERMOPLASTIC MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Adhered, thermoplastic-polyolefin (TPO) membrane roofing system.
2. Roof insulation, including tapered roof insulation.

B. This Section includes specific requirements for advance coordination with the Lightning Protection system.

C. Related Requirements:
1. Section 06 10 00 "Rough Carpentry" for wood nailers and blocking.
2. Section 07 62 00 "Sheet Metal Flashing and Trim" for metal gutters, downspouts, drip edges at gutter, formed fascia trim, and other sheet metal work not part of this Section.
3. Section 07 71 00 "Roof Specialties" for thru-wall receivers, reglet receivers, surface-mounted receivers, and counterflashings.
4. Division 26 Section “Lightning Protection” for interface with roofing systems requirements.

1.2 DEFINITIONS

A. Roofing Terminology: See ASTM D 1079 and glossary in NRCA's "The NRCA Roofing and Waterproofing Manual" for definition of terms related to roofing work in this Section.

1.3 PREINSTALLATION MEETINGS

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.
1. For insulation and roof system component fasteners.

1.5 INFORMATIONAL SUBMITTALS

A. Product Test Reports: Based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, for components of membrane roofing system.

B. Warranties: Sample of special warranties that include all components of the roof system including metal copings, fascias and trim and all components listed in the Section as a single warranty.

1.6 CLOSEOUT SUBMITTALS

A. Maintenance Data: For complete roofing system to include in maintenance manuals.

1.7 QUALITY ASSURANCE

A. Source Limitations: Obtain components including roof insulation, metal fascias and trim, and all components of this section and their fasteners from same manufacturer as membrane roofing or approved in writing by membrane roofing manufacturer.

B. Membrane appearance and installation requirements of this specification as described in Part 3 that may be more stringent than the Manufacturer’s requirements for providing a warranty take precedence over manufacturer’s standards and willingness to provide a warranty on lesser work.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
   1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
   1. Materials shall be covered with opaque tarps, secured to prevent displacement by wind forces.

D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.9 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.

B. Where standard materials listed have different weather or temperature requirements for installation, select the material in compliance with requirements that is most suited to the weather conditions of the Project.

1.10 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.

B. Coordinate roof membrane system, rain drainage work, flashing, trim, and construction of decks, parapets, walls, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

C. Coordinate and control lightning protection system installation with requirements of Pre-installation Meeting.

1.11 WARRANTY
   1. Manufacturer’s standard warranty.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Installed membrane roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Membrane roofing and base flashings shall remain watertight.
   1. Accelerated Weathering: Roof membrane shall withstand 2000 hours of exposure when tested according to ASTM G 152, ASTM G 154, or ASTM G 155.
   2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D 3746, ASTM D 4272, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.

B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by membrane roofing manufacturer based on testing and field experience.

C. Solar Reflectance Index: Not less than 78 when calculated according to ASTM E 1980, based on testing identical products by a qualified testing agency.

D. Manufacture and install edge metals tested according to SPRI ES-1 and capable of resisting the following basic wind speed:
   1. Basic Wind Speed: 90 mph.

2.2 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING

A. TPO Sheet: ASTM D 6878/D 6878M, internally fabric- or scrim-reinforced, TPO sheet.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
a. Carlisle SynTec Incorporated.
b. Firestone Building Products.
c. GAF.
d. Johns Manville; a Berkshire Hathaway company.
2. Source Limitations: Obtain components for roofing system from roof membrane manufacturer or manufacturers approved by roof membrane manufacturer.
3. Thickness: 60 mils, minimum.
4. Exposed Face Color: White.

2.3 AUXILIARY MEMBRANE ROOFING MATERIALS

A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use, and compatible with membrane roofing.
1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

B. Sheet Flashing: Manufacturer's standard unreinforced TPO sheet flashing, 55 mils thick, minimum, of same color as TPO sheet.

C. Penetration Flashings: Manufacturer’s standard factory fabricated flexible single-piece cone or boot-style flashing sized for each individual penetrating object and fabricated from same material as roof membrane or base flashing material. Include stainless steel clamping devices.

D. Factory fabricated preformed corner flashings: Inside, outside, corner, and butterfly-corner flashings for all conditions. Field-formed corners alone are not sufficient.

E. Bonding Adhesive: Manufacturer's standard.

F. Metal Termination Bars: Manufacturer's standard, predrilled stainless-steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

G. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening membrane to substrate, and acceptable to membrane roofing system manufacturer.

H. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.4 VAPOR RETARDER

A. Polyethylene and Polypropylene Vapor Retarder: ASTM C 1136, 6 mils thickness minimum, with maximum permeance rating of 0.13 perm.
1. Provide vapor retarder produced by or acceptable to the roofing membrane manufacturer.
2. Products:
a. Lamtec Corp.; WWP-VR.
b. Raven Industries; DURA-SKRIM 6WW.
c. Reef Industries; Griffolyn Tape-65.
3. Vapor Retarder Tape: Self-adhesive pressure sensitive vapor retarder tape recommended by vapor retarder manufacturer for sealing seams and penetrations.

2.5 ROOF INSULATION

A. General: Preformed roof insulation boards complying with requirements, manufactured or approved by TPO membrane roofing manufacturer, selected from manufacturer's standard sizes suitable for application (four foot by eight foot mechanical fastened and four foot by four foot adhered insulation), of thicknesses indicated.

B. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches unless otherwise indicated.
   1. Provide greater pitch if necessary to ensure that all valley lines created with the tapered insulation have a minimum of 1/8” per foot slope.

C. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain, as well as upslope of any roof-mounted equipment curbs 4 feet wide or greater.
   1. Saddles shall be placed in the valleys between roof drains. All saddles shall have a four (4) way slope twice that of a sloping roof deck, and same as for tapered insulation for level roof decks. In no case shall the width of the saddles be less than 25 percent of the total span between roof drains.
   2. Saddles shall be used for drainage purposes only, shall be placed in addition to the required thickness of the main roof insulation, and shall be of the same material as the main roof insulation.
   3. Saddles (crickets) shall be factory fabricated and marked for field installation.

2.6 INSULATION ACCESSORIES

A. General: Furnish roof insulation accessories recommended by insulation and membrane roofing system manufacturer for intended use and compatibility with membrane roofing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing system:
   1. Verify that roof openings and penetrations are in place and curbs are set and braced and that roof drain bodies are securely clamped in place.
   2. Verify that all coordination requirements for lightning protection system installation have been provided.
   3. Verify all required wood blocking is installed in required locations and by means that ensure proper installation and performance of the work of this section.
      a. Be particularly stringent regarding uplift requirements and with relationship of perimeter blocking face-edge with wall plane below.
   4. Verify that wood blocking and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
   5. Verify that wood blocking for metal edge trim and fascia is securely anchored, is true to line and plane and that exterior face is plumb.
   6. Verify that wood blocking to be covered by membrane (without metal coping above) slopes toward roof-side of wall for drainage. Provide thin tapered insulation layer adhered in place if blocking does not slope.
   7. Verify that wood blocking is continuous across the full width of cavity wall parapets.
   8. Verify completion and correctness of roof drains, roof-drain pans, and overflow drains.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 VAPOR-RETARDER INSTALLATION

A. Loosely lay polyethylene and/or polyethylene film vapor retarder in a single layer over entire roof deck extending to roof edges and to adjacent vertical walls.

B. Side and end lap each sheet a minimum of 2” and 6” respectively.

C. Seal laps with continuous strip of tape recommended by the vapor retarder manufacturer.

D. Seal at penetrations and at roof edges with manufacturer recommended tape or adhesive.

E. Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into membrane roofing system. Roof vapor retarder shall form a continuous sealed system with wall and cavity air barriers.

3.4 INSULATION INSTALLATION

A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.

B. Comply with membrane roofing system and insulation manufacturer's written instructions for installing roof insulation. Comply with anchorage quantity and spacing required by wind uplift performance specifications.

C. Install tapered insulation under area of roofing to conform to slopes indicated.

D. Mechanically Fastened and Adhered Insulation: Mechanically fasten only the first insulation layer. Adhere all subsequent layers of insulation according to requirements in FM Global Approvals “RoofNav” for specified Windstorm Resistance Classification and associated FM Global Property Loss Prevention Data Sheet 1-29.
   1. Do not request change to mechanically fasten upper layers of insulation; adhered upper layers is required.
   2. Secure first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
   3. Adhere each subsequent layer of insulation by one of the two following roof system manufacturer-approved methods:
      a. Set layers of insulation in 3/4-inch-wide ribbons of two-component adhesive. As adhesive is applied, allow adhesive to rise prior to placing subsequent layer of insulation board into wet adhesive. Do not allow adhesive to “skin over”. Maintain pressure on insulation board until “set” occurs.
      b. Set layers of insulation in a uniform coverage of full-spread, two-component adhesive. As adhesive is applied, allow adhesive to rise prior to placing subsequent layer of insulation board into wet adhesive. Do not allow adhesive to “skin over”. Maintain pressure on insulation board until “set” occurs.

3.5 ADHERED MEMBRANE ROOFING INSTALLATION

A. Adhere membrane roofing over area to receive roofing and install according to membrane roofing system manufacturer's written instructions. Do not propose mechanically fastened membrane as an alternative to adhered membrane.

B. Start installation of membrane roofing in presence of membrane roofing system manufacturer's technical personnel.

C. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

D. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.

E. In addition to adhering, mechanically fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.

F. Apply membrane roofing with side laps shingled with slope of roof deck where possible.

G. Lap membrane over edge of roof perimeter blocking and down face of wall at least 1-inch below any wood blocking.

H. Installed membrane shall be tight to substrate and free of all unnecessary wrinkles, gaps, bubbles. There shall be no places where membrane spans unsupported across substrate conditions. Provide cants or other manufacturer-approved methods if necessary to fill voids between insulation and blocking, between insulation and wall surfaces, and between blocking 'rows' at roof curbs, tops of walls and parapets.

I. Surface drainage: Completed membrane surface shall be fully free draining, discharging all surface-water into drainage devices indicated. Retained and ponding water deeper than 1/8-inch or covering more than 2 square-feet of area is not acceptable even if allowed by membrane manufacturer.

J. Seams: Clean seam areas, overlap membrane roofing, and hot-air weld side and end laps of membrane roofing and sheet flashings according to manufacturer's written instructions to ensure a watertight seam installation.
   1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of sheet membrane.
   2. Verify field strength of seams a minimum of twice daily and repair seam sample areas.
   3. Repair tears, voids, and lapped seams in roofing that does not comply with requirements.

K. Patching: Patching required due to damage, leaks, or poorly sealed seams will be accepted only on a limited basis. More than two required patches in a 100 square-foot area will be considered cause for rejection of the entire major roof area and full membrane replacement of the roof area will be required at no additional cost to the owner.
   1. Allowed patches will be rectangular, of uniform shape and appearance and shall be installed with edges aligned with roof perimeters.

L. Spread sealant bed over deck drain flange at roof drains and securely seal membrane roofing in place with clamping ring.

M. Vents, pipes, conduit and other roof membrane penetrations: Install factory manufactured cone and boot-style flashings sized and shaped to the penetrating object. Bond continuously to roof membrane and bond or clamp to penetrating item; or flash under flanges of curb-mounted items such as roof hatches.
   1. Provide for all roof penetrations indicated and otherwise required.
   2. For lightning-protection system not indicated on the drawings, assume at least one roof penetration for each 100-feet of roof perimeter.

3.6 BASE FLASHING INSTALLATION

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.7 FIELD QUALITY CONTROL

A. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

3.8 PROTECTING AND CLEANING

A. Protect membrane roofing system from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements; repair substrates; and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Contract Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

D. Prior to inspection for Contract Completion, wash entire roof by water-washing following maintenance procedures recommended by the manufacturer. Power washers are prohibited. Use manufacturer-recommended cleaning agents in heavily soiled areas if necessary. Remove any debris from roof drains.

END OF SECTION 07 54 19

SECTION 11 40 00 - FOOD SERVICE EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes equipment for foodservice facilities indicated on drawings.

B. Questions concerning Drawings or Specifications shall be asked of the Architect in writing.

C. Drawings and specifications assign work (labor and/or materials) to be provided by the General, Plumbing, Fire or Electrical Contractor. Understanding that the contractors for Division 11 are sub-contractors to the General Contractor, such assignments are not intended to restrict the General Contractor in assignment of work among the Sub-Contractors to accommodate trade agreements and practices or the normal conduct of the construction work.

D. Equipment of standard manufacture shall be of latest model (cooking equipment shall be of same manufacturer where possible). Custom fabricated equipment must be fabricated in the same shop. All work and materials, where possible, shall be listed by Underwriter Laboratories, Inc., National Sanitation Foundation, Inc., and conform to local and state ordinances, State Fire Marshall, National Fire Protection Assoc. codes, and other prevailing regulations, and codes of this area.

E. Bids are to be presented as lump sum price including any and all applicable city, state, occupational, or government taxes. All cost of permits and licenses shall also be included in lump sum price of bid. Suppliers are required to submit with this bid an itemized list of equipment manufacturers and prices by item. See form at end of this section. The owner reserves the right to omit any items or increase the quantities in order to bring the project into budget. Partial bids will not be accepted.

F. Request for substitutions on specified equipment and/or materials must be submitted in writing to Architect no later than ten days prior to submitting quote to owner.

G. The Kitchen Equipment Contractor shall examine structural, mechanical, plumbing, and electrical drawings. Charges incurred due the selection of alternate items or substitutions that require changes to building structure or, mechanical, plumbing, and electrical systems as shown on original bid documentation shall be the responsibility of the Kitchen Equipment Contractor.

1.3 SCOPE

A. Work Included by Kitchen Equipment Contractor

1. Provide equipment, supervision, and labor required for delivering, uncrating, setting in place, leveling, and caulking all specified food service equipment with all related items necessary for the completion of work shown on the Contract Drawings and/or required by these specifications, exclusive of utility connections unless covered by line item description.

2. Cutting of holes and ferrules in the equipment provided for running of piping, drains, electrical outlets, conduit, etc., required for the installation of work by other contractors.

3. Verifying that all electrical equipment is correct type current for electrical supply at job site.

4. When notified by General Contractor or Electrical Contractor, Kitchen Equipment Contractor shall field measure structural, mechanical, plumbing, and electrical rough-ins to verify compliance with Kitchen Equipment Contractors rough-in drawings. Relocation of rough-ins due to Kitchen Equipment Contractors failure to verify rough-ins, errors in verification of rough-in

locations, or errors in Kitchen Equipment Contractor's drawings and brochures, shall be at the Kitchen Equipment Contractors expense.

5. Within 30 calendar days after awarding of contract Food Service Equipment Contractor is to supply to owner food service equipment one (1) copy each of the rough-in drawings, equipment manufacturer shop drawings, and equipment buy-out book for review and approval in the following manner:

   a. Provide submittal drawings as called for in General Conditions for this project for review, correction and approval.

   b. Drawing pages and buy-out book may be submitted as PDF format file or three sets of hard copies. If hard copies are submitted equipment buy-out book pages are to be bound in hard back binders.

   c. Complete food service equipment rough-in drawings, (minimum scale no less than 1/4" = 1'), showing the exact location of existing receptacles, mechanical, and electrical services required for each piece of equipment provided by Kitchen Equipment Contractor, Owner, and/or Vendors. Mechanical and electrical rough-ins must be on separate sheets. Equipment should be shown in a lighter line weight than Rough-ins, dimensions, and notations. Page sizes to be no less than 24" x 36".

   d. Complete shop drawings of all fabricated equipment. Scale must be 3/4" = 1' for plan view and elevations, and 1-1/2" = 1' for cross sections. Also include layouts with dimensions for any recesses required. Page sizes to be no less than 24" x 36".

   e. Complete equipment buy-out book of item brochures containing manufacture specification sheets on each item preceded by type written page indicating quantity required, model number, mechanical requirements, and list of accessories required by 114000 specifications.

6. Upon Consultant's approval of drawings and brochure booklets Kitchen Equipment Contractor shall submit PDF files or four (4) hard copies to the General Contractor for distribution.

7. Fabrication of equipment shall not begin until final approval has been received from owner, site conditions have been inspected, and field measurements have been taken.

8. All equipment items shall be made to fit in the spaces provided.

9. At completion of final punch list Kitchen Equipment Contractor shall deliver to General Contractor; three binders. Each binder shall contain service and parts manuals, manufacture warranty information, and acetate bound lists of names and telephone numbers of applicable service agencies for each piece of equipment provided. Include in each binder, a CD containing the same information. The CD should be in a sleeve permanently attached to the inside of each binder, or in a three-ring sleeve. The spine of the binder shall be labeled "O&M Manual".

   a. Include at the front of this binder a letter from each manufacturer that does not furnish as a standard, the warranties required by these specifications. This letter must include the serial number for each piece of equipment covered by the manufacturers "optional" warranties.

10. All debris accumulated by Kitchen Equipment Contractor in connection with the installation of their equipment shall be removed daily. The Kitchen Equipment Contractor shall clean, and turn over to Owner all equipment ready for use.

11. At owner's convenience, Kitchen Equipment Contractor shall schedule and provide live demonstrations and training for all equipment. Demonstrations and training to be performed by manufacturer's representatives. K.E.C. is responsible for coordinating demonstrations with the

owner and Manufacturer's Representative. Manufacturer's Representative shall be allotted adequate time frame to comprehensively demonstrate equipment. K.E.C. to verify that all equipment is fully operational and ready for demonstration.

12. Kitchen Equipment Contractor must complete all punch list items no later than 14 days after receipt of punch list. Kitchen Equipment Contractor to notify Consultant, in writing, when all items are completed and that the kitchen is ready for the follow-up punch list. Items not completed on the original punch list will have to be inspected again by Joby Smith & Associates at Kitchen Equipment Contractor's expense.

13. When selecting equipment, unless otherwise called for in line-item description:
    a. All walk-in coolers and/or freezers to be provided by same manufacturer.
        1. Refrigeration for walk-ins to be provided by walk-in manufacturer.
    b. All shelving to be provided by same manufacturer.

14. On all equipment that is provided with manufacturer's start-up, Kitchen Equipment Contractor is required to provide Architect, General Contractor, and Owner copies of any reports generated from the start-up and the inspection.

B. Work to be provided for by General Contractor.

1. Removal or modification of existing walls, doors, ceiling, or trim.

2. Provide, and/or modify, all holes and recesses (including wall openings) required for condensate lines, refrigeration lines, floor drains, equipment, access to freezer, etc. Coordinate openings required with Kitchen Equipment Contractor.

3. Provide any lentils required due to increasing masonry wall openings.

4. Remove and replace any kitchen floor tile for installation of walk-in.

5. Modify and add to existing loading dock to accommodate dimension of walk-in freezer box. Finished platform surface must be flat, smooth, and transit leveled.

6. Provide 4000 PSI Air-entrained 5" thick concrete pad, sized to accommodate condensing units supplied with Walk-In Cooler and Freezer refrigeration systems.

7. At perimeter of concrete pad for condensing unit provide security fencing with gate that will accommodate a padlock. Allow a minimum clearance of 30" at all sides of condensing unit for service and air flow.

8. Repair any building wall or roof penetrations left due to building modifications required for installation of equipment specified.

9. Receive all submittal books, drawings, and O&M Manual from K.E.C. and send to Architect, Electrical Contractor, and Consultant for review and approval.

10. Notify Kitchen Equipment Contractor when rough-ins are ready for verification.

C. Work Included by Electrical Contractor

1. Unless otherwise specified by Item description and Drawings make all electrical connections required between kitchen equipment components.

2. Provide rough-in of all electric services, conduit, wall receptacle, safety cut-off, starters, motor control panels, disconnects, wiring, etc., except where specifically included in Kitchen Equipment Contractors responsibility by Item Specifications and Drawings. Connections to equipment shall be made in accordance with National Electric Code.

3. Electrical Contractor shall notify G.C. when rough-ins are ready for Kitchen Equipment Contractor verification.

4. Remove any electrical wiring and connections not being re-used.

1.4 SERVICE AND GUARANTEES

A. All refrigeration equipment shall be installed in an approved manner meeting all State and Local codes. All compressors to be given a “Manufacturers” five-year minimum warranty and one-year minimum service warranty. Dealer warranties are not acceptable when a Manufacturer’s warranty is available.

B. All equipment is to be given a “Manufacturer’s” one-year minimum free service and parts warranty. Date of warranties to begin with final acceptance of project. Kitchen Equipment Contractor shall replace free of charge any equipment, work, parts, materials and/or workmanship which becomes defective (except that which becomes defective due to abuse) during this time period. Dealer warranties are not acceptable when a Manufacturer’s warranty is available.

1.5 QUALITY ASSURANCE

A. Manufacture and install equipment with strict compliance to all State and Local codes. If applicable, equipment must bear the seal of UL, NFPA, ANSI, OSHA, AGA, ASMA, NSF and NEMA.

B. Approval of contractor's drawings and other data does not relieve Kitchen Equipment Contractor from responsibility of complying with codes and regulations.

PART 2 - PRODUCTS

2.1 ELECTRICAL

A. Work specified by this section shall include, but not be limited to the following:

1. All electrical equipment shall be of voltage specified by Item Description, Drawings, and Equipment Schedule. The Owner shall be notified of any discrepancies between Contract specifications and electrical characteristics at job site before equipment is ordered.

2. Wiring in fabricated items must be in a raceway or conduit.

3. Wiring in damp areas, (walk-in cooler interiors, under dish tables, etc.) must be in Sealtite type conduit and waterproof boxes.

PART 3 - EXECUTION

3.1 EQUIPMENT

ITEM 1 WALK-IN FREEZER – ONE (1) REQUIRED.
Provide walk-in freezer with floor and interior ramp as shown on drawings. Over-all dimension of 9'-6" long x 15'-0" wide x 9'-1" high. Freezer interior to be 8'-10" long by 14'-4" wide. Nominal dimensions will not be accepted.

Ceiling, walls, floor, and door panels to be 4" thick foamed-in-place urethane with a metal finish. Edges of panels to be foamed-in-place "Tongue and Groove" with cam locking assemblies foamed-in-place at time of panel fabrication. Interior ceiling, and wall panels, to be white .040-gauge embossed mill finish aluminum. Exterior of ceiling panels to be 26-gauge smooth galvanized steel. Exterior walls exposed to kitchen to be 22-gauge stainless steel with matching trim strips installed at walls and top to enclose any gaps. Interior floor panels to be constructed of foamed in place 1/8” diamond treadplate with 3/4” plywood sub-floor and interior ramp. Exterior wall panels exposed to building exterior to be 26-gauge patterned steel with baked acrylic finish **(coordinate color selection with owner)** with matching trim strips installed at walls and top to enclose any gaps. Panel fire ratings to conform to State and Local codes.

Interior ramp to be 42” x 36” diamond treadplate with non-skid strips. To be installed at factory before shipping.

Provide white membrane roof pitched with sheet insulation toward rear of walk-in wall and provide a seamless white membrane roof cap with trim strips. Provide trim strips that match walk-in exterior at exterior building walls and stainless steel trim pieces at interior walls. Use stainless steel screws to secure membrane roof cap to top of walk-in. Coordinate with General Contractor to provide cap flashing at building walls, as shown on Foodservice Bid Document drawings.

Provide walk-in ceiling panel support system as recommended by manufacturer.

Entry door to be flush mount design in a 60" wide panel with 42" x 78" high opening. Provide door with heated fully coved doorjamb constructed of extruded structural anodized aluminum, magnetic perimeter gasket, double sweep gasket, three cam lift hinges (one with spring assist), door closer, handle with inside release that includes deadbolt lock that locks with a key and cylinder lock and/or padlock, Also provide walk-in freezer with vapor proof LED light with all temperature bulb located over center of door, and piloted light switch. All hardware is to be chrome plated. Panel finish to be 22-gauge stainless steel at interior and exterior. Door finish to be 18-gauge stainless at interior and exterior. Provide as part of door a 14” x 24” tempered three pane glass observation window. Provide freezer door window with heated frame and heated glass. Also, as part of door provide a Clear Vu vinyl curtain door. If curtain is shipped loose the walk-in manufacturer must pre drill holes in door frame for curtain hanger brackets. Secure thresholds to floor with stainless steel screws and caulk perimeter.

Door open sensor to be foamed into door jamb. Do not mount externally. K.E.C. is to wire sensor to Enviro-Control. Wiring to be routed from door frame across exterior of ceiling.

Provide on exterior of compartment door frame panel a flush mounted LED display thermometer with illuminated on/off light switch with battery back-up, and a factory flush mounted audible alarm wired by K.E.C. from Enviro Controllers. Interior of door frame panel to have a vapor proof all temperature LED light centered over door, passive infrared sensor that detects motion and turns lights on. Motion detector to include timer that is capable of being set in the field with a range of 15 seconds to 30 minutes to shut lights off when no motion is detected in the walk-in compartment after set amount of time.

Provide on face of walk-in box one (1) total telephone dialer. K.E.C. to wire to Enviro Controller.

Provide with heated air pressure relief port located on same wall as door.

Provide compartment with additional LED vapor proof ceiling light fixtures with all temperature bulbs and globes located over aisle and in such a quantity, and manner as to provide no less than 20 foot candles average of light when measured 40" above floor. Tube style light fixtures to be oriented perpendicular to low profile unit cooler. Lights to be controlled with same switch as door light. Conduit for all lights to be on exterior of ceiling.

If required by code: K.E.C. to provide tie downs and secure walk-in box.

Complete refrigeration system, as specified hereafter shall be supplied as part of this contract. If an alternate manufacturer listed below is used, it is that manufacturer’s responsibility to size the refrigeration systems according to standards they deem appropriate for proper operation of this size walk-in in this application. Changes in style of compressors will not be accepted. Any costs associated with changes in compressor sizes will be the responsibility of the K.E.C.

The installation of the polyethylene sheet vapor barrier, erection of walk-in panels & refrigeration must be done by the Kitchen Equipment Contractor.

MANUFACTURER & MODEL: NORLAKE CUSTOM

THERMO KOOL and CHRYSLER KOPPIN will be accepted as an alternative manufacturer provided the product conforms to the dimensions, construction, design, capacity, and function of the specified Manufacturer.

ITEM 1A & 1B REFRIGERATION SYSTEM - FREEZER - ONE (1) REQUIRED.

Provide rack mounted pre-assembled remote, air cooled, type R-449A refrigerant, scroll condensing unit with a minimum system available capacity of no less than 7,870 BTU's per hour at 100°F ambient on welded steel rack. Size for -10°F operation. Include frame mounted factory pre-wired control box, starter, crank case heater, head pressure control, weather hood and all other components necessary for proper operation. See drawings for location of condensing unit. Inter-wire unit cooler to condensing unit circuit. 208/60/3

Provide as part of this system a Low-Profile Unit Cooler sized for proper operation with this application. Unit Cooler is to installed per manufacturers specification and be provided with electric defrost, time initiated temperature terminated time clock, drain pan heater, fan delay thermostat, thermostat, solenoid, heater tape for condensate drain line, fan blade guards, aluminum housing, and all controls required for proper operation. Unit cooler to include manufacturer installed option Enviro-Control (or equal) electronic evaporator controller system with female CAT5 ethernet port.

Supply and Install 3/4" copper condensation drain piping with "P" trap at exterior of box. Run piping from coil along wall to drain as shown on drawings. Drain piping should be held out 1" from walls. Drain line should be held out 1" from walls and exit cooler approximately 11" above floor. PVC will not be accepted.

Provide electric heat wrap on drain piping. Heat wrap to cover drain piping from unit cooler to penetration exiting walk-in compartment. E.C. to provide receptacle for heat tape as represented on drawings.

Refrigeration Lines must be type "ACR" hard copper tubing brazed with silver solder at all joints. Copper tubing must be nitrogen charged to prevent oxidation and scale formation. Include liquid line dehydrator and sight glass with moisture indicator at compressor end of line. Lines are to be purged, charged, tested, and insulated in accordance with state and local codes. On lines at exterior of building Insulation must be UV resistant. Fees for any required inspections or test are to be part of this contract.

As part of this item, provide a painted steel refrigeration stand which shall be installed where shown on drawing. Verify, at site with owner, exact location of condensing unit.

Refrigeration shall be purchased from the same manufacturer as walk-in cooler/freezer.

Upon request, a Pressure Piping Permit must be provided, if required.

MANUFACTURER & MODEL: NORLAKE FASJ125RL3-#BYHPM "UL listed outdoor condensing unit with UL listed unit freezer".

THERMO KOOL and CHRYSLER KOPPIN will be accepted as an alternative manufacturer provided the product conforms to the dimensions, construction, design, capacity, and function of the specified Manufacturer.

ITEM 2 SHELVING - FREEZER -- ONE (1 LOT) REQUIRED.

Provide four tier standard antimicrobial polymer, open grid, shelving on 86" polymer posts. "S" clips must be used at corner shelving units. All other shelving sections to have four (4) posts. Size per drawing. Bottom shelf to be 12" off floor.

MANUFACTURER & MODEL: METRO METROMAX Q

CAMBRO "CAMSHELVING" and AMCO will be accepted as an alternative manufacturer provided the product conforms to the dimensions, construction, design, capacity, and function of the specified Manufacturer.

END OF SPECIFICATIONS

KITCHEN EQUIPMENT SCHEDULE OF VALUES – WINTON WOODS INT. SHEET 1 of 1

Item	Description	Manufacturer	Total Price
1-1B.	Walk-In Freezer	_____	_____
2.	Shelving - Freezer	_____	_____

Equipment Total _____
Labor _____
Sub Total _____
Tax (If Required) _____
Grand Total _____

Refrigeration Installer to be: _____

Equipment Installer to be: _____

Company Name: _____

Date: _____/_____/_____

Line item pricing should include all expenses required for completion of this project. This Schedule of Values shall be available upon request.

END OF SECTION 114000

SECTION 260500 - GENERAL ELECTRICAL REQUIREMENTS

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.

B. The other Contract Documents complement this Section.

1.2 SUMMARY

A. Section includes general electrical requirements related to all Division 26 Sections.

1.3 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Other standards, organizations, and agencies are listed in individual Specification Sections.

1.4 COORDINATION

A. Coordinate sequencing, arrangement, required clearances, mounting, and support of electrical equipment with other Divisions of work.

B. Coordinate all power requirements for all specified equipment provided by others (including, but not limited to kitchen and owner supplied equipment) during the coordination drawing process and before ordering equipment. Notify the Lead Contractor immediately if any conflicts arise. No cost for electrical conflicts will be approved once coordination drawings are complete and equipment is ordered.

1.5 RATED CONSTRUCTION

A. Maintain integrity of fire-rated construction where penetrated by electrical work.

1.6 PROJECT CONDITIONS

A. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions:

1. Notify Owner no fewer than five days in advance of proposed interruption of electric service.
2. Do not proceed with interruption of electric service without Owner's written permission.

PART 2 - PRODUCTS - Not Used

PART 3 - EXECUTION

3.1 GENERAL REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.

B. Coordinate connection of branch circuits to equipment furnished under other Divisions.

C. Measure indicated mounting heights to bottom of unit for suspended items and wall-mounted items, unless noted otherwise.

D. If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

E. Sequence for efficient flow of installation and positioning prior to closing in of building. Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Provide for ease of disconnecting of equipment with minimum interference to other installations.

F. Arrange raceways, cables, and wireways to be clear of obstructions and of the working and access space of other equipment.

G. Give right of way to piping systems installed at a required slope.

H. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

I. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed. Refer to Division 08 Section "Access Doors and Frames."

J. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Comply with Division 07 Section "Penetration Firestopping."

K. Comply with Division 01 Section "Cutting and Patching" restoration of surfaces disturbed by electrical installation.

L. Paint finished surfaces damaged during electrical installation, matching color and type of paint. Follow manufacturer's written instructions for surface preparation and application. Apply successive coats required to restore finish equal to the unblemished areas.

END OF SECTION 260500

SECTION 260519 - LOW-VOLTAGE CONDUCTORS AND CABLES

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.

B. The other Contract Documents complement this Section.

1.2 SUMMARY

A. This Section includes building wires and cables, and associated connectors, splices, and terminations rated 600 V and less.

1.3 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Comply with NEMA WC 3, NEMA WC 5, NEMA WC 7, NEMA WC 8.

C. Comply with NEMA WC 70.

D. Comply with NECA, Standards for Installation.

E. Conductor Connection Torque Value UL 486A

F. Conductor Connectors UL 486B

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. UL-listed building wires and cables with conductor material, insulation type, cable construction, and rating as specified.

B. Branch Circuit Conductors: Copper, solid conductor for No. 14 AWG or smaller, stranded conductor for larger than No. 14 AWG. Minimum size, No. 12 AWG for branch circuits, No. 14 AWG for control wiring.

C. Selection of Insulation and Cable Types:

1. Insulation: THHN-THWN for indoor copper wiring.
2. Multiconductor Cable: Copper Conductor Metal-clad cable, Type MC for use above ceilings and in gypsum board walls.

2.2 CONNECTORS AND SPLICES

A. UL-listed, factory-fabricated wiring connectors of size, ampacity rating, material, type, and class for application and service indicated.

PART 3 - EXECUTION

3.1 MATERIAL SELECTION

A. Refer to wiring method schedule on drawings.

3.2 CONDUCTOR SIZING

A. Branch Circuits – Unless otherwise noted on the plans, providing the following minimum conductor sizes. Contractor shall increase size as required to accommodate voltage drop and special conditions. Neutral conductors shall be full size.

Breaker/Fuse Size	Wire Size	Equipment Grounding Wire Size
15A	#12	#12
20A	#12	#12
25A	#10	#10
30A	#10	#10
35A	#8	#10
40A	#8	#10
45A	#8	#10
50A	#8	#10
60A	#6	#10
70A	#4	#8
80A	#4	#8
90A	#2	#8
100A	#2	#8

3.3 EXAMINATION

A. Examine raceways and building finishes to receive wires and cables for compliance with requirements for installation tolerances and other conditions affecting performance of wires and cables.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.4 INSTALLATION

A. Install wires and cables as indicated, according to manufacturer's written instructions and NECA "Standard of Installation."

B. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

C. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

D. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

E. Support cables according to Division 26 Section "Electrical Supports."

F. Identify and color-code conductors and cables according to Division 26 Section "Electrical Identification."

3.5 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Make splices and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than un-spliced conductors. Minimize number of splices.

C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches of slack.

D. Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING

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.

B. The other Contract Documents complement this Section.

1.2 SUMMARY

A. Section includes grounding systems and equipment for safe and protective operation of electrical components.

B. Related Sections include the following:

1. Division 26 Section "Low-Voltage Conductors and Cables".

1.3 QUALITY ASSURANCE

A. Comply with NPFA 70.

B. Comply with UL 467.

PART 2 - PRODUCTS

2.1 GROUNDING AND BONDING CONDUCTORS

A. General:

1. Material: Copper.
2. Solid Conductors: ASTM B3.
3. Stranded Conductors: ASTM B8.

B. Equipment Grounding Conductors: Insulated.

2.2 CONNECTORS

A. Compression and Pressure Connectors: High-conductivity plated type.

B. Grounding Busbar Connectors: Mechanical type, cast silicon bronze, compression-type wire terminals, and long-barrel, two-bolt connection.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. General: Where sizes, types, and ratings indicated exceed the requirements of NFPA 70, the more stringent requirements and larger sizes, types, and ratings are to be used.

B. Equipment Grounding Conductors:

1. Install insulated equipment grounding conductors with all feeders and branch circuits.

3.2 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

3.3 CONNECTIONS

A. General: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact will be compatible, and free of galvanic action.

B. Compression Connections: Use hydraulic compression tools to provide correct circumferential pressure for compression connectors. Use tools and dies recommended by manufacturer of connectors. Provide embossing die code or other standard method to make a visible indication that a connector has been adequately compressed on grounding conductor.

C. Equipment Grounding Conductor Terminations: For No. 8 AWG and larger, use compression type grounding lugs. No. 10 AWG and smaller grounding conductors may be terminated with winged pressure-type connectors.

D. Noncontact Metal Raceway Terminations: Where metallic raceways terminate at metal housings without mechanical and electrical connection to housing, terminate each conduit with a grounding bushing.

1. Connect grounding bushings with a bare grounding conductor to grounding bus or terminal in housing.
2. Bond electrically noncontinuous conduits at both entrances and exits with grounding bushings and bare grounding conductors, except as otherwise indicated.

END OF SECTION 260526

SECTION 260529 - ELECTRICAL SUPPORTS

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.

B. The other Contract Documents complement this Section.

1.2 SUMMARY

A. This Section includes supports for electrical equipment and systems.

1.3 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Comply with UL5B.

C. Comply with MFMA-4.

PART 2 - PRODUCTS

2.1 HANGERS AND SUPPORTS

A. Finishes: Hot-dipped galvanized carbon steel, zinc-plated carbon steel, or stainless steel as indicated on Wiring Methods Schedule on Drawings.

B. Strut Support Systems: Slotted steel channel, galvanized according to ASTM A123 or ASTM A653. Select channel size appropriate for applicable load criteria. Provide fittings, channel hardware, brackets, angles, inserts, hangers and accessories required for a complete support system. Obtain components from single manufacturer.

C. Raceway and Cable Support Devices: As described in NECA 1 and NECA 101, steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

D. Hanger Rods: Threaded steel, zinc plated, minimum 1/4" diameter.

E. Fabricated Metal Supports: Welded or bolted, structural-steel shapes meeting ASTM A36, shop or field fabricated to fit dimensions of supported equipment.

2.2 ANCHORAGE AND FASTENERS

A. Finishes: Hot-dipped galvanized carbon steel, zinc-plated carbon steel, or stainless steel as indicated on Wiring Methods Schedule on Drawings.

B. Bolts: Hexagon head.

1. General: ASTM A307, Grade A.
2. Stainless: ASTEM F593, Group 1.
3. Anchor: ASTM F1554, Grade 36.
4. Structural: ASTM A325.

C. Nuts: Hexagon.

1. General: ASTM A563, Grade A.
2. Stainless: ASTM F594, Group 1.
3. Anchor: Selected for load per ASTM A563.
4. Structural: Selected for load per ASTM A563.

D. Screws:

1. Machine Screws: Pan head or hexagon head, ASME B18.6.3.
2. Sheet Metal Screws: Self-tapping type, pan head or hexagon head, ASME B18.6.4.
3. Lag Screws: Hexagon head, ASME B18.2.1.
4. Wood Screws: Flat head, ASME B18.6.1.

E. Flat Washers: Plain, round.

1. For General Bolts and Nuts: ASTM F844.
2. For Stainless Bolts and Nuts: Material selected to match nuts.
3. For Anchor Bolts or Structural Bolts: ASTM F436.
4. Washers For Screws: ASME B18.22.1

F. Lock Washers: Helical, spring-type, round.

1. General: ASME B18.21.1.
2. Stainless: Material selected to match fastener.

G. Toggle Bolts: Spring-wing type, mounted on trunnion nut, with machine screw.

H. Eyebolts: ASTM A489.

I. Anchors for Cast-in-Place Concrete: Threaded type or wedge type, galvanized. ASTM A47 malleable iron or ASTM A27 cast steel.

J. Expansion Anchors: Threaded-stud wedge-type or sleeve-type

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Select materials and finishes for hangers, supports, anchors, and fasteners as indicated on Wiring Methods Schedule on Drawings.

C. Comply with manufacturer's recommendations for selecting and installing supports.

D. Design supports for multiple raceways for combined weight of supported systems, plus a 10 percent minimum future load.

E. Design equipment supports capable of supporting combined weight of supported equipment and connected systems.

F. Rated Strength of Supports: Adequate to carry present and future static loads within specified loading limits, times a minimum safety factor of three.

G. Select and anchorage and fasteners as follows:

1. Wood: Lag screws, wood screws, or bolts.
2. New Concrete: Bolt with cast-in-place concrete anchors.
3. Hollow Masonry Units: Toggle bolts.
4. Solid Masonry Units: Expansion anchor fasteners.
5. Existing Concrete: Expansion anchor fasteners.
6. Light Steel: Sheet metal screws.

3.2 HANGER AND SUPPORT INSTALLATION

A. Strut Support Systems: Install as a complete system, including fittings, channel hardware, brackets, angles, inserts, hangers and accessories required.

B. Install U-bolts, clamps, attachments, hanger rod, and other accessories required to secure supports.

C. Multiple Raceways: Install trapeze-type supports fabricated with strut support system. Secure raceways to supports with clamps appropriate for raceway.

D. Individual Raceways: Support with separate pipe hangers or clamps. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-inch and smaller raceways above suspended ceilings.

E. Equipment: Support with strut system where substrate or structural elements do not provide adequate strength of support.

F. Fabricated Metal Supports: Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment. Comply with Division 05 Section "Metal Fabrications".

3.3 ANCHORAGE AND FASTENER INSTALLATION

A. Securely fasten electrical items and supports to building structural elements according to application.

1. Install beam clamps for attaching to structural steel. Do not weld to structural steel.
2. Do not fasten or anchor to steel roof deck.

3. Drill holes for expansion anchors in concrete and solid masonry at locations and depths that avoid reinforcing bars.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES

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.

B. The other Contract Documents complement this Section.

1.2 SUMMARY

A. This Section includes raceways, fittings, boxes, enclosures, and cabinets for electrical wiring.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. FMC: Flexible metal conduit.

C. IMC: Intermediate metal conduit.

D. LFMC: Liquidtight flexible metal conduit.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain cable tray components through one source from a single manufacturer.

B. Comply with NFPA 70.

C. Comply with NECA 1.

1.5 COORDINATION

A. Coordinate layout and installation of conduit and pull boxes with final arrangement of other utilities and existing conditions as determined in the field.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND TUBING

A. Rigid Steel Conduit: ANSI C80.1.

B. Aluminum Rigid Conduit: ANSI C80.5.

C. IMC: ANSI C80.6.

D. EMT: ANSI C80.3.

E. FMC: Zinc-coated steel.

F. LFMC: Flexible steel conduit with PVC jacket. UL 360.

G. Fittings: NEMA FB 1, compatible with conduit/tubing used.
1. Fittings for EMT: Set-screw or compression type.

2.2 RACEWAY SLEEVES

A. Steel Pipe Sleeves: ASTM A 53, Type E, Grade B, Schedule 40, galvanized steel, plain ends.

B. Sleeves for Rectangular Openings: 24-gage galvanized sheet steel of length to suit application.

2.3 SURFACE RACEWAYS

A. Surface Raceways – Single Channel: One-piece construction, galvanized steel, white or ivory finish (color to be selected by Architect). Provide fittings and accessories including, but not limited to, elbows, couplings, wire clips, end fittings, device mounting brackets, and plates as required for a complete system. Provide accessories suitable for devices, outlets, and wiring and cable as indicated on Drawings.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Wiremold 700 Series (Basis of Design)
b. Hubbell Wiring Device-Kellems.
c. Mono-Systems.
d. Thomas & Betts Corporation.

2.4 METAL WIREWAYS

A. Description: Sheet metal sized and shaped as required, hinged or screw cover type, NEMA rating as indicated on Drawings, manufacturer's standard finish. Include couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings as required for complete system.

2.5 DEVICE AND OUTLET BOXES

A. Sheet Metal Boxes: NEMA OS 1.

B. Cast-Metal Boxes: NEMA FB 1, Type FS or FD, with threaded hubs and gasketed cover.

2.6 JUNCTION AND PULL BOXES

A. Sheet Boxes: NEMA OS 1.

B. Cast-Metal Boxes: NEMA FB 1, Type FS with threaded hubs and gasketed cover.

2.7 CONDUIT BODIES

A. Conduit Bodies: UL 514B, with threaded hubs and gasketed cover.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to receive raceways, boxes, enclosures, and cabinets for compliance with installation tolerances and other conditions affecting performance of raceway installation.

1. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 MATERIAL SELECTION

A. Raceways and Boxes: Refer to Wiring Methods Schedule on Drawings.

3.3 GENERAL INSTALLATION

A. Install raceways, boxes, enclosures, and cabinets according to manufacturer's written instructions.

B. Install raceways, boxes, enclosures, and cabinets to form a continuous electrical conductor.

3.4 RACEWAY INSTALLATION

A. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

B. Complete raceway installation before starting conductor installation. Use temporary closures to prevent foreign matter from entering raceways.

C. Separate Raceway Systems: Provide separate raceways for the following:

1. Emergency circuits.
2. Conductors operating at different voltages
3. AC and DC/analog control wiring

D. Support raceways as specified in Division 26 Section "Electrical Supports."

E. Routing: Install raceways level and square and at proper elevations. Provide adequate headroom.

1. Install exposed and concealed raceways parallel to or at right angles to nearby surfaces or structural members, and follow the surface contours as much as practical. Run parallel or banked raceways together, on common supports where practical.
2. Conceal conduit and tubing within finished walls and ceilings, unless otherwise indicated.

F. Bends: Make bends and offsets so ID is not reduced. Keep legs of bends in the same plane and straight legs of offsets parallel, unless otherwise indicated.

1. Install no more than the equivalent of three 90-degree bends in any conduit run except for communications conduits, for which fewer bends are allowed.
2. Make bends in parallel or banked runs from same centerline to make bends parallel. Use factory elbows only where elbows can be installed parallel; otherwise, provide field bends for parallel raceways.
3. Arrange stub-ups so curved portions of bends are not visible above the finished floor.

G. Fittings, Joints and Terminations: Join raceways with fittings designed and approved for the purpose and make joints and terminations tight.

H. Pull Wires: Install pull wires in empty raceways.
1. Raceways for Electric Branch Circuits: Use monofilament plastic line with not less than 200-lb tensile strength. Leave at least 12 inches of slack at each end of pull wire.

I. Install raceway sealing fittings at suitable, approved, and accessible locations and fill them with listed sealing compound, according to manufacturer's written instructions. Locate fittings at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
2. Where conduits pass from interior to exterior locations.
3. Where otherwise required by NFPA 70.

3.5 RACEWAY PENETRATIONS

A. Concrete Slabs and Walls: Install sleeves during erection of slabs and walls, unless core-drilled holes or formed openings are used.

B. Fire-Rated Assemblies: Install sleeves and seal with firestop for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall. Cut sleeves to length for mounting flush with both surfaces of walls or extend sleeves installed in floors 2-inches above finished floor level.

C. Seal space outside of sleeves with grout for penetrations of concrete and masonry and with approved joint compound for gypsum board assemblies.

D. Aboveground, Exterior-Wall Penetrations: Seal penetrations using joint sealant appropriate for size, depth, and location of joint. Refer to Division 07 Section "Joint Sealants" for materials and installation.

3.6 BOX INSTALLATION

A. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.

B. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.

C. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.

3.7 PROTECTION

A. Provide final protection and maintain conditions that ensure coatings, finishes, and cabinets are without damage or deterioration at time of Substantial Completion.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.

3.8 CLEANING

A. Surface Raceways: Clean exposed surfaces as recommended by manufacturer.

END OF SECTION 260533

SECTION 260553 - ELECTRICAL IDENTIFICATION

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.

B. The other Contract Documents complement this Section.

1.2 SUMMARY

A. Section includes identification for electrical equipment, materials, and installations.

1.3 QUALITY ASSURANCE

A. Comply with NFPA 70.

B. Comply with ANSI A13.1.

C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.

D. Comply with UL 969.

1.4 COORDINATION

A. Coordinate installation of identification after completion of field-finished surfaces where identification is applied to such surfaces.

B. Coordinate installation of identification prior to installation of acoustic ceilings, access panels, and similar concealments.

PART 2 - PRODUCTS

2.1 RACEWAYS AND METAL-CLAD CABLES

A. Raceways Carrying Circuits at 600 V or Less:

1. Snap-Around, Color-Coding Bands: Slit, pretensioned, flexible, colored acrylic sleeve, 2-inches wide, with diameter sized to suit raceway being identified.
2. Self-Adhesive Colored Vinyl Tape: Heavy-duty, fade resistant, 2-inch wide. Waterproof and compounded when used in exterior applications.
3. Paint: Comply with Division 09 for paint materials and application requirements.
4. Factory-Applied Color Coating.

2.2 CABLES AND CONDUCTORS

A. Factory-Applied Conductor Color: Color the entire length of the conductors for sizes No. 10 AWG or smaller for phase conductors, and No. 6 AWG or smaller for grounded conductors.

B. Field-Applied Conductor Color: Self-adhesive colored vinyl tape, 3-mils thick, 1-inches wide for sizes larger than No. 10 AWG for phase conductors, and No. 6 AWG for grounded conductors.

C. Heat-Shrink Markers: White polyolefin sleeves, text applied with compatible printer.

D. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with preprinted letters and numbers.

2.3 SIGNAGE

A. Baked-Enamel Signs for Interior Use: Preprinted aluminum signs, punched for fasteners, with 1/4-inch grommets in corners for mounting. Colors, legend, and size as required for application.

B. Metal-Backed, Butyrate Signs for Exterior Use: Cellulose-acetate butyrate signs, weather-resistant, fade-resistant, preprinted, with 1/4-inch grommets in corners for mounting. Colors, legend, and size as required for application.

C. Emergency Operating Instruction Signs: White lettering on a red background with minimum 3/8-inch-high letters for emergency instructions.

D. Fasteners for Signage: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install identification according to manufacturer's written instructions in a secure manner, located for most convenient viewing without interference with operation and maintenance of equipment.

B. Self-Adhesive Identification Products: Clean surfaces before application, using materials and methods recommended by manufacturer of identification device.

C. Accessible Raceways and Exposed Cables: Locate at changes in direction, at penetrations of walls and floors, at 50-foot maximum intervals in straight runs, and at 25-foot maximum intervals in congested areas.

1. Color-Coding: Refer to Conductor and Conduit Color Coding Schedule on Drawings. Each color-coding band or tape shall completely encircle cable or conduit. Place adjacent bands of two-color markings in contact, side by side.
2. Paint: Coordinate with Division 09.

D. Conductors: Identify conductors and cables in enclosures and at junction boxes, terminals, and pull points.

1. Color-Coding: Refer to Conductor and Conduit Color Coding Schedule on Drawings. For field-applied tape, apply in half-lapped turns for a minimum distance of 6 inches from

terminal points and in boxes where splices or taps are made. Apply last two turns of tape without tension to prevent possible unwinding. Locate tape to avoid obscuring factory conductor markings.

2. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.
3. Multiple Power Conductors in Same Enclosure: Identify each conductor with source and circuit number. Use color coding for voltage and phase indication.
4. Multiple Control and Communications Circuits in the Same Enclosure: Identify each conductor by its system and circuit designation. Use a consistent system of tags, color coding, or cable marking tape.
5. Control Wiring: Label both ends of conductor with control wire number as indicated on schematic and wiring diagrams, and manufacturer's shop drawings and Operation and Maintenance Manual.

E. Pull Boxes and Junction Boxes: Identify source and circuit number.

1. Exposed Boxes: Identify on inside of cover with label or written in permanent marker.
2. Boxes Above Finished Ceilings: Identify on outside of cover with label or written in permanent marker.

F. Wiring Device Boxes: Identify source and circuit number with label on inside of wallplate.

END OF SECTION 260553

SECTION 262726 - WIRING DEVICES

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.

B. The other Contract Documents complement this Section.

1.2 SUMMARY

A. This Section includes receptacles, switches, and wall plates.

1.3 DEFINITIONS

A. GFCI: Ground-fault circuit interrupter.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain each type of wiring device and associated wall plate through one source from a single manufacturer. Insofar as they are available, obtain all wiring devices and associated wall plates from a single manufacturer and one source.

B. Comply with NFPA 70.

C. Comply with NEMA WD 1.

D. Comply with NEMA WD 6 and UL 498.

E. Comply with UL 20.

F. Comply with UL 943.

PART 2 - PRODUCTS

2.1 DEVICES

A. Manufacturers: Subject to compliance with requirements, provide one of the following:

1. Cooper Wiring Devices.
2. Hubbell Wiring Device-Kellems.
3. Leviton Manufacturing.
4. Pass & Seymour.

B. Straight-Blade Receptacles: 125 V, 20 A, grounding type, NEMA 5-20R, back and side wired.

1. Duplex Receptacles: Heavy-duty, specification-grade with types, or combinations thereof, as indicated on Drawings.

    a. GFCI: Personnel protection, feed-through, with indicator light for protection status.
    b. Weather-Resistant (WR): Additional protection against accelerated aging, cold impact, corrosion, and ultraviolet light exposure. Provide WR devices for all exterior 15A and 20A devices.

C. Switches: 120/277 V, 20 A, heavy-duty, quiet-type, specification-grade, grounding type, back and side wired.

1. Snap Switches: Toggle switch, with number of poles, switching configuration types, or combinations thereof, as indicated on Drawings.

D. Wall Plates: Standard-size single and combination types to match corresponding wiring devices. Plate-securing metal screws with head color matching plate finish.

1. Finished Spaces: Metal, 302 stainless steel finish.
2. Unfinished Spaces: Metal, 302 stainless steel finish.
3. Wet Locations: Listed, cast aluminum weatherproof in-use cover, NEMA type 3R, with lockable cover.

E. Finishes: Colors as specified, unless otherwise indicated or required by NFPA 70 or device listing.

1. Connected to Normal Power System: to be selected by Architect.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

B. Install devices plumb, level, and secured tight to mounting surface. Repair wall finishes when standard device plates do not fit flush or do not cover rough wall opening.

C. Protect devices during painting. Install wall plates after painting is complete.

3.2 CONNECTIONS

A. Use a torque screwdriver when a torque is recommended or required by the manufacturer.

B. Connect wiring device grounding terminal to branch-circuit equipment grounding conductor and to outlet box with bonding jumper.

C. Tighten unused terminal screws on the device.

3.3 FIELD QUALITY CONTROL

A. Tests wiring devices for proper polarity and ground continuity. Operate each device a minimum of six times.

B. Test GFCI receptacle operation according to manufacturer's written instructions.

C. Replace damaged or defective components.

3.4 CLEANING

A. Prior to installation of devices, clean interior of outlet boxes.

END OF SECTION 262726

SECTION 262816 - ENCLOSED SWITCHES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

B. The other Contract Documents complement this Section.

1.2 SUMMARY

A. Section includes individually mounted enclosed switches for fusible switches and non-fusible switches.

1.3 QUALITY ASSURANCE

A. Source Limitations: Obtain enclosed switches from one source from single manufacturer.

B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.

C. Comply with NFPA 70.

D. Comply with NEMA KS 1.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cutler-Hammer.
2. General Electric.
3. Siemens.
4. Square D.

2.2 DISCONNECT SWITCHES

A. Switch Characteristics: Type HD, heavy duty with voltage ratings, frame sizes, fuse/trip ratings, number of poles, interrupting/withstand ratings, and accessories as indicated on Drawings.

B. Fusible Switches: Clips to accommodate specified fuses, lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.

C. Non-fusible Switches: Lockable handle with capability to accept two padlocks, and interlocked with cover in closed position.

D. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper and aluminum ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper and aluminum neutral conductors.
3. Auxiliary Contact Kit, where indicated on Drawings: Auxiliary contact(s), arranged to activate before switch blades open.

2.3 MOTOR RATED TOGGLE SWITCHES

A. Toggle Switch
1. Coordinate electrical characteristics with serving equipment
   a. Voltage: 120V, 240V, or 600V – Match Serving Electrical Service
   b. Rating: 20A, 30A, or 40A – Match Serving Circuit Breaker
   c. Poles: 1, 2, or 3 – Coordinate with Serving Electrical Service
2. Provide with clip for lockout/tagout hasp.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine elements and surfaces to receive enclosed switches for compliance with installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install individual switches level and plumb, with tops at uniform height, unless otherwise indicated. Install according to manufacturer's written instructions.

B. Install fuses in fusible switches.

C. Connect switches and components to wiring system according to by manufacturer's written instructions and Division 26 Section "Low-Voltage Conductors and Cables."

3.3 IDENTIFICATION

A. Comply with requirements in Division 26 Section "Electrical Identification."

3.4 FIELD QUALITY CONTROL

A. Testing: After installing enclosed switches and circuit breakers and after electrical circuitry has been energized, demonstrate product capability and compliance with requirements.

B. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, remove and replace with new units and retest.

3.5 ADJUSTING

A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.

B. Set field-adjustable circuit-breaker trip ranges

3.6 CLEANING

A. After completing system installation, remove burrs, dirt, and construction debris and repair damaged finish including chips, scratches, and abrasions.

END OF SECTION 262816

SECTION 32 31 13 - CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:
1. Chain-Link Fences: Industrial.
2. Manual swing gates.
3. Privacy slats.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For each type of fence and gate assembly
1. Include plans, elevations, sections, details, and attachments to other work.

C. Samples: For each exposed product and for each color and texture specified.

1.3 INFORMATIONAL SUBMITTALS

A. Sample warranty.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed chain-link fences and gates, similar in material, design, and extent to those indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

1.5 PROJECT CONDITIONS

A. Field Measurements: Verify layout information for chain-link fences and gates shown on Drawings in relation to property survey and existing structures. Verify dimensions by field measurements.

1.6 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of chain-link fences and gates that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
a. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
2. Warranty Period: 10 years from date of Contract Completion.

PART 2 - PRODUCTS

2.1 CHAIN-LINK FENCE FABRIC

A. General: Height indicated on Drawings. Provide fabric in one-piece heights measured between top and bottom of outer edge of selvage knuckle. Comply with “CLFMI Product Manual” and requirements indicated below:
1. Fabric Height: As indicated on Drawings.
2. Steel Wire for Fabric: Wire diameter of 0.148 inch.
a. Mesh Size: 2 inches.
b. Zinc-Coated Fabric: ASTM A 392, Type II, Class 1, 1.2 oz./sq. ft. with zinc coating applied after weaving.
3. Selvage: Knuckled at both selvages.

2.2 FENCE FRAMEWORK

A. Posts and Rails: Comply with ASTM F 1043 for framing, including rails, braces, and line; terminal; and corner posts. Provide members with minimum dimensions and wall thickness according to ASTM F 1043 based on the following:
1. Fence Height: As indicated on Drawings.
2. Heavy Industrial Strength Material: Group IC, round steel pipe, electric-resistance-welded pipe.
a. Steel posts for fabric heights up to and including 8 feet:
1) Line Post: 1.900 inches
2) End, Corner and Pull Post: 2.375 inches
3. Horizontal Framework Members: Top, Intermediate and bottom rails complying with ASTM F 1043, 1.66 inches in diameter.
4. Brace Rails: Comply with ASTM F 1043.
5. Metallic Coating for Steel Framework
a. Type A: Not less than minimum 2.0-oz./sq. ft. (0.61-kg/sq. m) average zinc coating according to ASTM A123/A123M or 4.0-oz./sq. ft. (1.22-kg/sq. m) zinc coating according to ASTM A653/A653M.

2.3 SWING GATES

A. General: Comply with ASTM F 900 for single and double swing gate types.
1. Gate Leaf Width: As indicated on Drawings.
2. Gate Fabric Height: 2 inches less than adjacent fence height.

B. Pipe and Tubing:
1. Zinc-Coated Steel: Comply with ASTM F 1043; protective coating and finish to match fence framing.
2. Gate Posts: Round tubular steel.
3. Gate Frames and Bracing: Round tubular steel.
a. Tubular Steel: 1.66 inches round for gate heights up to and including 6 feet.

C. Frame Corner Construction: Welded and 5/16-inch- diameter, adjustable truss rods for panels 5 feet wide or wider.

D. Hardware: Provide galvanized hardware and accessories for each gate according to the following:
1. Hinges: Size and material to suit gate size, non-lift-off type, offset to permit 180-degree gate opening. Provide 1-1/2 pair of hinges for each leaf over 6-foot nominal height.
2. Latch: Forked type or plunger-bar type to permit operation from either side of gate, with padlock eye as an integral part of latch. Provide at locations where exit devices are not indicated.
3. Gate Stops: Provide gate stops for double gates consisting of mushroom-type flush plate with anchors, set in concrete, and designed to engage a center drop rod or plunger bar. Include a locking device and padlock eyes as an integral part of the latch, permitting both gate leaves to be locked with a single padlock at locations where exit devices are not indicated.

2.4 FITTINGS

A. General: Comply with ASTM F 626.

B. Post and Line Caps: Provide for each post.
1. Line post caps with loop to receive top rail.

C. Rail and Brace Ends: Attach rails securely to each gate, corner, pull, and end post.

D. Rail Fittings: Provide the following:
1. Top Rail Sleeves: Pressed-steel or round-steel tubing not less than 6 inches long.
2. Rail Clamps: Line and corner boulevard clamps for connecting intermediate and bottom rails in the fence line-to-line posts.

E. Tension and Brace Bands: Pressed steel.

F. Tension Bars: Steel, length not less than 2 inches shorter than full height of chain-link fabric. Provide one bar for each gate and end post, and two for each corner and pull post, unless fabric is integrally woven into post.

G. Truss Rod Assemblies: Steel, hot-dip galvanized after threading rod and turnbuckle or other means of adjustment.

H. Tie Wires, Clips, and Fasteners: According to ASTM F 626.
1. Standard Round Wire Ties: For attaching chain-link fabric to posts, rails, and frames, complying with the following:
a. Aluminum: ASTM B 211; Alloy 1350-H19; 0.148-inch- diameter, mill-finished wire.

I. Finish:
1. Metallic Coating for Pressed Steel or Cast Iron: Not less than 1.2 oz. /sq. ft. zinc.
a. Polymer coating over metallic coating.

2.5 PRIVACY SLATS

A. Tubular Polyethylene Slats: Minimum 0.023-inch-thick tubular polyethylene, manufactured for chain-link fences from virgin polyethylene with UV inhibitor, sized to fit mesh specified for direction indicated, with vandal-resistant fasteners and lock strips fins for increased privacy factor.

B. Color: Black.

2.6 CAST-IN-PLACE CONCRETE

A. Materials: Dry-packaged concrete mix complying with ASTM C 387 for normal-weight concrete mixed with potable water according to manufacturer's written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and conditions, with Installer present, for compliance with requirements for grading and pavement work, and other conditions affecting performance.
1. Do not begin installation before final grading is completed, unless otherwise permitted by Architect.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Stake locations of fence lines, gates, and terminal posts. Do not exceed intervals of 500 feet or line of sight between stakes. Indicate locations of utilities, underground structures, benchmarks, and property monuments.

3.3 CHAIN-LINK FENCE INSTALLATION

A. Install chain-link fencing to comply with ASTM F 567 and more stringent requirements specified.

B. Post Excavation: Drill or hand-excavate holes for posts to diameters and spacings indicated, in firm, undisturbed or compacted soil.
1. If not indicated on Drawings, excavate holes for each post to minimum diameter recommended by fence manufacturer, but not less than four times the largest cross section of post.
2. Unless otherwise indicated, excavate hole depths approximately 3 inches lower than post bottom, with bottom of posts set not less than 36 inches below finish grade surface.

C. Post Setting: Center and align posts in holes 3 inches above bottom of excavation. Space a maximum of 10 feet o.c., unless otherwise indicated.
1. Verify that posts are set plumb, aligned, and at correct height and spacing, and hold in position during setting with concrete.

2. Concrete Fill: Place concrete around posts to dimensions indicated and vibrate or tamp for consolidation. Protect above ground portion of posts from concrete splatter.
   a. Exposed Concrete: Extend 2 inches above grade, unless noted otherwise on drawings; shape and smooth to shed water.

D. Terminal Posts: Locate terminal end, corner, and gate posts per ASTM F 567 and terminal pull posts at changes in horizontal or vertical alignment of 15 degrees or more.

E. Line Posts: Space line posts uniformly at 10 feet o.c.

F. Post Bracing: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Diagonally brace terminal posts to adjacent line posts with truss rods and turnbuckles. Install braces at end and gate posts and at both sides of corner and pull posts.
1. Locate horizontal braces at midheight of fabric 6 feet or higher. Install so posts are plumb when diagonal rod is under proper tension.

G. Top Rail: Install according to ASTM F 567, maintaining plumb position and alignment of fencing. Run rail continuously through line post caps, bending to radius for curved runs and terminating into rail end attached to posts or post caps fabricated to receive rail at terminal posts. Provide expansion couplings as recommended in writing by fencing manufacturer.

H. Bottom Rails: Install, spanning between posts.

I. Chain-Link Fabric: Apply fabric to outside of enclosing framework unless otherwise indicated on Drawings. Leave 2 inches between finish grade or surface and bottom selvage, unless otherwise indicated. Pull fabric taut and tie to posts and rails. Anchor to framework so fabric remains under tension after pulling force is released.

J. Tension or Stretcher Bars: Thread through fabric and secure to end, corner, pull, and gate posts, with tension bands spaced not more than 15 inches o.c.

K. Tie Wires: Use wire of proper length to firmly secure fabric to line posts and rails. Attach wire at one end to chain-link fabric, wrap wire around post a minimum of 180 degrees, and attach other end to chain-link fabric per ASTM F 626. Bend ends of wire to minimize hazard to individuals and clothing.
1. Maximum Spacing: Tie fabric to line posts at 12 inches o.c. and to rails and braces at 24 inches o.c.

L. Privacy Slats: Install slats in direction indicated, securely locked in place.
1. Vertically.

M. Fasteners: Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen ends of bolts or score threads to prevent removal of nuts.

3.4 GATE INSTALLATION

A. Install gates according to manufacturer's written instructions, level, plumb, and secure for full opening without interference. Attach fabric as for fencing. Attach hardware using tamper-resistant or concealed means. Install ground-set items in concrete for anchorage. Adjust hardware for smooth operation and lubricate where necessary.

3.5 ADJUSTING

A. Gate: Adjust gate to operate smoothly, easily, and quietly, free of binding, warp, excessive deflection, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Confirm that latches and locks engage accurately and securely without forcing or binding.

B. Lubricate hardware and other moving parts.

END OF SECTION 32 31 13