Technical Specifications

INTERIOR RENOVATIONS TO

NAUGATUCK POLICE DEPARTMENT

FOR A NEW

CENTRAL DISPATCH FACILITY

211 SPRING STREET
NAUGATUCK, CT

JULY 6, 2026

JACUNSKI HUMES
ARCHITECTS, LLC
15 MASSIRIO DRIVE SUITE 101
BERLIN, CONNECTICUT
TEL 860 828 9221 FAX 860 828-9223

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PREPARED BY

ARCHITECT
JACUNSKI HUMES ARCHITECTS, LLC
15 MASSIRIO DRIVE, SUITE 101
BERLIN, CT 06037
TEL 860-828-9221

M/E/P/FP/IT ENGINEER
INNOVATIVE ENGINEERING SERVICES, LLC
33 NORTH PLAINS INDUSTRIAL ROAD
WALLINGFORD, CT 06492
TEL 203-467-4370

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NAUGATUCK POLICE DEPARTMENT

FOR A NEW

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NAUGATUCK, CT

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211 SPRING STREET
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INVITATION TO BID

INTERIOR RENOVATIONS TO

NAUGATUCK POLICE DEPARTMENT

FOR A NEW

CENTRAL DISPATCH FACILITY

211 SPRING STREET
NAUGATUCK, CT

Contract No. FY27-B138

General Description of the Work: The Project consists of interior renovation for a new Dispatch Facility, Records Office, Training Room, Entry Vestibule and associated spaces located at the existing Naugatuck Police Department, 211 Spring Street, Naugatuck, CT.

Qualifications of Contractors: Eligible Bidders shall be General Contractors with prior experience with similar scope of work

Owner: Borough of Naugatuck

Place for Receiving Bids: **Purchasing Agent for the Borough of Naugatuck,**
Accounting Dept. Basement,
Town Hall
229 Church Street,
Naugatuck, Connecticut, 06770

Sealed bids for all designated work will be received by the Purchasing Agent for the Borough of Naugatuck until **Thursday, August 6, 2026** at **11:00 am,** local time, after which no additional bids will be accepted. Bid proposals sent by facsimile will not be accepted. At the time indicated above all bids will be publicly opened and read aloud via Zoom. Please follow link below to access scheduled bid opening:

Join Zoom Meeting
https://us06web.zoom.us/j/6761116286?pwd=JEzCAEJIoet3nV2NVOo0oviSbAGanu.1&omn=84035224113
Meeting chat link
https://us06web.zoom.us/launch/jc/84035224113
Meeting ID: 676 111 6286
Passcode: 560827

One tap mobile
+16465189805,,6761116286# US (New York)
+19292056099,,6761116286# US (New York)

Join by SIP
• 6761116286@zoomcrc.com

Join instructions
https://us06web.zoom.us/meetings/84035224113/invitations?signature=etYYs5BeePIVcMLgbhEN5SOy0kOnUYOtCBBGoDbruqw

Place for Obtaining Bidding Documents: Complete bid documents may be examined and obtained at no cost from the Borough of Naugatuck web site http://www.naugatuck-ct.gov. All bidders must check the Borough web site within four (4) days of the scheduled bid opening to check for addenda

Bid Documents will be available on or after: **Wednesday, July 8, 2026**

Bid Instructions and Forms: Full instructions and forms are included in the Bidding Documents.

Bid Form: Sealed bid proposals shall be submitted with bid security. Bid Security shall be issued payable to the "Borough of Naugatuck" in the form of certified check, cashier's check, or bid bond in the amount of 5% of the Base Bid. Label exterior of envelope with project title to avoid premature opening of bid.

Required Bonds: Upon award of a contract, Performance Bond and Labor and Material Payment Bond for 100% of the Contract price with a surety company satisfactory to the Owner.

Withdrawal of Bids: No bid may be withdrawn for a period of sixty (60) days after the opening of bids without written consent of the Owner.

Rejection of Bids: The Borough of Naugatuck reserves the right, in its sole discretion, to accept or reject any or all bids and waive any formalities in the bidding.

Applicable Laws: The bidding shall be done in accordance with the laws of the State of Connecticut.

Wage Requirements: State prevailing wage rates DO APPLY.

Bid Questions: All questions pertaining to this bid shall be emailed directly to the Architect at mallen@jharchitects.net. Questions will be answered through an addendum issued by the Architect and posted to the Borough's website. The deadline for questions shall be **Wednesday, July 29, 2026 at 2:00 pm.**

An Affirmative Action / Equal Opportunity Employer. Minority / Women's Business Enterprises are encouraged to apply.

END OF INVITATION TO BID

AIA® Document A701® – 2018

Instructions to Bidders

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

Interior Renovations to Naugatuck Police Department for a New Central Dispatch Facility and Related Improvements
211 Spring Street
Naugatuck, CT
New Central Dispatch Center and related improvements

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

Borough of Naugatuck
229 Church Street
Naugatuck, CT 06770

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

Jacunski Humes Architects, LLC
15 Massirio Drive
Suite 101
Berlin, CT 06037

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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.)

See Invitation to Bid for further instructions on obtaining 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.)

Requests for clarification can be submitted through the Architect by email: mallen@jharchitects.net

§ 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.)

Addenda will be posted to the Borough of Naugatuck website: https://www.naugatuck-ct.gov/bids-RFPs

§ 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.)

5% Bid Bond required at the time of bid submission

§ 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.)

See Invitation to 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.)

Bid Security will be returned to Bidder

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.)

100% of contract amount

§ 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.)

Borough of Naugatuck Insurance Requirements, v2.2 ed.2/28/24

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

.5 Drawings

Number	Title	Date
See List of Drawings		

.6 Specifications

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.7 Addenda:

Number	Date	Pages

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

(Paragraphs deleted)

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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INSTRUCTION TO BIDDERS

1.01 GENERAL CONDITIONS

AIA Document A701, "Instructions to Bidders," 2018 Edition, American Institute of Architects, Articles 1 through 8, are bound herein and are hereby made a part of the Contract Documents and shall apply to all Contractors and Subcontractors.

1.02 SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

a. Certain Articles of the AIA Instructions to Bidders are revised or replaced by requirements of the Supplementary Instructions, listed below. Such revisions are replacements and shall take precedence over the AIA Instructions to Bidders.

b. The Following Articles, revised paragraphs and clauses have the same numerical designations occurring in the AIA Instructions to Bidders, and all additions follow in direct numbered sequence.

ARTICLE 2 - BIDDER'S REPRESENTATIONS

Add the following as paragraph 2.1.4:

2.1.4.1 The project site is identified in the Contract Documents and the exterior is available for viewing at all times. The building interior will only be available for viewing during the scheduled Pre-Bid Conference. All Bidders, upon entering the site, shall be prepared to identify themselves to Owner and state their purpose for being on the site. Each Bidder shall visit the site of the proposed work and fully acquaint themselves with conditions relating to construction and labor so that they may fully understand the facilities, difficulties and restrictions attending the execution of the work under this Contract. Bidders shall thoroughly examine and be familiar with the drawings and the specifications. The failure or omission of any Bidder to receive or examine any form, instrument, Addendum or other documents or to visit the site and acquaint himself with conditions there existing, shall in no way relieve any Bidder from any obligation with respect to his Bid or the Contract.

ARTICLE 3 - BIDDING DOCUMENTS

3.1.2 Delete Paragraph 3.1.2.

Add the following Paragraph:

3.2.1.1 Any conflict existing between the Drawings and the Specifications and not brought to the attention of the Architect for clarification before bids are submitted shall be resolved on the basis of furnishing the greatest quantity and/or highest quality indicated, without cost to the Contract.

Add the following Paragraph:

3.2.4 A Pre-Bid Conference will be held on **Wednesday July 15, 2026, at 2:00 PM**, at the Project Site, 211 Spring Street, Naugatuck, CT. It is recommended that all Bidders attend.

Add the following Paragraph:

3.3.4.1 After the award of the Contract, no substitutions will be considered for the brands specified except upon written request of the Contractor and written approval by the Architect and Owner's concurrence. Substitutions shall be submitted including the entire system and/or assembly attached thereto.

Add the following Paragraph:

3.3.5.1 Approval by the Owner and the Architect of any such substitution shall not relieve the Contractor requesting the substitution of any responsibility for additional costs incurred by other trades for changes made necessary to accommodate the substituted item.

ARTICLE 4 - BIDDING PROCEDURE

Delete Paragraph 4.2.1 and substitute the following:

4.2.1 Each Bid shall be accompanied by a Bid Security. Bid Security shall be in the form of a Surety Bond as stated herein or a certified or cashier's check made payable to "**Borough of Naugatuck**" in the amount of five percent (5%) of the Base Bid. All sureties must also be listed on the most recent IRS Circular 570.

Delete Paragraph 4.2.3 and substitute the following:

4.2.3 Surety Bid Bonds shall be written on forms similar in content to AIA Document A310 and executed by a company authorized to transact business within the State of Connecticut, and the attorney-in-fact who executes the Bond on behalf of the Surety shall affix to the Bond a certified and current copy of his power of attorney.
Add Paragraph 4.4.1.1

4.4.1.1 Negligence on the part of the Bidder in preparing the Proposal shall not justify the withdrawal of such Proposal after all bids have been opened.

Add Paragraph 4.4.4:

4.4.4 Amendments to or withdrawals of Bid received later than the time and date set for Bid Opening will not be considered.

ARTICLE 5 - CONSIDERATION OF BIDS

Add the following Paragraph:

5.3.3 Prior to the award of a Contract, bidders must present satisfactory evidence that they have been regularly engaged in the business of doing such work as they propose to execute and that they are prepared with the necessary supervisory staff, capital, materials and machinery to conduct and complete the work to be contracted for in accordance with the drawings and specifications and to begin it promptly when ordered. Such evidence shall show that the Contractor has experience in the renovation of occupied buildings.

Add the following Paragraph:

5.3.4 A bid may be rejected if the bidder cannot show that he has the necessary capital and experience and owns, controls or can produce the necessary plant to commence the work at the time prescribed and thereafter to prosecute and complete the work at the rate or time specified; and that he is not already obligated for the other work which would delay the commencement, prosecution, or completion of this work. A bid may also be rejected if the bidder has previously failed to complete a contract within the time required or had previously performed a similar work in an unsatisfactory manner or does not have experience in the renovation of buildings that were occupied during the course of the work.

ARTICLE 7 - PERFORMANCE BOND AND PAYMENT BOND

Amend Paragraph 7.1.1 to read as follows:

Successful contract bidders will be required to furnish and pay for Surety in the full amount of the Contract. This Bond shall provide 100% security for faithful performance and for payment of all persons performing labor or furnishing materials in connection with this Contract and shall be executed by a company authorized to transact business within the State of Connecticut. Cost of such bonds shall be included in the Base Bid.

Add the following Paragraph:

7.2.5 If required, Performance Bond and Payment Bond shall remain in force in full value throughout the course of the project. No reduction in bond value shall be acceptable.

Add the following Paragraph:

7.2.6 Bids submitted in duplicate by CONTRACTORS must be made only from a copy of the BID FORM which accompanies these Specifications and shall be made on the bidder's official letterhead.

ADDITIONAL SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

ADD ARTICLE 9 - FAIR EMPLOYMENT PRACTICES

9.1.1 The Bidder agrees and warrants that in the submission of his sealed Bid he/she will not discriminate or permit discrimination against any person or group of persons on the grounds of race, color, religion, age, national origin, sex, or physical disability including, but not limited to blindness, unless it is shown by such Bidder that disability prevents performance of that which must be done to successfully fulfill the terms of his sealed Bid or in any manner which is prohibited by the laws of the United States, the laws of State of Connecticut, or the Borough of Naugatuck.

Add the following Article:

10.0 TAXES

10.1 The Owner is exempt from the payment of taxes imposed by the Federal Government and the State of Connecticut. Such taxes should not be included in the Bid Price. The Owner is also exempt from payment of the Federal transportation tax where applicable and such tax must not be included in Bid Price. No exemption certificate is required for this tax.

Add the following Article:

ARTICLE 11 - BID FORMS

11.1.1 All Bidders shall furnish the following documents with the sealed bid to avoid having his bid rejected for non-compliance. Other documents or certifications may be required to fulfill particular circumstances noted in the project manual and shall be included if required.

11.1.2 All Bidders shall furnish:

1. One (1) original of fully executed **Bid Form** (format as provided).
2. **Form of Bid Security** (in an amount equal to 5% of the bid amount).

11.1.4 Each bid shall be sealed in an opaque envelope with the following legibly marked on one side of the envelope:

1. Bid Form and required Bidding Documents Enclosed
2. Name of Bidder

11.1.6 If a bid is mailed, it shall be enclosed in an outer envelope with the Bidder's name and business address marked legibly thereon, addressed as follows:

New Central Dispatch Facility Sealed Bid

Attn:
Purchasing Agent for the Borough of Naugatuck,
Accounting Dept. Basement,
Town Hall
229 Church Street,
Naugatuck, Connecticut, 06770

The Borough of Naugatuck must receive bids by date and time indicated in the Invitation to Bid or amended through Addendum.

11.1.5 Each General Contractor shall take this bid submittal as one (1) complete unit as further described by the contract documents and all bids shall be for the entire scope of work as advertised.

11.1.6 Partial bids will not be accepted and will be rejected by the Owner.

END OF SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

BID FORM

INTERIOR RENOVATIONS TO
NAUGATUCK POLICE DEPARTMENT
FOR A NEW
CENTRAL DISPATCH FACILITY
211 SPRING STREET
NAUGATUCK, CT

Date _____

To: Town Hall
229 Church Street,
Naugatuck, Connecticut, 06770

Pursuant to and in compliance with your “Invitation to Bid” relating thereto, the undersigned,

_____
(Name of Firm)

having visited the site and carefully examined the Drawings, Contract Documents and complete Project Manual and Specifications dated July 6, 2026, together with all Addenda issued and received prior to the scheduled closing time for receipt of Bids as prepared by the Architect; Jacunski Humes Architects, LLC, 15 Massirio Drive, Suite 101, Berlin, CT; hereby offers and agrees as follows:

To provide all labor, materials, equipment, appliances and whatsoever else necessary to construct and properly finish all work in connection with the

NEW CENTRAL DISPATCH FACILITY
FOR
NAUGATUCK POLICE DEPARTMENT

211 Spring Street, Naugatuck, CT, to the satisfaction of the Architect and the Owner for the Base Bid Lump Sum of:

_____ ($ _____)

If awarded this Contract, we will execute an Agreement with the Borough of Naugatuck, Owner of the property.

By submission of this BID, the BIDDER certifies the following:

1. That this BID has been arrived at independently, without consultation, communication, or agreement as to any matter relating to this BID with any other BIDDER or with any competitor.
2. The BIDDER is familiar with all laws and regulations that may affect cost, progress, and performance of the work
3. The BIDDER is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on this project.

CONTRACT TIME / LIQUIDATED DAMAGES

If awarded the Contract, the undersigned agrees that the work will commence upon formalization of a Contract with the Owner and shall be Substantially Complete according to AIA Document G704-2017 within **eight (8) months** from Owner's Award of Contract and Notice to Proceed.

BIDDER further agrees to pay the Owner as liquidated damages the sum of one thousand dollars and zero cents ($1,000.00) for each calendar day of delay thereafter as outlined in the Agreement.

ADDENDUM

The Bid includes Addenda listed below and they are hereby acknowledged:

Addendum # ___ Dated _____

Addendum # ___ Dated _____

Addendum # ___ Dated _____

BID SECURITY

Enclosed herewith, is the Bid Security in the form of:

Bid Bond ( ) Certified Check ( )

in the amount of:_____($_____)

COMPANY NAME: _____

ADDRESS: _____

_____

BY: _____

(authorized signature, officer of bidder's company)

_____

(above name typewritten)

TITLE: _____

REQUIRED FORMS

- Bid Bond, AIA A310-2010, or duly authorized Bid Deposit or cashier's check.
- Borough of Naugatuck: Insurance Requirements Form, signed.

Failure to attach Required Forms shall result in rejection of bid.

END OF BID FORM

AIA® Document A201® – 2017

General Conditions of the Contract for Construction

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

Interior Renovations to Naugatuck Police Department for a New Central Dispatch Facility and Related Improvements
211 Spring Street
Naugatuck, CT

THE OWNER:
(Name, legal status and address)

Borough of Naugatuck
229 Church Street
Naugatuck, CT 06770

THE ARCHITECT:
(Name, legal status and address)

Jacunski Humes Architects, LLC
15 Massirio Drive
Suite 101
Berlin, CT 06037

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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.

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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 written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.

§ 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 written protocols governing the use of, and reliance on, the information contained in the model 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.

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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.

§ 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.

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§ 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.

§ 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

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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.

§ 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.

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§ 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.

§ 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.

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

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§ 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 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,

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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.

§ 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,

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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.

§ 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

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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.

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.

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§ 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.

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.

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§ 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.

§ 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.

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§ 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:

.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;

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.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.

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

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§ 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;
- **.4** reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;

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.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.

§ 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.

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§ 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

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

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.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 promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities

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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 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

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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 "Borough of Naugatuck Insurance Requirements" in the specification. 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

(Paragraphs deleted)

§ 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

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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 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.

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§ 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.

§ 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.

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§ 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.

§ 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.

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§ 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;

.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.

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§ 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.

§ 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.

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§ 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.

§ 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.

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§ 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.

§ 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.

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§ 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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SUPPLEMENTARY GENERAL CONDITIONS

1.01 GENERAL CONDITIONS

A. AIA Document A201, "General Conditions of the Contract for Construction," 2017, The American Institute of Architects, Articles 1 through 15 are bound herein and are hereby made a part of the Specifications and shall apply to Contractors and all Subcontractors.

1.02 SUPPLEMENTARY GENERAL CONDITIONS

A. Certain articles of the AIA General Conditions are revised by, or are replaced by requirements of the following Supplementary Conditions. Such revisions for replacements shall take precedence over the AIA General Conditions.

B. Where any Article of the AIA General Conditions is supplemented hereby, the AIA provisions of such Article shall remain in effect. All the supplementary provisions shall be considered as added thereto. Where any such article is amended, voided, or superseded thereby, the provisions of such Article not so specifically amended, voided, or superseded shall remain in effect.

AMENDMENT OF ARTICLE 3 - CONTRACTOR

Add the following to Paragraph 3.2, Review of Contract Documents and Field Conditions:

3.2.5 After reporting to the Architect any error, inconsistency, or omission it may discover in the Contract Documents, the Contractor shall not proceed with any work so affected without the Architect's written modification to the Drawings and/or Specifications.

3.2.6 In the event of conflict between portions of the Contract Documents, Contractor shall ask for written decision from the Architect as to which method or material will be required.

Add the following to Paragraph 3.4, Labor and Materials:

3.4.4 The Contractor is encouraged to use local labor where feasible, but not when it is at the expense of poor workmanship and/or higher cost.

Add the following to Paragraph 3.6, Taxes:

3.6.1 Under the terms of Regulation 16, referring to Contractors and Subcontractors, issued by the State Tax Commission in administration of the State Sales and Use Tax, to which Bidder is referred, the Contractor may purchase materials or supplies to be consumed in the performance of the Contract without payment of tax and shall not include in his Bid nor charge any use or sales tax thereon.

Add the following to Paragraph 3.7, Permits, Fees, Notices and Compliance with Laws:

3.7.6 The requirements of Subparagraphs do not waive the Contractor's responsibility of complying with the requirements of the Contract Documents when such regulations and requirements exceed those of any laws, ordinances, rules, regulations, and orders of any public authority bearing on the work.

Add the following to Paragraph 3.15, Cleaning Up:

3.15.3 No burning of rubbish at the job site will be permitted. Provision for removal of rubbish will be made by the Contractor at no additional cost to the Owner.

Revise Paragraph 3.18, Indemnification, as follows:

Change to read:

3.18.1 The Contractor agrees that it will indemnify and save harmless said Borough of Naugatuck and its respective officers, agents and servants, and the Architect and its agents and employees, named as defendant or co-defendant in any claim or suit and their respective officers, agents and servants, on amount of any and all claims, damages, losses, litigation, expense counsel fees and compensation arising out of injuries (including death) sustained by, or alleged to have been sustained by the client, patient, visitor, servants, employees or agents of Borough of Naugatuck and their respective officers, agents and servants, or of the Contractor or of and Subcontractors or material men, and from injuries (including death) sustained by, or alleged to have been sustained by the public, any or all persons on or near the work, or by any other person, or damage to property, real or personal (including property of Borough of Naugatuck, and their respective officers, agents and servants) caused in whole or in part by the acts or omissions of the Contractor or any Subcontractor or material men or anyone directly or indirectly employed by them while engaged in the performance of any work for and/or in Borough of Naugatuck and its respective contract period specified in the Contract Permit or agreement and the Contractor agrees he will maintain insurance as required hereon including contractual liability coverage applicable to the obligations assumed in this paragraph.

Add the following new Paragraph 3.19, Privacy of Owner Operations:

3.19 The contractor acknowledges that the owner's facility engages in services for a specific clientele, and that protection of the privacy of the owner's clients is

essential. Accordingly, the contractor agrees that it will instruct its employees and its subcontractors' employees to avoid any contact, communication, or interaction with clients or visitors to the facility. The contractor also acknowledges that the owner reserves the right to require the immediate removal from the project of any person who violates or is suspected of violating this requirement, and that such removal shall not be grounds for any extension of time or claim for additional compensation.

ARTICLE 7 - CHANGES IN THE WORK

Add the following to Paragraph 7.2, Change Orders:

7.2.2 If the cost or credit to the Owner results from a change in the work, the value of such cost or credit shall be determined as follows:

.1 The cost of labor performed and material used by the Contractor with their own forces.

.2 The cost of Workmen's Compensation, Federal Social Security, and Connecticut Unemployment Compensation in established rates, actual additional cost of payment and performance bonds.

.3 Actual cost of rental rates for equipment employed and used directly on the work. Contractor shall not charge for "rental" of any tools or equipment owned by the contractor.

.4 Fifteen percent (15%) of .1, .2, and .3 above-mentioned for overhead, superintendence and profit; however, if the work to be performed results in a credit to the Owner, no percentage for overhead and profit will apply.

.5 On work to be performed by a Subcontractor, the Contractor's allowance is to be five percent (5%) applied to a total cost of Subcontractor's work, including Contractor's allowance as per Paragraph 7.

.6 On any changes involving the Contractor, Subcontractor or any contractor of theirs, their total cost and/or omissions shall be combined as one before the application of the percentage allowed for the Contractor's overhead and profit in accordance with Paragraph .5 above.

.7 On work to be performed by a Subcontractor, the Subcontractor's allowance is to be fifteen percent (15%) for his overhead and profit applied to Paragraphs .1, .2, and .3 above.

.8 The Contractor, when performing work under .3 shall, when requested, promptly furnish in a form satisfactory to the Owner, itemized statements of the cost of the work so ordered, including but not limited to, certified

payrolls and copies of accounts, bills and vouchers to substantiate the above estimates.

.9 The use by the Contractor and Subcontractors of industry manuals for estimating the duration of labor for change work shall not be permitted. The Contractors shall figure the actual cost to them for the work.

.10 The Contractor or Subcontractors, shall not charge a daily, weekly or monthly rate for use of equipment already owned. Reimbursement for actual rentals with rental contract backup as described in paragraph .3 shall be the only reimbursable charge for equipment.

ARTICLE 9 - PAYMENTS AND COMPLETION

Revise Paragraph 9.3, Applications for Payment, as follows:

Change 9.3.1 to read:

9.3.1 In order to expedite monthly payments during the course of the project, the Contractor shall review with the Architect a preliminary draft of the aforementioned application for payment to assure agreement with the Contractor before final copies of the application are typed and formally submitted. The Architect shall then review the Contractor's formal application for payment and certify in writing in accordance with Section 9.4, the total value of work done, including an allowance for the value of material delivered and suitably stored at the site at the time of such estimate. The Owner shall retain five percent (5%) of such estimated value, said retainage to be held by the Owner as part security for the fulfillment of this Contract by the Contractor, and shall monthly pay the Contractor, while carrying in the work, the balance not retained as aforesaid, after deducing therefrom all previous payments and all sums to be kept or retained under the provisions of this Contract. Final payment, including the retainage, shall be due within thirty (30) days after completion of the Contract fully performed as determined by the Architect. Borough of Naugatuck shall put forth its best effort to make payment within thirty (30) days after delivery of the item or receipt of a properly completed invoice, whichever is later. Payment period shall be net thirty (30) days unless otherwise specified.

Payment terms allowing less than twenty (20) days cannot be considered in determining the lowest Bidder.

No voucher, claim or charge against the Owner shall be paid without the approval of the Financial Officer for correctness and legality. Appropriate checks shall be drawn by the Financial Officer for approved claims or charges and they shall be valid without counter signature unless the Board of Selectman otherwise prescribed.

Add the following to Paragraph 9.3, Applications for Payment:

9.3.4 Applications for payments shall be submitted in four copies.

Add the following to Paragraph 9.6, Progress Payments:

9.6.9 No interest is to be allowed or paid by the Owner upon any monies retained under the provisions of this Contract.

Add the following to Paragraph 9.10, Final Completion and Final Payment:

9.10.6 It is also agreed that no partial payments on account by Borough of Naugatuck nor the presence of the Architect, or Inspectors or their supervisors or inspection of work or materials, nor the use of parts of the proposed structure shall constitute an acceptance of any part of the work prior to substantial completion as defined in Paragraph 9.8.

ARTICLE 10 - PROTECTION OF PERSONS AND PROPERTY

Add the following to Paragraph 10.2, Safety of Persons and Property:

10.2.9 The Contractor shall be responsible for the adequate strength and safety of all scaffolding, staging and hoisting equipment and for temporary shoring, bracing and tying.

10.2.10 The Contractor shall furnish approved hard hats, other personal protective equipment as required, approved first aid supplies, name of first aid attendant and a posted list of emergency facilities.

10.2.11 The Contractor shall take immediate action to correct any hazardous conditions reported.

10.2.12 The Contractor shall comply with the requirements of the Occupational Safety Act of 1969, including all standards and regulations which have been promulgated by the governmental authorities which have administered such acts; and said requirements, standards and regulations are incorporated herein by reference.

The Contractor shall be directly responsible for compliance therewith on the part of its agents, employees, material men and all citations, assessments, fines or penalties which may be incurred by reason of its agents, employees, material men and Subcontractors, to so comply.

The Contractor shall indemnify the Owner and the Architect and save them harmless from any and all losses, cost and expenses, including fines and

reasonable attorney's fees incurred by Owner and Architect by reason of the real or alleged violation of such laws, ordinances, regulations and directives, Federal, State and Local, which are currently in effect or which have become effective in the future, by the Contractor, its Subcontractors or material suppliers.

ARTICLE 11 - INSURANCE AND BONDS

Revise paragraph 11.1, Contractor's Liability Insurance as follows:

Amend 11.1.1 as follows:

In the third line, delete words "set forth below."
In the sixth line, change colon to a period.
Delete items .1 through .8 and add the following:

The Contractor agrees to carry as a minimum the following insurance in such form and with such carriers as are satisfactory to the Owner and will furnish the Owner with Certificates of Insurance in duplicate.

.1 Statutory Workmen's Compensation Insurance as provided by Connecticut Law and Custom.

.2 Public Liability and Property Damage Insurance, including completed operations, broad form property damage endorsement and Contractor's protective covering acts of Subcontractor's, for all liability assumed under the Owner's Liability and Indemnity Agreement and, where applicable, coverage for use of explosives, for collapse of building and for damage to underground properties and coverage required by any law or municipal ordinance or regulation:

Bodily Injury Liability
Each Occurrence – See "Borough of Naugatuck Insurance Requirements" in the specifications for required limits.

Property Damage Liability
Each Occurrence – See "Borough of Naugatuck Insurance Requirements" in the specifications for required limits.

.3 Automobile Liability and Property Damage, including coverage for owned, non-owned, hired or borrowed motor vehicles:

Bodily Injury Liability
Each Occurrence – See "Borough of Naugatuck Insurance Requirements" in the specifications for required limits.

Property Damage Liability
Each Occurrence – See "Borough of Naugatuck Insurance Requirements" in the specifications for required limits.

Amend Paragraph 11.2, Owner's Liability Insurance, as follows:

11.2.2 The Contractor shall procure, pay for and maintain Owner's and Contractor's Protective Liability Insurance in the following limits, naming the Owner and Architect as insureds:

Bodily Injury Liability
Each Occurrence – See "Borough of Naugatuck Insurance Requirements" in the specifications for required limits.

Property Damage Liability
Each Occurrence – See "Borough of Naugatuck Insurance Requirements" in the specifications for required limits.

Add Paragraph 11.2.4, Builder's Risk Property Insurance as follows:

11.2.4 Builder's Risk Insurance with extended coverage provision at least equal to special extended coverage endorsement, Form Number 758-B, insuring all work in progress and/or all construction materials delivered and stored on the job site shall be provided and paid for by the Owner. The named insureds will be the Owner, Contractor, and Subcontractors as their interests may appear.

All losses defined which are not recoverable by virtue of the $10,000 deductible clause shall be absorbed by the Contractor. Equipment and tools of the trade are at the risk of the Contractor. Other losses not covered by this policy will be absorbed by the Contractor.

Add Paragraph 11.2.5, Boiler and Machinery Insurance:

The Boiler Insurance Coverage of Borough of Naugatuck does not extend to cover the interest of the Contractor, Subcontractor, or Sub-subcontractor.

END OF SUPPLEMENTARY GENERAL CONDITIONS

Minimum Rates and Classifications
for Building Construction

ID#: 26-7034

Connecticut Department of Labor
Wage and Workplace Standards Division

By virtue of the authority vested in the Labor Commissioner under provisions of Section 31-53 of the General Statutes of Connecticut, as amended, the following are declared to be the prevailing rates and welfare payments and will apply only where the contract is advertised for bid within 20 days of the date on which the rates are established. Any contractor or subcontractor not obligated by agreement to pay to the welfare and pension fund shall pay this amount to each employee as part of his/her hourly wages.

Project Number: FY26-B138 Project Town: Naugatuck
State#: FAP#:
Project: Naugatuck Police Department Central Dispatch Facility: Interior Renovation

CLASSIFICATION	Hourly Rate	Benefits
1b) Asbestos/Toxic Waste Removal Laborers: Asbestos removal and encapsulation (except its removal from mechanical systems which are not to be scrapped), toxic waste removers, blasters.**See Laborers Group 7**		
1c) Asbestos Worker/Heat and Frost Insulator	50.16	35.30
2) Boilermaker	50.21	30.01
3a) Bricklayer, Cement Mason, Concrete Finisher (including caulking), Stone Masons	45.76	38.45 + a
3b) Tile Setter	43.0	34.75
3c) Tile and Stone Finishers	36.0	29.43
3d) Marble & Terrazzo Finishers	35.7	29.73
3e) Plasterer	44.52	29.63

As of: June 24, 2026

3f) Terrazzo Mechanics & Marble Setters	40.6	39.93
------LABORERS------		
4) Group 1: General laborers, carpenter tenders, concrete specialists, wrecking laborers and fire watchers.	37.0	30.47
4) Group 1a: Acetylene Burners (Hours worked with a torch)	38.0	30.47
4a) Group 2: Mortar mixers, plaster tender, power buggy operators, powdermen, fireproofer/mixer/nozzleman (Person running mixer and spraying fireproof only).	37.25	30.47
4b) Group 3: Jackhammer operators/pavement breaker, mason tender (brick), mason tender (cement/concrete), forklift operators and forklift operators (masonry).	37.5	30.47
4c) **Group 4: Pipelayers: Licensed P6 -P7 (one or two employees of the total crew who primary task is to perform mating of pipe sections).	38.0	30.47
4d) Group 5: Air track operator, sand blaster and hydraulic drills.	37.75	30.47
4e) Group 6: Blasters, nuclear and toxic waste removal.	40.0	30.47
4f) Group 7: Asbestos/lead removal and encapsulation (except it's removal from mechanical systems which are not to be scrapped).	40.0	30.47
4g) Group 8: Bottom men on open air caisson, cylindrical work and boring crew.	37.5	30.47
4h) Group 9: Top men on open air caisson, cylindrical work and boring crew.	37.0	30.47

4i) Group 10: Traffic Control Signalman	22.2	30.47
4j) Group 11: Toxic Waste Removers A or B With PPE	40.0	30.47
5) Carpenter, Acoustical Ceiling Installation, Soft Floor/Carpet Laying, Metal Stud Installation, Form Work and Scaffold Building, Drywall Hanging, Modular-Furniture Systems Installers, Lathers, Piledrivers, Resilient Floor Layers.	44.48	29.74
5a) Millwrights	45.14	30.24
5b) Carpenter - Welder	44.98	29.74
5c) Carpenter: Working with creosote lumber or acid	45.48	29.74
6) Electrical Worker (including low voltage wiring) (Trade License required: E1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9)	50.0	36.97+3% of gross wage
7a) Elevator Mechanic (Trade License required: R-1,2,5,6)	69.55	38.985+a+b
-----OUTSIDE LINE CONSTRUCTION----		
Groundman	32.1	13.95
Linemen/Cable Splicer	58.37	33.94
8) Glazier (Trade License required: FG-1,2)	44.73	27.65+ a

As of: June 24, 2026

9) Ironworker, Ornamental, Reinforcing, Structural, and Precast Concrete Erection	45.25	46.62 + a
----OPERATORS----		
Group 1: Crane Handling or Erecting Structural Steel or Stone, Hoisting Engineer (2 drums or over), Deep Shaft over 14". (Trade License Required)	60.66	30.95 + a
Group 1a: Front End Loader (7 cubic yards or over); Work Boat 26 ft. and Over	55.6	30.95 + a
Group 2: Cranes (100 ton rate capacity and over). (Trade License Required)	60.24	30.95 + a
Group 2a: Cranes (under 100 ton rated capacity), Magni Type-360 Rotating Forklift.	59.2	30.95 + a
Group 2a: Cranes (under 100 ton rated capacity), Magni Type-360 Rotating Forklift.	59.2	30.95 + a
Group 2b: Excavator over 2 cubic yards; Pile Driver ($3.00 premium when operator controls hammer), HF-1 Forklift, Drills with self contained power units, Micropile up to 14 inches helical pile.	55.17	30.95 + a
Group 3: Excavator; Gradall; Master Mechanic; Hoisting Engineer (all types of equipment where a drum and cable are used to hoist or drag material regardless of motive power of operation), Rubber Tire Excavator (Drott-1085 or similar);Grader Operator; Bulldozer Finegrade. (slopes, shaping, laser or GPS, etc.). (Trade License Required)	54.13	30.95 + a
Group 4: Trenching Machines; Lighter Derrick; CMI Machine or Similar; Koehring Loader (Skooper); Goldhofer.	53.61	30.95 + a
Group 5: Specialty Railroad Equipment; Asphalt Spreader, Asphalt Reclaiming Machine; Line Grinder; Concrete Pumps; Drills with Self Contained Power Units; Boring Machine; Post Hole Digger; Auger; Pounder; Well Digger; Milling Machine (over 24 mandrel).	52.78	30.95 + a

Group 5 continued: Side Boom; Combination Hoe and Loader; Directional Driller, Geothermal Drill.	52.78	30.95 + a
Group 6: Front End Loader (3 up to 7 cubic yards); Bulldozer (rough grade dozer).	52.35	30.95 + a
Group 7: Asphalt Roller; Concrete Saws and Cutters (ride on types); Vermeer Concrete Cutter; Stump Grinder; Scraper; Snooper; Skidder; Milling Machine (24" and under mandrel).	51.89	30.95 + a
Group 8: Mechanic; Grease Truck Operator; Hydroblaster; Barrier Mover; Power Stone Spreader; Welding; Work Boat Under 26 ft.; Transfer Machine; Rigger Foreman.	51.34	30.95 + a
Group 9: Front End Loader (under 3 cubic yards); Skid Steer Loader regardless of attachments; (Bobcat or Similar); Forklift, Power Chipper; Landscape Equipment (including Hydroseeder); Vacuum Excavation Truck and Hydrovac Excavation Truck (27 HG pressure or greater).	50.74	30.95 + a
Group 10: Vibratory hammer; ice machine; diesel and air, hammer, etc.	47.91	30.95 + a
Group 11: Conveyor, earth roller, power pavement breaker (whiphammer), robot demolition equipment.	47.91	30.95 + a
Group 12: Wellpoint Operator.	47.82	30.95 + a
Group 13: Compressor Battery Operator.	47.04	30.95 + a
Group 14: Elevator Operator; Tow Motor Operator (solid tire no rough terrain).	45.45	30.95 + a
Group 15: Generator Operator; Compressor Operator; Pump Operator; Welding Machine Operator; Heater Operator.	44.89	30.95 + a

Group 16: Maintenance Engineer and Articulating End Dump.	43.99	30.95 + a
Group 17: Portable Asphalt Plant Operator; Portable Crusher Plant Operator; Portable Concrete Plant Operator; Portable Grout Plant Operator; Portable Water Filtration Plant Operator.	49.95	30.95 + a
Group 18: Power Safety Boat; Vacuum Truck; Zim Mixer; Sweeper; (Minimum for any job requiring a CDL license); Rigger; Signalman.	46.6	30.95 + a
Surveyor: Chief of Party	50.21	30.95 + a
Surveyor: Assistant Chief of Party	46.3	30.95 + a
Surveyor: Instrument Man	44.55	30.95 + a
Surveyor: Rodman or Chainman	38.34	30.95 + a
------PAINTERS (Including Drywall Finishing)------		
10a) Brush and Roller	41.17	27.65
10b) Taping Only/Drywall Finishing	41.92	27.65
10c) Paperhanger and Red Label	41.67	27.65
10d) Spray	44.17	27.65
10e) Spray Helper	42.17	27.65

10f) Blast	46.17	27.65
10g) Blast Helper	42.17	27.65
11) Plumber (excluding HVAC pipe installation) (Trade License required: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2)	52.08	36.80
12) Well Digger, Pile Testing Machine	37.26	24.05 + a
Roofer: Cole Tar Pitch	47.5	26.24 + a
Roofer: Slate, Tile, Composition, Shingles, Singly Ply and Damp/Waterproofing	46.0	26.24 + a
15) Sheetmetal Worker (Trade License required for HVAC and Ductwork: SM-1,SM-2,SM-3,SM-4,SM-5,SM-6)	44.7	44.38
16) Pipefitter (Including HVAC work) (Trade License required: S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4, G-1, G-2, G-8 & G-9)	52.08	36.80
------TRUCK DRIVERS------		
17) Block Truck	39.98	33.00 + a
17a) 2 Axle	38.66	33.00 + a
17ab) Helpers	36.16	33.00 + a

17b) 3 Axle, 2 Axle Mixer	38.77	33.00 + a
17c) 3 Axle Mixer	38.83	33.00 + a
17d) 4 Axle	38.89	33.00 + a
17e) 4 Axle Mixer	40.69	33.00 + a
17ef) 5 Axle	38.89	33.00 + a
17eg) 5 Axle Mixer	40.69	33.00 + a
17f) Heavy Duty Trailer (40 Tons and Over)	41.16	33.00 + a
17g) Euclids and Semi-Trailer	38.94	33.00 + a
17h) Heavy Duty Trailer up to 40 tons	39.89	33.00 + a
17i) Snorkle Truck	39.04	33.00 + a
17j) Swivel Dump and Tack Truck	38.89	33.00 + a
18) Sprinkler Fitter (Trade License required: F-1,2,3,4)	56.78	35.24 + a
19) Theatrical Stage Journeyman	25.76	7.34

Welders: Rate for craft to which welding is incidental.

Surveyors: Hazardous material removal: $3.00 per hour premium.

*Note: Hazardous waste removal work receives additional $1.25 per hour for truck drivers.

**Note: Hazardous waste premium $3.00 per hour over classified rate.

Truck Drivers: Trainers Premium: $3.00 over wage rate.

Truck Drivers: Night Premium - Mixer Drivers: $2.00 over wage rate.

Crane with 150 ft. boom (including jib) - $1.50 extra
Crane with 200 ft. boom (including jib) - $2.50 extra
Crane with 250 ft. boom (including jib) - $5.00 extra
Crane with 300 ft. boom (including jib) - $7.00 extra
Crane with 400 ft. boom (including jib) - $10.00 extra

All classifications that indicate a percentage of the fringe benefits must be calculated at the percentage rate times the "base hourly rate".

Apprentices duly registered under the Commissioner of Labor's regulations on "Work Training Standards for Apprenticeship and Training Programs" Section 31-51-d-1 to 12, are allowed to be paid the appropriate percentage of the prevailing journeymen hourly base and the full fringe benefit rate, providing the work site ratio shall not be less than one full-time journeyperson instructing and supervising the work of each apprentice in a specific trade.

The Prevailing wage rates applicable to this project are subject to annual adjustments each July 1st for the duration of the project.

Each contractor shall pay the annual adjusted prevailing wage rate that is in effect each July 1st, as posted by the Department of Labor.

It is the contractor's responsibility to obtain the annual adjusted prevailing wage rate increases directly from the Department of Labor's website.

The annual adjustments will be posted on the Department of Labor's Web page: www.ct.gov/dol. For those without internet access, please contact the division listed below.

The Department of Labor will continue to issue the initial prevailing wage rate schedule to the Contracting Agency for the project.

All subsequent annual adjustments will be posted on our Web Site for contractor access.

Contracting Agencies are under no obligation pursuant to State labor law to pay any increase due to the annual adjustment provision.

Effective October 1, 2005 - Public Act 05-50: any person performing the work of any mechanic, laborer, or worker shall be paid prevailing wage

All Person who perform work ON SITE must be paid prevailing wage for the appropriate mechanic, laborer, or worker classification.

All certified payrolls must list the hours worked and wages paid to All Persons who perform work ON SITE regardless of their ownership i.e.: (Owners, Corporate Officers, LLC Members, Independent Contractors, et. al)

Reporting and payment of wages is required regardless of any contractual relationship alleged to exist between the contractor and such person.

As of: June 24, 2026

CONNECTICUT DEPARTMENT OF LABOR

Partner of the American Job Center Network

THIS IS A PUBLIC WORKS PROJECT

Covered by the

PREVAILING WAGE LAW

CT General Statutes Section 31-53

If you have QUESTIONS regarding your wages
CALL (860) 263-6790

Section 31-55 of the CT State Statutes requires every contractor or subcontractor performing work for the state to post in a prominent place the prevailing wages as determined by the Labor Commissioner.

Sec. 31-53b. Worker training requirements for public works projects. Enforcement. Regulations. Exceptions. (a) Each contract for a public works project entered into on or after July 1, 2009, by the state or any of its agents, or by any political subdivision of the state or any of its agents, described in subsection (h) of section 31-53, shall contain a provision requiring that each contractor furnish proof with the weekly certified payroll form for the first week each employee begins work on such project that any person performing the work of a mechanic, laborer or worker pursuant to the classifications of labor under section 31-53 on such public works project, pursuant to such contract, has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration or, has completed a new miner training program approved by the Federal Mine Safety and Health Administration in accordance with 30 CFR 46 or, in the case of telecommunications employees, has completed at least ten hours of training in accordance with 29 CFR 1910.268, and, on or after July 1, 2012, that any plumber or electrician subject to the continuing education requirements of section 20-334d, who has completed a course of at least ten hours in duration in construction safety and health approved by the federal Occupational Safety and Health Administration five or more years prior to the date such electrician or plumber begins work on such public works project, has completed a supplemental refresher training course of at least four hours in duration in construction safety and health taught by a federal Occupational Safety and Health Administration authorized trainer.

(b) Any person required to complete a course or program under subsection (a) of this section who has not completed the course or program shall be subject to removal from the worksite if the person does not provide documentation of having completed such course or program by the fifteenth day after the date the person is found to be in noncompliance. The Labor Commissioner or said commissioner's designee shall enforce this section.

(c) Not later than January 1, 2012, the Labor Commissioner shall adopt regulations, in accordance with the provisions of chapter 54, to implement the provisions of subsections (a) and (b) of this section. Such regulations shall require that the ten-hour construction safety and health courses required under subsection (a) of this section be conducted in accordance with federal Occupational Safety and Health Administration Training Institute standards, or, in the case of a supplemental refresher training course, shall include, but not be limited to, an update of revised Occupational Safety and Health Administration standards and a review of required construction hazards training, or in accordance with Federal Mine Safety and Health Administration Standards or in accordance with 29 CFR 1910.268, as appropriate. The Labor Commissioner shall accept as sufficient proof of compliance with the provisions of subsection (a) or (b) of this section a student course completion card issued by the federal Occupational Safety

and Health Administration Training Institute, or such other proof of compliance said commissioner deems appropriate, dated no earlier than five years before the commencement date of such public works project or, in the case of supplemental refresher training, a student course completion card issued by said Occupational Safety and Health Administration authorized trainer dated not earlier than five years prior to the date such electrician or plumber begins work on such public works project.

(d) This section shall not apply to employees of public service companies, as defined in section 16-1, or drivers of commercial motor vehicles driving the vehicle on the public works project and delivering or picking up cargo from public works projects provided they perform no labor relating to the project other than the loading and unloading of their cargo.

Informational Bulletin

THE 10-HOUR OSHA CONSTRUCTION SAFETY AND HEALTH COURSE

(applicable to public building contracts entered into *on or after July 1, 2007,* where the total cost of all work to be performed is at least $100,000)

(1) This requirement was created by Public Act No. 06-175, which is codified in Section 31-53b of the Connecticut General Statutes (pertaining to the prevailing wage statutes);

(2) The course is required for public building construction contracts (projects funded in whole or in part by the state or any political subdivision of the state) entered into on or after July 1, 2007;

(3) It is required of private employees (not state or municipal employees) and apprentices who perform manual labor for a general contractor or subcontractor on a public building project where the total cost of all work to be performed is at least $100,000;

(4) The ten-hour construction course pertains to the ten-hour Outreach Course conducted in accordance with federal OSHA Training Institute standards, and, for telecommunications workers, a ten-hour training course conducted in accordance with federal OSHA standard, 29 CFR 1910.268;

(5) The internet website for the federal OSHA Training Institute is http://www.osha.gov/fso/ote/training/edcenters/fact_sheet.html;

(6) The statutory language leaves it to the contractor and its employees to determine who pays for the cost of the ten-hour Outreach Course;

(7) Within 30 days of receiving a contract award, a general contractor must furnish proof to the Labor Commissioner that all employees and apprentices performing manual labor on the project will have completed such a course;

(8) Proof of completion may be demonstrated through either: (a) the presentation of a *bona fide* student course completion card issued by the federal OSHA Training Institute; *or* (2) the presentation of documentation provided to an employee by a trainer certified by the Institute pending the actual issuance of the completion card;

(9) Any card with an issuance date more than 5 years prior to the commencement date of the construction project shall not constitute proof of compliance;

(10) Each employer shall affix a copy of the construction safety course completion card to the certified payroll submitted to the contracting agency in accordance with Conn. Gen. Stat. § 31-53(f) on which such employee's name first appears;

(11) Any employee found to be in non-compliance shall be subject to removal from the worksite if such employee does not provide satisfactory proof of course completion to the Labor Commissioner by the fifteenth day after the date the employee is determined to be in noncompliance;

(12) Any such employee who is determined to be in noncompliance may continue to work on a public building construction project for a maximum of fourteen consecutive calendar days while bringing his or her status into compliance;

(13) The Labor Commissioner may make complaint to the prosecuting authorities regarding any employer or agent of the employer, or officer or agent of the corporation who files a false certified payroll with respect to the status of an employee who is performing manual labor on a public building construction project;

(14) The statute provides the minimum standards required for the completion of a safety course by manual laborers on public construction contracts; any contractor can exceed these minimum requirements; and

(15) Regulations clarifying the statute are currently in the regulatory process, and shall be posted on the CTDOL website as soon as they are adopted in final form.

(16) Any questions regarding this statute may be directed to the Wage and Workplace Standards Division of the Connecticut Labor Department via the internet website of http://www.ctdol.state.ct.us/wgwkstnd/wgemenu.htm; or by telephone at (860)263-6790.

THE ABOVE INFORMATION IS PROVIDED EXCLUSIVELY AS AN EDUCATIONAL RESOURCE, AND IS NOT INTENDED AS A SUBSTITUTE FOR LEGAL INTERPRETATIONS WHICH MAY ULTMATELY ARISE CONCERNIG THE CONSTRUCTION OF THE STATUTE OR THE REGULATIONS.

November 29, 2006

Notice

To All Mason Contractors and Interested Parties Regarding Construction Pursuant to Section 31-53 of the Connecticut General Statutes (Prevailing Wage)

The Connecticut Labor Department Wage and Workplace Standards Division is empowered to enforce the prevailing wage rates on projects covered by the above referenced statute.

Over the past few years the Division has withheld enforcement of the rate in effect for workers who operate a forklift on a prevailing wage rate project due to a potential jurisdictional dispute.

The rate listed in the schedules and in our Occupational Bulletin (see enclosed) has been as follows:

Forklift Operator:

- **Laborers (Group 4) Mason Tenders** - operates forklift solely to assist a mason to a maximum height of nine feet only.

- **Power Equipment Operator (Group 9)** - operates forklift to assist any trade and to assist a mason to a height over nine feet.

The U.S. Labor Department conducted a survey of rates in Connecticut but it has not been published and the rate in effect remains as outlined in the above Occupational Bulletin.

Since this is a classification matter and not one of jurisdiction, effective January 1, 2007 the Connecticut Labor Department will enforce the rate on each schedule in accordance with our statutory authority.

Your cooperation in filing appropriate and accurate certified payrolls is appreciated.

Sec. 31-55a. Annual adjustments to wage rates by contractors doing state work. Each contractor that is awarded a contract on or after October 1, 2002, for (1) the construction of a state highway or bridge that falls under the provisions of section 31-54, or (2) the construction, remodeling, refinishing, refurbishing, rehabilitation, alteration or repair of any public works project that falls under the provisions of section 31-53 shall contact the Labor Commissioner on or before July first of each year, for the duration of such contract, to ascertain the prevailing rate of wages on an hourly basis and the amount of payment or contributions paid or payable on behalf of each mechanic, laborer or worker employed upon the work contracted to be done, and shall make any necessary adjustments to such prevailing rate of wages and such payment or contributions paid or payable on behalf of each such employee, effective each July first.

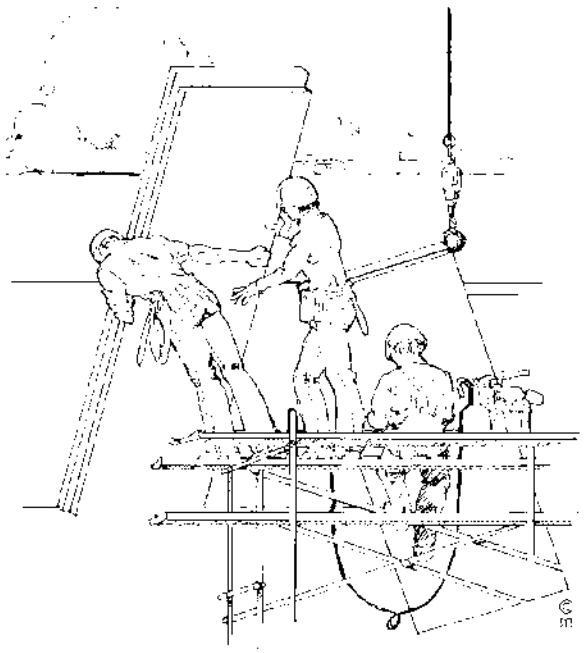
~NOTICE~

TO ALL CONTRACTING AGENCIES

Please be advised that Connecticut General Statutes Section 31-53, requires the contracting agency to certify to the Department of Labor, the total dollar amount of work to be done in connection with such public works project, regardless of whether such project consists of one or more contracts.

Please find the attached "Contracting Agency Certification Form" to be completed and returned to the Department of Labor, Wage and Workplace Standards Division, Public Contract Compliance Unit.

✎ Inquiries can be directed to (860) 263-6790.



CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION
CONTRACT COMPLIANCE UNIT

CONTRACTING AGENCY CERTIFICATION FORM

I, _____, acting in my official capacity as _____,
authorized representative title

for _____, located at _____,
contracting agency address

do hereby certify that the total dollar amount of work to be done in connection with

_____, located at _____,
project name and number address

shall be $_____, which includes all work, regardless of whether such project

consists of one or more contracts.

CONTRACTOR INFORMATION

Name:_____

Address:_____
Authorized Representative:_____
Approximate Starting Date: _____

Approximate Completion Date:_____

_____ _____
Signature Date

Return To: Connecticut Department of Labor
Wage & Workplace Standards Division
Contract Compliance Unit
200 Folly Brook Blvd.
Wethersfield, CT 06109

Date Issued: _____

CONNECTICUT DEPARTMENT OF LABOR
WAGE AND WORKPLACE STANDARDS DIVISION

CONTRACTORS WAGE CERTIFICATION FORM

I,_____ of _____
Officer, Owner, Authorized Rep. Company Name

do hereby certify that the _____
Company Name

_____
Street

_____
City

and all of its subcontractors will pay all workers on the

_____
Project Name and Number

_____
Street and City

the wages as listed in the schedule of prevailing rates required for such project (a copy of which is attached hereto).

_____
Signed

Subscribed and sworn to before me this _____ day of _____,_____.

_____
Notary Public

Return to:

Connecticut Department of Labor
Wage & Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

Rate Schedule Issued (Date): _____

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:

SUBCONTRACTOR NAME & ADDRESS

WORKER'S COMPENSATION INSURANCE CARRIER

POLICY #

EFFECTIVE DATE:
EXPIRATION DATE:

PAYROLL NUMBER | Week-Ending Date | PROJECT NAME & ADDRESS

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S	Total ST Hours Total O/T Hours HOURS WORKED EACH DAY	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							
												$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

12/9/2013
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER _____OF

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care _____ 4) Disability_____

2) Pension or retirement _____ 5) Vacation, holiday_____

3) Life Insurance _____ 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of _____,

I, _____of _____, (hereafter known as

Employer) in my capacity as _____ (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such person to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such person is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such persons name first appears.

_____ _____ _____

(Signature) (Title) Submitted on (Date)

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Weekly Payroll Certification For Public Works Projects (Continued)

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

Week-Ending Date:

Contractor or Subcontractor Business Name:

WEEKLY PAYROLL

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE S	M	T	W	TH	F	S HOURS WORKED EACH DAY	Total ST Hours Total O/T Hours	BASE HOURLY RATE TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							
												$ Base Rate	1. $ 2. $ 3. $							
												$ Cash Fringe	4. $ 5. $ 6. $							

*IF REQUIRED

NOTICE: THIS PAGE MUST BE ACCOMPANIED BY A COVER PAGE (FORM # WWS-CP1)

[New] In accordance with Section 31-53b(a) of the C.G.S. each contractor shall provide a copy of the OSHA 10 Hour Construction Safety and Health Card for each employee, to be attached to the first certified payroll on the project.

In accordance with Connecticut General Statutes, 31-53
Certified Payrolls with a statement of compliance
shall be submitted monthly to the contracting agency.

PAYROLL CERTIFICATION FOR PUBLIC WORKS PROJECTS

WEEKLY PAYROLL

Connecticut Department of Labor
Wage and Workplace Standards Division
200 Folly Brook Blvd.
Wethersfield, CT 06109

CONTRACTOR NAME AND ADDRESS:
Landon Corporation, 15 Connecticut Avenue, Northford, CT 06472

SUBCONTRACTOR NAME & ADDRESS
XYZ Corporation
2 Main Street
Yantic, CT 06389

WORKER'S COMPENSATION INSURANCE CARRIER
Travelers Insurance Company
POLICY # #BAC8888928
EFFECTIVE DATE: 1/1/09
EXPIRATION DATE: 12/31/09

PAYROLL NUMBER: 1
Week-Ending Date: 9/26/09
PROJECT NAME & ADDRESS: DOT 105-296, Route 82

PERSON/WORKER, ADDRESS and SECTION	APPR RATE %	MALE/ FEMALE AND RACE*	WORK CLASSIFICATION / Trade License Type & Number - OSHA 10 Certification Number	DAY AND DATE: S 20	M 21	T 22	W 23	TH 24	F 25	S 26	Total ST Hours / Total O/T Hours	BASE HOURLY RATE / TOTAL FRINGE BENEFIT PLAN CASH	TYPE OF FRINGE BENEFITS Per Hour 1 through 6 (see back)	GROSS PAY FOR ALL WORK PERFORMED THIS WEEK	TOTAL DEDUCTIONS: FICA	FEDERAL WITH-HOLDING	STATE WITH-HOLDING	LIST OTHER	GROSS PAY FOR THIS PREVAILING RATE JOB	CHECK # AND NET PAY
				HOURS WORKED EACH DAY																
Robert Craft 81 Maple Street Willimantic, CT 06226		M/C	Electrical Lineman E-1 1234567 Owner OSHA 123456		8	8	8	8	8		S-TIME 40 O-TIME	$ 30.75 Base Rate $ 8.82 Cash Fringe	1. $ 5.80 2. $ 3. $ 2.01 4. $ 5. $ 6. $	$1,582.80				P-xxxx	$1,582.80	#123 $ xxx.xx
Ronald Jones 212 Elm Street Norwich, CT 06360	65%	M/B	Electrical Apprentice OSHA 234567		8	8	8	8	8		S-TIME 40 O-TIME	$ 19.99 Base Rate $ 16.63 Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $	$1,464.80	xx.xx	xxx.xx	xx.xx	G-xxx	$1,464.80	#124 $xxx.xx
Franklin T. Smith 234 Washington Rd. New London, CT 06320 SECTION B		M/H	Project Manager			8					S-TIME 8 O-TIME	$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $	$1,500.00	xx.xx	xx.xx	xx.xx	M-xx.x		#125 xxx.xx
											S-TIME O-TIME	$ Base Rate $ Cash Fringe	1. $ 2. $ 3. $ 4. $ 5. $ 6. $							

7/13/2009
WWS-CP1

*IF REQUIRED

*SEE REVERSE SIDE

PAGE NUMBER 1 OF 2

OSHA 10 ~ATTACH CARD TO 1ST CERTIFIED PAYROLL

***FRINGE BENEFITS EXPLANATION (P):**

Bona fide benefits paid to approved plans, funds or programs, except those required by Federal or State Law (unemployment tax, worker's compensation, income taxes, etc.).

Please specify the type of benefits provided:

1) Medical or hospital care Blue Cross 4) Disability _____

2) Pension or retirement _____ 5) Vacation, holiday _____

3) Life Insurance Utopia 6) Other (please specify) _____

CERTIFIED STATEMENT OF COMPLIANCE

For the week ending date of 9/26/09,

I, Robert Craft of XYZ Corporation, (hereafter known as

Employer) in my capacity as Owner (title) do hereby certify and state:

Section A:

1. All persons employed on said project have been paid the full weekly wages earned by them during the week in accordance with Connecticut General Statutes, section 31-53, as amended. Further, I hereby certify and state the following:

a) The records submitted are true and accurate;

b) The rate of wages paid to each mechanic, laborer or workman and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as defined in Connecticut General Statutes, section 31-53 (h), are not less than the prevailing rate of wages and the amount of payment or contributions paid or payable on behalf of each such employee to any employee welfare fund, as determined by the Labor Commissioner pursuant to subsection Connecticut General Statutes, section 31-53 (d), and said wages and benefits are not less than those which may also be required by contract;

c) The Employer has complied with all of the provisions in Connecticut General Statutes, section 31-53 (and Section 31-54 if applicable for state highway construction);

d) Each such employee of the Employer is covered by a worker's compensation insurance policy for the duration of his employment which proof of coverage has been provided to the contracting agency;

e) The Employer does not receive kickbacks, which means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided directly or indirectly, to any prime contractor, prime contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a prime contractor in connection with a subcontractor relating to a prime contractor; and

f) The Employer is aware that filing a certified payroll which he knows to be false is a class D felony for which the employer may be fined up to five thousand dollars, imprisoned for up to five years or both.

2. OSHA~The employer shall affix a copy of the construction safety course, program or training completion document to the certified payroll required to be submitted to the contracting agency for this project on which such employee's name first appears.

Robert Craft (Signature) owner (Title) 10/2/09 Submitted on (Date)

Section B: Applies to CONNDOT Projects ONLY
That pursuant to CONNDOT contract requirements for reporting purposes only, all employees listed under Section B who performed work on this project are not covered under the prevailing wage requirements defined in Connecticut General Statutes Section 31-53.

Robert Craft (Signature) owner (Title) 10/2/09 Submitted on (Date)

Note: CTDOL will assume all hours worked were performed under Section A unless clearly delineated as Section B WWS-CP1 as such. Should an employee perform work under both Section A and Section B, the hours worked and wages paid must be segregated for reporting purposes.

*****THIS IS A PUBLIC DOCUMENT*****
*****DO NOT INCLUDE SOCIAL SECURITY NUMBERS*****

Information Bulletin
Occupational Classifications

The Connecticut Department of Labor has the responsibility to properly determine *"job classification"* on prevailing wage projects covered under C.G.S. Section 31-53(d).

Note: This information is intended to provide a sample of some occupational classifications for guidance purposes only. It is not an all-inclusive list of each occupation's duties. This list is being provided only to highlight some areas where a contractor may be unclear regarding the proper classification. If unsure, the employer should seek guidelines for CTDOL.

Below are additional clarifications of specific job duties performed for certain classifications:

- ***ASBESTOS WORKERS***

Applies all insulating materials, protective coverings, coatings and finishes to all types of mechanical systems.

- ***ASBESTOS INSULATOR***

Handle, install apply, fabricate, distribute, prepare, alter, repair, dismantle, heat and frost insulation, including penetration and fire stopping work on all penetration fire stop systems.

- ***BOILERMAKERS***

Erects hydro plants, incomplete vessels, steel stacks, storage tanks for water, fuel, etc. Builds incomplete boilers, repairs heat exchanges and steam generators.

- ***BRICKLAYERS, CEMENT MASONS, CEMENT FINISHERS, MARBLE MASONS, PLASTERERS, STONE MASONS, PLASTERERS. STONE MASONS, TERRAZZO WORKERS, TILE SETTERS***

Lays building materials such as brick, structural tile and concrete cinder, glass, gypsum, terra cotta block. Cuts, tools and sets marble, sets stone, finishes concrete, applies decorative steel, aluminum and plastic tile, applies cements, sand, pigment and marble chips to floors, stairways, etc.

- ***CARPENTERS, MILLWRIGHTS. PILEDRIVERMEN. LATHERS. RESILEINT FLOOR LAYERS, DOCK BUILDERS, DIKERS, DIVER TENDERS***

Constructs, erects, installs and repairs structures and fixtures of wood, plywood and wallboard. Installs, assembles, dismantles, moves industrial machinery. Drives piling into ground to provide foundations for structures such as buildings and bridges, retaining walls for earth embankments, such as cofferdams. Fastens wooden, metal or rockboard lath to walls, ceilings and partitions of buildings, acoustical tile layer, concrete form builder. Applies firestopping materials on fire resistive joint systems only. Installation of curtain/window walls only where attached to wood or metal studs. Installation of insulated material of all types whether blown, nailed or attached in other ways to walls, ceilings and floors of buildings. Assembly and installation of modular furniture/furniture systems. Free-standing furniture is not covered. This includes free standing: student chairs, study top desks, book box desks, computer furniture, dictionary stand, atlas stand, wood shelving, two-position information access station, file cabinets, storage cabinets, tables, etc.

- **LABORER, CLEANING**

• The clean up of any construction debris and the general (heavy/light) cleaning, including sweeping, wash down, mopping, wiping of the construction facility and its furniture, washing, polishing, and dusting.

- **DELIVERY PERSONNEL**

• If delivery of supplies/building materials is to one common point and stockpiled there, prevailing wages are not required. If the delivery personnel are involved in the distribution of the material to multiple locations within the construction site then they would have to be paid prevailing wages for the type of work performed: laborer, equipment operator, electrician, ironworker, plumber, etc.

• An example of this would be where delivery of drywall is made to a building and the delivery personnel distribute the drywall from one "stockpile" location to further sub-locations on each floor. Distribution of material around a construction site is the job of a laborer or tradesman, and not a delivery personnel.

- ***ELECTRICIANS***

Install, erect, maintenance, alteration or repair of any wire, cable, conduit, etc., which generates, transforms, transmits or uses electrical energy for light, heat, power or other purposes, including the Installation or maintenance of telecommunication, LAN wiring or computer equipment, and low voltage wiring. ****License required per Connecticut General Statutes: E-1,2 L-5,6 C-5,6 T-1,2 L-1,2 V-1,2,7,8,9.***

- ***ELEVATOR CONSTRUCTORS***

Install, erect, maintenance and repair of all types of elevators, escalators, dumb waiters and moving walks. ****License required by Connecticut General Statutes: R-1,2,5,6.***

- ***FORK LIFT OPERATOR***

Laborers Group 4) Mason Tenders - operates forklift solely to assist a mason to a maximum height of nine (9) feet only.

Power Equipment Operator Group 9 - operates forklift to assist any trade, and to assist a mason to a height over nine (9) feet.

- ***GLAZIERS***

Glazing wood and metal sash, doors, partitions, and 2 story aluminum storefronts. Installs glass windows, skylights, store fronts and display cases or surfaces such as building fronts, interior walls, ceilings and table tops and metal store fronts. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers, which require equal composite workforce.

- ***IRONWORKERS***

Erection, installation and placement of structural steel, precast concrete, miscellaneous iron, ornamental iron, metal curtain wall, rigging and reinforcing steel. Handling, sorting, and installation of reinforcing steel (rebar). Metal bridge rail (traffic), metal bridge handrail, and decorative security fence installation. Installation of aluminum window walls and curtain walls is the "joint" work of glaziers and ironworkers which require equal composite workforce.

- ***INSULATOR***

• Installing fire stopping systems/materials for "Penetration Firestop Systems": transit to cables, electrical conduits, insulated pipes, sprinkler pipe penetrations, ductwork behind radiation, electrical cable trays, fire rated pipe penetrations, natural polypropylene, HVAC ducts, plumbing bare metal, telephone and communication wires, and boiler room ceilings.

- ***LABORERS***

Acetylene burners, asphalt rakers, chain saw operators, concrete and power buggy operator, concrete saw operator, fence and guard rail erector (except metal bridge rail (traffic), decorative security fence (non-metal).

installation.), hand operated concrete vibrator operator, mason tenders, pipelayers (installation of storm drainage or sewage lines on the street only), pneumatic drill operator, pneumatic gas and electric drill operator, powermen and wagon drill operator, air track operator, block paver, curb setters, blasters, concrete spreaders.

- ***PAINTERS***

Maintenance, preparation, cleaning, blasting (water and sand, etc.), painting or application of any protective coatings of every description on all bridges and appurtenances of highways, roadways, and railroads. Painting, decorating, hardwood finishing, paper hanging, sign writing, scenic art work and drywall hhg for any and all types of building and residential work.

- ***LEAD PAINT REMOVAL***

• Painter's Rate
1. Removal of lead paint from bridges.
2. Removal of lead paint as preparation of any surface to be repainted.
3. Where removal is on a Demolition project prior to reconstruction.

• Laborer's Rate
1. Removal of lead paint from any surface NOT to be repainted.
2. Where removal is on a *TOTAL* Demolition project only.

- ***PLUMBERS AND PIPEFITTERS***

Installation, repair, replacement, alteration or maintenance of all plumbing, heating, cooling and piping. ****License required per Connecticut General Statutes: P-1,2,6,7,8,9 J-1,2,3,4 SP-1,2 S-1,2,3,4,5,6,7,8 B-1,2,3,4 D-1,2,3,4.***

- ***POWER EQUIPMENT OPERATORS***

Operates several types of power construction equipment such as compressors, pumps, hoists, derricks, cranes, shovels, tractors, scrapers or motor graders, etc. Repairs and maintains equipment. ****License required, crane operators only, per Connecticut General Statutes.***

- ***ROOFERS***

Covers roofs with composition shingles or sheets, wood shingles, slate or asphalt and gravel to waterproof roofs, including preparation of surface. (demolition or removal of any type of roofing and or clean-up of any and all areas where a roof is to be relaid.)

- ***SHEETMETAL WORKERS***

Fabricate, assembles, installs and repairs sheetmetal products and equipment in such areas as ventilation, air-conditioning, warm air heating, restaurant equipment, architectural sheet metal work, sheetmetal roofing, and aluminum gutters. Fabrication, handling, assembling, erecting, altering, repairing, etc. of coated metal material panels and composite metal material panels when used on building exteriors and interiors as soffits, facia, louvers, partitions, canopies, cornice, column covers, awnings, beam covers, cladding, sun shades, lighting troughs, spires, ornamental roofing, metal ceilings, mansards, copings, ornamental and ventilation hoods, vertical and horizontal siding panels, trim, etc. The sheet metal classification also applies to the vast variety of coated metal material panels and composite metal material panels that have evolved over the years as an alternative to conventional ferrous and non-ferrous metals like steel, iron, tin, copper, brass, bronze, aluminum, etc. Fabrication, handling, assembling, erecting, altering, repairing, etc. of architectural metal roof, standing seam roof, composite metal roof, metal and composite bathroom/toilet partitions, aluminum gutters, metal and composite lockers and shelving, kitchen equipment, and walk-in coolers. To include testing and air –balancing ancillary to installation and construction.

- ***SPRINKLER FITTERS***

Installation, alteration, maintenance and repair of fire protection sprinkler systems. ****License required per Connecticut General Statutes: F-1,2,3,4.***

- ***TILE MARBLE AND TERRAZZO FINISHERS***

Assists and tends the tile setter, marble mason and terrazzo worker in the performance of their duties.

- **TRUCK DRIVERS**

~How to pay truck drivers delivering asphalt is under REVISION~

Truck Drivers are requires to be paid prevailing wage for time spent "working" directly on the site. These drivers remain covered by the prevailing wage for any time spent transporting between the actual construction location and facilities (such as fabrication, plants, mobile factories, batch plant, borrow pits, job headquarters, tool yards, etc.) dedicated exclusively, or nearly so, to performance of the contract or project, which are so located in proximity to the actual construction location that it is reasonable to include them. ****License required, drivers only, per Connecticut General Statutes.***

For example:

• Material men and deliverymen are not covered under prevailing wage as long as they are not directly involved in the construction process. If, they unload the material, they would then be covered by prevailing wage for the classification they are performing work in: laborer, equipment operator, etc.
• Hauling material off site is not covered provided they are not dumping it at a location outlined above.
• Driving a truck on site and moving equipment or materials on site would be considered covered work, as this is part of the construction process.

➢ *Any questions regarding the proper classification should be directed to:*
Public Contract Compliance Unit
Wage and Workplace Standards Division
Connecticut Department of Labor
200 Folly Brook Blvd, Wethersfield, CT 06109
(860) 263-6790.

Connecticut Department of Labor
Wage and Workplace Standards Division
FOOTNOTES

⇨ Please Note: If the "Benefits" listed on the schedule for the following occupations includes a letter(s) (+ a or + a+b for instance), refer to the information below.

Benefits to be paid at the appropriate prevailing wage rate for the listed occupation.

If the "Benefits" section for the occupation lists only a dollar amount, disregard the information below.

Bricklayers, Cement Masons, Cement Finishers, Concrete Finishers, Stone Masons
(Building Construction) and
(Residential- Hartford, Middlesex, New Haven, New London and Tolland Counties)

a. Paid Holiday: Employees shall receive 4 hours for Christmas Eve holiday provided the employee works the regularly scheduled day before and after the holiday. Employers may schedule work on Christmas Eve and employees shall receive pay for actual hours worked in addition to holiday pay.

Dredging (Heavy)

a. Paid Holidays: New Year's Day, Martin Luther King, Jr.'s Birthday, Memorial Day, Good Friday, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day and Christmas Day.

b. Vacation: Eight Percent (8%) of the straight time rate, multiplied by the total hours worked.

Elevator Constructors: Mechanics

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans' Day, Thanksgiving Day, Christmas Day, plus the Friday after Thanksgiving.

b. Vacation: Employer contributes 8% of basic hourly rate for 5 years or more of service or 6% of basic hourly rate for 6 months to 5 years of service as vacation pay credit.

Glaziers

a. Paid Holidays: Labor Day and Christmas Day.

Power Equipment Operators
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Good Friday, Memorial day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day, provided the employee works 3 days during the week in which the holiday falls, if scheduled, and if scheduled, the working day before and the working day after the holiday. Holidays falling on Saturday may be observed on Saturday, or if the employer so elects, on the preceding Friday.

Ironworkers

a. Paid Holiday: Labor Day provided employee has been on the payroll for the 5 consecutive work days prior to Labor Day.

Laborers (Tunnel Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. No employee shall be eligible for holiday pay when he fails, without cause, to work the regular work day preceding the holiday or the regular work day following the holiday.

Roofers

a. Paid Holidays: July 4th, Labor Day, and Christmas Day provided the employee is employed 15 days prior to the holiday.

Sprinkler Fitters

a. Paid Holidays: Memorial Day, July 4th, Labor Day, Thanksgiving Day and Christmas Day, provided the employee has been in the employment of a contractor 20 working days prior to any such paid holiday.

Truck Drivers
(Heavy and Highway Construction & Building Construction)

a. Paid Holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, Christmas day, and Good Friday, provided the employee has at least 31 calendar days of service and works the last scheduled day before and the first scheduled day after the holiday, unless excused.

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 April in the year 2026
(In words, indicate day, month and year.)

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

Borough of Naugatuck
229 Church Street
Naugatuck, CT 06770

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

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

Interior Renovations to Naugatuck Police Department for a New Central Dispatch Facility and Related Improvements
211 Spring Street
Naugatuck, CT

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

Jacunski Humes Architects, LLC
15 Massirio Drive
Suite 101
Berlin, CT 06037

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.

Init.
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User Notes: (1430417223)

TABLE OF ARTICLES

1 THE CONTRACT DOCUMENTS

2 THE WORK OF THIS CONTRACT

3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

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7 TERMINATION OR SUSPENSION

8 MISCELLANEOUS PROVISIONS

9 ENUMERATION OF CONTRACT DOCUMENTS

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.

[X] 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 150 (One Hundred Fifty) 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
N/A	

§ 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
N/A		

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

Item	Price
N/A	

§ 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)
N/A		

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

$1,000.00 per day

§ 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 last day of a month, the Owner shall make payment of the amount certified to the Contractor not later than the 15th day of the following 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 30 (Thirty) 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.)

Five (5)% percent retainage will be held until the contractor reaches Substantial Completion

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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.)

Five (5)% percent retainage will be held until the contractor reaches 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.)

No interest shall be paid by the Owner on this project

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.)

[X] 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.)

As set forth in General Conditions

§ 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.

(Paragraphs deleted)

§ 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

(Paragraphs deleted)

.5 Drawings

Number	Title	Date
See List of Drawings		

.6 Specifications

Section	Title	Date	Pages
See Table of Contents			

.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.)

(Paragraphs deleted)

(Paragraph deleted)

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

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.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.)

Proposal
Table of Contents from Technical Specifications dated
List of Drawings from Technical Specifications dated
Invitation to Bid
AIA Document A701-2018, Instruction to Bidders
Supplementary Instructions to Bidders
Bid Form
General Conditions for Contract for Construction, AIA A201-2017
Supplementary General Conditions
Borough of Naugatuck: Insurance Requirement Form
Borough of Naugatuck Vendor Application Form

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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BOROUGH OF NAUGATUCK: INSURANCE REQUREMENTS

1. Indemnification and Insurance

_____ ('The Contractor') shall indemnify, defend and hold harmless the Borough of Naugatuck, its officials, officers, employees and designees caused in whole or in part to the fullest extent permitted by law from and against any and all claims, suits, actions, obligations, liabilities, damages, losses or injury (including the resulting death of a person), penalties, and expenses (including reasonable attorneys' fees) to the extent arising out of the performance of this Agreement or due to the Contractor's negligence or willful misconduct or omissions of the Contractor or its employees, agents, subcontractors or representatives.

Prior to the commencement of the work, and until final completion and acceptance of the work, the Contractor shall procure and maintain the following types of insurance and maintain all insurance coverage for the life of the contract, from an insurance company or companies with an A.M. Best Rating of A- (IX) or better licensed to do business in the state of Connecticut.

Evidence of insurance, with adequate limits of liability, shall be furnished to the Borough. Such evidence shall be in the form of a formal certificate of insurance properly executed by a licensed representative of the participating insurers and must contain a clause granting at least thirty (30) days prior written notice to the Borough of intent to affect cancellation, non-renewal, or other material change which may have an adverse effect on the policies of insurance referred to in the certificate.

The Borough expressly retains the right via endorsement to recover and/or subrogate for any and all damages caused by or resulting from the products or work of the Contractor or subcontractors. Where applicable, policies shall also be endorsed to include a Waiver of Subrogation in favor of the Borough, as well as name the Borough as an additional insured on a primary and non-contributory basis. The Contractor must require that all subcontractors, agents, and assigns procure and maintain insurance protection comparable to that required of the Contractor including additional insured status and waiver of subrogation requirements.

In the event of a dispute with respect to contract terms and conditions, this agreement and all of its terms and conditions, including but not limited to insurance and indemnification requirements, takes precedence over all other agreements.

Limitation of liability of any form by the Contractor or subcontractors is expressly forbidden. It's expected that the Contractor will expose the full limits under their insurance policies. These are only the minimum requirements to do business with the Borough.

A. *Workers Compensation*: The Contractor shall provide workers compensation and employer's liability insurance that complies with the regulations of the State of Connecticut with limits no less than $500,000 each accident by bodily injury; $500,000 each accident by disease and a policy limit of $500,000.

   Such policy shall include a broad form "all states" endorsement in the event the operations require any interstate involvement as respects employers-employee relationship.

B. *Commercial General Liability Insurance*: The Contractor shall provide commercial general liability insurance policy that includes products, operations and completed operations as

follows: Bodily injury & property damage with an occurrence limit of $1,000,000: Personal & advertising injury limit of $1,000,000 per occurrence: General aggregate limit of $2,000,000 (other than products and completed operations): Products and completed operations aggregate limit of $2,000,000.

C. *Commercial Automobile Insurance*: The Contractor shall provide commercial automobile insurance for any owned autos (symbol 1 or equivalent) in the amount of $1,000,000 each accident covering bodily injury and property damage on a combined single limit. Such coverage shall also include hired and non-owned automobile coverage.

C. *Umbrella Liability Insurance*: The Contractor shall provide commercial umbrella liability with limits no less than $5,000,000 each occurrence and $5,000,000 in the aggregate which shall be following form, without restriction or limitation, providing coverage over items (A), (B), (C), as noted above on a primary and non-contributory basis.

The Contractor shall not commence Work under the Contract until all insurance required has been procured and approved by the Borough nor shall the Contractor allow any of its subcontractors to commence Work until comparable insurance has been procured and approved by the Borough. Notwithstanding the foregoing, Contractor shall be liable for the actions and inactions of subcontractors who perform Work pursuant to this RFP and subsequent contracts.

The Contractor shall advise all their insurers of the contract provisions regarding insurance. The failure of the Contractor to notify insurers of the contract provision shall not relieve the Contractor from its insurance obligations under the Agreement. Non-fulfillment of the insurance provisions shall constitute a breach of this agreement and the Borough of Naugatuck retains the right to stop work until proper evidence of insurance is provided.

Signed by Contractor: Date:

_____ _____

Address:

_____

Signed by Borough: Date:

_____ _____

SECTION 01 10 00 - SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, "General Conditions of the Contract for Construction", the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 PROJECT DESCRIPTION

A. The Project consists of renovation of the existing Police Facility at 211 Spring Street, Naugatuck, CT, as shown and described on Contract Documents prepared by Jacunski Humes Architects, LLC, Berlin, CT

B. The Work consists of building renovation to support the relocation of the buildings Dispatch Center, Records room and Training Room, including supporting ADA accessible restrooms. The entry area is to be enclosed in a new entry vestibule.

1.3 WORK UNDER OTHER CONTRACTS

A. Separate contracts will be issued by the Borough of Naugatuck for certain additional work as deemed necessary for the completion of the new Police Dispatch Center. The installation of new material under these separate contracts may be required prior to the Substantial Completion of the Contract for Construction. The Contractor for Construction shall be required to coordinate his work with and allow access to the work by separate Contractors.

1.4 WORK SEQUENCE / CONSTRUCTION SCHEDULE

A. The Work will be conducted in sequence to provide the least possible interference to the activities by all subcontractors and work required by the Owner.

B. The Construction sequence anticipated is as follows:
   1. Phase 1 to consist of demolition and construction of new dispatch center in existing training room. Contractor shall complete renovation through to certificate of occupancy and punch list, including coordination of work with Owners Console vendor and radio system vendor.
   2. Between Phase 1 and Phase 2, contractor shall turn over the Phase 1 work to the Owner and allow a minimum of one week for Owner to relocate into new Dispatch Center prior to commencement of demolition in existing Dispatch room

3. Phase 2 to consist of demolition and construction of new Records Room in former dispatch room. Contractor shall complete renovation through to certificate of occupancy and punch list.
4. Between Phase 2 and Phase 3, contractor shall turn over the Phase 2 work to the Owner and allow a minimum of one week for Owner to relocate into new Records Room prior to commencement of demolition in existing records room.
5. Phase 3 consists of demolition and construction of new Training Room in former records room. Contractor shall complete renovation through to certificate of occupancy and punch list.
6. Phase 4 consists of construction of a weatherproof vestibule at the main entrance to the facility. Although Phase 4 is distinct from the other phases, it shall be constructed during Phases 1, 2, or 3 at the contractor's convenience. Contractor is to ensure safe public passage through the vestibule at all times the building is open.
7. Issuance of Certificate of Substantial Completion for entire contract scope.
8. Completion of punch list items as identified by the General Contractor, Owner, Engineers, and Architect.

1.5 CONTRACTOR USE OF PREMISES

A. General: Limit use of the premises to construction activities in areas indicated.
   1. Confine operations to areas within Contract limit lines as defined by the General Contractor. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed without prior authorization from the General Contractor and Owner and shall remain under the authority and control of the Owner.

1.6 OWNER OCCUPANCY

A. Completion Requirements: Timely completion of the project is critical. Aggressive construction scheduling and careful monitoring of critical path milestones cannot be overemphasized.

B. Renovated Construction: The General Contractor shall develop and be responsible to comply with a comprehensive construction schedule. The Owner is to relocate to new construction upon Substantial Completion of each phase as determined by the Architect, and Owner.
   1. Make all building and energy systems operational before Owner occupancy including, but not necessarily limited to the following:
      a. Emergency lighting systems.
      b. Fire rated enclosures.
      c. Handicapped accessibility.
      d. Hardware requirements.
      e. All other work necessary directed by the local Authorities Having Jurisdiction.

2. All costs associated with performance of the Work at premium rates will be borne by the Contractor.

C. Partial Owner Occupancy: The Owner reserves the right to place and install equipment in completed areas of the building, prior to Substantial Completion, provided that such placing does not interfere with completion of the Work. Such placing of equipment shall not constitute acceptance of the total Work.
   1. If required, a Certificate of Substantial Completion will be executed for each specific portion of the Work to be occupied by the Owner prior to final Owner occupancy.
   2. Obtain a Certificate of Occupancy from local building officials prior to Owner occupancy.
   3. Prior to partial Owner occupancy, mechanical and electrical systems shall be fully operational. Required inspections and tests shall have been successfully completed. Upon occupancy the Owner will provide operation and maintenance of mechanical and electrical systems in occupied portions of the building.

1.7 INTENT

A. These Specifications with the accompanying Drawings are intended to describe and illustrate all material, labor, and equipment necessary to complete the renovations for the Borough of Naugatuck, CT.

B. For convenience of reference, these Specifications are separated into titled Divisions and Sections. Such separations shall not, however, operate to make the Architect an arbiter to establish limits to Contracts between the General Contractor and Subcontractors. The Divisions of the Specifications do not necessarily define the limits of the Contractor's subcontracts; the work of any one subcontract may include items specified in several Divisions or Sections. The General Contractor may sublet work as he sees fit, but it is his responsibility to see that all work shown on the Drawings and/or specified is completed in accordance with the Contract.

C. Furnish all materials and accomplish all work in strict accordance with the grades or standards of materials, standards of workmanship, and manufacturer's specifications listed or mentioned in these documents.

D. The listing or mention of materials shall be sufficient indication that all such materials shall be furnished by the General Contractor, in accordance with the grades or standards indicated, free from defects impairing strength, durability or appearance and in sufficient quantity for the proper and complete execution of the work, unless specifically stated otherwise.

E. The listing or mention of any method of installation, erection, fabrication or workmanship shall not operate to make the General Contractor an agent, but shall be for the sole purpose of setting a standard of quality for the

finished work. The General Contractor is free to use any alternate method, provided only that, prior to the start of the work, such alternate method is approved in writing by the Architect, as resulting in quality equal to that intended by these documents. Unless an alternate method is approved, all work shall be in strict accordance with all methods if installation, erection, fabrication and workmanship listed or mentioned herein.

1.8 SOCIAL SECURITY TAXES

A. The General Contractor and each Subcontractor shall pay the taxes measured by the wages of all their employees as required by the Federal Social Security Act and all amendments thereto, and accept the exclusive liability for said taxes. The Trade Contractor shall also indemnify and hold the Owner, and its respective officers, agents and servants and the Architect harmless on account of any tax measured by the wages aforesaid of employees of the Trade Contractor and his subcontractors, assessed against the Owner under authority of said law.

1.9 UNEMPLOYMENT INSURANCE

A. The General Contractor and each Subcontractor shall pay unemployment insurance measured by the wages of his employees as required by law and accept the exclusive liability for said contributions. The Trade Contractor shall also indemnify and hold harmless the Owner on account of any contribution measured by the wages of aforesaid employees of the Trade Contractor and his Subcontractors, assessed against the Owner under authority of law.

1.10 OCCUPATIONAL SAFETY AND HEALTH ACT

A. The General Contractor and each Subcontractor shall comply with the requirements of the Occupational Safety and Health Act of 1970 and the Construction Safety Act of 1969, including all standards and regulations which have been promulgated by the Governmental Authorities which administer such Acts and said requirements, standards and regulations are incorporated herein by reference.

B. The General Contractor and each Subcontractor shall comply with said regulations, requirements and standards and require and be directly responsible for compliance therewith on the part of his agents, employees, material men and Subcontractors; and shall directly receive and be responsible for all citations, assessments, fines or penalties which may be incurred by reason of his agents, employees, material men or Subcontractors failing to so comply.

C. The General Contractor and each Subcontractor shall indemnify the Owner and Architect and save them harmless from any and all losses, costs and expenses, including fines and reasonable attorney's fees

incurred by the Owner and Architect by reason of the real or alleged violation of such laws, ordinances, regulations and directives, Federal, State, and Local, which are currently in effect or which become effective in the future, by the General Contractor, his Subcontractors or material personnel.

PART 2 - PRODUCTS (Not applicable).

PART 3 - EXECUTION (Not applicable).

END OF SECTION 01 10 00

SECTION 01 29 00 – PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements governing the Contractor's Applications for Payment.

B. This Section specifies administrative and procedural requirements governing each prime Contractor's Applications for Payment.
   1. Coordinate the Schedule of Values and Applications for Payment with the General Contractors Construction Schedule, List of Subcontracts, and Submittal Schedule.

C. The Contractor's Construction Schedule and Submittal Schedule are included in Section "Submittals".

1.3 SCHEDULE OF VALUES

A. Coordinate preparation of the Schedule of Values with preparation of the General Contractor’s Construction Schedule.

B. Each prime Contractor shall coordinate preparation of its Schedule of Values for its part of the Work with preparation of the Contractors' Construction Schedule.
   1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
      a. Contractor's construction schedule
      b. Application for Payment form
      c. List of subcontractors
      d. Schedule of allowances (if applicable)
      e. Schedule of alternates (if applicable)
      f. List of products
      g. List of principal suppliers and fabricators
      h. Schedule of submittals

2. Submit the Schedule of Values to the Architect and Owner at the earliest feasible date, but in no case later than 7 days before the date scheduled for submittal of the initial Application for Payment.
3. Sub-Schedules: Where the Work is separated into phases that require separately phased payments, provide sub-schedules showing values correlated with each phase of payment.

C. Format and Content: Use the Project Manual Table of Contents as a guide to establish the format for the Schedule of Values.
   1. Identification: Include the following Project identification on the Schedule of Values:
      a. Project name and location.
      b. Name of the Designer.
      c. Project number.
      d. Contractor's name and address.
      e. Date of submittal.
   2. Arrange the Schedule of Values in a tabular form with separate columns to indicate the following for each item listed:
      a. Generic name.
      b. Related Specification Section.
      c. Name of subcontractor.
      d. Name of manufacturer or fabricator.
      e. Name of supplier.
      f. Change Orders (numbers) that have affected value.
      g. Dollar value.
      h. Percentage of Contract Sum to the nearest one-hundredth percent, adjusted to total 100 percent.
   3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items so that individual line items shall not exceed $25,000 in value.
   4. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.
   5. For each part of the Work where an Application for Payment may include materials or equipment, purchased or fabricated and stored but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials for each subsequent stage of completion, and for total installed value of that part of the Work.
   6. Unit Cost Allowances: Show line item value of unit cost allowances as a product of unit cost times measured quantity as estimated from the best indication in the Contract Documents.
   7. Margins of Cost: Show line items for indirect costs, and margins on actual costs, only to the extent that such items will be listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete including

its total cost and proportionate share of general overhead and profit margin.

a. At the Contractor's option, temporary facilities and other major cost items that are not direct cost of actual work-in- place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense.

8. Schedule Updating: Update and resubmit the Schedule of Values when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.

1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.

B. Payment Application Times: Each progress payment date is as indicated in the Agreement. The period of construction work covered by each Application or Payment is the period indicated in the Agreement.

C. Payment Application Times: The date for each progress payment is the 1st day of each month. The period of construction Work covered by each Application for Payment is the month prior to the date for each progress payment and starting the day of the preceding period.

1. A Draft Application for Payment shall be submitted to the Owner and Architect, on the date of the last scheduled Job Meeting of the month proceeding the payment application time.

2. Final Application for Payment shall be prepared electronically and incorporate the revision comments as requested by the Owner or Architect.

D. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Application for Payment.

E. Suppliers, Trade and Subcontractors will be required to submit copies of their Certified Payroll forms to the Owner for the current Application Period. The General Contractor and Trade Contractors shall be responsible for transferring all Certified Payroll forms to the Owner. Owner has the right to withhold payments if required Certified Payroll forms are not being provided in a timely manner.

F. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on

behalf of the Owner. Incomplete applications will be returned without action.

2. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions have been made.

3. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.

G. Transmittal: Submit an electronic executed final copy of each Application for Payment to the Architect by e-mail; the copy shall be complete, including waivers of lien and similar attachments, when required.

1. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Architect.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of the first Application for Payment include the following:

1. List of subcontractors.
2. List of principal suppliers and fabricators.
3. Schedule of Values.
4. Contractor's Construction Schedule (preliminary, if not final).
5. Schedule of principal products.
6. Schedule of unit prices.
7. Submittal Schedule (preliminary if not final).
8. List of Contractor's staff assignments.
9. List of Contractor's principal consultants.
10. Copies of building permits
11. Copies of authorizations and licenses from governing authorities for performance of the Work.
12. Initial progress report.
13. Report of pre-construction meeting.
14. Certificates of insurance and insurance policies.
15. Performance and payment bonds (if required).
16. Data needed to acquire Owner's insurance.
17. Initial settlement survey and damage report, if required.

I. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment. This application shall reflect any Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Administrative actions and submittals that shall proceed or coincide with this application include:
   1. Occupancy permits and similar approvals.
   2. Warranties (guarantees) and maintenance agreements.
   3. Test/adjust/balance records.
   4. Maintenance instructions.
   5. Meter readings.
   6. Start-up performance reports.
   7. Change-over information related to Owner's occupancy, use, operation and maintenance.
   8. Final cleaning.
   9. Application for reduction of retainage, and consent of surety.
   10. Advice on shifting insurance coverages.
   11. Final progress photographs.
   12. List of incomplete Work, recognized as exceptions to Designer's Certificate of Substantial Completion.

K. Final Payment Application: Administrative actions and submittals, which must precede or coincide with submittal of the final payment Application for Payment, include the following:
   1. Completion of Project closeout requirements.
   2. Completion of items specified for completion after Substantial Completion.
   3. Assurance that unsettled claims will be settled.
   4. Assurance that Work not complete and accepted will be completed without undue delay.
   5. Transmittal of required Project construction records to Owner.
   6. Certified property survey.
   7. Proof that taxes, fees and similar obligations have been paid.
   8. Removal of temporary facilities and services.
   9. Removal of surplus materials, rubbish and similar elements.
   10. Change of door locks to Owner's access.

PART 2 – PRODUCTS (Not Applicable to this Section.)

PART 3 – EXECUTION (Not Applicable to this Section.)

END OF SECTION 01 29 00

SECTION 01 31 00 - PROJECT COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
   1. Coordination.
   2. Progress Meetings.
   3. Administrative and supervisory personnel.
   4. General installation provisions.
   5. Cleaning and protection.

B. Field engineering is included in Sections 01 73 00, "Execution".

C. Requirements for the General Contractor’s Construction Schedule are included in Section 01 10 00, “Summary of Work”.

D. Requirements for the Scheduling and Coordination of Tests and Inspections are included in Section 01 40 00, “Quality Requirements”.

1.3 COORDINATION

A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation. No claim for extra compensation or extension of Contract time will be allowed for conditions resulting from a lack of said coordination and cooperation.
   1. Where installation of one part of the work, is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
   2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.

B. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
   1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of schedules.
   2. Installation and removal of temporary facilities.
   3. Delivery and processing of submittals.
   4. Progress meetings.
   5. Project Close-out activities.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.4 PRE-CONSTRUCTION CONFERENCE

A. The General Contractor, Owner and Architect will schedule a pre-construction conference and organizational meeting at the Project site no later than 15 days after execution of the Agreement and prior to commencement of construction activities. Attend the meeting to review responsibilities and personnel assignments.

B. Attendees: The Owner, Architect and their consultants, the General Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
   1. Notify and arrange for attendance by all parties except the Architect, and Owner.

C. Agenda: Items of significance that could affect progress will be discussed, including such topics as:
   1. Tentative construction schedule.
   2. Critical Work sequencing.
   3. Designation of responsible personnel.
   4. Procedures for processing field decisions and Change orders.
   5. Procedures for processing Applications for Payment.
   6. Distribution of Contract Documents.
   7. Submittal of Shop Drawings, Product Data and Samples.
   8. Preparation of record documents.
   9. Use of the premises.
   10. Office, Work and storage areas.
   11. Equipment deliveries and priorities.

12. Safety procedures.
13. First aid.
14. Security.
15. Housekeeping.
16. Working hours.

1.5 SUBMITTALS

A. Coordination Drawings: Prepare and submit coordination Drawings where close and careful coordination is required for installation of products and materials fabricated off-site by separate entities, and where limited space availability necessitates maximum utilization of space for efficient installation of different components.
   1. Show the interrelationship of components shown on separate Shop Drawings.
   2. Indicate required installation sequences.
   3. Comply with requirements contained in Section 01 33 00, "Submittal Procedures."
   4. Refer to Divisions 22, 23, 26, and 28 for specific coordination drawing requirements for plumbing, mechanical, and electrical installations.

B. Staff Names: Within fifteen (15) days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers.

1.6 COORDINATION MEETINGS

A. Conduct Project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to regular progress job meetings.

B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

C. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.7 PROGRESS JOB MEETINGS

A. The General Contractor will conduct progress job meetings at the Project site at regularly scheduled intervals. Coordinate dates of meetings with preparation of the payment request.

B. Attendees: Notify each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities, to attend these meetings. Persons familiar with the

Project and authorized to conclude matters relating to progress shall be represented.

C. Agenda: Review and correction or approval of minutes of the previous progress meeting. Review of other items of significance that could affect progress. Topics for discussion as appropriate to the current status of the Project.
   1. General Contractor's Construction Schedule: Prepare a written report including progress since the last meeting. Determine where each activity is in relation to the General Contractor's Construction Schedule, whether on time or ahead or behind 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.
   2. Review of present and future needs of each entity present, including such items as:
      a. Interface requirements.
      b. Time.
      c. Sequences.
      d. Deliveries.
      e. Off-site fabrication problems.
      f. Access.
      g. Site utilization.
      h. Temporary facilities and services.
      i. Hours of Work.
      j. Hazards and risks.
      k. Housekeeping.
      l. Quality and Work standards.
      m. Change Order Proposals.
      n. Documentation of information for payment requests.

D. Reporting: The General Contractor will prepare and distribute copies of minutes of the meeting to Owner and Architect. General Contractor shall distribute copies to others that should be informed of decisions.

   1. Schedule Updating: Revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.
   2. General Contractor shall provide at each scheduled Job Meeting a detailed, 2-week look-ahead schedule outlining in detail all planned construction activities to occur, or planned for, from the date of each Job Meeting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

E. Visual Effects: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

F. Recheck measurements and dimensions, before starting each installation.

G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.2 CLEANING AND PROTECTION

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period. Where applicable, such exposures include, but are not limited to, the following:

1. Excessive static or dynamic loading.
2. Excessive internal or external pressures.
3. Excessively high or low temperatures.
4. Thermal shock.
5. Excessively high or low humidity.
6. Air contamination or pollution.
7. Water or ice.
8. Solvents.
9. Chemicals.
10. Light.
11. Radiation.
12. Puncture.
13. Abrasion.
14. Heavy traffic.
15. Soiling, staining and corrosion.
16. Bacteria.
17. Rodent and insect infestation.
18. Combustion.
19. Electrical current.
20. High speed operation,
21. Improper lubrication.
22. Unusual wear or other misuse.
23. Contact between incompatible materials.
24. Destructive testing.
25. Misalignment.
26. Excessive weathering.
27. Unprotected storage.
28. Improper shipping or handling.
29. Theft.
30. Vandalism.

END OF SECTION 01 31 00

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, "General Conditions of the Contract for Construction", the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 DEFINITIONS

The following definitions apply to this section of the specifications:

A. Owner: The Owner is defined as the Owner, Owner's Representative, Project Manager, or Program Manager.

B. Provisional Project Construction Schedule: The schedule of construction activities, as prepared by the General Contractor, which gives all project stakeholders an estimated amount of time for the construction phase of the Project.

C. Project Construction Schedule: The detailed CPM Construction Schedule prepared by the General Contractor for the duration of the Construction Phase of the Project.

D. Interim Project Construction Schedule: The detailed 90-day "look-ahead" CPM Project Construction Schedule prepared by the General Contractor as a prelude to the Project Construction Schedule. The Interim Project Construction Schedule is based on the milestones indicated in the Provisional Project Construction Schedule. This Schedule is required for the General Contractor to receive payment for work performed during the first 60 days of the Project. The purpose of this schedule is to give the General Contractor adequate time to plan and schedule all of the work for the Project, while they are mobilizing and beginning to perform work.

E. Master Project Schedule: A schedule prepared by the General Contractor to track all activities of the entire Project.

F. Updated Project Construction Schedule: The Project Construction Schedule prepared each month by the General Contractor in support of their request for payment.

G. Revised Project Construction Schedule: The Project Construction Schedule that has been changed by the General Contractor, during the

course of construction, and approved by the Owner. The Revised Project Construction Schedule may include changes in logic, changes in the durations of the activities, changes in the sequencing of the work, and fragments.

H. Recovery Project Construction Schedule: The Project Construction Schedule prepared by the General Contractor to support their efforts to recover lost time during the Project.

I. CPM (Critical Path Method): Critical Path Method (CPM) is a system for planning, scheduling, controlling, and monitoring progress on a Project. The CPM system uses networks of activities interrelating time and dollars to monitor progress on Projects. CPM uses network analysis to identify those tasks, which are on the critical path, where any delay in the completion of these tasks will lengthen the project timescale, unless action is taken. The system provides a means of evaluating delays and impacts caused by changes and delays attributed to Owners and Contractors.

J. Critical Path: The longest continuous sequence of activities through the network schedule that establishes the minimum overall project duration and contains no float.

K. Activity: An activity is defined as any portion or element of work, action, and/or reaction that is precisely described, readily identifiable and is a function of a logical sequential process.
   1. Critical Activity – Activities on the Critical Path. They must start and finish on the planned start and finish dates, otherwise there will be a delay in the completion of the Project.
   2. Predecessor Activity – an activity that must be completed before a given activity can be started.
   3. Successor Activity – an activity that succeeds another activity.

L. Float: Any activity not on the critical path will have a certain amount of leeway or float time associated with it. Float time is defined as the amount of time between the earliest start date and the latest start date or between the earliest finish date and the latest finish date of a chain of activities in Project Construction Schedule. Float Time is the amount of time that an activity can slip past its duration without delaying the rest of the project.

M. Fragnet: The subdivision of a project network diagram into segments, usually representing some form of subproject (change).

N. Milestone: A clearly identifiable point in a project or set of activities that commonly denotes a reporting requirement or completion of a key component of a project.

O. Phasing: The process of segregating activities into a series of sequential phases.

P. Delay: An interruption or hindrance to planned progress.

1.3 GENERAL REQUIREMENTS

A. The work under this contract will be planned, scheduled, executed and reported using the Critical Path Method, hereinafter referred to as CPM.

B. The primary objectives for developing and maintaining a Project Construction Schedule are to insure the adequate planning, scheduling and execution of the construction activities so they may be performed in an orderly and expeditious manner, within the Contract Time and the Milestone Dates stipulated by the Contract; to provide optimum coordination between Contractors; to establish the basis for measuring and monitoring individual Contractor progress and overall project progress; to detect problems for the purpose of taking corrective action to maintain the Master Project Schedule; and to provide a mechanism or tool for determining and monitoring such corrective actions.

C. The Provisional Project Construction Schedule prepared for this project is made available by the Owner as an aid to the General Contractor. It is intended that General Contractor's actual Project Construction Schedule include the milestone dates indicated in the Provisional Project Construction Schedule. However, the services provided by the Owner, the existence of schedules, networks, vector charts or any other charts or services prepared or performed by the Owner shall in no way relieve the General Contractor or Contractor of the responsibility of complying with all of the requirements of the Contract Documents, including but not limited to the responsibility of completing the Work within the Contract Time and the responsibility of planning, scheduling and coordinating the work. The General Contractor and Contractor is required to comply with all control procedures specified herein and with any reasonable changes that may be necessary, in the opinion of the Owner, during the contract duration.

D. All Milestone dates or specific dates listed in these specifications, or elsewhere in the Contract Documents represent only the major items of construction/erection work or interface dates. The Milestone dates indicated are considered essential to the satisfactory performance of this contract and to the coordination of all work on the project. The Milestone dates listed are not intended to be a complete listing of all work under this Contract or of all interfaces with other project Contractors. The Milestone dates listed represent the latest allowable completion dates. Earlier

completion dates may be established as agreed by the General Contractor and the Owner.

E. If the General Contractor should desire or intend to complete the work earlier than any required Milestone or Completion date, the Owner shall not be liable to the General Contractor for any costs or other damages should the General Contractor be unable to complete the Work before such Milestone or Completion date. The duties, obligations and warranties of the Owner to the General Contractor shall be consistent with and applicable only to the completion of the Work on the Milestone and Completion dates required in the Owner-Contractor Agreement unless the Owner and General Contractor otherwise agree in writing.

F. The General Contractor shall maintain, as part of its organization, a staff of sufficient size, knowledgeable in the use and application of Scheduling Application and whose responsibility will be to prepare input information for the Project Construction Schedule, monitor progress, provide input for updating and revise logic diagrams when necessary.

G. The General Contractor is required to adhere to the Milestone Dates as set forth in the General and Supplemental Conditions, Provisional Project Construction Schedule, or as determined elsewhere in the contract documents.

H. Float time is not for the exclusive use or benefit of ether the General Contractor or the Owner. The Contractors work shall proceed according to early start dates, and the Owner shall have the right to reserve and apportion float time according to the needs of the project. The General Contractor acknowledges and agrees that actual delays, affecting paths of activities containing float time, will not have any affect upon contract completion times, providing that the actual delay does not exceed the float time associated with those activities.

I. Extensions of time for performance as described in the Contract Documents will be granted only to the extent that time adjustment for the activity or activities affected by any condition or event which entitles the General Contractor to a time extension exceed the total float or slack along the path of activities affected at the time of Notice to Proceed of a Change Order or the commencement of any delay or condition for which an adjustment is warranted under the Contract Documents, pursuant to paragraph 1.07 Requested Time Adjustment Schedule.

1.4 POST AWARD ACTIVITIES

A. The General Contractor shall perform the following activities after receipt of the Notice to Proceed:

1. Immediately after Notice to Proceed, the General Contractor shall begin the preparation of his Interim Project Construction Schedule and the Project Construction Schedule. The General Contractor shall assemble, with the assistance of his Subcontractors and Suppliers, information regarding the project that includes but is not limited to:
   a. A detailed Interim Project Construction Schedule or Project Construction Schedule that represents the General Contractor's best judgment of how he shall prosecute and complete the work in compliance with the Contract Milestone Dates and any Specific Dates stipulated in the Contract. The level of detail required in the Contractor's schedule should generally be a function of the complexity of the work
   b. The identity and duration of all activities to be included in this Interim Project Construction Schedule and the Project Construction Schedule. Activities shall meet the following criteria:
      1. Activity descriptions shall be clear and concise. The beginning and end to each activity shall be readily verifiable.
      2. Responsibility for each activity shall be identified with a single performing organization.
      3. The level of detail of the Network shall be such that no activity shall have a duration longer than fourteen (14) calendar days, except for procurement and General Conditions Activities or except at the discretion of the Owner. Include written two week look ahead for Architect's review.
      4. Identify phasing and location of activities as required.

   c. The identity of long lead items and delivery dates of all major pieces of equipment or materials.
   d. The identity of any potential problems or constraints related to the implementation of the Interim Project Construction Schedule and/or the Project Construction Schedule.

   The Owner will be available, during normal working hours, to consult with the General Contractor if questions arise while the contractor assembles the information required for the Interim Project Construction Schedule and/or the Project Construction Schedule.

B. The General Contractor shall, within fourteen (14) calendar days following receipt of the Notice to Proceed, submit to the Owner an Interim Project Construction Schedule, in Critical Path Method format (or CPM), for his construction/erection scope of work for the first 90-days of the Project, compatible in Primavera P3 format. The Owner will review the General Contractor's Interim Project Construction Schedule to determine if it meets the specific requirements of the Provisional Project Schedule. The

General Contractor shall, within sixty (60) calendar days following the receipt of the Notice-to-Proceed, submit to the Owner the Project Construction Schedule in the same format indicated above. The Owner will review the General Contractor's Project Construction Schedule to determine if it meets the specific requirements of the Provisional Project Schedule. The form of submittal for the Interim Project Construction Schedule and the Project Construction Schedule including logic diagrams is as follows:

1. The General Contractor shall submit to the Owner a computer disk in compatible electronic format and two (2) full size printed copies of his proposed contract activities. The Interim Project Construction Schedule and the Project Construction Schedule shall consist of a network diagram with activity descriptions and durations and supporting data that will explain the General Contractor's planning of the work.
2. The network diagram shall show:
    a. The order and interdependencies of the General Contractors activities and the major points of interface or interrelation with the activities of others, including Specific Dates for completion.
    b. Conformance with and identification of the specified mandatory Milestone dates specified in the Contract Documents.
    c. The description and quantity of work by activity.
    d. For all equipment and materials fabricated or supplied for this Project, the network shall show a sequence of activities including:
        1. Procurement
        2. Engineering and Preparation of Submittals
        3. Approval of Submittals
        4. Fabrication/Manufacturing
        5. Delivery
        6. Erection/installation
    e. Delivery of Owner-furnished material and equipment.
    f. Critical Path (or Paths).
    g. Training of Owner personnel on Equipment
    h. Testing of equipment and materials.
    i. A complete detailed sequence of operations of the work within the time limits specified in the contract.

C. The Interim Project Construction Schedule and the Project Construction Schedule shall indicate an early completion date for the project that is no later than the project's required completion date. All activity duration's shall be given in calendar days. The Interim Project Construction Schedule and the Project Construction Schedule shall also indicate each of the following:

1. Interfaces with the work of outside Contractors, e.g., utilities, power, and with any separate Contractor.
2. Detailed description of the activity along with the coding and phasing, if applicable.
3. Estimated duration time for each activity.
4. Early start date for each activity.
5. Late start date for each activity.
6. Early finish date for each activity.
7. Late finish date for each activity.
8. Float available for each path of activities containing float.
9. Identification of all critical path activities in the mathematical analysis.
10. The critical path for the project, with said path of activities being clearly and easily recognizable on the time-scaled network diagram.
11. The relationship between all non-critical activities and activities on the critical path shall be clearly shown on the network diagram.
12. The responsibility code for the Contractor or Subcontractor performing each activity or portion thereof.
13 For each activity, the identification of all predecessor and successor activities.
14. For each activity, the number of man-hours required to complete each activity.

D. The General Contractor shall submit, with the Interim Project Construction Schedule and the Project Construction Schedule, a narrative report indicating anticipated allocation of the following resources and work shifts to be utilized on the project.
   1. Labor resources
   2. Equipment resources
   3. Whether work will be performed on a single, double or triple shift, and whether it is to be done on a 4, 5, 6 or 7-day work week basis.
   4. Construction logic and a summary of the sequence of the work.
   5. An explanation of the coding and/or phasing used.

E. It is to be expressly understood and agreed by the General Contractor that the Interim Project Construction Schedule and the Project Construction Schedule is an estimate to be revised from time-to-time as progress proceeds, and that the Owner does not guarantee that General Contractor can start work activities on the '"early start" or "late start" dates or complete work activities on the "early finish" or '"late finish" date shown in the Interim Project Construction Schedule and the Project Construction Schedule, or as same may be updated or revised; nor does the Owner guarantee that General Contractor can proceed at all times in the sequence established by said schedule. If the Contractor's Interim Project Construction Schedule and the Project Construction Schedule

indicates that the Owner or a separate Contractor is to perform an activity by a specific date, or within a certain duration, the Owner or any separate Contractor under contract with Owner shall not be bound to that date or duration unless the Owner expressly and specifically agrees in writing to same, the Owner's overall review and approval or acceptance of the Interim Project Construction Schedule and the Project Construction Schedule does not constitute an agreement to specific dates, durations or sequences for activities of the Owner or any separate Contractor.

F. The Owner will review the General Contractor's Interim Construction Project Schedule and the Construction Project Schedule, including logic diagrams and computer-generated mathematical analysis, for compatibility with the Contract Documents. If required, a meeting will be held between the Owner and General Contractor to resolve any conflicts between the Contractor's Interim Project Construction Schedule and/or the Project Construction Schedule and the Contract Documents. The General Contractor shall revise his schedule as required by the Owner to support the Contract Documents and shall submit his revised schedule to the Owner within fourteen (14) days.

G. Within fourteen (14) calendar days following acceptance of the Interim Project Construction Schedule or the Project Construction Schedule, the General Contractor will provide two (2) full size printed copies and electronic copy of the General Contractor's Interim Project Construction Schedule or the Project Construction Schedule and a computer listing of all network activities, and an electronic file copy on a disk (CD) to the Owner. The Owner shall review the Interim Project Construction Schedule or the Project Construction Schedule, and after the Owner agrees that it conforms to the Contract Documents, the General Contractor's Interim Project Construction Schedule or the Project Construction Schedule will be used to monitor progress of the work and support requests for payment.

H. The General Contractor will develop and maintain the Master Project Schedule, of which the Contractor's Interim Project Construction Schedule or the Project Construction Schedule will be made a part. This Master Project Schedule will be the controlling schedule document utilized for managing overall project progress.

I. Within ninety (90) calendar days following the receipt of the Notice to Proceed, the General Contractor shall participate in a meeting with the Owner to review, evaluate and approve the Project Construction Schedule.

J. If the General Contractor thereafter desires to make changes in its method of operating and scheduling, he shall follow the procedures set out in paragraph 1.05, Network Revisions, of this section.

K. Approval by the Owner of the General Contractor's Interim Project Construction Schedule or the Project Construction Schedule is advisory only and shall not relieve the Contractor of the responsibility for accomplishing the Work within each and every Contract-required Milestone and Completion date. Omissions and errors in the approved Interim Project Construction Schedule or the Project Construction Schedule shall not excuse performance that is not in compliance with the contract.

Approval by the Owner in no way makes them an insurer of the Interim Project Construction Schedule's or the Project Construction Schedule's success nor shall it make the Owner liable for time or cost overruns from its shortcomings. The Owner hereby disclaims any obligation or liability by reason of Owner approval of or acquiescence to the Interim Project Construction Schedule or the Project Construction Schedule.

L. The General Contractor shall include in the Project Construction Schedule all procurement related activities that lead to the delivery of materials to the site in a timely manner. The schedule of off-site activities shall include, but is not limited to, the following:

1. Dates for submittals, ordering, manufacturing, or fabricating, and delivery of equipment and materials. Long lead items requiring more than one month between ordering and delivery to site shall be clearly noted.
2. All significant activities to be performed by the Contractor during the fabrication and erection/installation in a Contractor's plant or on a job site, including materials/ equipment purchasing.
3. The General Contractor's drawings and submittals to be prepared and submitted to the Owner and Architect

M. The General Contractor shall be solely responsible for expediting the delivery of all material they intend to furnish, so that the construction progress shall be maintained according to the current schedule for the Work as approved by the Owner.

N. The General Contractor shall advise the Owner, in writing, whenever they anticipate that the delivery date of any material and/or equipment furnished by the General Contractor for installation will be later than the delivery date shown on the schedule, subject to schedule updates.

O. Submittals, equipment orders and similar items are to be treated as schedule activities, and shall be given appropriate activity numbers.

P. The General Contractor, in developing his procurement schedule, will confirm and verify that the off-site activities do not control the Critical path of on-site activities.

1.5 COMPUTER COST AND SCHEDULE REPORTS

A. Every month the General Contractor will provide a Preliminary Computer Generated Update Report for the Owner and Architect to use to determine the percent complete and remaining duration of all activities. The data approved in this report shall be used, by the General Contractor, to update the Project Construction Schedule on a Monthly Basis. This report shall be submitted along with the submission of the application for payments. The General Contractor's Project Manager and/or Superintendent, and the Owner shall meet at the job site for the purpose of reviewing the General Contractor's report of actual progress, and obtaining from the General Contractor (following his meeting with all concerned Subcontractors and suppliers) up-to- date and accurate progress data. Applications for payments will not be processed without the Updated Project Construction Schedule.

B. Report Content:
   1. The Preliminary and Final Monthly Update Reports shall include the following minimum information for each activity sorted by activity number, by remaining float (from the least to the most), and by late start date, in chronological order:
      a. Activity number
      b. Activity codes
      c. Activity description
      d. Estimated duration in days
      e. Early and late start dates (or Actual if in Progress or Completed)
      f. Early and late finish dates (or Actual if in Progress or Completed)
      g. Percentage of activity completed as of the previous report (Proposed Current % of Activity Completed)
      h. Remaining duration as of Previous Report
      i. Proposed current remaining duration

C. All updated Preliminary and Final Monthly Reports will be distributed to the Owner and Architect as follows:
   1- Paper Copy
   1- Electronic Copy (PDF format)

D. The General Contractor shall also submit a narrative report with the Preliminary and Final Monthly Reports which shall Include, but not be limited to, a description of problem areas, current and anticipated delaying factors and their impact, an explanation of corrective action taken, any newly planned activities, and any proposed logic revisions for a Recovery Schedule. The narrative report shall also include:

1. A description of the actual work accomplished during the reporting period
2. A list of major equipment delivered and/or installed during the reporting period.
3. A list of major equipment remaining to be delivered to the Project Site including the current availability and anticipated jobsite delivery date
4. Changes or additions to Contractor's supervisory personnel since the preceding progress report

E. In addition to the above, the General Contractor may be required to submit from time to time the following reports:

1. Critical Items Report: The General Contractor shall submit periodically to the Owner a Critical Items Report identifying items by cause and impact that are, or will, seriously affect the General Contractor's progress or ability to perform work in accordance with the current General Contractor Construction Schedule.

   Such reports will not be required more than once every sixty (60) days and shall be furnished in sufficient detail to define the cause and potential impact of any actual or anticipated changes in material or equipment deliveries (Contractor or owner-furnished manpower, availability, weather conditions, or other items critical to maintaining the schedule.

1.6 NETWORK REVISIONS

A. Should the General Contractor, after approval of the Initial Project Construction Schedule, desire to change his plan of construction, he shall submit his requested revisions to the Owner and Architect along with a written statement of the revisions including a description of the logic for rescheduling the work, methods of maintaining adherence to intermediate milestones and Specific Dates and the reasons for the revisions. The General Contractor shall revise his Project Construction Schedule to include the effect of changes, acts of God, or other conditions or events that have affected the network. If the requested changes are acceptable to the Owner and Architect, the Contractor will incorporate them into the Project Construction Schedule, in the next reporting period.

B. When the Owner orders changes by Change Order which have the potential to impact the Milestone Dates as set forth in the General and Supplemental Conditions, Provisional Project Construction Schedule, or as determined elsewhere in the contract documents, the General Contractor shall prepare a Network (fragnet) and provide it to the Owner and Architect for concurrence or revision as the Owner deems necessary. After the network has been mutually agreed upon, the General Contractor will incorporate it into the Project Construction Schedule. Change Order logic will affect only those activities and

performance dates directly concerned. Adjustments in scheduled intermediate Completion Dates or for the Contract as a whole, will be considered only to the extent that there is insufficient remaining float to absorb these changes.

C. Any change to the approved Project Construction Schedule must be approved in writing by the Owner.

D. Neither the updating or revision of the Project Construction Schedule nor the submission, updating, change or revision of any report or schedule submitted to the Owner by the General Contractor under this Section nor the Owner's review or concurrence of any such report or schedule shall have the effect of amending or modifying, in any way, the Contract Time, any Contract Completion Date, or Contract Milestone Dates or of modifying or limiting in any way the Contractors obligations under this Contract.

1.7 RECOVERY SCHEDULE

A. If the General Contractor's schedule, to the extent that any of the mandatory specific or milestone dates or completion dates, fall behind by 14 days or more, or in the opinion of the Owner are in jeopardy, the General Contractor shall be required to, at no extra cost to the Owner, prepare and submit to the Owner a supplementary Recovery Schedule, in a form and detail appropriate to the need, to explain and display how he intends to reschedule those activities to regain compliance with the Project Construction Schedule during the Immediate subsequent pay period.

B. The General Contractor and Owner shall do the following after determination of the requirement of a Recovery Schedule:

1. Within three (3) calendar days, the General Contractor shall meet with the Owner to present and review a draft version of the Recovery Schedule. The Recovery Schedule shall represent the Contractor's best judgment as to how he shall reorganize his work so that he may return to the completion dates indicated in the Project Construction Schedule within the immediate subsequent pay period. The Recovery Schedule shall be prepared to a similar level of detail as the Project Construction Schedule and shall have a maximum duration of one (1) month that shall coincide with the pay period.
2. Within five (5) calendar days, the General Contractor shall participate in a conference with the Owner to review and evaluate and approve the final Recovery Schedule. Any revisions required as a result of this review shall be resubmitted by the Contractor for approval within two (2) calendar days of the conference. The approved Recovery Schedule shall then be the Schedule which the

Contractor shall use in planning, organizing, directing, coordinating, performing and executing the Work (including all activities of subcontractors, equipment vendors and suppliers) for its one (1) month duration, to regain compliance with the Project Construction Schedule.

C. Five (5) calendar days prior to the expiration of the Recovery Schedule, the Owner and the General Contractor will meet at the job site for the normal monthly update and to determine the effectiveness of the Recovery Schedule and to determine whether the Contractor has regained compliance with the Project Construction Schedule. At the direction of the Owner, one of the following will happen:

1. If, in the opinion of the Owner, the General Contractor is still behind schedule, the General Contractor will prepare another Recovery Schedule, at the Contractors expense, pursuant with 1.06 (A&B) of this Section, to take effect during the immediate subsequent pay period.
2. If, in the opinion of the Owner, the General Contractor has sufficiently regained compliance with the Project Construction Schedule, the use of the Project Construction Schedule will be resumed.

1.8 REQUESTED TIME ADJUSTMENT SCHEDULE

A. The Updated Project Construction Schedule submitted by General Contractor shall not show a completion date later than the Contract Time, subject to any time extensions approved by Owner; provided, however, that if the General Contractor believes he is entitled to an extension of the Contract Time under the Contract Documents, the General Contractor shall submit to the Owner, with each progress payment update, a separate schedule analysis (entitled “Requested Time Adjustment Schedule"), indicating suggested adjustments in the Contract Time which should, in the opinion of General Contractor, be made in accordance with the contract Documents by time extension, due to changes, delays or conditions occurring during the past month or previously, or which are expected or contemplated by General Contractor (whether such conditions are excusable under the Contract or are alleged to be due to Contractor or Owner fault), this separate schedule, if submitted, shall be time-scaled utilizing a computer generated and computer drawn network analysis schedule, unless otherwise approved by the Owner and shall be accompanied or preceded by a formal time extension request as required by the Contract and a detailed narrative justifying the time extension requested.

The network analysis should include all of the related activities that have led the General Contractor to believe that they have been delayed. The Requested Time Adjustment Schedule should indicate where the

delay began and ended, and where activities could not start because of the delay. If a delay occurred, but the schedule indicates that the predecessor activity could not have begun due to some other delay, then this would not be a cause for requesting a time extension for that particular instance. If a delay occurred, and some of the successor work was able to start, then this would be considered a partial delay, which may or may not be a cause for a time extension.

B. The time extension request shall include schedule forecasts that predict the actual Project Completion Date, and any separable portions thereof specified by the Owner plus a forecast of the actual achievement of any milestones listed in the Contract Agreement.

C. To the extent any time extension requests are pending at the time of any update in the Construction Schedule, the “Requested Time Adjustment Schedule" shall also be updated each month, to reflect any adjustments made by Contractor in the logic, sequence or duration of any activities in the Construction Schedule, or any time extensions previously granted by Owner, and to reflect actual or expected progress, in order that the “Requested Time Adjustment Schedule” shall clearly and accurately reflect the General Contractor’s actual intention and proposed time adjustments as of the latest update.

D. The Owner shall have no obligation to consider any time extension request unless the requirements of the Contract Documents, and specifically, but not limited to these requirements, are complied with; and the Owner shall not be responsible or liable to General Contractor for any constructive acceleration due to failure of the Owner to grant time extensions under the Contract Documents should the General Contractor fail to substantially comply with the submission requirements and the justification requirements of this Contract for time extension requests. The General Contractor’s failure to perform in accordance with the Project Construction Schedule shall not be excused, nor be chargeable to the Owner, because the General Contractor has submitted time extension requests or the “Requested Time Adjustment Schedule.”

1.9 COORDINATION

A. The General Contractor shall coordinate his work with that of other Contractors and shall cooperate fully with the Owner in maintaining orderly progress toward completion of the work as scheduled. The Owner’s decisions regarding priority between the General Contractors work and the work of other Contractors at the site shall be final and shall not be cause for extra compensation or extension of time, except where extension of time is granted because of a delay for which the General

Contractor is otherwise entitled to an extension of time under the Contract Documents.

B. The milestone dates referred to in the Contract Documents for delivery of Owner furnished equipment and materials and interface activities of other General Contractors on the site are based on dates set forth in separate contracts with the Owner and represent the best information available at the time.

C. The failure of the Owner-furnished equipment and materials to arrive as scheduled, or the failure of other Construction Contractors to meet their schedule, shall not be justification for an extension of time, except where such failure causes, in the opinion of the Owner, an unreasonable delay In the General Contractors work, in which case the provisions of the General Conditions regarding extensions of time and extra work shall apply.

D. The General Contractor shall keep himself, and his Subcontractors, advised at all times during the course of the work regarding the delivery status of the Owner-furnished equipment and materials and of the progress of construction work being performed under separate contracts.

E. The Owner will, upon written request by the General Contractor, furnish information that may be available to the Owner.

1.10 CONTRACTOR COVENANTS AND GUARANTEES

A. The General Contractor covenants and guarantees that the General Contractor will not:
   1. Misrepresent to the Owner its planning scheduling or execution of the work.
   2. Utilize schedules materially different from those made available by the General Contractor to the Owner or any Subcontractor or separate the Contractors for the direct execution and coordination of the Work, or which are not feasible or realistic.
   3. Prepare schedules, updates, revisions or reports for the work which do not accurately reflect the actual intent or reasonable and actual expectations of Contractor and its Subcontractor as to:
      a. The sequences of activities,
      b. The duration of activities,
      c. The responsibility of activities,
      d. Resources availability,
      e. Labor availability or efficiency,
      f. Foreseeable weather conditions,
      g. The percentage complete of any activity,
      h. Completion of any item of work or activity,
      i. Project milestone completion,

j. Delays, slippage's, or problems encountered or expected,
k. Subcontractor requests for time extensions or delay claims of subcontractors,
l. If applicable, the float time available.

B. The General Contractor's failure to substantially comply with the foregoing covenant and guarantee shall be a substantial and material breach of contract which will permit the Owner to terminate the Contract for default, or withhold payments under the Contract Documents, and shall entitle the Owner to the damages afforded for misrepresentation or fraud by these Contract Documents or applicable law.

C. Should the General Contractor fail to substantially comply with the provisions of the Contract Documents relating to planning and scheduling the work by the Project Construction Schedule, and the Owner shall have the right, at their option, to retain the services of scheduling consultants or experts (including attorneys if necessary, in their opinion) to prepare a schedule in accordance with the Contract Documents and to review and analyze same, in order to allow the Owner to evaluate the program of the Work by the Contractor, to determine whether the General Contractor is substantially complying with the Contract Documents, and to direct such action on the part of the Contractor, as permitted by the Contract Documents, as required to ensure, under the Owner's schedule prepared hereunder, that the General Contractor will comply with such schedule. All costs incurred by the Owner in preparing the schedule hereunder shall be charged to the General Contractor's account. If the General Contractor fails to substantially comply with the scheduling and execution of the work requirements of the Contract Documents, the Contractor hereby agrees, in such instance, to comply with such schedules, as the Owner develops, or directs, and activity sequences and duration's as the Owner may reasonably require, without additional cost to the Owner (subject only to cost adjustments for such changes in the work as the Owner may direct), to ensure completion within the Contract Time.

1.11 DEFAULT

A. Failure of the General Contractor to substantially comply with the requirements of this Section shall constitute reason that the General Contractor is failing to prosecute work with such diligence as will ensure its completion within the Contract times and shall be considered grounds for termination by the Owner.

END OF SECTION 01 32 00

SECTION 01 30 00 - SUBMITTALS AND SUBSTITUTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, "General Conditions of the Contract for Construction", the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for submittals required for performance of the Work, including;
   1. Schedule of Values
   2. Shop Drawings
   3. Product Data
   4. Samples

B. This Section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.

C. Administrative Submittals: Refer to other Division-1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to:
   1. Applications for payment.
   2. Performance and payment bonds.
   3. Insurance certificates.
   4. List of Subcontractors.

D. Inspection and test reports are included in Section 01 40 00 "Quality Requirements".

E. Information pertaining to Operation and Maintenance Data is included in Section 01 78 32 "Operation and Maintenance Data".

F. Refer to Section 01 29 00 "Payment Procedures" for Schedule of Values requirements for preparation, format, and submittal procedures.

1.3 SUBMITTAL PROCEDURES

A. Coordination: Within 15 days of the Contract award, submit to the Architect a comprehensive Submittals listing each item to be submitted and the date proposed to be submitted. Coordinate with the Architect in the preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
2. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
   a. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
   b. Coordinate transmittal of all submittals requiring color selection so that comprehensive selection can be processed.

3. Processing: Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for re-submittals.
   a. Allow two weeks for initial review. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. The Architect will promptly advise the General Contractor when a submittal being processed must be delayed for coordination.
   b. If an intermediate submittal is necessary, process the same as the initial submittal.
   c. Allow two weeks for reprocessing each submittal.
   d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.

B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
   1. Provide a space approximately 4" x 5" on the label or beside the title block on Shop Drawings to record the Contractor’s review and approval markings and the action taken.
   2. Include the following information on all submittals:
      a. Name of item being submitted.
      b. Number and title of appropriate Specification Section.
      c. Drawing number and detail references, as appropriate.
      d. Name of manufacturer.
      e. Name, address and telephone number of supplier.
      f. Bid Package number and name.
      g. Project Name.
      h. Date.
      i. Name, address and telephone number of Contractor.
      j. Name, address and telephone number of Subcontractor.
      k. Name, address and telephone number of Architect.

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from Contractor to

Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.

D. Number of copies:
1. If hard copies are provided: Submit six (6) copies to Architect of all shop drawings and product data.
2. Submit two (2) each of any sample when samples are requested for Architects review and final approval.
3. **If electronic copies are provided: Submit one (1) electronic copy in PDF format to the Architect. Construction Manager will be required to limit file sizing to 10MB, maximum, or utilize a file sharing technology at the expense of the Submitting Trade Contractor.**
4. The General Contractor shall be required to obtain and furnish hard copies only for all material(s) requiring a selection for color, texture, or finish.

1.4 DEFINITIONS

A. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions." The following are not considered substitutions:
1. Substitutions requested by Bidders during the bidding period, and accepted prior to award of Contract, are considered as included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
2. Revisions to Contract Documents requested by the Owner or Architect.
3. Specified options of products and construction methods included in Contract Documents.
4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.5 SCHEDULE OF VALUES

A. Refer to Section 01 29 00 "Payment Procedures" for Schedule of Values requirements for preparation, format, and submittal procedures.

1.6 SHOP DRAWINGS

A. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not considered Shop Drawings.

B. Shop Drawings include fabrication and installation drawings, setting diagrams, schedules, patterns, templates and similar drawings. Include the following information:
   1. Dimensions.
   2. Identification of products and materials included.
   3. Compliance with specified standards.
   4. Notation of coordination requirements.
   5. Notation of dimensions established by field measurement.
   6. Sheet Size: Except for templates, patterns and similar full size Drawings, submit Shop Drawings on sheets at least 8 ½" x 11", but no larger than 24" x 36".
   7. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.

1.7 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams and performance curves. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings."
   1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products, some of which are not required, mark copies to indicate the applicable information. Include the following information:
      a. Manufacturer's printed recommendations.
      b. Compliance with recognized trade association standards.
      c. Compliance with recognized testing agency standards.
      d. Application of testing agency labels and seals.
      e. Notation of dimensions verified by field measurement.
      f. Notation of coordination requirements.
   2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
   3. Submittals: Submit copies of each required submittal; submit additional copies where required for maintenance manuals.
      a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
   4. Distribution: Furnish copies of final submittal to Architect for distribution to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities.
      a. Do not proceed with installation until an approved copy of Product Data applicable is in the installer's possession.
      b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.8 SAMPLES

A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture and pattern.
   1. Mount, display, or package samples in the manner specified to facilitate review of qualities indicated. Prepare samples to match the Architect's sample. Include the following:
      a. Generic description of the sample.
      b. Sample source.
      c. Product name or name of manufacturer.
      d. Compliance with recognized standards.
      e. Availability and delivery time.
   2. Submit samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
      a. Where variation in color, pattern, texture or other characteristics are inherent in the material or product represented, submit multiple units that show approximate limits of the variations.
      b. Refer to other Specification Sections for requirements for samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation and similar construction characteristics.
   3. Preliminary submittals: Where samples are for selection of color, pattern, texture or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.
      a. Preliminary submittals will be reviewed with the Architect indicating selection or other action.
      b. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
   4. Submittals: Except for samples illustrating assembly details, workmanship, fabrication techniques, connections, operation and similar characteristics, samples will not be returned, unless so requested in advance.
   5. Maintain sets of returned samples, at the Project site, for quality comparisons throughout the course of construction.
      a. Comply with submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.9 SUBSTITUTION REQUESTS

A. Substitution Request Submittal: Requests for substitution will be considered if received within 60 days after commencement of the Work.

Requests received more than 60 days after commencement of the Work may be considered or rejected at the discretion of the Architect.

1. Submit 3 copies of each request for substitution for consideration. Submit requests in the form and in accordance with procedures required for Change Order proposals.
2. Identify the product, or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers, complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
    a. Product Data, including Drawings and descriptions of products, fabrication and installation procedures.
    b. Samples, where applicable or requested.
    c. A detailed comparison of significant qualities of the proposed substitution with those of the work specified. Significant qualities may include elements such as size, weight, durability, performance and visual effect.
    d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors that will become necessary to accommodate the proposed substitution.
    e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
    f. Cost information, including a proposal of the net change, if any in the Contract Sum.
    g. Certification by the Contractor that the substitution proposed is equal-to or better in every significant respect to that required by the Contract Documents, and that it will perform adequately in the application indicated. Include the Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
3. Architect's Action: Within one week of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, whichever is later, the Architect will notify the General Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made or obtained within the time allocated, use the product specified by name.

1.10 ARCHITECT'S ACTION

A. Except for submittals for record, information or similar purposes, where action and return is required or requested, the Architect will review each submittal, mark to indicate action taken, and return promptly.
   1. Compliance with specified characteristics is the Contractor's responsibility.

B. Action Stamp: The Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, to indicate the action taken:
   1. Final Unrestricted Release: Where submittals are marked "Approved," that part of the Work covered by the submittal may proceed provided it complies with requirements of the Contract Documents; final acceptance will depend upon that compliance.
   2. Final-But-Restricted Release: When submittals are marked "Approved as Corrected," that part of the Work covered by the submittal may proceed provided it complies with notations or corrections on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
   3. Returned for Resubmittal: When submittal is marked "Not Approved, Revise and Resubmit," do not proceed with that part of the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
      a. Do not permit submittals marked "Not Approved, Revise and Resubmit" to be used at the Project site, or elsewhere where Work is in progress.
   4. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Action Not Required".

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Conditions: The Contractor's substitution request will be received and considered by the Architect when one or more of the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.
   1. Extensive revisions to Contract Documents are not required.
   2. Proposed changes are in keeping with the general intent of Contract Documents.
   3. The request is timely, fully documented and properly submitted.
   4. The request is directly related to an "or equal" clause or similar language in the Contract Documents.

5. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
6. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
7. A substantial advantage is offered the owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner or separate Contractors, and similar considerations.
8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials, and where the Contractor certifies that the substitution will overcome the incompatibility.
9. The specified product or method of construction cannot be coordinated with other materials, and where the Contractor certifies that the proposed substitution can be coordinated.
10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provide the required warranty.

B. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 - EXECUTION (Not Applicable).

END OF SECTION 01 30 00

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for quality control services.

B. Quality control services include inspections and tests and related actions including reports performed by independent agencies, governing authorities, and the General Contractor. They do not include Contract enforcement activities performed by the Architect.

C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.

D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
   1. Specific quality control requirements for individual construction activities are specified in the Sections that specify those activities. Those requirements, including inspections and tests, cover production of standard products as well as customized fabrication and installation procedures.
   2. Inspections, test and related actions specified are not intended to limit the Contractor’s quality control procedures that facilitate compliance with Contract Document requirements.
   3. Requirements for the Contractor to provide quality control services required by the Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 RESPONSIBILITIES

A. Retesting: The Contractor is responsible for retesting where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance with Contract Document requirements, regardless of whether the original test was the Contractor’s responsibility.
   1. Costs of retesting construction revised or replaced by the Contractor is the Contractor’s responsibility, where required tests,

performed on original construction, do not indicate compliance with Contract Documents.

B. Associated Services: The Contractor shall cooperate with agencies performing required inspections, tests and similar services and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel. Auxiliary services required include but are not limited to:
   1. Providing access to the Work and furnishing incidental labor and facilities necessary to facilitate inspections and tests.
   2. Taking adequate quantities of representative samples of materials that require testing or assisting the agency in taking samples.
   3. Providing facilities for storage and curing of test samples.
   4. Providing the agency with a preliminary design mix proposed for use for materials mixes that require control by the testing agency.
   5. Security and protection of samples and test equipment at the Project site.

C. Owner Responsibilities: The Owner will provide inspections, tests and similar quality control services specified to be performed by independent agencies and not by the General Contractor, except where they are specifically indicated as the General Contractor's responsibility or are provided by another identified entity. Costs for these services are not included in the Contract Sum.
   1. The Owner will employ and pay for the services of an independent agency, testing laboratory or other qualified firm to perform services which are the owner's responsibility.
   2. The General Contractor agrees to engage and pay for the quality control services specified as the General Contractor's responsibility, including retesting, from the independent agency engaged by the Owner.

D. Duties of the Testing Agency and Special Inspector: The independent testing Agency and the Special Inspector, engaged to perform inspections, sampling and testing of materials and construction specified in individual Specification Sections, shall cooperate with the Architect and Contractor in performance of their duties, and shall provide qualified personnel to perform required inspections and tests.
   1. The Agency or the Special Inspector shall notify the Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
   2. Neither the Agency nor the Special Inspector is not authorized to release, revoke, alter or enlarge requirements of the Contract Documents, or approve or accept any portion of the Work.
   3. Neither the Agency nor the Special Inspector shall not perform any duties of the General Contractor.

E. Coordination: The General Contractor and each Agency engaged to perform inspections, tests and similar services shall coordinate the

sequence of activities to accommodate required services with a minimum of delay. In addition, the General Contractor and each agency shall coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

1. The General Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: Upon completion of inspection, testing, sample-taking and similar services, repair damaged construction and restore substrates and finishes to eliminate deficiencies, including deficiencies in visual qualities of exposed finishes.

B. Protect construction exposed by or for quality control service activities, and protect repaired construction.

C. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION 01 40 00

SECTION 01 42 19 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, "General Conditions of the Contract for Construction", the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section specifies applicability of industry standards to products specified, administrative and procedural requirements governing the Contractor's selection of products for use in the Project.

B. Submittals and administrative procedures for handling requests for substitutions made after award of the Contract are included under Section 01 33 00, "Submittal Procedures."

1.3 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. Indicated: The term indicated refers to graphic representations, notes, or schedules on the Drawings, or other Paragraphs or Schedules in the Specifications, and similar requirements in the Contract Documents. Terms such as shown, noted, scheduled, and specified are used to help the reader locate the reference. There is no limitation on location.

C. Directed: Terms such as directed, requested, authorized, selected, approved, required, and permitted mean directed by the Architect, requested by the Architect, and similar phrases.

D. Approved: The term approved, when used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in the Conditions of the Contract.

E. Regulations: The term regulations includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

F. Furnish: The term furnish means supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. Install: The term install describes operations at the Project site including the actual unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

H. Provide: The term provide means to furnish and install, complete and ready for the intended use.

I. Installer: An Installer is the Contractor or another entity engaged by the General Contractor, either as an employee, subcontractor, or contractor of lower tier, to perform a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
   1. The term experienced, when used with the term Installer, means having a minimum of five previous projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.
   2. Trades: Using terms such as carpentry is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as carpenter. It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.
   3. Assigning Specialists: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in those operations. The specialists must be engaged for those activities, and their assignments are requirements over which the Contractor has no choice or option. However, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.
      a. This requirement shall not be interpreted to conflict with enforcing building codes and similar regulations governing the Work. It is also not intended to interfere with local trade union jurisdictional settlements and similar conventions.

J. Project site is the space available to the General Contractor for performing construction activities either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project site is shown on the Drawings and may or may not be identical with the description of the land on which the Project is to be built.

K. Testing Agencies: A testing agency is an independent entity engaged to perform specific inspections or tests, either at the Project site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

L. “Architect” shall refer to the lead design professional of record for the project.

M. “Architect” may also refer to the Landscape Architect of record for the project for certain portions of the work directly related to sitework generally five feet outside of the building.

N. “Bituminous Concrete Pavement” is synonymous with “Hot Mix Asphalt Paving” for the purposes of these Specifications.

O. “Bituminous Concrete Pavement” terminology: Refer to ASTM D 8 for definitions of terms.

P. “Concrete” shall mean the manufacture of ready-mix concrete in compliance with ASTM C 94 / 94 M and CT DOT requirements for production facilities and equipment and shall be certified according to NRMCA’s “Certification of Ready Mix Concrete Production Facilities.”

Q. “Construction Area” refers to the area within the "Contract Limit Line" as shown on the drawings including any area outside such limit that is damaged or otherwise disturbed by construction-related activities. This may include, but not be limited to, construction access routes, off-site storage or stockpile areas, utility work or other off-site improvements that may not be shown in the contract drawings.

R. “Contractor” shall mean the General Contractor responsible for all work of this contract including the work of his subcontractors.

S. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as “specialties,” “systems,” “structure,” “finishes,” “accessories,” and similar terms. Such terms such are self-explanatory and have well-recognized meanings in the construction industry.
   1. “Products” are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term “product” includes the terms “material,” “equipment,” “system,” and terms of similar intent.
      a. “Named Products” are items identified by manufacturer’s product name, including make or model designation, indicated in the manufacturer’s published product literature that is current as the date of the Contract Documents.
   2. “Materials” are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
   3. “Equipment” is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

1.4 SITE REFERENCES

A. Reference herein to any technical society, organization, group or body is made in accordance with the following abbreviations. Unless otherwise noted or specified, all work in this Specification shall conform to the latest edition, as applicable.

1. ACI: American Concrete Institute.
2. ADA: United States Department of Justice, Americans with Disabilities Act, Standards for Accessible Design. [currently "2010 ADA Standards for Accessible Design," DOJ, Sept. 15, 2010]
3. AI: Asphalt Institute publications as referenced.
4. ANSI: Refers to standard specifications, as amended, issued by the American National Standards Institute.
5. AWS: American Welding Society.
6. AWWA: American Water Works Association.
7. ASTM: Refers to standard specifications and testing methods issued by the American Society of Testing and Materials Reference as amended.
8. Building Code: State of Connecticut Building Code.
9. CRSI: Concrete Reinforcing Steel Institute.
10. CTDEEP: Refers to the State of Connecticut Department of Energy and Environmental Protection and its various Divisions.
11. CTDEEP Guidelines: Refers to the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control and all supplements and revisions.
12. CTDEEP Manual: Refers to the 2004 Connecticut Stormwater Quality Manual and all supplements and revisions.
13. CTDOT Form 816: Refers to the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges and Incidental Construction, Form 816, 2004, and all supplements and revisions, with the exception of provisions for measurements and payments.
14. NRMCA: National Read Mix Concrete Association.
15. OSHA: Occupational Safety and Health Administration
16. Tree Pruning Standard: Comply with ANSI A300 (Part 1), "Tree, Shrub, and Other Woody Plant Maintenance--Standard Practices (Pruning)."
17. U.S.D.A.: United States Department of Agriculture.

1.5 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. These Specifications with the accompanying Drawings are intended to describe and illustrate all material, labor, and equipment necessary to complete the **Interior Renovations to the Naugatuck Police Department, 211Spring Street, Naugatuck, CT**.

B. Specification Format: These Specifications are organized into Divisions and Sections based on the MASTERSPEC numbering system, 2014 edition.

C. Specification Content: This Specification uses certain conventions regarding the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations or circumstances. These conventions are explained as follows:
   1. Abbreviated Language: Language used in Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words that are implied, but not stated, shall be interpolated, as the sense requires. Singular words will be interpreted as plural and plural words interpreted as singular where applicable as the context of the Contract Documents indicates.
   2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the Text, subjective language is used for clarity to describe responsibilities that must be fulfilled indirectly by the Contractor or by others when so noted.
      a. The words “shall be” are implied wherever a colon (:) is used within a sentence or phrase.

D. In general, the Specifications will describe the “quality” of the work and the Drawings, the “extent” of the work. The Drawings and Specifications are cooperative and supplementary, however, and each item of the work is not necessarily mentioned in both the Drawings and the Specifications. All work necessary to complete the project, so described, is to be included in this Contract.

E. In case of disagreement between Drawings and Specifications, or within either document itself, the better quality or greater quantity of work shall be the determining basis for all decisions and/or adjustments. Any work done by the General Contractor without consulting the Architect, when the same requires a decision, shall be done at the Contractor’s risk.

F. Omissions or Errors: If any omissions or errors are noted or instructions at variance with the obvious intent of the documents, it is the responsibility of the Contractor to call them to the Architect’s attention before signing the Contract.

1.6 SUBMITTALS

A. Comply with requirements contained in Section 01 33 00, “Submittal Procedures”.

1.7 QUALITY ASSURANCE

A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.

B. Compatibility of Options: When the General Contractor or Contractor's are given the option of selecting between two or more products for use on the Project; the product selected shall be compatible with products previously selected, even if previously selected products were also options.

C. Responsibility to furnish material: Listing or mention of materials is sufficient indication to make it the General Contractor's / Contractor's responsibility to furnish said materials in accordance with the grades or standards indicated, free from defects impairing strength, durability or appearance, and in sufficient quantity for the proper and complete execution of the work, unless specifically stated otherwise.

D. Responsibility for methods: The listing or mention of any method of installation, erection, fabrication or workmanship shall not operate to make the contractor an agent, but shall be for the sole purpose of setting a standard of quality for the finished work. General Contractor / Contractor is free to use any alternate method, provided only that, prior to the start of the work, such alternate method is approved in writing by the Architect, as resulting in quality equal to that intended by these documents. Unless an alternate method is approved, all work shall be in strict accordance with all methods of installation, erection, fabrication and workmanship listed or mentioned herein.

1.8 INDUSTRY STANDARDS

A. Compliance: Furnish all materials and accomplish all work in accordance with the grades or standards of materials, standards of workmanship, and manufacturer's literature, as referenced in these documents.

B. Applicability of Standards: Except where 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.

C. Publication Dates: Comply with the standards in effect as of the date of the Contract Documents.

D. Conflicting Requirements: Where compliance with two or more standards is specified and where the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the Architect for a decision before proceeding.

1. 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 the requirements. Refer uncertainties to the Architect for a decision before proceeding.

E. Copies of Standards: Each entity engaged in construction on the Project is required to 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, the Contractor shall obtain copies directly from the publication source.

F. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

1.9 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle products in accordance with the Architect's and manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.
   1. Schedule delivery to minimize long-term storage at the 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 the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
   4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.
   5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
   6. Store heavy materials away from the Project structure in a manner that will not endanger the supporting construction.
   7. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.
   8. Packages, materials and equipment showing evidence of damage may be rejected by the Architect.
   9. Store rigid insulation board away from the building.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, unused at the time of installation.
   1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
   2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:
   1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide the product indicated, or equal to that described.
   2. Semi proprietary Specification Requirements: Where three or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
      a. Where products or manufacturers are specified by name, accompanied by the term “or equal,” or “or approved equal” comply with the Contract Document provisions concerning “substitutions” to obtain approval for use of an unnamed product.
   3. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.
   4. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.
      a. Manufacturer’s recommendations may be contained in published product literature, or by the manufacturer’s certification of performance.
   5. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
   6. Visual Matching: Where Specifications require matching an established Sample, the Architect’s decision will be final on whether a proposed product matches satisfactorily.

a. Where no product available within the specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of the Contract Documents concerning “substitutions” for selection of a matching product in another product category, or for noncompliance with specified requirements.

7. Visual Selection: Where specified product requirements include the phrase “ …. as selected from manufacturer’s standard colors, patterns, textures ….. ” or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern and texture from the product line selected.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS:

A. Comply with manufacturer’s instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work.

1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 01 42 19

SECTION 01 50 00 - TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section specifies requirements for temporary services and facilities, including utilities, construction and support facilities, security and protection.

B. Temporary utilities required include but are not limited to:
1. Water service and distribution
2. Temporary electric power and light
3. Telephone service

C. Temporary construction and support facilities required include but are not limited to:
1. Temporary heat (as required for construction)
2. Field offices and storage sheds
3. Temporary roads and paving
4. Sanitary facilities, including drinking water
5. Dewatering facilities and drains
6. Temporary enclosures
7. Temporary Project identification signs and bulletin boards
8. Waste disposal services
9. Construction aids and miscellaneous services and facilities

D. Security and protection facilities required include but are not limited to:
1. Temporary fire protection
2. Barricades, warning signs, lights
3. Enclosure fence for the site
4. Environmental protection

1.3 QUALITY ASSURANCE

A. Regulations: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction, including but not limited to:
1. Building Code requirements.
2. Health and safety regulations.
3. Utility company regulations.
4. Police and Fire Department rules.

5. Environmental protection regulations.

B. Standards: Comply with NFPA Code 241, “Building Construction and Demolition Operations”, ANSI-ALO Series standards for “Safety Requirements for Construction and Demolition”, and NECA Electrical Design Library “Temporary Electrical Facilities.”
   1. Refer to “Guidelines for Bid Conditions for Temporary Job Utilities and Services”, prepared jointly by AGC and ASC, for industry recommendations.
   2. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with National Electric Code (NFPA 70).

C. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.

1.4 PROJECT CONDITIONS

A. Temporary Utilities: Prepare a schedule indicating dates for implementation and termination of each temporary utility within 15 days of the date established for commencement of the Work. At the earliest feasible time, when acceptable to the Owner, change over from use of temporary service to use of the permanent service.

B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous dangerous or unsanitary conditions, or public nuisances to develop or persist on the site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials; if acceptable to the Architect, undamaged previously used materials in serviceable condition may be used. Provide materials suitable for the use intended.

B. Lumber and Plywood: Comply with requirements in Division - 6 Section “Rough Carpentry.”
   1. For signs and directory boards, provide exterior type, Grade B-B High Density Concrete Form Overlay Plywood conforming to PS-1, of sizes and thickness indicated.

C. Gypsum Wallboard: Provide gypsum wallboard complying with requirements of ASTM C 36 on interior walls of temporary partitions.

D. Paint: Comply with requirements of Division - 9 Section “Finish Painting.”

1. For sign panels and applying graphics, provide exterior grade alkyd gloss enamel over exterior primer.
2. For interior temporary partitions, provide two coats interior latex flat wall paint.

E. Tarpaulins: Provide waterproof, fire-resistant, UL labeled tarpaulins with flame-spread rating of 15 or less. For temporary enclosures provide translucent nylon reinforced laminated polyethylene or polyvinyl chloride fire retardant tarpaulins.

2.2 EQUIPMENT

A. General: Provide new equipment; if acceptable to the Architect, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.

B. Water Hoses: Provide ¾ inch heavy-duty, abrasion-resistant, flexible rubber hose 100 ft. long, with pressure rating greater than the maximum pressure of the water distribution system; provide adjustable shut-off nozzles at hose discharge.

C. Electrical Outlets: Provide properly configured NEMA polarized outlets to prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

D. Electrical Power Cords: Provide grounded extension cords; use “hard-service” cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords, if single lengths will not reach areas where construction activities are in progress.

E. Lamps and Light Fixtures: Provide general service incandescent lamps of wattage required for adequate illumination. Provide guard cages or tempered glass enclosures, where exposed to breakage. Provide exterior fixtures where exposed to moisture.

F. Heating Units: Provide temporary heating units that have been tested and labeled by UL, FM or another recognized trade association related to the type of fuel being consumed.

G. Temporary Offices: Provide prefabricated or mobile units or similar job-built construction with lockable entrances, operable windows and serviceable finishes. Provide heated and air- conditioned units on foundations adequate for normal loading.

H. Temporary Toilet Units: Provide self-contained single-occupant toilet units of the chemical, aerated recirculation, or combustion type, properly vented

and fully enclosed with a glass fiber reinforced polyester shell or similar nonabsorbent material.
Contractors shall not utilize permanent toilets.

I. First Aid Supplies: Comply with governing regulations.

J. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "All fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried, portable, UL-rated, class "ABC" dry chemical extinguishers, or a combination of extinguishers of NFPA recommended classes for the exposures.

1. Comply with NFPA 10 and 241 for classification, extinguishing agent and size required by location and class of fire exposure.

K. **The General Contractor shall provide all management personnel with radios with cellular and walkie-talkie features.** All major trades shall also be so equipped. Provide a list of names and numbers for all personnel to the Owner and Architect.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required, at no additional cost to the Owner.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. 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: Where required, engage the appropriate local utility company to install temporary service or connect to existing service. Where the company provides only part of the service, provide the remainder with matching, compatible materials and equipment; comply with the company's recommendations.

1. Arrange with the company and existing users for a time when service can be interrupted, where necessary, to make connections for temporary services.
2. Provide adequate capacity at each stage of construction. Prior to temporary utility availability, provide trucked-in services.

B. Water Service: General Contractor to provide water service for the purposes of construction activity. **The General Contractor shall be responsible for all costs associated with temporary water service installation, and distribution. The Owner shall be responsible for costs of temporary water service consumption**

C. Temporary Electric Power Service: Provide weatherproof, grounded electric power connections and distribution system of sufficient size, capacity, and power characteristics during construction period. Include transformers, overload protected disconnects, automatic ground-fault interrupters and main distribution switch gear. **The General Contractor shall be responsible for all costs associated with temporary electric service distribution for construction-related activities. The Owner shall be responsible for costs of temporary electric service consumption.**

1. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage. Where permitted, wiring circuits not exceeding 125 Volts, AC 20 ampere rating, and lighting circuits may be nonmetallic sheathed cable where overhead and exposed for surveillance.
2. Furnish light bulbs and extensions cords as may be essential to the execution of the respective trades, and for extensions of lines to sheds or to power tools and remote areas which cannot be reached with extension cords.

D. Temporary Lighting: Whenever overhead floor or roof deck has been installed, provide temporary lighting with local switching.

1. Install and operate temporary lighting that will fulfill security and protection requirements, without operating the entire system, and will provide adequate illumination for construction operations and traffic conditions.

E. Temporary Telephones: Trade Contractor to provide all telephones required for Trade Contractor's use during the extent of construction and pay all costs for installation, use, and removal. Telephones required by separate contractors shall be installed, removed, and paid for by that contractor.

1. At Trade Contractor's telephone, post a list of important telephone numbers.

3.3 TEMPORARY CONSTRUCTION AND SUPPORT FACILITIES INSTALLATION

A. Locate field offices, storage sheds, sanitary facilities and other temporary construction and support facilities for easy access.

1. Confine apparatus, storage materials, equipment, supplies and operations to the areas bounded by the Contract and on-site limits as shown on the drawings.

2. Maintain temporary construction and support facilities until near Substantial Completion. Remove prior to Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to the Owner.

B. Provide incombustible construction for offices, shops and sheds located within the construction area, or within 30 feet of building lines. Comply with requirements of NFPA 241.

C. **The General Contractor shall furnish and pay for all necessary temporary heat to prevent injury to work or to material through dampness or cold**. At all times when there is concrete or other masonry not thoroughly set, he shall maintain a temperature of at least 40 degrees F in areas where such work is located. For two (2) days previous to placement or application of any interior work, resilient tile, paint or similar finish, a temperature of at least 60 degrees F shall be maintained in those portions of building in which this work occurs.

D. If temporary heat is required for protection of work or to hasten drying out process of construction before permanent heating apparatus is available for use, the Trade Contractor shall provide suitable approved heating, apparatus, adequate proper fuel and maintain fires as required at his expense.

E. All temporary heating apparatus shall be installed and operated in such a manner that finished work will not be damaged thereby. Until the permanent heating system is available, the Trade Contractor is responsible for maintenance of heating equipment.

F. **The Electrical Contractor shall provide temporary connections to all equipment requiring electrical power in order to provide temporary heat.** The Electrical Contractor shall remove such temporary connections and equipment when the need for same is concluded.

G. With the cooperation of all trades and separate Contractors involved, the Trade Contractor may utilize the permanent heating and ventilating system when completely installed and operational, providing the following conditions are met by the Trade Contractor at no additional cost to the Owner:
   1. The Contractor shall minimize interruption of heat and hot water to areas of the building being utilized by the Owner and shall take adequate precaution to prevent any damage from occurring due to lack of heat.
   2. The Contractor shall take all necessary precautions to prevent waste of heat due to excessive ventilation of careless operation of openings in the building.
   3. The system shall be protected from freezing. Any frost damage shall be repaired at the Trade Contractor’s cost.

4. Arrangements shall be made to monitor the system operation at night and over weekends and holidays by the General Contractor.
5. All safety controls shall be installed and operating.
6. All equipment shall be serviced and brought back to "as new" condition to the Architect's satisfaction before acceptance by the Owner.
7. All equipment warranties and guarantees shall be extended so that their full term is available to the Owner from the date of acceptance.
8. All permanent HVAC systems utilized for heat shall be cleaned throughout the system, including but not limited to the ductwork, cores, and coils of equipment, etc. Replacement of filters alone does not constitute a thorough cleaning.
9. **All costs for fuel consumption shall be the responsibility of the General Contractor.**
10. The General Contractor acknowledges that use of permanent systems is for the sole benefit of the General Contractor and that all other requirements contained within the contract documents shall not be violated or compromised. This includes, but is not limited to, warrantees and service agreements.
11. The use of permanent systems shall be discontinued immediately, if in the sole opinion of the General Contractor, the above requirements are not being properly adhered to.

H. Field Offices: Provide insulated, weathertight temporary offices of sufficient size to accommodate required office personnel.

I. Storage and Fabrication Sheds: Install storage and fabrication sheds, sized, furnished and equipped to accommodate materials and equipment involved, including temporary utility service. Sheds may be open shelters or fully enclosed spaces on the site.

J. Toilets: Maintain clean, sanitary conditions.

K. Drinking Water Facilities: Trade Contractor's will be held responsible for providing clean drinking water for their personnel during the duration of their on-site construction period. Provide sanitary conditions of water storage containers and provide adequate and sanitary drinking cups.

L. Protection:
1. Protect the building at all times from damages from rain water, spring water, ground water, backing up of drains and sewers and all other water. Provide all pumps, equipment and enclosures to insure this protection.
2. Remove all snow and ice as may be required for proper protection and prosecution of the work.
3. Provide all shoring, bracing and sheeting as required for safety and for proper execution of work.
4. Protect all work from damage during cold weather. If low temperatures make it impossible to continue operations safely in

spite of cold weather precautions, cease work and so notify Architect. Repair and/or replacement of all work damaged from frost, freezing or any elements of the weather are the responsibility of the Contractor.

5. Protect the building and the site from damage, loss or liability due to theft or vandalism when the work is not in progress at night, weekends, or holidays.
6. Exercise precaution for the protection of persons and property at all times. Observe the provisions of applicable laws and construction codes. Take additional safety and health measures, or cause such measures to be taken as reasonably necessary. Maintain guards on machinery, equipment and other hazards as set forth in the safety provisions of the Manual of Accident Prevention in Construction, published by the Associated General Contractors of America, to the extent that such provisions are not in contravention of applicable laws.
7. Protect and preserve in operating conditions all utilities traversing the work area. Repair all damages to any utility due to work performed under this Contract, to the satisfaction of the Architect at no additional cost to the Owner.

M. Temporary Lifts and Hoists: Provide facilities for hoisting materials, rubbish, and employees. Truck cranes and similar devices used for hoisting materials are considered “tools and equipment” and not temporary facilities.

N. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material in a lawful manner. **The General Contractor shall furnish and maintain dumpster service on-site for the removal of all waste material and debris. It is the responsibility of each trade contractor utilized for the completion of this project to remove all associated waste material and debris from the job site on a daily basis and place into appropriate waste receptacle as directed by the General Contractor.**

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Except for use of permanent fire protection as soon as available, do not change over from use of temporary security and protection facilities to permanent facilities until Substantial Completion, or longer as requested by the Architect.

B. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities

of the types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations.

1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor.
2. Store combustible materials in containers in fire-safe locations.
3. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
4. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.
5. No gasoline may be stored in or close to the building at any time.

C. Permanent Fire Protection: At the earliest feasible date in each area of the Project, complete installation of the permanent fire protection facility, including connected services, and place into operation and use. Instruct key personnel on use of facilities.

D. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of structurally adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed provide lighting, including flashing red or amber lights.

E. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.

1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.

F. Environmental Protection: Provide protection, operate temporary facilities and, conduct construction in ways and by methods that comply with environmental regulations, and minimize the possibility that air, waterways and subsoil might be contaminated or polluted, or that other undesirable effects might result. Avoid use of tools and equipment which produce harmful noise. Restrict use of noise making tools and equipment to hours that will minimize complaints from persons or firms near the site.

3.5 OPERATION, TERMINATION AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.

B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
   1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation and similar facilities on a 24-hour day basis where required to achieve indicated results and to avoid possibility of damage.
   2. Protection: Prevent water filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

C. Termination and Removal: Unless the Architect requests that it be maintained longer, the contractor responsible for its installation shall remove each temporary facility when the need has ended, or when 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 the 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 the Contractor. The Owner reserves the right to take possession of Project identification signs.
   2. Remove temporary paving that is not intended for or acceptable for integration into permanent paving. Where the area is intended for landscape development, remove soil and aggregate fill that does not comply with requirements for fill or subsoil in the area. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances which might impair growth of plant materials or lawns. Repair or replace existing and new street paving, curbs and sidewalks and grassed areas at the temporary entrances, as required by the governing authority.
   3. At Substantial Completion, clean and renovate existing and new permanent facilities that have been used during the construction period, including but not limited to:

      a. Replace air filters and clean inside of ductwork and housings (new construction areas only).
      b. Replace significantly worn parts and parts that have been subject to unusual operating conditions.
      c. Replace lamps that are burned out or noticeably dimmed by substantial hours of use.

END OF SECTION 01 50 00

SECTION 01 73 00 - FIELD ENGINEERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, "The General Conditions of the Contract for Construction," Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. General: This Section specifies administrative and procedural requirements for field engineering services, including, but not necessarily limited to, the following:
   1. Land survey work
   2. Civil engineering services
   3. Dimensional layout of building elements

1.3 SUBMITTALS

A. Certificates: Submit a certificate signed by the Land Surveyor or Professional Engineer certifying that the location and elevation of building improvements comply with the Contract Documents.

B. Project Record Documents (As-Built Documents): Submit a record of work performed and record survey data as required under provisions of this section.

1.4 QUALITY ASSURANCE

A. Surveyor: Engage a Registered Land Surveyor registered in the State of Connecticut, to perform land surveying services required.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. The Owner's land surveyor will identify existing control points and property line corner stakes for use by the General Trades Contractor's land surveyor.

B. Verify layout information shown on the Drawings, in relation to the property information and existing building before proceeding to layout the

work. Locate and protect benchmarks and control points. Preserve permanent reference points during construction.

1. Do not change or relocate benchmarks or control points without prior written approval. Promptly report lost or destroyed reference points, or requirements to relocate reference points because of necessary changes in grades or locations.
2. Promptly replace lost or destroyed project control points. Base replacements on the original survey control points.

C. Establish and maintain a minimum of two permanent benchmarks on the site, referenced to data established by survey control points.
   1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

D. Existing utilities and equipment: Coordinate with the local utility companies for the existence and location of existing underground improvements and utilities. Construction indicated as existing <u>are not guaranteed</u>, but based upon available data as supplied by the Land Surveyor and visual observations. Before beginning the work, investigate and verify the existence and location of underground utilities and other construction with the Owner / local utility companies.
   1. Prior to construction, verify with the local utility companies the location and invert elevation at points of connection of sanitary sewer, storm sewer, fire service, and water service piping.

3.2 <u>PERFORMANCE</u>

A. Working from lines and levels established by the property survey, field measurements, establish benchmarks and markers to set lines and levels at each story of construction and elsewhere as needed to properly locate each element of the Project. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.
   1. Advise entities engaged in construction activities, of marked lines and levels provided for their use.
   2. As construction proceeds, check every major element for line, level and plumb.

B. Surveyor's Log: Maintain a surveyor's log of control and other survey Work. Make this log available for reference.
   1. Record deviations from required lines and levels and advise the Architect when deviations that exceed indicated or recognized tolerances are detected. On Project Record Drawings, record deviations that are accepted and not corrected.

C. Building Lines and Levels: Locate and lay out batter boards for structures, building foundations, column grids and locations, floor levels and control lines and levels required for mechanical and electrical Work.

3.3 AS-BUILTS

A. Revisions, modifications, changes and adjustments made during the course of the project shall be accurately noted on a single set of plans to be submitted as the final record copy at project completion.

B. Verification of the as-built finished grades, major layout of improvements, locations of buildings or structures and underground utilities, including invert elevations, is required to be submitted on mylar, stamped and signed, and in digital format.

C. Organize and submit to the Architect and Owner a site as-built drawing in a form acceptable to the local authority having jurisdiction.
   1. Revisions, modifications, changes, and adjustments made during the course of the project shall be accurately noted on a single set of plans to be submitted as the final record copy at project completion.
   2. A final survey of as-built conditions at project completion, verifying major layout of improvements, locations of buildings or structures and underground utilities is required, including but not limited to the following:
      a. In-place foundation walls.
      b. Site elevations / completed topography (T-2 survey).
      c. Site improvements installed as part of project scope.
      d. Site landscaping (new and existing) within the project site.
      e. Elevations and inverts for all storm water, sanitary waste systems, all other utilities (new and existing), underground structures, underground tanks, and connections to existing underground utilities.
   3. Submit final drawings in a reproducible format as determined by, and acceptable to, the local authority having jurisdiction and in a format that will comply with the Owner’s requirements of a Final Certificate of Occupancy.

END OF SECTION 01 73 00

SECTION 01 77 00 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for project closeout by each Trade Contractor, including but not limited to:
   1. Final inspection procedures
   2. Record document submittal
   3. Submittal of warranties
   4. Final cleaning

B. Closeout requirements for specific construction activities are included in the appropriate sections of the specifications.

C. Closeout requirements pertaining to final engineering are included in Section 01 73 00 “Field Engineering”.

D. Refer to Section 01 78 23 “Operation and Maintenance Data” for requirements for preparation, format, and submittal procedures for O&M Manuals and As-Built documentation.

1.3 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection by the Architect for certification of Substantial Completion, complete the following. List exceptions in the request.
   1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
      a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the Work is not complete.
   2. Advise the Owner of pending insurance change-over requirements.
   3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications and similar documents.

4. Obtain and submit releases to the Architect enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
5. Submit record drawings, maintenance manuals and similar final record information to the Architect.
6. Deliver tools, spare parts, extra stock, and similar items.
7. Remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
8. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.

B. Final Inspection Procedures: Submit a request for final inspection, to the Architect. Following the Architect's final inspection, the Architect will either prepare the Certificate of Substantial Completion or advise the General Contractor of construction that must be completed or corrected before the certificate will be issued.
1. The Architect will repeat final inspection when requested by the General Contractor and assured that the Work has been substantially completed.
2. Results of the completed final inspection will form the basis of requirements for final acceptance.

1.4 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request to the Architect with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
2. Submit an updated final statement to the Architect, accounting for final additional changes to the Contract Sum.
3. Submit a certified copy of the Architect’s Final Inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Trade Contractor(s).
4. Submit consent of surety to final payment.
5. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Reinspection Procedure: The Architect will re-inspect the work upon receipt of notice from the General Contractor that the Work, including Final Inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Owner and Architect.

1. Upon completion of reinspection, the Architect will prepare a certificate of final acceptance or advise the General Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
2. If necessary, re-inspection will be repeated.

1.5 RECORD DOCUMENT SUBMITTALS

A. General: Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for the Architect's reference during normal working hours.

B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
   1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
   2. Mark new information that is important to the Owner, but was not shown on Contract Drawings or Shop Drawings.
   3. Note related Change Order numbers where applicable.
   4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set. Submit to the Architect.

C. Maintenance Manuals: See Section 01 78 23 "Operation and Maintenance Data" for O&M requirements.

1.6 WARRANTEE SUBMITTALS

A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.
   1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect within fifteen (15) days of completion of that designated portion of the Work.

B. When a special warranty is required to be executed by the Contractor, or the Contractor and a subcontractor, supplier or manufacturer, prepare a

written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.

C. Form of Submittal: At Final Completion compile two (2) copies of each required warranty and bond properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

D. Schedule: Provide warranties on products and installations as indicated and specified in each Specification Section relating to each product.

E. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: General cleaning during construction is required by the General Conditions and included in Section 01 50 00 "TEMPORARY FACILITIES".

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
   1. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.
      a. Remove labels that are not permanent labels.
      b. Clean transparent materials. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
      c. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.
      d. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

C. Removal of Protection: Remove temporary protection and facilities installed for protection of the work during construction.

D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner.

1. Where extra materials of value remaining after completion of associated Work have become the Owner's property, arrange for disposition of these materials as directed.

E. If the General Contractor fails to demonstrate a commitment to accomplish the required cleaning in an orderly, timely fashion, the Owner reserves the right to employ a professional cleaning service, and to deduct any costs thereof from the General Contractor's contract amount.

3.2 WARRANTY PROCEDURES

A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result of such failure or that must be removed and replaced to provide access for correction of warranted Work.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the owner has benefited from use of the Work through a portion of its anticipated useful service life.

D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required

on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

END OF SECTION 01 77 00

SECTION 01 78 00 - WARRANTIES AND BONDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section specifies general administrative and procedural requirements for warranties and bonds required by the Contract Documents, including manufacturer’s standard warranties on products and special warranties.
   1. Refer to the General Conditions for terms of the Contractor’s special warranty of workmanship and materials.
   2. General close-out requirements are included in Section 01 77 00 “Project Closeout.”
   3. Specific requirements for warranties for the Work and products and installations that are specified to be warranted, are included in the individual Sections of Divisions - 2 through - 32.
   4. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

B. Disclaimers and Limitations: Manufacturer’s disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products, nor does it relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.3 DEFINITIONS

A. Standard Product Warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the owner.

B. Special Warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.4 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting warranted Work that has failed, remove and replace other Work that has been damaged as a result

of such failure or that must be removed and replaced to provide access for correction of warranted Work.

B. Reinstatement of Warranty: When work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of Contract Documents. The General Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the owner has benefited from use of the Work through a portion of its anticipated useful service life.

D. Owner's Recourse: Written warranties made to the Owner are in addition to implied warranties, and shall not limit the duties, obligations, rights and remedies otherwise available under the law, nor shall warranty periods be interpreted as limitations on time in which the Owner can enforce such other duties, obligations, rights, or remedies.
   1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

E. The Owner reserves the right to refuse to accept Work for the Project where a special warranty, certification, or similar commitment is required on such Work or part of the Work, until evidence is presented that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

A. Submit written warranties to the Architect prior to the date certified for Substantial Completion. If the Architect's Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect.
   1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the General Contractor during the construction period, submit properly executed warranties to the Architect within fifteen (15) days of completion of that designated portion of the Work.

B. When a special warranty is required to be executed by the General Contractor, or a subcontractor, supplier or manufacturer, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner through the Architect for approval prior to final execution.

C. Form of Submittal: At Final Completion compile two (2) copies of each required warranty and bond properly executed by the General Contractor, or by the subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manuals.

PART 2 - PRODUCTS (Not Applicable).

PART 3 - EXECUTION

3.1 SCHEDULE OF WARRANTIES

A. Schedule: Provide warranties on products and installations as specified in each Section relating to each product.

END OF SECTION 01 78 00

SECTION 01 78 23 – OPERATIONS AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for operation and maintenance manuals, including the following:

1. Preparing and submitting operation and maintenance manuals for building operating systems and equipment.
2. Preparing and submitting instruction manuals covering the care, preservation, and maintenance of architectural products and finishes.

B. The following Sections contain requirements that relate to this Section:

1. Division 01 Section 01 33 00 "Submittal Procedures" specifies preparation of Shop Drawings and Product Data.
2. Division 01 Section 01 77 00 "Closeout Procedures" specifies general closeout requirements.
3. Division 01 Section 01 78 00 "Warranties and Bonds" specifies requirements for submittal of warranties and bonds.
4. Division 01 Section 01 91 00 “Commissioning” specifies requirements for submittals related Commissioning.
5. Appropriate Sections of Divisions 02 through 32 specify special operation and maintenance data requirements for specific pieces of equipment or building operating systems.

1.3 QUALITY ASSURANCE

A. Maintenance Manual Preparation: In preparation of maintenance manuals, use personnel thoroughly trained and experienced in operation and maintenance of equipment or system involved. Where maintenance manuals require written instructions, use personnel skilled in technical writing where necessary for communication of essential data.

1. Where maintenance manuals require drawings or diagrams, use draftsmen capable of preparing drawings clearly in an understandable format.

B. Instructions for the Owner Personnel: The General Contractor must use experienced instructors thoroughly trained and experienced in operation and maintenance of equipment or system involved, to instruct the Owner's operation and maintenance personnel.

C. Commissioning (Cx) Coordination: The Commissioning process requires detailed O&M documentation. The Contractor must submit O&M manuals to the Construction Administrator for review and approval by Commissioning Agent (CxA).

1.4 SUBMITTALS

A. Submittal Schedule: Comply with the following schedule for submitting operation and maintenance manuals:

1. Before Substantial Completion, when each installation that requires operation and maintenance manuals is nominally complete, submit **one (1)** electronic draft copy of each manual to the Architect for review. Include a complete index or table of contents of each manual.

2. After final inspection, make corrections or modifications to comply with the Commissioning Agent's (CxA), and Architect's comments. Submit **two (2)** final hardcopies and **one (1)** electronic copy to the Owner's Representative within **twenty-one (21)** calendar days of receipt of the Commissioning Agent's (CxA), and Architect's comments.

B. Form of Submittal: Prepare operation and maintenance manuals in the form of an instructional manual for use by the Owner's operating personnel. Organize into suitable sets of manageable size. Where possible, assemble instructions for similar equipment into a single binder.

1. Binders: For each manual, provide heavy-duty, commercial-quality, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to receive 8-1/2-by-11- inch paper. Provide a clear plastic sleeve on the spine to hold labels describing contents. Provide pockets in the covers to receive folded sheets.

   Where two (2) or more binders are necessary to accommodate data, correlate data in each binder into related groupings according to the Project Manual table of contents. Cross-reference other binders where necessary to provide essential information for proper operation or maintenance of the piece of equipment or system.

   a. Identify each binder on front and spine, with the printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter covered. Indicate volume number for multiple volume sets of manuals.

   b. Dividers: Provide heavy paper dividers with celluloid-covered tabs for each separate section. Mark each tab to indicate contents. Provide a typed description of the product and major parts of equipment included in the section on each divider.

c. Protective Plastic Jackets: Provide protective, transparent, plastic jackets designed to enclose diagnostic software for computerized electronic equipment.

d. Text Material: Where maintenance manuals require written material, use the manufacturer's standard printed material. If manufacturer's standard printed material is not available, provide specially prepared data, neatly typewritten, on 8-1/2-by-11-inch, 20-lb/sq ft white bond paper.

4. Drawings: Where maintenance manuals require drawings or diagrams, provide reinforced, punched binder tabs on drawings and bind in with text.

a. Where oversize drawings are necessary, fold drawings to the same size as text pages and use as a foldout.

If drawings are too large to be used practically as a foldout, place the drawing, neatly folded, in front or rear pocket of binder. Insert a typewritten page indicating drawing title, description of contents, and drawing location at the appropriate location in the manual.

1.5 MANUAL CONTENT

A. In each manual include information specified in the individual Specification Section and the following information for each major component of building equipment and its controls:

1. General system or equipment description.
1. Design factors and assumptions.
2. Copies of applicable shop drawings and product data.
3. System or equipment identification, including:
   a. Name of manufacturer.
   b. Model number.
   c. Serial number of each component.
4. Operating instructions.
5. Emergency instructions.
6. Wiring diagrams.
7. Inspection and test procedures.
8. Maintenance procedures and schedules.
9. Precautions against improper use and maintenance.
10. Copies of warranties.
11. Repair instructions including spare parts listing.
12. Sources of required maintenance materials and related services.
13. Manual index.

B. Organize each manual into separate sections for each piece of related equipment. As a minimum, each manual shall contain a title page; a table

of contents; copies of product data, supplemented by drawings and written text; and copies of each warranty, bond, and service contract issued.

1. Title Page: Provide a title page in a transparent, plastic envelope as the first sheet of each manual. Provide the following information:
   a. Subject matter covered by the manual.
   a. Name and address of the Project.
   b. Date of submittal.
   c. Name, address, and telephone number of the General Contractor.
   d. Name and address of the Architect and Owner's Representative.
   e. Cross-reference to related systems in other operation and maintenance manuals.
2. Table of Contents: After title page, include a typewritten table of contents for each volume, arranged systematically according to the Project Manual format. Include a list of each product included, identified by product name or other appropriate identifying symbol and indexed to the content of the volume.
   a. Where a system requires more than one volume to accommodate data, provide a comprehensive table of contents for all volumes in each volume of the set.

   Provide a general information section immediately following table of contents, listing each product included in the manual, identified by product name. Under each product, list the name, address, and telephone number of the subcontractor or Installer and the maintenance subcontractor. Clearly delineate the extent of responsibility of each of these entities. Include a local source for replacement parts and `equipment.
3. Product Data**:** Where the manuals include manufacturer's standard printed data, include only sheets that are pertinent to the part or product installed. Mark each sheet to identify each part or product included in the installation. Where the Project includes more than one (1) item in a tabular format, identify each item, using appropriate references from the Contract Documents. Identify data that is applicable to the installation, and delete references to information that is not applicable.
4. Written Text: Prepare written text to provide necessary information where manufacturer's standard printed data is not available, and the information is necessary for proper operation and maintenance of equipment or systems. Prepare written text where it is necessary to provide additional information or to supplement data included in the manual. Organize text in a consistent format under separate headings for different procedures. Where necessary, provide a logical sequence of instruction for each operation or maintenance procedure.

5. Drawings: Provide specially prepared drawings where necessary to supplement manufacturer's printed data to illustrate the relationship of component parts of equipment or systems or to provide control or flow diagrams. Coordinate these drawings with information contained in project record drawings to assure correct illustration of the completed installation.

   a**.** Do not use original Record Documents as part of operation and maintenance manuals.

6. Warranties and/or Bonds: Provide a copy of each warranty and/or bond in the appropriate manual for the information of the Owner's operating personnel. Provide written data outlining procedures to follow in the event of product failure. List circumstances and conditions that would affect validity of warranty or bond.

1.6 MATERIAL AND FINISHES MAINTENANCE MANUAL

A. Submit **two (2)** hardcopies of each manual, in final form, on material and finishes to the Owner's Representative for distribution. Provide **one (1)** section for architectural products, including applied materials and finishes. Provide a second section for products designed for moisture protection and products exposed to the weather.

   1**.** Refer to individual Specification Sections for additional requirements on care and maintenance of materials and finishes.

B. Architectural Products**:** Provide manufacturer's data and instructions on care and maintenance of architectural products, including applied materials and finishes.

   1. Manufacturer's Data: Provide complete information on architectural products, including the following, as applicable:

      a. Manufacturer's catalog number.

      b. Size.

      c. Material composition.

      d. Color.

      e. Texture.

      f. Reordering information for specially manufactured products.

   2. Care and Maintenance Instructions: Provide information on care and maintenance, including manufacturer's recommendations for types of cleaning agents to be used and methods of cleaning. Provide information on cleaning agents and methods that could prove detrimental to the product. Include manufacturer's recommended schedule for cleaning and maintenance.

C. Moisture Protection and Products Exposed to the Weather**:** Provide complete manufacturer's data with instructions on inspection, maintenance, and repair of products exposed to the weather or designed for moisture-protection purposes.

   1**.** Manufacturer's Data: Provide manufacturer's data giving detailed information, including the following, as applicable:

a. Applicable standards.

a. Chemical composition.

b. Installation details.

c. Inspection procedures.

d. Maintenance information.

e. Repair procedures.

1.7 EQUIPMENT AND SYSTEMS MAINTENANCE MANUAL

A. Submit **two (2)** copies of each manual, in final form, on equipment and systems to the Owner's Representative for distribution. Provide separate manuals for each unit of equipment, each operating system, and each electric and electronic system.

1**.** Refer to individual Specification Sections for additional requirements on operation and maintenance of the various pieces of equipment and operating systems.

B. Equipment and Systems**:** Provide the following information for each piece of equipment, each building operating system, and each electric or electronic system.

1. Description: Provide a complete description of each unit and related component parts, including the following:

a. Equipment or system function.

b. Operating characteristics.

c. Limiting conditions.

d. Performance curves.

e. Engineering data and tests.

f. Complete nomenclature and number of replacement parts.

2. Manufacturer's Information: For each manufacturer of a component part or piece of equipment, provide the following:

a. Printed operation and maintenance instructions.

b. Assembly drawings and diagrams required for maintenance.

c. List of items recommended to be stocked as spare parts.

3. Maintenance Procedures**:** Provide information detailing essential maintenance procedures.

4. Operating Procedures: Provide information on equipment and system operating procedures, including the following:

a. Startup procedures.

b. Equipment or system break-in.

c. Routine and normal operating instructions.

d. Regulation and control procedures.

e. Instructions on stopping.

f. Shutdown and emergency instructions.

g. Summer and winter operating instructions.

h. Required sequences for electric or electronic systems.

i. Special operating instructions.

5. Servicing Schedule: Provide a schedule of routine servicing and lubrication requirements, including a list of required lubricants for equipment with moving parts.

6. Controls: Provide a description of the sequence of operation and as-installed control diagrams by the control manufacturer for systems requiring controls.

7. Identification Drawings: Provide each Subcontractor's Identification Drawings.

a. Provide as-installed, color-coded, piping diagrams, where required for identification.

8. Valve Tags: Provide charts of valve-tag numbers, with the location and function of each valve.

9. Circuit Directories: For electric and electronic systems, provide complete circuit directories of panel boards, including the following:

a. Controls.

b. Communication.

C. Electronic Media:

1. For equipment which requires maintenance by operational personnel, provide a professionally developed video tape of the training session for the use of maintenance training for the facility. Each electronic video file will be accompanied by a written index which can be utilized to find any specific item of information by time or place on the video file.

2. The General Contractor is responsible for this production. This video file will be provided to the Owner's Representative removable USB storage drive at the same time as the delivery of the other maintenance material.

3. The video file must be able to be edited for future changes to the equipment and modifications as they occur.

1.8 COMMISSIONING RECORD AND TESTING DATA MANUAL

1. The Contractor shall cooperate with Commissioning Agent (CxA) in the preparation of a separate Manual dedicated to documenting the Commissioning process which will include all certifications and testing data and some repeating of O&M data. Description of this Manual is found in Section 01 91 00 Commissioning and shall be prepared by the Commissioning Agent (CxA).

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 78 23

SECTION 01 79 00 - DEMONSTRATION AND TRAINING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
   1. Demonstration of operation of systems, subsystems, and equipment.
   2. Training in operation and maintenance of systems, subsystems, and equipment.
   3. Demonstration and training sessions submitted in electronic media (flash drives)

B. Related Sections include the following:
   1. Section 01 31 00 "Project Coordination" for requirements for Pre-Instruction Conferences
   2. Section 01 91 00 – General Commissioning Requirements
   3. Individual Sections for specific requirements for demonstration and training for products in those Sections.

1.3 SUBMITTALS

A. Instruction Program: Submit two (2) copies of outline of instructional program for demonstration and training, including a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
   1. At completion of training, submit one (1) complete training manual(s) for Owner's use.
   2. Format for electronic media to be thumb drives.

B. Qualification Data: For facilitator.

C. Attendance Record: For each training module, submit list of participants and length of instruction time.

D. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

E. **Demonstration and Training Digital Video Electronic Media (thumb drives)**: Submit two (2) electronic copies within seven (7) days of end of each training session.
   1. Identification: On each submission, provide with the following information:
      a. Name of Project.
      b. Name of Architect and Owner
      c. Name of Contractor
      d. Date material was recorded
      e. Description of recorded session.

1.4 QUALITY ASSURANCE

A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.

B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Division 01 Section 01 40 00 "Quality Requirements," experienced in operation and maintenance procedures, videography, and training.

C. Pre-Instruction Conference: Conduct conference at Project site. Review methods and procedures related to demonstration and training including, but not limited to, the following:
   1. Inspect and discuss locations and other facilities required for instruction.
   2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
   3. Review required content of instruction.
   4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.5 COORDINATION

A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations.

B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.

C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been

reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

A. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual Specification Sections, and as follows:

1. Fire alarm systems
2. Fire suppression systems
3. Electronic security systems
4. Heat generation, including boilers, feedwater equipment, pumps, distribution piping, and water distribution piping.
5. Refrigeration systems, including chillers, condensers, pumps, all distribution piping.
6. HVAC systems, including air-handling equipment, air distribution systems, and terminal equipment and devices.
7. HVAC instrumentation and controls.
8. Electrical service and distribution, including transformers, switchboards, panel boards, uninterruptible power supplies, emergency generators, and motor controls.
9. Lighting equipment and controls.
10. Communication systems, including intercommunication, voice and data, and integrated technology equipment.
11. Plumbing systems and equipment, including hot water heaters, pumps and systems, booster pumps, treatment systems.

B. Training Modules: Develop a learning objective and teaching outline for each session. Include a description of specific skills and knowledge that participant is expected to master. For each session, include instruction for the following:

1. Basis of System Design, Operational Requirements, and Criteria: Include the following:

    a. System, subsystem, and equipment descriptions.
    b. Performance and design criteria if Contractor is delegated design responsibility.
    c. Operating standards.
    d. Regulatory requirements.
    e. Equipment function.
    f. Operating characteristics.
    g. Limiting conditions.

h. Performance curves.

2. Documentation: Review the following items in detail:

   a. Emergency manuals.
   b. Operations manuals.
   c. Maintenance manuals.
   d. Project Record Documents.
   e. Identification systems.
   f. Warranties and bonds.
   g. Maintenance service agreements and similar continuing commitments.

3. Emergencies: Include the following, as applicable:

   a. Instructions on meaning of warnings, trouble indications, and error messages.
   b. Instructions on stopping.
   c. Shutdown instructions for each type of emergency.
   d. Operating instructions for conditions outside of normal operating limits.
   e. Sequences for electric or electronic systems.
   f. Special operating instructions and procedures.

4. Operations: Include the following, as applicable:

   a. Startup procedures.
   b. Equipment or system break-in procedures.
   c. Routine and normal operating instructions.
   d. Regulation and control procedures.
   e. Control sequences.
   f. Safety procedures.
   g. Instructions on stopping.
   h. Normal shutdown instructions.
   i. Operating procedures for emergencies.
   j. Operating procedures for system, subsystem, or equipment failure.
   k. Seasonal and weekend operating instructions.
   l. Required sequences for electric or electronic systems.
   m. Special operating instructions and procedures.

5. Adjustments: Include the following:

   a. Alignments.
   b. Checking adjustments.
   c. Noise and vibration adjustments.
   d. Economy and efficiency adjustments.

6. Troubleshooting: Include the following:

   a. Diagnostic instructions.
   b. Test and inspection procedures.

7. Maintenance: Include the following:

a. Inspection procedures.
b. Types of cleaning agents to be used and methods of cleaning.
c. List of cleaning agents and methods of cleaning detrimental to product.
d. Procedures for routine cleaning
e. Procedures for preventive maintenance.
f. Procedures for routine maintenance.
g. Instruction on use of special tools.

8. Repairs: Include the following:

a. Diagnosis instructions.
b. Repair instructions.
c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
d. Instructions for identifying parts and components.
e. Review of spare parts needed for operation and maintenance.

PART 3 - EXECUTION

3.1 PREPARATION

A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a combined training manual.

B. Set up instructional equipment at instruction location.

3.2 INSTRUCTION

A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.

B. Provide manufacturer's instructors or instructors certified by manufacturer as being experienced in operation and maintenance procedures for each system, subsystem, or piece of equipment to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Engineer will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.
2. Owner will furnish an instructor to describe Owner's operational philosophy.

3. Owner will furnish Contractor with names and positions of participants.

C. Scheduling: Provide instruction at mutually agreed on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.

1. Schedule training with Owner through General Contractor and CxA with at least fourteen (14) days' advance notice.
2. Schedule training to conform to personnel availability at Site and to conclude prior to start up of system.

D. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of an oral and/or a demonstration performance-based test.

E. In addition to written technical descriptions, training shall detail training program to allow those who have completed training to provide training for new employees resulting in self-perpetuating training program.

F. Cleanup: Collect used and leftover educational materials and give to Owner. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

3.3 DEMONSTRATION AND TRAINING VIDEOTAPES

A. General: Engage a qualified commercial photographer to record demonstration and training videos. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.

1. At beginning of each training module, record each chart containing learning objective and lesson outline.

B. Video Format: Provide high-quality video in electronic format (thumb drives).

C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to show area of demonstration and training.

D. Narration: Describe scenes on videotape by audio narration by microphone while video is recorded. Include description of items being viewed. Describe vantage point, indicating location, direction (by compass point), and elevation or story of construction.

E. As part of training, devote one (1) lesson plan to reviewing of video to allow new employees to view tape at their own convenience and be able to comprehend system without need for instructor in attendance.

END OF SECTION 01 79 00

SECTION 01 91 00 - GENERAL COMMISSIONING REQUIREMENTS

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

B. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 - GENERAL REQUIREMENTS which are hereby made a part of this Section of the Specifications.

C. Examine all other Sections of the Specifications for requirements which affect work of this Section whether or not such work is specifically mentioned in this Section.

D. Coordinate work with that of all other trades affecting or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under Contract.

1.2 WORK TO BE PERFORMED

A. Commissioning work includes, but is not limited to:

1. Coordinate and assist with the Owner's separate Commissioning Agent / Authority Plan as indicated in this Section.
2. Attend meetings and walk-throughs as necessary.
3. Provide checklists and additional requirements included in this section for the Owner's separate Commissioning Agent / Authority.

1.3 DESCRIPTION

A. Commissioning: Commissioning is a systematic process of ensuring that all building systems perform interactively according to the design intent and the owner’s operational needs. This is achieved by beginning in the design phase and documenting design intent and continuing through construction, acceptance and the warranty period with actual verification of performance. The commissioning process shall encompass and coordinate the traditionally separate functions of system documentation, equipment startup, control system calibration, testing and balancing, performance testing and training.

B. Commissioning during the construction phase is intended to achieve the following specific objectives according to the Contract Documents:

1. Verify that applicable equipment and systems are installed according to the manufacturer's
2. Recommendations and to industry accepted minimum standards and that they receive adequate operational checkout by installing contractors.
3. Verify and document proper performance of equipment and systems.
4. Verify that O&M documentation left on site is complete.
5. Verify that the Owner's operating personnel are adequately trained.

C. The commissioning process does not take away from or reduce the responsibility of the system designers or installing contractors to provide a finished and fully functioning product.

D. Abbreviations: The following are common abbreviations used in the Specifications and in the Commissioning Plan. Definitions are found in Section 1.7.

1. A/E Architect / Engineer
2. CA Commissioning Authority
3. CC Controls Contractor
4. CM Construction Manager
5. Cx Commissioning
6. EC Electrical Contractor
7. FPT Functional Performance Test
8. GC General Contractor
9. MC Mechanical Contractor
10. PC Prefunctional Checklist
11. PM Project Manager (Owner)
12. TAB Test and Balance Contractor

1.4 COORDINATION

A. Commissioning Team: The members of the commissioning team consist of the Commissioning authority (CA), the Project Manager (PM), the architect and design engineers (particularly the mechanical engineer), the Mechanical Contractor (MC), the Electrical Contractor (EC), the TAB representative, the Controls Contractor (CC), any other installing subcontractors or suppliers of equipment. If known, the Owner's building or plant operator/engineer is also a member of the commissioning team.

B. Management: The CA is hired by the Owner directly. The CA directs and coordinates the commissioning activities and the reports to the CM/GC and the owner's representative, and is part of the CM team.

All members work together to fulfill their contracted responsibilities and meet the objectives of the Contract Documents.

C. Scheduling: The CA will work with the CM according to established protocols to schedule the commissioning activities. The CA will provide sufficient notice to the CM for scheduling commissioning activities. The CM will integrate all commissioning activities into the master schedule. All parties will address scheduling problems and make necessary notifications in a timely manner in order to expedite the commissioning process.

D. The CA will provide the initial schedule of primary commissioning events at the commissioning scoping meeting. The Commissioning Plan-Construction Phase provides a format for this schedule. As construction progresses more detailed schedules are developed by the CA. The Commissioning Plan also provides a format for detailed schedules.

1.5 COMMISSIONING PROCESS

A. Commissioning Plan: The commissioning plan provides guidance in the execution of the commissioning process. Just after the initial commissioning meeting the CA will update the plan, which is then considered the “final” plan, though it will continue to evolve and expand as the project progresses.

A. Commissioning Process: The following narrative provides a brief overview of the typical commissioning tasks during construction and the general order in which they occur.

a. Commissioning during construction begins with a meeting conducted by the CA where the commissioning process is reviewed with the commissioning team members.

b. Additional meetings will be required throughout construction, scheduled by the CA with necessary parties attending, to plan, scope, coordinate, schedule future activities and resolve problems.

c. Approved Equipment documentation is submitted to the CA during normal submittals, including detailed start-up procedures.

d. The CA works with the Subs, including providing the Subs with pre-functional checklists to be completed, during the startup process.

e. In general, the checkout and performance verification proceeds from simple to complex; from component level to equipment to systems and intersystem levels with pre-functional checklists being completed before functional testing.

f. The Subs, under their own direction, execute and document the

pre-functional checklists and perform startup and initial checkout. The CA documents that the checklists and startup were completed according to the approved plans. This may include the CA witnessing start-up of selected equipment.

g. The CA develops specific equipment and system functional performance test procedures. The Subs review the procedures.

h. The procedures are executed by the Subs, under the direction of, and documented by the CA.

i. Items of non-compliance in material, installation or setup are corrected at the Sub's expense and the system retested.

j. The CA reviews the O&M documentation for completeness.

k. Commissioning is completed before Substantial Completion as directed by the CM in accordance with the project schedule.

l. The CA reviews, comments on, and helps coordinate the training provided by the Subs and verifies that is was completed.

m. Deferred testing is conducted, as specified or required.

1.6 RESPONSIBILITIES

A. All Parties

1. Follow the Commissioning Plan.

2. Attend commissioning meetings and additional meetings, as necessary.

B. Architect (or A/E)

A. Construction and Acceptance Phase

a. Attend the commissioning meeting and selected commissioning team meetings.

b. Perform normal submittal review, construction observation, as-built drawing preparation, O&M manual preparation, etc., as contracted.

c. Provide any design narrative documentation requested by the CA.

d. Coordinate resolution of system deficiencies identified during commissioning, according to the contract documents.

e. Review and approve the O&M manuals.

f. Warranty Period

1) Coordinate resolution of design non-conformance and design deficiencies identified during warranty-period

commissioning.

C. Mechanical and Electrical Designers/Engineers (of the A/E)

A. Construction and Acceptance Phase

a. Perform normal submittal review, construction observation, as-built drawing preparation, etc., as contracted. One site observation should be completed just prior to system startup.

b. Provide any design narrative and sequences documentation requested by the CA. The designers shall assist (along with the contractors) in clarifying the operation and control of commissioned equipment in areas where the specifications, control drawings or equipment documentation is not sufficient for writing detailed testing procedures.

c. Attend commissioning meetings and other selected commissioning team meetings.

d. Participate in the resolution of system deficiencies identified during commissioning, according to the contract documents.

e. Review and approve the O&M manuals.

f. Provide a presentation at one of the training sessions for the Owner's personnel.

g. Review the pre-functional checklists for major pieces of equipment for sufficiency prior to their use.

h. Review the functional test procedure forms for major pieces of equipment for sufficiency prior to their use.

i. Warranty Period

1) Participate in the resolution of non-compliance, non-conformance and design deficiencies identified during commissioning during warranty-period commissioning.

D. Commissioning Authority (CA)

A. The CA is not responsible for design concept, design criteria, compliance with codes, design or general construction scheduling, cost estimating, or construction management. The CA may assist with problem solving non-conformance or deficiencies, but ultimately that responsibility resides with the general contractor and the A/E. The primary role of the CA is to develop and coordinate the execution of a testing plan, observe and document performance that systems are functioning in accordance with the documented design intent and in accordance with the Contract Documents. The Contractors will provide all tools or the use of tools to start, checkout and functionally test equipment and systems, except for specified testing with portable data-loggers, which shall be supplied and installed by the CA.

B. Construction and Acceptance Phase

a. Coordinates and directs the commissioning activities in a logical, sequential and efficient manner using consistent protocols and forms, centralized documentation, clear and regular communications and consultations with all necessary parties, frequently updated timelines and schedules and technical expertise.

b. Coordinate the commissioning work and, with the CM, ensure that commissioning activities are being scheduled into the master schedule.

c. Update commissioning plan as required.

d. Plan and conduct a commissioning meeting and other commissioning meetings.

e. Request and review additional information required to perform commissioning tasks, including O&M materials, contractor start-up and checkout procedures.

f. Before startup, gather and review the current control sequences and interlocks and work with contractors and design engineers until sufficient clarity has been obtained, in writing, to be able to write detailed testing procedures.

g. Review approved Contractor submittals applicable to systems being commissioned for compliance with commissioning needs, concurrent with the A/E reviews.

h. Write and distribute pre-functional tests and checklists.

i. Perform site visits, as necessary, to observe component and system installations. Attends selected planning and job-site meetings to obtain information on construction progress. Review construction meeting minutes for revisions/substitutions relating to the commissioning process. Assist in resolving any discrepancies. Responsibility for deficiency resolution shall remain that of the A/E and the CM.

j. Approve pre-functional tests and checklist completion by reviewing pre-functional checklist reports and by selected site observation and spot-checking.

k. Document systems startup by reviewing completed start-up reports and by selected site observation.

l. Review TAB execution plan.

m. Review completed TAB reports and comment as required.

n. With necessary assistance and review from installing contractors, write the functional performance test procedures for equipment and systems. This may include energy management control system trending, stand-alone data logger monitoring or manual functional testing. Submit

to CM for review, and for approval if required.

o. Analyze any functional performance trend logs and monitoring data to verify performance.

p. Coordinate with the CM, witness and approve manual functional performance tests performed by installing contractors. CM to coordinate all retesting as necessary until satisfactory performance is achieved.

q. Maintain a master deficiency and resolution log and a separate testing record. Provide the CM with written progress reports and test results with recommended actions.

r. Review equipment warranties to ensure that the Owner's responsibilities are clearly defined.

s. Review contractor training of the Owner's operating personnel for completeness and compliance with the respective contract requirements.

t. Compile and maintain a commissioning record.

u. Review O&M manuals as submitted by the contractors for completeness and compliance with the respective contract requirements.

v. Provide a final commissioning report (as described in this section).

w. Prepare a standard trend logging package of primary parameters that will provide the operations staff clear indications of system function in order to identify proper system operation and trouble shoot problems. The CA shall also provide any needed information on interpreting the trends.

x. Warranty Period

1) Coordinate and supervise required seasonal or deferred testing and deficiency corrections.

2) Return to the site at 10 months into the 12 month warranty period and review with facility staff the current building operation and the condition of outstanding issues related to the original and seasonal commissioning. Also interview facility staff and identify problems or concerns they have operating the building as originally intended.

3) Make suggestions for improvements and for recording these changes in the O&M manuals. Identify areas that may come under warranty or under the original construction contract

E. General Contractor (CM)

A. Construction and Acceptance Phase

a. Facilitate the coordination of the commissioning work by the CA, and with the CA, ensure that commissioning activities are being scheduled into the master schedule.
b. Include the cost of commissioning in the total contract price.
c. In each purchase order or subcontract written, include requirements for submittal data, O&M data, commissioning tasks and training.
d. Ensure that all Subs execute their commissioning responsibilities according to the Contract Documents and schedule.
e. Review and approve the final Commissioning Plan-Construction Phase.
f. Attend a commissioning scoping meeting and other commissioning team meetings.
g. Perform the normal review of Contractor submittals.
h. Furnish a copy of all construction documents, addenda, change orders and approved submittals and shop drawings related to commissioned equipment to the CA.
i. Review and approve the functional performance test procedures submitted by the CA, prior to testing.
j. When necessary, observe and witness prefunctional checklists, startup and functional testing of selected equipment.
k. Review commissioning progress and deficiency reports.
l. Coordinate the resolution of non-compliance and design deficiencies identified in all phases of commissioning.
m. Sign-off (final approval) on individual commissioning tests as completed and passing. Recommend completion of the commissioning process to the Project Manager.
n. Oversee and coordinate the preparation of O&M manuals, according to the Contract Documents, including the clarification and updating of the original sequences of operation to as-built conditions.
o. Coordinate the training of owner personnel.
p. Warranty Period
    1) Assist the CA as necessary in the seasonal or deferred testing and deficiency corrections required by the specifications.

F. Owner's Project Manager (PM)

A. Construction and Acceptance Phase
a. Manage the contract of the A/E and of the CM.
b. Arrange for facility operating and maintenance personnel to

attend various field commissioning activities and field training sessions according to the Commissioning Plan-Construction Phase.

c. Provide final approval for the completion of the commissioning work.

d. Warranty Period

1) Ensure that any seasonal or deferred testing and any deficiency issues are addressed.

G. Subcontractor

A. Construction and Acceptance Phase

a. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the Owner to keep warranties in force.

b. Provide Start-up and Pretest Checklists Reports

c. Assist in all pre-functional testing for equipment that the subcontractor is responsible for.

d. Include all special tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment according to these Contract Documents in the base bid price to the Contractor, except for stand-alone data logging equipment that may be used by the CA.

e. Provide information requested by CA (through the CM) regarding equipment sequence of operation and testing procedures.

f. Review test procedures created by the CA and comment as necessary.

g. A representative shall attend commissioning meetings and other necessary meetings scheduled by the CA to facilitate the Cx process.

h. Resolve deficiencies identified in all phases of commissioning, as directed by the CM in accordance with the Contract Documents, and all applicable codes and standards.

i. Implement training of owner personnel according to the Contract Documents.

j. Prepare O&M manuals, according to the Contract Documents, including clarifying and updating the original sequences of operation to as-built conditions.

k. Provide specific as-built, maintenance, and one-line documentation for the development of the Systems Manual.

1) Warranty Period

(a) Ensure that Subs execute seasonal or

deferred functional performance testing, witnessed by the CA, according to the specifications.

(b) Correct deficiencies and make necessary adjustments to O&M manuals and as-built drawings for applicable issues identified in any seasonal testing.

H. Equipment Supplier / Vendor

A. Provide all requested submittal data, including detailed start-up procedures and specific responsibilities of the Owner to keep warranties in force.

B. Provide onsite assistance for all pre-functional testing for all equipment with integral packaged controls.

C. Perform equipment start-ups as requested by the responsible contractor, required as part of manufacturer warranty, or required by the Contract Documents.

D. Include all special tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment according to these Contract Documents in the base bid price to the Contractor, except for stand-alone datalogging equipment that may be used by the CA.

E. Resolve deficiencies identified in all phases of commissioning, as directed by the CM in accordance with the Contract Documents, and all applicable codes and standards.

F. Furnish all training requirements and materials for owner personnel in accordance with the Contract Documents.

G. Prepare O&M manuals, in accordance with the Contract Documents.

H. Furnish all warranty data in accordance with the Contract Documents

1.7 DEFINITIONS

A. Acceptance Phase - phase of construction after startup and initial checkout when functional performance tests, O&M documentation review and training occurs.

B. Approval - acceptance that a piece of equipment or system has been properly installed and is functioning in the tested modes according to the Contract Documents.

C. Architect / Engineer (A/E) - the prime consultant (architect) and sub-consultants who comprise the design team, generally the HVAC mechanical designer/engineer and the electrical designer/engineer.

D. Basis of Design - The basis of design is the documentation of the primary thought processes and assumptions behind design decisions that were made to meet the design intent. The basis of design describes the

systems, components, conditions and methods chosen to meet the intent. Some reiterating of the design intent may be included.

E. Commissioning Authority (CA) - an independent agent, not otherwise associated with the A/E team members or the Contractor, though he/she may be hired as a subcontractor to them. The CA directs and coordinates the day-to-day commissioning activities. The CA does not take an oversight role like the CM. The CA is part of the General Contractor (CM) team or shall report directly to the CM.

F. Commissioning Plan - an overall plan, developed before or after bidding that provides the structure, schedule and coordination planning for the commissioning process.

G. Contract Documents - the documents binding on parties involved in the construction of this project (drawings, specifications, change orders, amendments, contracts, Cx Plan, etc.).

H. Contractor - the general contractor or authorized representative.

I. Control system - the central building energy management control system.

J. General Contractor (CM) - a) the Owner's representative in the day-to-day activities of construction. In general, the construction management services contractor (CM) is hired by the Owner to assist the government in the overall management of the project including supervising and on-site managing authority over a project's construction. The General Contractor reports to the CM. The CM is the Owner's on-site representative.

K. Datalogging - monitoring flows, currents, status, pressures, etc. of equipment using stand-alone dataloggers separate from the control system.

L. Deferred Functional Tests - FTs that are performed later, after substantial completion, due to partial occupancy, equipment, seasonal requirements, design or other site conditions that disallow the test from being performed.

M. Deficiency - a condition in the installation or function of a component, piece of equipment or system that is not in compliance with the Contract Documents (that is, does not perform properly or is not complying with the design intent).

N. Design Intent - a dynamic document that provides the explanation of the ideas, concepts and criteria that are considered to be very important to the owner. It is initially the outcome of the programming and conceptual design phases.

O. Design Narrative or Design Documentation - sections of either the Design Intent or Basis of Design.

P. Factory Testing - testing of equipment on-site or at the factory, by factory personnel, with an Owner's representative present.

Q. Functional Performance Test (FT) - test of the dynamic function and operation of equipment and systems using manual (direct observation) or monitoring methods. Functional testing is the dynamic testing of systems (rather than just components) under full operation (e.g., the chiller pump is tested interactively with the chiller functions to see if the pump ramps up and down to maintain the differential pressure setpoint). Systems are tested under various modes, such as during low cooling or heating loads, high loads, component failures, unoccupied, varying outside air temperatures, fire alarm, power failure, etc. The systems are run through all the control system's sequences of operation and components are verified to be responding as the sequences state. Traditional air or water test and balancing (TAB) is not functional testing, in the commissioning sense of the word. TAB's primary work is setting up the system flows and pressures as specified, while functional testing is verifying that which has already been set up. The commissioning authority develops the functional test procedures in a sequential written form, coordinates, oversees and documents the actual testing, which is usually performed by the installing contractor or vendor. FTs are performed after prefunctional checklists and startup are complete.

R. Indirect Indicators - indicators of a response or condition, such as a reading from a control system screen reporting a damper to be 100% closed.

S. Manual Test - using hand-held instruments, immediate control system readouts or direct observation to verify performance (contrasted to analyzing monitored data taken over time to make the "observation").

T. Monitoring - the recording of parameters (flow, current, status, pressure, etc.) of equipment operation using data loggers or the trending capabilities of control systems.

U. Non-Compliance - see Deficiency.

V. Non-Conformance - see Deficiency.

W. Over-written Value - writing over a sensor value in the control system to see the response of a system (e.g., changing the outside air temperature value from 50F to 75F to verify economizer operation). See also "Simulated Signal."

X. Owner-Contracted Tests - tests paid for by the Owner outside the GC's contract and for which the CA does not oversee. These tests will not be repeated during functional tests if properly documented.

Y. Phased Commissioning - commissioning that is completed in phases (by floors, for example) due to the size of the structure or other scheduling issues, in order minimize the total construction time.

Z. Prefunctional Checklist (PC) - a list of items to inspect and elementary component tests to conduct to verify proper installation of equipment,

provided by the CA to the Sub. Prefunctional checklists are primarily static inspections and procedures to prepare the equipment or system for initial operation (e.g., belt tension, oil levels OK, labels affixed, gages in place, sensors calibrated, etc.). However, some prefunctional checklist items entail simple testing of the function of a component, a piece of equipment or system (such as measuring the voltage imbalance on a three phase pump motor of a chiller system). The word prefunctional refers to before functional testing. Prefunctional checklists augment and are combined with the manufacturer's start-up checklist. Even without a commissioning process, contractors typically perform some, if not many, of the prefunctional checklist items a commissioning authority will recommend. However, few contractors document in writing the execution of these checklist items. Therefore, for most equipment, the contractors execute the checklists on their own. The commissioning authority only requires that the procedures be documented in writing, and does not witness much of the prefunctional checklisting, except for larger or more critical pieces of equipment.

AA. Project Manager (PM) - the contracting and managing authority for the owner over the design and/or construction of the project, a staff position.

AB. Sampling. - Functionally testing only a fraction of the total number of identical or near identical pieces of equipment. Refer to Section 17100, Part 3.6, F for details.

AC. Seasonal Performance Tests - FT that are deferred until the system(s) will experience conditions closer to their design conditions.

AD. Simulated Condition - condition that is created for the purpose of testing the response of a system (e.g., applying a hair blower to a space sensor to see the response in a VAV box).

AE. Simulated Signal - disconnecting a sensor and using a signal generator to send an amperage, resistance or pressure to the transducer and DDC system to simulate a sensor value.

AF. Specifications - the construction specifications of the Contract Documents.

AG. Startup - the initial starting or activating of dynamic equipment includes executing prefunctional checklists.

AH. Subs - the subcontractors to the GC who provide and install building components and systems.

AI. Test Procedures - the step-by-step process, which must be executed to fulfill the test requirements. The CA develops the test procedures.

AJ. Test Requirements - requirements specifying what modes and functions, etc. shall be tested. The test requirements are not the detailed test procedures. The test requirements are specified in the

Contract Documents (Sections 15997; 16997, etc.).

AK. Trending - monitoring using the building control system.

AL. Vendor - supplier of equipment.

AM. Warranty Period - warranty period for entire project, including equipment components. Warranty begins at Substantial Completion and extends for at least one year, unless specifically noted otherwise in the Contract Documents and accepted submittals.

1.8 SYSTEMS TO BE COMMISSIONED

A. All Energy-related systems will be commissioned in this project.

B. HVAC Systems as further outlined below:
   1. Division 23 – Heating, Ventilating, and Air Conditioning systems further identified within Mechanical Drawings and Division 23 Specifications Sections including, but not limited to:
      a. Instrumentation and Controls for HVAC
      b. Sequence of Operations for HVAC
      c. Domestic Water Heat Exchangers
      d. Condensing Boilers
      e. Packaged Rooftop Air Conditioning Units
      f. Dedicated Outside Air Units
      g. Wariable Refrigerant Flow System
      h. Valance Heating and Cooling Units
      i. Radiators
      j. Unit Heaters

PART 2 - PRODUCTS

2.1 TEST EQUIPMENT

A. All standard testing equipment required to perform startup and initial checkout and required functional performance testing shall be provided by the Division contractor for the equipment being tested. For example, the mechanical contractor of Division 15 shall ultimately be responsible for all standard testing equipment for the HVAC system and controls system in Division 15, except for equipment specific to and used by TAB in their commissioning responsibilities.

B. Special equipment, tools and instruments (only available from vendor, specific to a piece of equipment) required for testing equipment, according to these Contract Documents shall be included in the base bid price to the Contractor and left on site, except for stand-alone datalogging equipment that may be used by the CA.

C. Datalogging equipment and software required to test equipment will be provided by the CA, but shall not become the property of the Owner.

D. All testing equipment shall be of sufficient quality and accuracy to test

and/or measure system performance with the tolerances specified in the Specifications. All equipment shall be calibrated according to the manufacturer's recommended intervals and when dropped or damaged. Calibration tags shall be affixed or certificates readily available.

PART 3 - EXECUTION

3.1 MEETINGS

A. Kick-off Meeting: The CA will schedule, plan and conduct a commissioning scoping meeting with the entire commissioning team in attendance. Meeting minutes will be distributed to all parties by the CA. Information gathered from this meeting will allow the CA to modify the Commissioning Plan to its "final" version, which will also be distributed to all parties.

B. Miscellaneous Meetings: Other meetings will be planned and conducted by the CA as construction progresses. These meetings will cover coordination, deficiency resolution and planning issues with particular Subs. The CA will plan these meetings and will minimize unnecessary time being spent by Subs. For large projects, these meetings may be held monthly, until the final 3 months of construction when they may be held as frequently as one per week. It is intended that the Commissioning meeting will be part of or a supplement to regularly scheduled subcontractor construction meetings (to be coordinated through the CM).

3.2 REPORTING

A. The CA will provide regular reports to the CM and the Owner's PM with increasing frequency as construction and commissioning progresses. Standard forms (Commissioning Action List) are provided and referenced in the Commissioning Plan.

B. The CA will regularly communicate with all members of the commissioning team (as directed by the owner and CM), keeping them apprised of commissioning progress and scheduling changes through memos, progress reports, etc.

C. Testing or review reports and non-conformance and deficiency reports are made regularly with the review and testing as described in later sections.

D. A final summary report by the CA will be provided to the Owner and CM, focused on the results of the commissioning process (process overview, issues summary, test documents, etc.). All acquired documentation, logs, minutes reports, deficiency lists, communications, findings, unresolved issues, etc., will be compiled in appendices and provided with the summary report. Prefunctional checklists, functional

tests and monitoring reports will not be part of the final report, but will be stored in the Commissioning Record in the O&M manuals.

3.3 SUBMITTALS

A. The CA will provide the CM with a specific request for the type of submittal documentation the CA requires facilitating the commissioning work. These requests will be integrated into the normal submittal process and protocol of the construction team. At minimum, the request will include the manufacturer and model number, the manufacturer's printed installation and detailed start-up procedures, full sequences of operation, O&M data, performance data, any performance test procedures, control drawings and details of owner contracted tests. In addition, the installation and checkout materials that are actually shipped inside the equipment and the actual field checkout sheet forms to be used by the factory or field technicians shall be submitted to the Commissioning authority. All documentation requested by the CA will be included by the Subs in their O&M manual contributions.

B. The Commissioning authority will review approved submittals related to the commissioned equipment for conformance to the Contract Documents as it relates to the commissioning process, to the functional performance of the equipment and adequacy for developing test procedures. This review is intended primarily to aid in the development of functional testing procedures and only secondarily to verify compliance with equipment specifications. The Commissioning authority will notify the CM, PM or A/E as requested, of items missing or areas that are not in conformance with Contract Documents and which require resubmission.

C. The CA may request additional design narrative from the A/E and Controls Contractor, depending on the completeness of the design intent documentation and sequences provided with the Specifications.

D. These submittals to the CA do not constitute compliance for O&M manual documentation. The O&M manuals are the responsibility of the Contractor, though the CA will review them.

3.4 START-UP, PREFUNCTIONAL CHECKLISTS AND INITIAL CHECKOUT

A. The following procedures apply to all equipment to be commissioned, according to Section 1.6, Systems to be Commissioned. Some systems that are not comprised so much of actual dynamic machinery, e.g., electrical system power quality, may have very simplified PCs and startup.

B. General: Prefunctional checklists are important to ensure that the equipment and systems are hooked up and operational. It ensures that functional performance testing (in-depth system checkout) may

proceed without unnecessary delays. Each piece of equipment receives full prefunctional checkout. No sampling strategies are used. The prefunctional testing for a given system must be successfully completed prior to formal functional performance testing of equipment or subsystems of the given system.

C. Start-up and Initial Checkout Plan: The appropriate contractor/manufacturer is responsible for developing detailed start-up plans for all equipment. The primary role of the CA in this process is to ensure that there is written documentation that each of the manufacturer-recommended procedures have been completed. Parties responsible for startup in accordance with the contract documents are identified in the commissioning scoping meeting and in the checklist forms. Responsibility for equipment start-up requirements, protocols, and reports shall be that of the appropriate contractor/manufacturer. CM to forward copies of the completed start-up documentation to the CA.

1. The CA adapts, if necessary, the representative prefunctional checklists and procedures from the Contract Document Requirements. These checklists indicate required procedures to be executed as part of startup and initial checkout of the systems and the party responsible for their execution.
2. It is the Contractor's responsibility to provide these checklists and tests. The Contractor determines which trade is responsible for executing and documenting each of the line item tasks and notes that trade on the form. Each form will have more than one trade responsible for its execution.
3. The subcontractor responsible for the purchase of the equipment develops the full start-up plan by combining the manufacturer's detailed start-up and checkout procedures from the O&M manual and the normally used field checkout sheets. The plan will include checklists and procedures with specific boxes or lines for recording and documenting the checking and inspections of each procedure and a summary statement with a signature block at the end of the plan.
4. The full start-up plan could consist of something as simple as:
    a. The manufacturer's or contractor's installation checklists.
    b. The manufacturer's standard written start-up procedures copied from the installation manuals with check boxes by each procedure and a signature block added by hand at the end.
    c. The Control Contractor's Point-to-Point Checkout Sheets.
        1) The subcontractor submits the full startup plan to the A/E, CM and CA for review.

2) The A/E, CM and CA review the procedures and the format for documenting them, noting any procedures that need to be added.

D. Execution of Prefunctional Checklists and Startup.

1. Prior to startup, the Subs and vendors schedule startup and checkout with the CM. The performance of the prefunctional checklists, startup and checkout are directed and executed by the Sub or vendor. When checking off prefunctional checklists, signatures may be required of other Subs for verification of completion of their work.

2. The Subs and vendors shall execute startup and provide the CA with a signed and dated copy of the completed start-up and prefunctional tests and checklists.

3. Only individuals that have direct knowledge and witnessed that a line item task on the prefunctional checklist was actually performed shall initial or check that item off. It is not acceptable for witnessing supervisors to fill out these forms.

4. Deficiencies, Non-Conformance and Approval in Checklists and Startup.

a. The Subs shall clearly list any outstanding items of the initial start-up and prefunctional procedures that were not completed successfully, at the bottom of the procedures form or on an attached sheet. The procedures form and any outstanding deficiencies are provided to the CA within two days of test completion.

b. The CA reviews the report and submits either a non-compliance report or an approval form to the Sub or CM. The CA shall work with the Subs and vendors through the CM to correct and retest deficiencies or uncompleted items. The installing Subs or vendors shall correct all areas that are deficient or incomplete in the checklists and tests in a timely manner, and shall notify the CM as soon as outstanding items have been corrected and resubmit an updated start-up report and a Statement of Correction on the original non-compliance report. When satisfactorily completed, the CA recommends approval of the execution of the checklists and startup of each system to the CM using a standard form.

c. Items left incomplete, which later cause deficiencies or delays during functional testing may result in back-charges to the responsible party to be determined by the CM. Refer to Part 3.7 herein for details.

3.5 PHASED COMMISSIONING

A. If the project requires startup and initial checkout to be executed in phases, this phasing will be planned and scheduled in a coordination meeting of the CA, CM, mechanical, TAB and controls contractors. Results will be added to the master and commissioning schedule.

3.6 FUNCTIONAL PERFORMANCE TESTING

A. This sub-section applies to all commissioning functional testing for all divisions.

B. Objectives and Scope: The objective of functional performance testing is to demonstrate that each system is operating according to the documented design intent and Contract Documents. Functional testing facilitates bringing the systems from a state of substantial completion to full dynamic operation. Additionally, during the testing process, areas of deficient performance are identified and corrected, improving the operation and functioning of the systems.

C. In general, each system should be operated through all modes of operation (seasonal, occupied, unoccupied, warm-up, cool-down, part- and full-load) where there is a specified system response. Verifying each sequence in the sequences of operation is required. Proper responses to such modes and conditions as power failure, freeze condition, low oil pressure, no flow, equipment failure, etc. shall also be tested. Specific modes required in this project are specified in the appropriate sections of the Contract Documents.

D. Development of Test Procedures: Before test procedures are written, the CA shall obtain all requested documentation and a current list of change orders affecting equipment or systems, including an updated points list, program code, control sequences and parameters. Using the testing parameters and requirements the appropriate sections of the Contract Documents, the CA shall develop specific test procedures and forms to verify and document proper operation of each piece of equipment and system. Each Sub or vendor responsible to execute a test shall provide limited assistance to the CA in developing the procedures review (answering questions about equipment, operation, sequences, etc.). Prior to execution, the CA shall provide a copy of the test procedures to the Sub(s) through the CM who shall review the tests for feasibility, safety, equipment and warranty protection. The CA may submit the tests to the A/E for review, if requested. The purpose of any given specific test is to verify and document compliance with the stated criteria of acceptance given on the test form as developed based on the Contract Documents. The test procedure forms developed by the CA shall include (but not be limited to) the following information, if applicable:

1. System and equipment or component name(s)

2. Equipment location and ID number
3. Unique test ID number, and reference to unique prefunctional checklist and start-up documentation ID numbers for the piece of equipment
4. Date
5. Project name
6. Participating parties
7. A copy of the specific sequence of operations or other specified parameters being verified
8. Formulas used in any calculations
9. Required pre-test field measurements
10. Instructions for setting up the test.
11. Special cautions, alarm limits, etc.
12. Specific step-by-step procedures to execute the test, in a clear, sequential and repeatable format
13. Acceptance criteria of proper performance with a Yes / No check box to allow for clearly marking whether or not proper performance of each part of the test was achieved.
14. A section for comments
15. Signatures and date block for the CA

E. Test Methods:

1. Functional performance testing and verification may be achieved by: 1) manual testing (persons manipulate the equipment and observe performance); 2) utilizing the control system by implementing a required control action and witnessing the subsequent equipment or system reaction; or 3) monitoring the performance and analyzing the results using the control system's trend log capabilities or by stand-alone data loggers. The CA will determine which method is most appropriate for tests that do not have a method specified.
2. Simulated Conditions: Simulating conditions shall be allowed, though timing the testing to experience actual conditions is encouraged wherever practical.
3. Overwritten Values: Overwriting sensor values to simulate a condition, such as overwriting the outside air temperature reading in a control system to be something other than it really is, shall be allowed, but shall be used with caution and avoided when possible. Such testing methods often can only test a part of a system, as the interactions and responses of other systems will be erroneous or not applicable. Simulating a condition is preferable. e.g., for the

above case, by heating the outside air sensor with a hair blower rather than overwriting the value or by altering the appropriate set point to see the desired response. Before simulating conditions or overwriting values, sensors, transducers and devices shall have been calibrated.

4. Simulated Signals: Using a signal generator which creates a simulated signal to test and calibrate transducers and DDC constants is generally recommended over using the sensor to act as the signal generator via simulated conditions or overwritten values.
5. Altering Set points: Rather than overwriting sensor values, and when simulating conditions is difficult, altering set points to test a sequence is acceptable. For example, to see the AC compressor lockout work at an outside air temperature below 55F, when the outside air temperature is above 55F, temporarily change the lockout set point to be 2F above the current outside air temperature.
6. Indirect Indicators: Relying on indirect indicators for responses or performance shall be allowed only after visually and directly verifying and documenting, over the range of the tested parameters, that the indirect readings through the control system represent actual conditions and responses. Much of this verification is completed during prefunctional testing.
7. Setup: Each function and test shall be performed under conditions that simulate actual conditions as close as is practically possible. The Sub executing the test shall provide all necessary materials, system modifications, etc. to produce the necessary flows, pressures, temperatures, etc. necessary to execute the test according to the specified conditions. At completion of the test, the Sub shall return all affected building equipment and systems, due to these temporary modifications, to their pre-test condition.
8. Sampling: Multiple identical pieces of non-life-safety or otherwise non-critical equipment may be functionally tested using a sampling strategy. Significant application differences and significant sequence of operation differences in otherwise identical equipment invalidates their common identity. It is noted that no sampling by Subs is allowed in prefunctional checklist execution. The example below describes a 20% Sampling-10% Failure Rule.
    a. Randomly test at least 20% of each group of identical equipment. In no case test less than three units in each group. This 20%, or three, constitute the “first sample.”
    b. If 10% of the units in the first sample fail the functional

performance tests, test another 20% of the group (the second sample).

c. If 10% of the units in the second sample fail, test all remaining units in the whole group.

d. If at any point, frequent failures are occurring and testing is becoming more troubleshooting than verification, the CA may stop the testing and notify the CM to require the responsible Sub to perform and document a checkout of the remaining units, prior to continuing with functionally testing the remaining units.

F. Coordination and Scheduling: The Subs shall provide sufficient notice to the CA regarding their completion schedule for the prefunctional checklists and startup of all equipment and systems. The CA will schedule functional tests through the CM. The CA shall direct, witness and document the functional testing of all equipment and systems. The Subs shall execute the tests.

G. In general, functional testing is conducted after prefunctional testing and startup has been satisfactorily completed. The control system check out/testing required for the TAB work shall be the responsibility of the controls and TAB contractor. The air balancing and water balancing is completed and debugged before functional testing of air-related or water-related equipment or systems. Testing proceeds from components to subsystems to systems. When the proper performance of all interacting individual systems has been achieved, the interface or coordinated responses between systems is checked.

H. Problem Solving: The CA will recommend solutions to problems found, however the burden of responsibility to solve, correct and retest problems is with the CM, Subs and A/E.

3.7 DOCUMENTATION, NON-CONFORMANCE AND APPROVAL OF TESTS

A. Documentation: The CA shall witness and document the results of all functional performance tests using the specific procedural forms developed for that purpose. Prior to testing, these forms are provided to the CM for review and approval and to the Subs for review. The CA will include the filled out forms in the final Commissioning report and as a supplement package to the O&M manuals.

B. Non-Conformance:

1. The CA will record the results of the functional test on the procedure or test form. All deficiencies or non-conformance issues shall be noted and reported to the CM on a standard non-compliance form (Commissioning Action Item List).

2. Corrections of minor deficiencies identified may be made during the tests at the discretion of the CA. In such cases the deficiency

and resolution will be documented on the procedure form.

3. Every effort will be made to expedite the testing process and minimize unnecessary delays, while not compromising the integrity of the procedures.
   a. As tests progress and a deficiency is identified, the CA discusses the issue with the executing contractor.
   b. When there is no dispute on the deficiency and the Sub accepts responsibility to correct it:
      1) The CA documents the deficiency and the Sub's response and intentions and they go on to another test or sequence. After the day's work, the CA submits the non-compliance reports to the CM for signature, if required. A copy is provided to the Sub and CA. The Sub corrects the deficiency, signs the statement of correction at the bottom of the non-compliance form certifying that the equipment is ready to be retested and sends it back to the CA.
      2) The CA reschedules the test and the test is repeated (Reference 3.7, B.5 below).
      3) If there is a dispute about a deficiency, regarding whether it is a deficiency or who is responsible:
         (a) The deficiency shall be documented on the non-compliance form with the Sub's response and a copy given to the CM.
         (b) Resolutions are made at the lowest management level possible. Other parties are brought into the discussions as needed. Final interpretive authority is with the A/E. Final acceptance authority is with the Owner's Project Manager and CM.
         (c) The CA documents the resolution process.
         (d) Once the interpretation and resolution have been decided, the appropriate party corrects the deficiency, signs the statement of correction on the non-compliance form and provides it to the CA, through the CM. The CA reschedules the test and the test is repeated until satisfactory performance is achieved.
      4) Cost of Retesting.
         (a) Cost for Retesting shall be determined by and be the responsibility of the CM.
      5) The Contractor shall respond in writing to the CA and CM at least as often as commissioning meetings are being scheduled concerning the status of each

apparent outstanding discrepancy identified during commissioning. Discussion shall cover explanations of any disagreements and proposals for their resolution.

6) The CA retains the original non-conformance forms until the end of the project.

7) Any required retesting by any contractor shall not be considered a justified reason for a claim of delay or for a time extension by the prime contractor.

4. Failure Due to Manufacturer Defect: If 10%, or three, whichever is greater, of identical pieces (size alone does not constitute a difference) of equipment fail to perform to the Contract Documents (mechanically or substantively) due to manufacturing defect, not allowing it to meet its submitted performance spec, all identical units may be considered unacceptable by the CM or PM. In such case, the Contractor shall provide the Owner with the following:

a. Within one week of notification from the CM or PM, the Contractor or manufacturer's representative shall examine all other identical units making a record of the findings. The findings shall be provided to the CM or PM within two weeks of the original notice.

b. Within two weeks of the original notification, the Contractor or manufacturer shall provide a signed and dated, written explanation of the problem, cause of failures, etc. and all proposed solutions which shall include full equipment submittals. The proposed solutions shall not significantly exceed the specification requirements of the original installation.

c. The CM or PM will determine whether a replacement of all identical units or a repair is acceptable.

d. Two examples of the proposed solution will be installed by the Contractor and the CM will be allowed to test the installations for up to one week, upon which the CM or PM will decide whether to accept the solution.

e. Upon acceptance, the Contractor and/or manufacturer shall replace or repair all identical items, at their expense and extend the warranty accordingly, if the original equipment warranty had begun. The replacement/repair work shall proceed with reasonable speed beginning within

one week from when parts can be obtained.

C. Approval: The CA notes each satisfactorily demonstrated function on the test form. Formal approval of the functional test is made later after review by the CA, A/E, the CM, if necessary. The CA recommends acceptance of each test to the CM using a standard form. The CM gives final approval on each test using the same form, providing a signed copy to the CA and the Contractor.

3.8 OPERATION AND MAINTENANCE MANUALS

A. Standard O&M Manuals:

1. The specific content and format requirements for the standard O&M manuals are detailed in the appropriate sections of the Contract Documents.

2. CA Review: Prior to substantial completion, the CA shall review the O&M manuals, documentation and redline as-builds for systems that were commissioned and to verify compliance with the Specifications. The CA will communicate deficiencies in the manuals to the CM, PM or A/E, as requested. Upon a successful review of the corrections, the CA recommends approval and acceptance of these sections of the O&M manuals to the CM, PM or A/E. The CA also reviews each equipment warranty and verifies that all requirements to keep the warranty valid are clearly stated. This review does not supersede the CM's responsibility and A/E's review of the O&M manuals in accordance with their respective contracts.

3.9 TRAINING OF OWNER PERSONNEL

A. The CM is responsible for training coordination and scheduling, and ultimately for ensuring that all training is completed.

B. The CA is responsible for witnessing the training through the CM, verifying completeness and compliance with the Contract Documents.

1. The CA shall interview the facility manager and lead engineer to determine the special needs and areas where training will be most valuable. The Owner and CA shall decide how rigorous the training should be for each piece of commissioned equipment. The CA shall communicate the results to the Subs and vendors who have training responsibilities, through the CM.

2. Each Sub and vendor responsible for training will submit a written training plan to the CA, through the CM, for review and prior to training. The plan will cover the following elements:

a. Equipment (included in training)

1) Intended audience
2) Location of Training
3) Objectives
4) Subjects covered and approximate time devoted to each.
5) Qualified instructor
6) Method/Type of instruction, i.e., classroom, video, walk through, operational demonstrations, written materials, etc

b. The CA reviews the overall training plan and schedules, with the CM. The CA develops criteria for determining that the training was satisfactorily completed, including attending some of the training, etc. The CA recommends approval of the training to the CM. The CM shall approve the final training plan.

c. The mechanical design engineer shall at the first training session present the overall system design concept and the design concept of each equipment section. This presentation shall include a review of all systems using the simplified system schematics (one-line drawings) including chilled water systems, heating systems, , supply air systems, exhaust system and outside air strategies.

3.10 DEFERRED TESTING

A. Unforeseen Deferred Tests: If any check or test cannot be completed due to the building structure, required occupancy condition or other deficiency, execution of checklists and functional testing may be delayed upon approval of the PM. These tests will be conducted in the same manner as the seasonal tests as soon as possible. Services of necessary parties will be negotiated.

1. Seasonal Testing: During the warranty period, seasonal testing if required shall be completed as part of this contract. The CA shall coordinate this activity through the CM. The appropriate Functional Performance Tests will be executed and documented. A supplemental report will be completed by the CA and forwarded to the CM and Owner.

3.11 WRITTEN WORK PRODUCTS

A. The commissioning process generates a number of written work products described in various parts of the Specifications. The Commissioning Plan-Construction Phase, lists all the formal written work products, describes briefly their contents, who is responsible to create them, their due dates, who receives and approves them and the location of the specification to create them. In summary, the written products are:

	Product	Developed By
1.	Final commissioning plan	CA
2.	Cx Meeting minutes	CA
3.	Commissioning schedules	CM with CA
4.	Equipment documentation submittals	Subs
5.	Sequence clarifications	Subs and A/E as needed
6.	Prefunctional checklists	Subs
7.	Startup and initial checkout plan	Subs
8.	Startup and initial checkout forms	Subs
9.	Final TAB report	TAB
10.	Issues log (Action List)	CA
11.	Functional test forms	CA
12.	Completed functional tests	CA
13.	O&M manuals	Subs
14.	Overall training plan	CM & Subs
15.	Specific training agendas	Subs
16.	Final commissioning report	CA

END OF SECTION 01 91 00

SECTION 02 07 00 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, "The General Conditions of the Contract for Construction," Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 DESCRIPTION OF REQUIREMENTS

A. Definition: "Cutting and patching" includes cutting into existing construction to provide for the installation or performance of other work and subsequent fitting and patching required to restore surfaces to their original condition. "Cutting and patching" shall also include the removal and subsequent reinstallation of existing construction required to be removed in order to execute the work specified and/or indicated on the drawings, i.e., ceilings, electrical/mechanical equipment, etc.

B. "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 or for other similar purposes.

C. Cutting and patching performed during the manufacture 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".

D. Refer to other sections of these specifications for specific cutting and patching requirements and limitations applicable to individual units of work.

E. Unless otherwise specified, requirements of this section apply to mechanical and electrical work. Refer to Division 25 and Division 26 sections for additional requirements and limitations on cutting and patching of mechanical and electrical work.

1.3 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural work in a manner that would result in a reduction of load-carrying capacity or load-deflection ratio.

B. Before cutting and patching the following categories, or similar categories, of work, obtain the Architect's approval to proceed with cutting and patching as described in the procedural proposal for cutting and patching.
   1. Structural steel.
   2. Miscellaneous structural metals, including lintels, equipment supports, stair systems and similar categories of work.
   3. Structural concrete plank floor structure.
   4. Foundation construction.
   5. Bearing and retaining walls.
   6. Structural decking.
   7. Piping, duct-work, vessels and equipment.

C. Operational and Safety Limitations: Do not cut and patch operational elements or safety related components in a manner that would result in a reduction of their capacity to perform in the manner intended, including energy performance, or that would result in increased maintenance, or decreased operational life or decreased safety.

D. Before cutting and patching the following elements, or similar elements, of work, and similar work elements where directed, obtain the Owner's approval to proceed with cutting and patching as proposed in the proposal for cutting and patching.
   1. Shoring, bracing and sheeting.
   2. Primary operational systems and equipment.
   3. Water, moisture, vapor, air, smoke barriers, membranes and flashings.
   4. Noise and vibration control elements and systems.
   5. Control, communication, conveying, and electrical wiring systems.

E. Visual Requirements: Do not cut and patch work exposed on the building's exterior or in its occupied spaces, in a manner that would, in the Architect's and Owner's opinion, result in lessening the building's aesthetic qualities. Do not cut and patch work in a manner that would result in substantial visual evidence of cut and patch work. Remove and replace work judged by the Architect and Owner to be cut and patched in a visually unsatisfactory manner.

F. If possible, retain the original installer or fabricator, or another recognized experienced and specialized firm to cut and patch the following categories, and similar categories, of exposed work.
   1. Processed concrete finishes.
   2. Detention facilities.
   3. Ornamental metal.
   4. HVAC enclosures, cabinets or covers.

1.4 SUBMITTALS

A. Procedural Proposal for Cutting and Patching: Where prior approval of cutting and patching is required, submit proposed procedures for this work

well in advance of the time work will be performed and request approval to proceed. Include the following information, as applicable, in the submittal:

1. Describe nature of the work and how it is to be performed, indicating why cutting and patching cannot be avoided. Describe anticipated results of the work in terms of changes to existing work, including structural, operational, and visual changes as well as other significant elements.
2. List products to be used and firms that will perform work.
3. Give dates when work is expected to be performed.
4. List utilities that will be disturbed or otherwise be affected by work, including those that will be relocated and those that will be out-of-service temporarily. Indicate how long utility service will be disrupted.

B. Where cutting and patching of structural work involves the addition of reinforcement, submit details and engineering calculations to show how that reinforcement is integrated with original structure to satisfy requirements.

C. Where cutting and patching of exposed finishes is to be involved, submit a drawing clearly describing in detail the location and extent of the work for the Owner's and the Architect's approval.

D. Approval by the Owner and the Architect to proceed with cutting and patching work does not waive the Architect's right to later require complete removal and replacement of work found to be cut and patched in an unsatisfactory manner.

PART 2 PRODUCTS

2.1 MATERIALS

A. General: Except as otherwise indicated, or as directed by the Architect, use materials for cutting and patching that are identical to existing materials. If identical materials are not available, or cannot be used, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials for cutting and patching that will result in equal-or-better performance characteristics than existing construction.

PART 3 EXECUTION

3.1 INSPECTION

A. Before cutting, examine the surfaces to be cut and patched and the conditions under which the work is to be performed. If unsafe or otherwise unsatisfactory conditions are encountered, take corrective action before proceeding with the work.

B. Before the start of cutting work, meet at the work site with all parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict between the various trades. Coordinate layout of the work and resolve potential conflicts before proceeding with the work.

3.2 PREPARATION

A. Temporary Support: To prevent failure, provide temporary support of work to be cut.

B. Protection: Protect other work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for that part of the project that may be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruptions of free passage to adjoining areas.

D. Take precautions not to cut existing pipe, conduit, or duct serving the building but scheduled to be relocated until provisions have been made to bypass them.

3.3 PERFORMANCE

A. General: Employ skilled workmen to perform cutting and patching work. Except as otherwise indicated or as approved by Architect, proceed with cutting and patching at the earliest feasible time and complete work without delay.

B. Cutting: Cut the work using methods that are least likely to damage work to be retained or adjoining work. Where possible review proposed procedures with the original installer, comply with original installer's recommendations.

C. In general, where cutting is required, use hand or small power tools designed for sawing or grinding, not hammering and chopping. cut through concrete and masonry using a cutting machine such as a carborundum saw or core drill to insure a neat hole. Cut holes and slots neatly to size required with minimum disturbance of adjacent work. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces. Temporarily cover openings when not in use.

D. By-pass utility services such as pipe and conduit, before cutting, where such utility services are shown or required to be removed, relocated or abandoned. Cut-off conduit and pipe in walls or partitions to be removed. After by-pass and cutting, cap valve or plug and seal tight remaining portion of pipe and conduit to prevent entrance of moisture or other foreign matter.

E. Patching: Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.

F. Where feasible, inspect and test patched areas to demonstrate integrity of work.

G. Restore exposed finishes of patched areas and where necessary extend finished restoration into retained adjoining work in a manner which will eliminate evidence of patching and refinishing.

H. Where removal of walls or partitions extends one finished area into another finished area, patch and repair floor and wall surfaces in the new space to provide an even surface of uniform color and appearance. If necessary to achieve uniform color and appearance, remove existing floor and wall coverings and replace with new materials.

I. Where patch occurs in a smooth painted surface, extend final paint coat over entire unbroken surface containing patch, after patched area has received prime and base coat.

J. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance.

3.4 CLEANING

A. Thoroughly clean areas and spaces where work is performed or used as access to work. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 02 07 00

SECTION 05 50 00 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, "The General Conditions of the Contract for Construction,", the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes furnishing and installing the following metal fabrications specified herein and as further described on the drawings:
   1. Steel framing and supports for overhead doors
   2. Steel framing and supports for mechanical and electrical equipment
   3. Steel framing and supports for applications where framing and supports are not specified in other Sections
   4. Straight run, steel framed stairs, stringers, and landings
   5. Loose steel lintels and leveling plates
   6. Steel weld plates and angles for casting into concrete not specified in other Sections
   6. Steel pipe guard railing systems attached adjacent to stairs
   7. Steel pipe handrails attached to walls adjacent to stairs
   8. Metal stair safety nosing protection, with abrasive texture, for new cast-in-place concrete stair construction where indicated on the drawings.
   9. Continuous galvanized angles embedded within concrete slab at all overhead door conditions.
   10. One (1) elevator pit ladder to allow access to elevator pit
   11. One (1) sump pit cover within elevator pit construction as detailed on the drawings.
   12. One (1) hoist beam to aid in elevator cab installation as indicated on the drawings.
   11. Miscellaneous brackets, clip angles, pipe sleeves in support of other work.

B. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Section 03 30 00 "Cast in Place Concrete" for installation of concrete fill and reinforcing materials.
   2. Section 04 20 00 "Unit Masonry" for installation of loose lintels and bearing plates in masonry work.
   3. Section 32 39 13 "Steel Pipe Bollards" for metal protection bollards within site improvements to protect adjacent equipment and construction.

1.3 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Shop drawings detailing fabrication and erection of each metal fabrication indicated. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide templates for anchors and bolts specified for installation under other Sections.

C. Product data for paint products and grout.

D. Welder certificates signed by Contractor certifying that welders comply with requirements specified under the "Quality Assurance" Article.

E. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include a list of completed projects with project name, addresses, names of architects and owners, and other information specified.

1.4 PERFORMANCE REQUIREMENTS

A. Structural Performance: Engineer, fabricate, and install handrails and railing systems to withstand the following structural loads without exceeding the allowable design working stress of the materials involved, including anchors and connections. Apply each load to produce the maximum stress in each of the respective components of each metal fabrication.
   1. Top Rail of Guardrail Systems: Capable of withstanding the following loads applied as indicated:
      a. Concentrated load of 200 lb. applied at any point and in any direction.
      b. Uniform load of 50 lb. per linear foot applied in any direction.
      c. Concentrated and uniform loads above need not be assumed to act concurrently.
   2. Handrails Not Serving as Top Rails: Capable of withstanding the following loads applied as indicated:
      a. Concentrated load of 200 lb. applied at any point and in any direction.
      b. Uniform load of 50 lb. per linear foot applied in any direction.
      c. Concentrated and uniform loads above need not be assumed to act concurrently.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Firm experienced in producing metal fabrications similar to those indicated for this Project with a record of successful in-

service performance, and with sufficient production capacity to produce required units without delaying the Work.

B. Welding Standards: Comply with applicable provisions of AWS Dl.1 "Structural Welding Code--Steel," AWS Dl.2 "Structural Welding Code--Aluminum," and AWS Dl.3 "Structural Welding Code--Sheet Steel."
   1. Certify that each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone re-certification.

C. Installer Qualifications: Arrange for steel fabrication installation specified in this Section by the same firm that fabricated them.

D. Engineer Qualifications: A professional engineer legally authorized to practice in the State of Connecticut and experienced in providing engineering services of the kind indicated that have resulted in the installation of metal stairs (including handrails and railing systems) similar to this Project in material, design, and extent and that have a record of successful in-service performance.

E. Manufacturer: Provide metal fabrications as complete units produced by a single manufacturer, including necessary mounting accessories, fittings and fastenings.

1.6 PROJECT CONDITIONS

A. Field Measurements: Check actual locations of walls and other construction to which metal fabrications must fit by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
   1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with fabricating products without field measurements. Coordinate construction to ensure that actual dimensions correspond to guaranteed dimensions. Allow for trimming and fitting at no additional cost to the Owner.

1.7 SEQUENCING AND SCHEDULING

A. Sequence and coordinate installation of wall handrails as follows:
   1. Mount handrails only on completed walls. Do not support handrails temporarily by any means not satisfying structural performance requirements.

PART 2 - PRODUCTS

2.1 FERROUS METALS

A. Metal Surfaces, General: For metal fabrications exposed to view in the completed Work, provide materials selected for their surface flatness, smoothness, and freedom from surface blemishes. Do not use materials with exposed pitting, seam marks, roller marks, rolled trade names, or roughness.

B. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

C. Steel Tubing: Product type (manufacturing method) and as follows:
1. Cold-Formed Steel Tubing: ASTM A 500.

D. Brackets, Flanges and Anchors: Cast or formed metal of the same type material and finish as supported rails, unless otherwise indicated.

E. Cast-in-Place Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials capable of sustaining, without failure, the load imposed within a safety factor of 4, as determined by testing per ASTM E 488, conducted by a qualified independent testing agency.
1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47 (ASTM A 47M) malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as required, hot-dip galvanized per ASTM A 153.

F. Welding Rods and Bare Electrodes: Select according to AWS specifications for the metal alloy to be welded.

2.2 PAINT

A. Shop Primer for Ferrous Metal: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with performance requirements of FS TT-P-664, selected for good resistance to normal atmospheric corrosion, compatibility with finish paint systems indicated, and capability to provide a sound foundation for field-applied topcoats despite prolonged exposure.

B. Galvanizing Repair Paint: High-zinc-dust-content paint for re-galvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with DOD-P-21035 or SSPC-Paint 20.

2.3 FASTENERS

A. General: Provide plated fasteners complying with ASTM B 633, Class Fe/Zn 25 for electro-deposited zinc coating, for exterior use or where built into exterior walls. Select fasteners for the type, grade, and class required.

B. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6

times the load imposed when installed in unit masonry and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.

1. Material: Group 1 alloy 304 or 316 stainless-steel bolts and nuts complying with ASTM F 593 (ASTM F 738M) and ASTM F 594 (ASTM F 836M).

2.4 GROUT AND ANCHORING CEMENT

A. 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.

B. Products: Subject to compliance with requirements, provide one of the following:
   1. Nonshrink, Nonmetallic Grouts:
      a. Five Star Grout; Five Star Products.
      b. Masterflow 928 and 713; Master Builders Technologies, Inc.
      c. Sealtight 588 Grout; W. R. Meadows, Inc.
      d. Sonogrout 14; Sonneborn Building Products--ChemRex, Inc.

C. Erosion-Resistant Anchoring Cement: Factory-prepackaged, nonshrink, nonstaining, hydraulic controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without need for protection by a sealer or waterproof coating and is recommended for exterior use by manufacturer.

D. Products: Subject to compliance with requirements, provide the following:
   1. Erosion-Resistant Anchoring Cement:
   2. "Super Por-Rok"; Division, Minwax Construction Products

2.5 FABRICATION, GENERAL

A. Form metal fabrications from materials of size, thickness, and shapes indicated but not less than that needed to comply with performance requirements indicated. Work to dimensions indicated or accepted on shop drawings, using proven details of fabrication and support. Use type of materials indicated or specified for various components of each metal fabrication.

B. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges.

C. Shear and punch metals cleanly and accurately. Remove burrs.

D. Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

E. Remove sharp or rough areas on exposed traffic surfaces.

F. Weld corners and seams continuously to comply with the following:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove welding flux immediately.
   4. At exposed connections, finish exposed welds and surfaces smooth and blended so that no roughness shows after finishing, and contour of welded surface matches those adjacent.

G. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type indicated or, if not indicated, Phillips flat-head (countersunk) screws or bolts. Locate joints where least conspicuous.

H. Provide for anchorage of type indicated; coordinate with supporting structure. Fabricate and space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
   1. Include brackets, clips, miscellaneous fittings and anchors for interconnection and attachment of metal fabrications to other work.
   2. Furnish inserts, sleeves and other devices for connecting metal fabrications to concrete or masonry work.

I. Shop Assembly: Preassemble items in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for re-assembly and coordinated installation.

J. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.

K. Fabricate joints that will be exposed to weather in a manner to exclude water, or provide weep holes where water may accumulate.

2.6 STRUCTURAL-STEEL DOOR FRAMES

A. Fabricate structural-steel door frames from steel shapes, plates, and bars of size and to dimensions indicated, fully welded together, with 5/8-by-1-1/2-inch steel channel stops, unless otherwise indicated. Plug-weld built-up members and continuously weld exposed joints. Secure removable stops to frame with countersunk machine screws, uniformly spaced at not more than 10 inches o.c. Reinforce frames and drill and tap as necessary to accept finish hardware.

1. Provide with integrally welded steel strap anchors for securing door frames into adjoining concrete or masonry.

B. Extend bottom of frames to floor elevation indicated with steel angle clips welded to frames for anchoring frame to floor with expansion shields and bolts.

C. **Galvanize** exterior steel frames and interior steel frames, where indicated.

D. Prime exterior steel frames and interior steel frames, where indicated with zinc-rich primer.

2.7 LOOSE STEEL LINTELS

A. Fabricate loose structural steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated.

B. Weld adjoining members together to form a single unit where indicated.

C. Size loose lintels as indicated on Contract Documents.

D. **Galvanize all loose lintels located in exterior wall locations**.

2.8 STEEL-FRAMED STAIRS

A. General: Construct stairs to conform to sizes and arrangements indicated. Join pieces together by welding, unless otherwise indicated. Provide complete stair assemblies, including metal framing, hangers, columns, handrails, railing systems, newels, balusters, struts, clips, brackets, bearing plates, or other components necessary for the support of stairs and platforms, and as required to anchor and contain the stairs on the supporting structure.
   1. NAAMM Stair Standard: Comply with "Recommended Voluntary Minimum Standards for Fixed Metal Stairs" in NAAMM "Metal Stair Manual" for class of stair designated, except where more stringent requirements are indicated.
      a. Architectural class where indicated.

B. Stair Framing: Fabricate stringers of structural steel channels, plates, or a combination thereof, as indicated. Provide closures for exposed ends of stringers. Construct platforms of structural steel channel headers and miscellaneous framing members as indicated. Bolt or weld headers to stringers; and bolt or weld newels and framing members to stringers and headers. If using bolts, fabricate and join so bolts are not exposed on finish surfaces.
   1. Where masonry walls support steel stairs, provide temporary supporting struts designed for erecting steel stair components before installing masonry.

C. Metal Pan Risers, Subtreads, and Subplatforms: Shape metal pans for risers and subtreads to conform to configuration shown. Provide thickness of structural steel sheet for metal pans not less than that required, to support total design loading.
   1. Form metal pans of uncoated cold-rolled steel sheet, unless otherwise indicated.
   2. Attach risers and subtreads to stringers with brackets made of steel angles. Weld brackets to stringers and attach metal pans to brackets by welding, riveting, or bolting.
   3. Provide subplatforms of configuration and construction indicated of same metal as risers and subtreads, in thickness required to support design loading. Attach subplatform to platform framing members with welds.
      a. Smooth Soffit Construction: Construct subplatforms with smooth soffits.

2.9 STEEL PIPE HANDRAILS AND GUARDRAILING SYSTEMS

A. General: Fabricate pipe handrails and guardrailing systems to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of pipe, post spacings, and anchorage, but not less than that required to support structural loads.

B. Interconnect guardrailing and handrail members by butt-welding or welding with internal connectors, at fabricator's option, unless otherwise indicated.
   1. At tee and cross intersections, cope ends of intersecting members to fit contour of pipe to which end is joined, and weld all around.

C. Form changes in direction of handrails and rails as follows:
   1. By bending.

D. Form simple and compound curves by bending pipe in jigs to produce uniform curvature for each repetitive configuration required; maintain cylindrical cross section of pipe throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of pipe.

E. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated.

F. Close exposed ends of pipe by welding 3/16-inch-thick steel plate in place or with prefabricated fittings, except where clearance of end of pipe and adjoining wall surface is 1/4 inches or less.

G. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnections of pipe and attachment of handrails and railing systems to other work.

Furnish inserts and other anchorage devices for connecting handrails and railing systems to concrete or masonry work.

H. **Galvanize all guardrailing systems and handrails located in exterior conditions**.

I. For any interior, non-galvanized steel handrails and railing systems, provide non-galvanized ferrous metal fittings, brackets, fasteners, and sleeves.

2.10 FINISHES, GENERAL

A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designing finishes.

B. Finish metal fabrications after assembly.

2.11 STEEL AND IRON FINISHES

A. Galvanizing: For those items indicated for galvanizing, apply zinc coating by the hot-dip process complying with the following requirements:
   1. ASTM A 123 for galvanizing both fabricated and unfabricated iron and steel products made of uncoated rolled, pressed, and forged shapes, plates, bars, and strip 0.0299 inch (0.76 mm) thick or thicker.
   2. Galvanize miscellaneous metals in the following locations:
      1. **All exterior locations exposed to the weather.**
      2. Other locations as indicated on the Contract Documents.

B. Preparation for Shop Priming: Prepare uncoated ferrous metal surfaces to comply with minimum requirements indicated below for SSPC surface preparation specifications and environmental exposure conditions of installed metal fabrications:
   1. Exteriors (SSPC Zone 1B): SSPC-SP 6 "Commercial Blast Cleaning."
   2. Interiors (SSPC Zone 1A): SSPC-SP 3 "Power Tool Cleaning."

C. Apply shop primer to uncoated surfaces of metal fabrications, except those with galvanized finishes or to be embedded in concrete or masonry, unless otherwise indicated. Comply with requirements of SSPC-PA 1 "Paint Application Specification No. 111 for shop painting.

2.12 SAFETY NOSINGS

A. Safety nosings to be installed at all exterior cast-in-place concrete stair construction to protect the leading edge of all stair nosings.

B. Stair nosings to be SUPERGRIT SAFETY TREADS, Type 231BF, as manufactured by Wooster Products, Inc., Wooster, Ohio, 800-321-4936, or equal.
   1. Overall width: 3”
   2. Overall height: ¼”
   3. Installation Type: Exterior, cast-in-place concrete
   4. Extruded aluminum base – abrasive filler
   5. Treads may terminate 4” from ends of steps for ease of cleaning
   6. High content of aluminum oxide abrasive
   7. Tread base shall be type 6063-T5 extruded aluminum

C. Nosings shall finish flush with the top of the traffic surface. Puddle the concrete, tamp the safety nosings to insure proper concrete formation around the anchors

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate and furnish anchorages, setting drawings, diagrams, templates, instructions, and directions for installing anchorages, including concrete inserts, sleeves, anchor bolts, and miscellaneous items having integral anchors that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to Project site.

B. Set sleeves in concrete with tops flush with finish surface elevations. Protect sleeves from water and concrete entry.

3.2 INSTALLATION, GENERAL

A. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction. Include threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws, and other connectors as required.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing miscellaneous metal fabrications. Set metal fabrication accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

C. Provide temporary bracing or anchors in formwork for items that are to be built into concrete masonry or similar construction.

D. 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

the surfaces of exterior units that have been hot-dip galvanized after fabrication and are intended for bolted or screwed field connections.

E. 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 that no roughness shows after finishing, and contour of welded surface matches those adjacent.

3.3 INSTALLING STEEL PIPE GUARDRAILINGS AND HANDRAILS

A. Adjust handrails and railing systems prior to anchoring to ensure matching alignment at abutting joints. Space posts at spacing indicated or, if not indicated, as required by design loading. Plumb posts in each direction. Secure posts and railing ends to building construction as follows:
1. Anchor posts to steel by welding directly to steel supporting members.
2. Anchor posts in concrete by means of pipe sleeves preset and anchored into concrete. After posts have been inserted into sleeves, fill annular space between post and sleeve solid with the following anchoring material, mixed and placed to comply with anchoring material manufacturer's directions.
   a. Anchoring Cement.
   b. Leave anchorage joint exposed, wipe off surplus anchoring material, and leave 1/8 inch build-up, sloped away from post. For installations exposed on exterior, or to flow of water, seal anchoring material to comply with grout manufacturer's directions.
3. Anchor handrail ends into concrete and masonry with steel round flanges welded to rail ends and anchored into wall construction with drilled-in expansion anchors.

B. Secure handrails to wall with wall brackets and end fittings. Provide bracket with 1-1/2-inch clearance from inside face of handrail and finished wall surface. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads. Secure wall brackets and wall return fittings to building construction as follows:
1. Use type of bracket with predrilled hole for exposed bolt anchorage.
2. For concrete and solid masonry anchorage, use drilled-in expansion anchor.
3. For hollow masonry anchorage, use toggle bolts having square heads.

3.4 ADJUSTING AND CLEANING

A. Touchup Painting: Clean and touchup paint of field welds, bolted connections, and abraded areas of the shop paint on miscellaneous metal.

B. For galvanized surfaces, clean welds, bolted connections, and abraded areas, and apply galvanizing repair paint to comply with ASTM A 780.

END OF SECTION 05 50 00

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, "General Conditions of the Contract for Construction", the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes furnishing and/or installing the following rough carpentry items specified herein and as further described on the drawings:
   1. Wood blocking and pressure treated blocking as indicated on the drawings or required in the field to support new installations.
   2. Wood backer boards (plywood) and associated wood blocking for support of Division 26-28 wall mounted equipment where indicated on the drawings.
   3. Installation of door hardware, setting of all door frames, and installation of all doors within frames as specified in Sections 08 11 13, 08 14 00, and 08 71 00.
   4. Installation of all required access doors as specified in Section 08 31 13 and Divisions 23 and 26.
   5. Installation of louvers and vents as specified in Section 08 91 19
   6. Installation of visual display boards as specified in Section 10 11 00 and required wood blocking to support installations.
   7. Installation of wall and door protection as specified in Section 10 26 00
   8. Installation of toilet and bath accessories as specified in Section 10 28 00
   9. Installation of fire extinguishers and cabinets as specified in Section 10 44 16
   10. Installation of personal property lockers as specified in Section 10 51 00
   11. Installation of residential appliances as specified in Section 11 31 00
   12. Installation of safing insulation within vertical wall and/or soffit construction where indicated on the drawings.
   13. Installation of equipment and/or accessories not specifically identified within the specifications.
   14. Rough carpentry work not specified elsewhere and generally intended for support of other work.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Cold-Formed Metal Framing and gypsum board installations are specified in Section 09 21 00 – Gypsum Board Assemblies.

B. Aluminum-Framed Entrances & Storefronts are specified in Section 08 41 13.

1.4 REFERENCE STANDARDS

A. Use lumber and plywood grade-marked in accordance with the following standards:
   1. Western wood: "Standard Grading Rules for Western Lumber", published by Western Wood Products Association.
   2. Southern Pine: "Standard Grading Rules for Southern Pine Lumber", published by Southern Pine Inspection Bureau.
   3. Plywood: Comply with PS 1 (ANSI A 199.1) or, for products not manufactured under PS 1 provisions, with applicable APA Performance Standard for type of panel indicated.

B. Preservative pressure treated lumber and plywood shall comply with AWPA C2 and C9, respectively, and with the requirements listed below:
   1. Wood for ground contact use: AWPB LP-22.
   2. Wood for above-ground use: AWPB LP-2.

C. Fire Retardant treated lumber and plywood shall comply with performance requirements in AWPA C20 (lumber) and AWPA C27 (plywood). Use only exterior type.

D. Requirements for all lumber:
   1. Lumber shall be seasoned to 19% or less moisture content.
   2. Lumber and plywood shall be grade marked to show conformity to specifications.

1.4 SUBMITTALS

A. General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

B. Manufacturers information pertaining to dimensional and board lumber including design strengths, species, and moisture content.

C. Wood treatment data from chemical treatment manufacturer. Include chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated material.

1. Preservative Treatment: Include certification by treatment plant stating type of solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.
2. Waterborne Preservative Treatment: Include certification that moisture content of treated wood was reduced to levels specified prior to shipment to Project site.
3. Warranty: Include warranty of chemical treatment manufacturer for each type of treatment.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Delivery and Storage: Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Stack material above ground level on uniformly spaced supports to prevent deformation.
   1. For material pressure treated with waterborne chemicals, place spacers between each bundle for air circulation.

B. All wood must be covered and completely weather protected and stored at least twelve (12") inches above grade.

PART 2 - PRODUCTS

2.1 FRAMING LUMBER

A. All horizontal or sloping framing lumber shall be No. 2 Douglas-Fir having an allowable extreme fiber stress in bending "Fb" of 875 psi for single use and 1000 psi for repetitive member uses, and an "E" value of 1,600,000 psi, unless otherwise shown.

B. All bearing studs, unless otherwise shown, shall be No. 2 Douglas Fir Construction Grade, having an allowable compression parallel to grain "Fc" of 1600 psi, and an "E" value of 1,500,000 psi.

C. All horizontal sills in contact with earth bearing slabs, or concrete shall be Pressure-Treated.

D. Light framing lumber used for studs in non-bearing walls and partitions shall not be less than Stud or Standard grade and shall have a compressive stress parallel to grain "Fc" of not less than 850 psi, Douglas Fir.

E. Moisture content at delivery shall not exceed 19% for all general framing lumber. "Grade Mark", "Trade Mark" and Mill Identification Mark of Association having jurisdiction shall appear on each member.

2.2 WALL SHEATHING

A. APA Rated Sheathing Structural I, exterior glue. Span rating to suit framing spacing.

2.3 ROOF SHEATHING

A. APA Rated Sheathing Structural I, exterior glue. Span rating to suit framing spacing.

2.4 ROUGH HARDWARE AND FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements and products specified in this Article for material and manufacture.
   1. Where carpentry is installed at exterior locations, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M, or Type 304 stainless steel fasteners, as recommended in writing by wood-preservative-treatment manufacturer.
   2. General: Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide stainless steel fasteners of AISI Type 304 stainless steel.

B. Nails, Wire, Brads, and Staples: FS FF-N-105

C. Power-Driven Fasteners: CABO NER-272.

D. Wood Screws: ASME B18.6.1.

E. Lag Bolts: ASME B18.2.1. (ASME B18.2.3.8M)

F. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
   1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5, for interior applications.
   2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4), for exterior applications.

H. **Minimum fastening requirements shall meet or exceed State Building Code requirements.**

2.5 BOARDS FOR EXPOSED AND CONCEALED CONDITIONS

A. Species: Douglas Fir.

B. Moisture Content: Kiln-dry, KD 19 or MC 19 (19 percent maximum moisture content).

C. Grade: No. 2 or better.

2.6 CONSTRUCTION PANELS

A. Standards: Comply with requirements of PS 1 Voluntary Product Standard "Construction and Industrial Plywood" for veneer plywood and APA PRP-108 "Performance Standards and Policies for Structural-Use Panels" for performance-rated panels.
1. Trademark: Furnish construction panels that are each factory-marked with APA trademark for grade specified.

B. Roof Decking: Grade: CDX, 3/4" (23/32) APA-trademarked plywood with span rating (48/24), Exposure 1 Classification, Fire Classification: Class III or C, Flame Spread Rating: 76-200, square edge construction. Species Group 5 not permitted.

C. Wall Sheathing: CDX**,** 5/8" APA-trademarked plywood with span rating (48/24), Exposure 1 Classification, Fire Classification: Class III or C, Flame Spread Rating: 76-200, square edge construction.

D. Miscellaneous Concealed Plywood: C-C Plugged Exterior, thickness as indicated but not less than 1/2 inch nominal.

E. Miscellaneous Exposed Plywood / Outbuilding interior wall finish: A-C Interior, thickness as indicated but not less than 5/8 inch nominal.

F. Electrical/Telephone Backing Panels: A-D Interior, FIRE-TREATED, thickness as indicated but not less than 3/4 inch nominal. Furnish and install fire treated wood blocking as indicated on the drawings for fastening of backer boards to wall surfaces.

2.7 MATERIALS

A. Sills, bucks, blocking, and nailers: Any species of structural lumber, construction grade, pressure treated if in contact with concrete or roofing materials, meeting the requirements listed above.

B. Safing Insulation: Rockwool, Comfortbatt, semi-rigid stone wool batt insulation, or equal, composed of mineral fiber thermal insulation, Type 1 compliant (ASTM C665).
   1. Flame Spread: 0 (ASTM E84)
   2. Smoke Developed: 0 (UL 723)
   3. Density: less than 2 lbs. / ft3: (ASTM C167)
   4. R-Value: R15 @ 3.5" thick

C. Soffit vents to be "#SV202" Continuous Soffit Vent as manufactured by Air Vent Inc., or equal.
   1. Material: aluminum
   2. Color: white
   3. Size: 2-3/4" x 96"
   4. Required Venting: 9 square inches / l.f.

2.8 PRESERVATIVE WOOD TREATMENT BY PRESSURE PROCESS

A. General: Obtain preservative-treated lumber complying with AWPA Standard C2. Mark each treated item with AWPB or SPIB Quality Mark Requirements. Coat surfaces cut after treatment to comply with AWPA M4.

B. Above-Ground Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.25 pcf.
   1. Kiln-dry interior dimension lumber after treatment to 15 percent maximum moisture content.
   2. Kiln-dry interior construction panels after treatment to 15 percent maximum moisture content.
   3. Treat wood items indicated and in the following circumstances:

      a. In contact with roofing, flashing, or waterproofing.
      b. In contact with masonry or concrete.
      c. Within 18 inches of grade.

C. Ground-Contact Wood Treatment: Pressure treat with waterborne preservatives to a minimum retention of 0.40 pcf.

PART 3 -EXECUTION

3.1 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of miscellaneous carpentry and in sizes that would require an excessive number or poor arrangement of joints.

B. Cut and fit miscellaneous carpentry accurately. Install members plumb and true to line and level.

C. Coat cut edges of preservative-treated wood to comply with AWPA M4.

D. Securely fasten miscellaneous carpentry as indicated and according to applicable codes and recognized standards.

E. Countersink nail heads on exposed carpentry work and fill holes.

F. Use fasteners of appropriate type and length. Predrill members when necessary to avoid splitting wood.

G. Install long dimension of plywood roofing panels crossing main framing members (trusses) and wall studs.

H. Implement all framing details, typical and specific, as shown on Structural Drawings.

I. Care should be taken to properly store all wood materials from damage due to handling, storage, or environmental conditions. Store all materials off of the ground and properly secured and protected.

J. Carefully inspect the installed work of other trades and verify that all such work is complete where this installation may properly commence. Verify that rough carpentry may be performed in strict accordance with the design and all pertinent codes and regulations. In the event of discrepancy, notify Architect. Do not proceed with work until directions are received from Architect.

3.2 GENERAL FRAMING

A. General: All rough carpentry shall produce joints true, tight, and well nailed with all members assembled as indicated. Set all horizontal and sloped members with crown up. Double members minimum for headers and trimmers.

B. Selection of Lumber Pieces: Carefully select all members. Select individual pieces so that knots and obvious defects will not interfere with placing bolts or proper nailing or making proper connections. Cut out and discard all defects which will render a piece unable to serve its intended function. Lumber may be rejected by the Architect, whether it has been installed, for excessive warp, twist, bow, crook, mildew, fungus, or mold, as well as for improper cutting and fitting.

C. Bearing: Make all bearings full unless otherwise indicated. Finish all

bearing surfaces on which structural members are to rest to give sure and even support. When framing members slope, cut or notch the ends as required to give uniform bearing surface. Minimum bearing one and one-half (1 1/2") inches on wood, four (4") inches on steel.

D. Shimming: Do not shim any framing components.

E. Alignment: On all framing members to receive a finished surface, alignment of the finish subsurface to vary not more than one-eighth (1/8") inch from the plane of surfaces of adjacent framing and furring members. Provide "padding" as required to achieve proper surfaces for finish materials.

F. Holes and Notches: Do not bore holes closer than 2 inches from top or bottom of joists with hole diameter not to exceed one-third (1/3) the depth of member. Do not notch in middle third (1/3) of joist. Depth of notches in top or bottom of joists not to exceed one-sixth (1/6) the member depth. Notched ends not to exceed one-third (1/3) member depth. DO NOT cut holes or notches in truss members. Notches or holes over one (1") inch diameter in two by four (2x4) studs will require metal stud plates equal to Strong Tie SS Stud plates. Include nail stopper at all piping.

G. Sills: Set in foam sill sealer. Secure each member with a minimum of two (2) bolts. Secure sills to bolts with recessed washer and nut.

H. Preservatives: Treat all wood in contact with concrete or masonry with wood preservative. Include blocking at perimeter of exterior wall openings.

3.3 BLOCKING

A. Install all blocking required to support all items of finish and to cut off all concealed draft openings, both vertical and horizontal, between ceiling and floor areas.

B. Firestop concealed spaces with wood blocking not less than two (2") inches thick unless blocked by other framing members.

C. Provide blocking to support edges of all soffits, flashing, etc. Provide two-inch (2") solid blocking as required for securing edges of gypsum board. Provide continuous blocking for gypsum board ceiling at all edges.

D. Provide blocking behind all wall or ceiling mounted accessories such as grab bars, cabinets, fans, light fixtures, plumbing lines, electrical panelboards, bathroom accessories, etc.

E. Grab bars must be capable of supporting three hundred (300 LB) pounds after installation.

3.4 BACKBOARDS

A. Backboards are to be painted by Section 09 91 23 prior to installation of equipment.

3.5 INSTALLATION OF PLYWOOD SHEATHING

A. Place plywood with face grain perpendicular to supports and continuously over at least two (2) supports, except where otherwise specifically indicated. Center joints accurately over supports; unless otherwise indicated.

B. Protect all plywood from moisture by use of all required waterproof coverings until the plywood has in turn been covered with the next succeeding component of finish.

C. Install one (1) plywood "H" clip between each framing member to support plywood at mid-span.

3.6 FASTENING

A. Rough Hardware: Anchor and nail shall comply with State Building Code.

B. Nailing: Provide penetration into the piece receiving the point of not less than one-half (1/2") inch the length of the nail or spike, provided, however, that 16d nails may be used to connect two (2) pieces of two-inch (2") (nominal) thickness. Do all nailing without splitting wood. Prebore as required. Replace all split members.

C. Bolting: Drill holes one-sixteenth (1/16) inch larger in diameter than the bolts being used. Drill straight and true from one (1) side only. Bolt threads shall not bear on wood. Use washers under head and nut where both bear on wood. Use washers under all nuts.

D. Screws: For lag screws and wood-screws, prebore holes same diameter as root of threads; enlarge holes to shank diameter for length of shank. Screw, do not drive, all lag-screws and wood-screws.

3.7 WOOD GROUNDS, NAILERS, BLOCKING, AND SLEEPERS

A. Install where shown and where required for screeding or attachment of other work. Cut and shape to required size. Coordinate location with other work involved.

B. Attach to substrates as required to support applied loading. Countersink bolts and nuts flush with surfaces, unless otherwise indicated.

C. Provide wood blocking for all wall mounted or recessed equipment including, but not limited to, toilet accessories, fire extinguisher cabinet, visual display boards, metal fabrications, and wall mounted hardware.

3.8 DOOR HARDWARE INSTALLATION

A. Mount hardware units at heights indicated in following applicable publications, except as specifically indicated or required to comply with governing regulations and except as otherwise directed by Architect.
   1. "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute.

B. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Where cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation or application of surface protection with finishing work specified in the Division 9 Sections. Do not install surface-mounted items until finishes have been completed on the substrates involved.

C. Set units level, plumb, and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.

D. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.

E. Set thresholds for exterior doors in full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements specified in Division 7 Section "Joint Sealers."

F. Weatherstripping and Seals: Comply with manufacturer's instructions and recommendations to the extent installation requirements are not otherwise indicated.

3.9 TOILET ACCESSORIES INSTALLATION

A. Install each toilet accessories in compliance with the manufacturer's instructions and recommendations

3.10 TEMPORARY ENCLOSURES

A. Provide temporary enclosures, doors and dust barriers as required to protect building from weather and construction damage and to ensure building security. Upon completion, remove all temporary work and repair any damage to permanent finishes and installations. Verify requirements with Architect and Owner.

END OF SECTION 06 10 00

SECTION 06 44 00 - ORNAMENTAL WOODWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes furnishing and installing the following:
   1. Closet Pole and Shelf detail at closets and coat hanging where indicated on the drawings.

B. Related Sections: The following sections contain requirements that relate to this section:
   1. Furring, blocking, and other carpentry work that is not exposed to view is specified in Section 06 10 00 "Rough Carpentry".
   2. Section 09 91 23 "Interior Painting" for final finishing of installed Ornamental Woodwork.
   3. Section 12 32 16 "Manufactured Architectural Casework" for all plastic laminate and solid surface casework, cabinetry, countertops, and window sills / aprons.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data for each type of product and process specified in this section and incorporated into items of architectural woodwork during fabrication, finishing, and installation.

C. Shop drawings for woodwork and fittings showing plan layout, elevations, ends and cross-sections.

D. Product certificates signed by woodwork manufacturer certifying that products comply with specified requirements.

E. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firm experienced in successfully producing architectural woodwork similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work.

B. Single-Source manufacturing and Installation Responsibility: Engage a qualified Manufacturer to assume undivided responsibility for woodwork specified in this section, including fabrication, finishing, and installation.

C. AWI Quality Standard: Comply with applicable requirements of "Architectural Woodwork Quality Standards" published by the Architectural Woodwork Institute (AWI) except as otherwise indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Protect woodwork during transit, delivery, storage, and handling to prevent damage, soilage, and deterioration. Keep covered with polyethylene film or other protective coating.

B. Do not deliver woodwork until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions."
   1. Follow procedures and schedules as provided by the General Trades Contractor.

C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.6 PROJECT CONDITIONS

A. Environmental Conditions: Do not install woodwork until optimum temperature and humidity conditions for woodwork have been attained and stabilized so that woodwork is within plus or minus 1.0 percent of optimum moisture content from date of installation through remainder of construction period.

B. Field Measurements: Where woodwork is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before manufacturing woodwork; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with construction progress to avoid delay of Work.
   1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with manufacture of woodwork without field measurements. Coordinate other

construction to ensure that actual dimensions correspond to guaranteed dimensions.

C. Field Measurements: Verify sizes and shapes prior to fabrication by field measurements taken after base materials are installed.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide materials that comply with requirements of the AWI woodworking standard for each type of woodwork and quality grade indicated.

B. Lumber Standards: Comply with PS 20 "American Softwood Lumber Standard" for lumber and with applicable grading rules of inspection agencies certified by American Lumber Standards Committee Board of Review.

C. Plywood Standards: Comply with PS 1 "U.S. Product Standard for Construction and Industrial Plywood" for plywood and, for products not manufactured under PS 1, with APA PRP-108.

D. Hardwood Lumber Standard: Comply with NHLA, National Hardwood Lumber Association rules.

E. Inspection Agencies: Inspection agencies and the abbreviations used to reference them with lumber grades and species include the following:
1. SPIB - Southern Pine Inspection Bureau.
2. WCLIB - West Coast Lumber Inspection Bureau.
3. WWPA - Western Wood Products Association.

F. Woodworking Standard: Where indicated for a specific product, comply with specified Divisions of the following:
1. Architectural Woodwork Institute (AWI) Quality Standards.

G. Glued-Up Lumber Standard: Comply with PS 56.

2.2 FABRICATION, GENERAL

A. Wood Moisture Content: Comply with requirements of referenced quality standard for moisture content of lumber in relation to relative humidity conditions existing during time of fabrication and in installation areas.

B. Fabricate woodwork to dimensions, profiles, and details indicated. Ease edges to radius indicated for the following:
1. Corners and edges of solid wood (lumber) members less than 1 inch in nominal thickness: 1/16 inch.

2. Edges of rails and similar members more than 1 inch in nominal thickness: 1/8 inch.

C. Complete fabrication, including assembly, finishing, and hardware application, before shipment to project site to maximum extent possible. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

D. Factory-cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Smooth edges of cutouts and, where located in countertops and similar exposures, seal edges of cutouts with a water-resistant coating.

E. Wood species exposed to view following fabrication: **White Maple, plain sliced.**

2.3 FASTENERS AND ANCHORS

A. Screws: Select material, type, size, and finish required for each use. Comply with FS FF-S-111 for applicable requirements.
1. For metal framing supports, provide screws as recommended by metal framing manufacturer.

B. Nails: Select material, type, size, and finish required for each use. Comply with FS FF-N-105 for applicable requirements.
1. Countersink nails, fill surface flush, and sand where face nailing is unavoidable.

C. Anchors: Select material, type, size, and finish required by each substrate for secure anchorage. Provide nonferrous metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed steel or lead expansion bolt devices for drilled-in-place anchors. Furnish inserts and anchors, as required, to be set into concrete or masonry work for subsequent woodwork anchorage.

D. Adhesives: Comply with manufacturer's recommendations for adhesives.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting installation and performance of finish carpentry. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Condition woodwork to average prevailing humidity conditions in installation areas before installing.

B. Deliver inserts and similar anchoring devices to be built into substrates well in advance of time substrates are to be built.

C. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including back priming and removal of packing.

3.3 INSTALLATION

A. Quality Standard: Install woodwork to comply with AWI Section 1700 for same grade specified in Part 2 of this section for type of woodwork involved.

B. Install woodwork plumb, level, true, and straight with no distortions. Shim as required with concealed shims. Install to a tolerance of 1/8 inch in 8 feet-0 inch for plumb and level (including tops) and with no variations in flushness of adjoining surfaces.

C. Scribe and cut woodwork to fit adjoining work and refinish cut surfaces or repair damaged finish at cuts. All surfaces of exterior trim to receive primed finish following cutting and scribing.

D. Anchor woodwork to anchors or blocking built in or directly attached to substrates. Secure to grounds, stripping and blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation. Except where prefinished matching fastener heads are required, use fine finishing nails for exposed nailing, countersunk and filled flush with woodwork and matching final finish where transparent finish is indicated.

E. Caulk all exposed joints of installed woodwork prior to receiving finish transparent finish.

3.4 PROTECTION

A. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensures woodwork is without damage or deterioration at time of Substantial Completion.

END OF SECTION 06 44 00

SECTION 07 84 00 - FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, “The General Conditions of the Contract for Construction,”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes firestopping for the following:
   1. Joints along the top of fire-resistance-rated wall construction and the underside of structure above.
   2. Penetrations through fire-resistance-rated walls and partitions including both empty openings and openings containing cables, pipes, ducts, conduits, and other penetrating items.
   3. Sealant joints in fire-resistance-rated construction.

B. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Section 07 92 00"Joint Sealers" for non-fire-rated joint sealers.
   2. Division 22 Sections specifying ducts and piping penetrations.
   3. Division 26 Sections specifying cable and conduit penetrations.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. General: Provide firestopping systems that are produced and installed to resist the spread of fire, according to requirements indicated, and the passage of smoke and other gases.
   1. All firestopping systems shall be reviewed and approved for use by the local fire authority prior to submission to Architect.

B. F-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with F ratings indicated, as determined pet ASTM E 814, but not less than that equaling or exceeding the fire-resistance rating of the constructions penetrated.

C. T-Rated Through-Penetration Firestop Systems: Provide through-penetration firestop systems with T ratings, in addition to F ratings, as determined per ASTM E 814, where indicated and where systems protect penetrating items exposed to contact with adjacent materials in occupiable floor areas. T-rated assemblies are required where the following conditions exist:
   1. Where firestop systems protect penetrations located outside of wall cavities.

2. Where firestop systems protect penetrations located outside fire-resistive shaft enclosures.
3. Where firestop systems protect penetrations located in construction containing doors required to have a temperature-rise rating.
4. Where firestop systems protect penetrating items larger than a 4-inch-diameter nominal pipe or 16 sq. in. in overall cross-sectional area.

D. Fire-Resistive Joint Sealants: Provide joint sealants with fire-resistance ratings indicated, as determined per ASTM E 119, but not less than that equaling or exceeding the fire-resistance rating of the construction in which the joint occurs.

E. For firestopping exposed to view, traffic, moisture, and physical damage, provide products that do not deteriorate when exposed to these conditions.
1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
2. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.

F. For firestopping exposed to view, provide products with flame-spread values of less than 25 and smoke-developed values of less than 450, as determined per ASTM E 84.

1.4 SUBMITTALS

A. General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

B. Product data for each type of product specified.
1. Certification by firestopping manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCS) and are nontoxic to building occupants.

C. Product test reports from, and based on tests performed by, a qualified testing and inspecting agency evidencing compliance of firestopping with requirements based on comprehensive testing of current products.

1.5 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Provide firestopping that complies with the following requirements and those specified under the "System Performance Requirements" article:

1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL or Warnock Hersey.

2. Through-penetration firestop systems are identical to those tested per ASTM E 814 under conditions where positive furnace pressure differential of at least 0.01 inch of water is maintained at a distance of 0.78 inch below the fill materials surrounding the penetrating items in the test assembly. Provide rated systems complying with the following requirements:
   a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.
   b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by UL in their "Fire Resistance Directory," or by Warnock Hersey.
3. Fire-resistive joint sealant systems are identical to those tested for fire-response characteristics per ASTM E 119 under conditions where the positive furnace pressure differential is at least 0.01 inch of water, as measured 0.78 inch from the face exposed to furnace fire. Provide systems complying with the following requirements:
   a. Fire-Resistance Ratings of Joint Sealants: As indicated by reference to design designations listed by UL in their "Fire Resistance Directory" or by another qualified testing and inspecting agency.
   b. Joint sealants, including backing materials, bear classification marking of qualified testing and inspection agency.

B. Installer Qualifications: Engage an experienced Installer who has completed firestopping that is similar in material, design, and extent to that indicated for Project and that has performed successfully.

C. Single-Source Responsibility: Obtain through-penetration firestop systems for each kind of penetration and construction condition indicated from a single manufacturer.

D. Provide firestopping products containing no detectable asbestos as determined by the method specified in 40 CFR Part 763, Subpart F, Appendix A, Section 1, "Polarized Light Microscopy."

E. Coordinating Work: Coordinate construction of openings and penetrating items to ensure that designated through-penetration firestop systems are installed per specified requirements.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver firestopping products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agency's

classification marking applicable to Project; curing time; and mixing instructions for multi-component materials.

B. Store and handle firestopping materials to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Conditions: Do not install firestopping when ambient or substrate temperatures are outside limits permitted by firestopping manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.

B. Ventilation: Ventilate firestopping per firestopping manufacturers, instructions by natural means or, where this is inadequate, forced air circulation.

1.8 SEQUENCING AND SCHEDULING

A. Do not cover up those firestopping installations that will become concealed behind other construction until the owner's Representative and authorities having jurisdiction, if required, have examined each installation.

PART 2 - PRODUCTS

2.1 FIRESTOPPING, GENERAL

A. Compatibility: Provide firestopping composed of components that are compatible with each other, the substrates forming openings, and the items, if any, penetrating the firestopping under conditions of service and application, as demonstrated by firestopping manufacturer based on testing and field experience.

B. Accessories: Provide components for each firestopping system that are needed to install fill materials and to comply with "System Performance Requirements" article in Part 1. Use only components specified by the firestopping manufacturer and approved by the qualified testing and inspecting agency for the designated fire-resistance-rated systems. Accessories include but are not limited to the following items:
   1. Permanent forming/damming/backing materials including the following:
      a. Ceramic fiber.
      b. Sealants used in combination with other forming/damming materials to prevent leakage of fill materials in liquid state.
      c. Joint fillers for joint sealants.
   2. Temporary forming materials.
   3. Substrate primers.
   4. Collars.

5. Steel sleeves.

C. Applications: Provide firestopping systems composed of materials specified in this Section that comply with system performance and other requirements.

2.2 FILL MATERIALS FOR THROUGH-PENETRATION FIRESTOP SYSTEMS

A. Ceramic-Fiber Forming/Backing/Damming Material: Formulation of continuous filament ceramic fibers and inorganic binders.

B. Products: Subject to compliance with requirements, provide one of the following:
   1. Ceramic-Fiber Forming/Backing/Damming Material:
      a. Ultra Block, Backer Rod Mfg. & Supply Co.
   2. Silicone Sealants:
      a. Dow Corning Firestop Sealant SL 2002, Dow Corning Corp.
      b. Pensil 100 Firestop Sealant, General Electric Co.
      c. Nelson CLK Firestop Sealant, Hevi-Duty/Nelson.

2.3 FIRE-RESISTIVE ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that complies with ASTM 920 requirements, including those referenced for Type, Grade, Class, and Uses, and requirements specified in this Section applicable to fire-resistive joint sealants.

B. Sealant Colors: Provide color of exposed joint sealants to comply with the following:
   1. Provide selections made by Architect from manufacturer's full range of standard colors for products of type indicated.

C. Products: Subject to compliance with requirements, provide one of the following:
   1. Single Component, Neutral Silicone Sealant:
      a. 864/Pecora Corp.
      b. Dow Corning 795, Dow Corning Corp.
      c. Silproof, General Electric Company

   2. Multicomponent, Nonsag, Urethane Sealant:
      a. Dynatrol II, Pecora Corp.
      b. Sonolastic NP 2, Sonneborn Building Products Div., ChemRex Inc.
      c. Dymeric Plus, Tremco Inc.

2.4 MIXING

A. For those products requiring mixing prior to application, comply with firestopping manufacturer's directions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other procedures needed to produce firestopping products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of firestopping. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Clean out openings and joints immediately prior to installing firestopping to comply with recommendations of firestopping manufacturer and the following requirements:
   1. Remove all foreign materials from surfaces of opening and joint substrates and from penetrating items that could interfere with adhesion of firestopping.
   2. Clean opening and joint substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.
   3. Remove laitance and form release agents from concrete.

B. Priming: Prime substrates where recommended by firestopping manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration on to exposed surfaces.

C. Masking Tape: Use masking tape to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestopping materials. Remove tape as soon as it is possible to do so without disturbing firestopping's seal with substrates.

3.3 INSTALLING THROUGH-PENETRATION FIRESTOPS

A. Install forming/damming materials and other accessories of types required to support fill materials during their application and in the position needed

to produce the cross-sectional shapes and depths required to achieve fire ratings of designated through-penetration firestop systems. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.

B. Install fill materials for through-penetration firestop systems by proven techniques to produce the following results:
   1. Completely fill voids and cavities formed by openings, forming materials, accessories, and penetrating items.
   2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
   3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 INSTALLING FIRE-RESISTIVE JOINT SEALANTS

A. Install joint fillers to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability and develop fire-resistance rating required.

B. Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint width that optimum sealant movement capability. Install sealants at the same time joint fillers are installed.

C. Tool nonsag sealants immediately after sealant application and prior to the time skinning or curing begins. Form smooth, uniform beads of configuration indicated or required to produce fire-resistance rating, as well as to eliminate air pockets, and to ensure contact and adhesion of sealants with sides of joint. Remove excess sealant from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.

3.5 FIELD QUALITY CONTROL

A. The Owner's Representative will examine completed firestopping to determine, in general, if it is being installed in compliance with requirements.

B. The Owner's Representative will report observations promptly and in writing to Contractor and Architect.

C. Do not proceed to enclose firestopping with other construction until installations are approved.

D. Where deficiencies are found, repair or replace firestopping so that it complies with requirements.

3.6 CLEANING

A. Clean off excess fill materials and sealants adjacent to openings and joints as work progresses by methods and with cleaning materials approved by manufacturers of firestopping products and of products in which opening and joints occur.

B. Protect firestopping during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated firestopping immediately and install new materials to produce firestopping complying with specified requirements.

END OF SECTION 07 84 00

SECTION 07 92 00 - JOINT SEALERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, “The General Conditions of the Contract for Construction,”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes joint sealants for the following locations:
   1. Exterior joints in vertical surfaces and nontraffic horizontal surfaces as indicated below:
      a. Control joints and expansion joints where exposed to view.
      b. Perimeter joints between frames of doors, windows, and louvers.
      c. Other joints as indicated.
   2. Interior joints in vertical surfaces and horizontal nontraffic surfaces as indicated below:
      a. Perimeter joints of exterior openings.
      b. Perimeter joints of all exposed architectural woodwork as specified within Section 06 44 00 – Ornamental Woodwork and adjacent surfaces.
      b. Perimeter joints of all architectural casework as specified within Section 12 32 16 – Manufactured Architectural Casework and adjacent surfaces.
      c. Perimeter joints of hollow metal frames
      d. Perimeter joints of porcelain toilet fixtures
      e. Perimeter joints of detention cell bunks, detention equipment, detention cell perimeters, and penalware.
      f. All exposed joints between drywall and other dissimilar materials.

B. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Section 07 84 00 "Firestopping" for fire-resistance-rated joint sealants.
   2. Section 08 80 00 "Glazing" for sealants used in glazing.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. Provide elastomeric joint sealants that have been produced and installed to establish and to maintain watertight and airtight continuous seals without causing staining or deterioration of joint substrates.

B. Provide joint sealants for interior applications that have been produced and installed to establish and maintain airtight continuous seals that are water resistant and cause no staining or deterioration of joint substrates.

1.4 SUBMITTALS

A. Product data from manufacturers for each joint sealant product required.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed joint sealant applications similar in material, design, and extent to that indicated for Project that have resulted in construction with a record of successful in-service performance.

B. Single Source Responsibility for Joint Sealant Materials: Obtain joint sealant materials from a single manufacturer for each different product required.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, pot life, curing time, and mixing instructions for multicomponent materials.

B. Store and handle materials in compliance with manufacturer's recommendations to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

1.7 PROJECT CONDITIONS

A. Environmental Conditions: Notify Architect and do not proceed with installation of joint sealants under the following conditions:
   1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer.
   2. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer or below 40 deg F.
   3. When joint substrates are wet.

B. Joint Width Conditions: Notify Architect and do not proceed with installation of joint sealants where joint widths are less than allowed by joint sealant manufacturer for application indicated.

C. Joint Substrate Conditions: Notify Architect and do not proceed with installation of joint sealants until contaminants capable of interfering with their adhesion are removed from joint substrates.

1.8 SEQUENCING AND SCHEDULING

A. Sequence installation of joint sealants to occur not less than 21 nor more than 30 days after completion of waterproofing, unless otherwise indicated.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Compatibility: Provide joint sealants, joint fillers, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.

B. Colors: Provide color of exposed joint sealants to comply with the following:
   1. Provide selections made by Architect from manufacturer's full range of standard colors for products of types indicated.

2.2 ELASTOMERIC JOINT SEALANTS

A. Elastomeric Sealant Standard: Provide manufacturer's standard chemically curing elastomeric sealants that comply with those requirements referencing ASTM 920 classifications for Type, Grade, Class, and Uses.

B. Products: Subject to compliance with requirements, provide one of the following:
   1. Multi-Part, Non Sag Urethane Sealants:
      a. "Dynatrol II", Pecora Corp.
      b. "Sonolastic NP2", Sonneborn Building Products Division
      c. "Dymeric Plus", Tremco.
   2. Multi-Part, Self Levelling Urethane Sealant:
      a. "Sikaflex - 20 SL", Sika Corp.
      b. "Sonolastic SL2", Sonneborn Building Products Division.

2.3 LATEX JOINT SEALANTS

A. General: Provide manufacturer's standard one-part, nonsag, mildew-resistant, paintable latex sealant of formulation indicated that is recommended for exposed applications on interior and protected exterior locations and that accommodates indicated percentage change in joint width existing at time of installation without failing either adhesively or cohesively.

B. Acrylic-Emulsion Sealant: Provide product complying with ASTM C 834 that accommodates joint movement of not more than 5 percent in both extension and compression for a total of 10 percent.

C. Products: Subject to compliance with requirements, provide one of the following:
   1. Acrylic-Emulsion Sealant:
      a. "AC-20", Pecora Corp.
      b. "Sonolac," Sonneborn Building Products Div., ChemRex, Inc.
      c. "Tremco Acrylic Latex 834", Tremco, Inc.

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. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstaining, nonwaxing, nonextruding strips of flexible plastic foam of material indicated below and of size, shape, and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
   1. Open-cell polyurethane foam.
   2. Closed-cell polyethylene foam, nonabsorbent to liquid water and gas, non-outgassing in un-ruptured state.
   3. Proprietary, reticulated, closed-cell polymeric foam, non-outgassing, with a density of 2.5 pcf and tensile strength of 35 psi per ASTM D 1623, and with water absorption less than 0.02 gms/cc per ASTM C 1083.
   4. Any material indicated above.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape as recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint filler materials or joint surfaces at back of

joint where such adhesion would result in sealant failure. 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 in any way joint substrates and adjacent nonporous surfaces, and formulated to promote optimum adhesion of sealants with 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. Notify Architect and do not proceed with installation of joint sealants until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturer and the following requirements:
   1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
   2. Clean concrete, masonry, unglazed surfaces of ceramic tile, and similar porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles

remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air.

3. Remove laitance and form release agents from concrete.
4. Clean metal, glass, porcelain enamel, glazed surfaces of ceramic tile, and other nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where indicated or where recommended by joint sealant manufacturer based on preconstruction joint sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's recommendations. 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 printed installation instructions applicable to products and applications indicated, except where more stringent requirements apply.

B. Installation of Sealant Backings: Install sealant backings to comply with the following requirements:
   1. Install joint fillers of type indicated to provide support of sealants during application and at position required to produce the cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
      a. Do not leave gaps between ends of joint fillers.
      b. Do not stretch, twist, puncture, or tear joint fillers.
      c. Remove absorbent joint fillers that have become wet prior to sealant application and replace with dry material.
   2. Install bond breaker tape between sealants where backer rods are not used between sealants and joint fillers or back of joints.

C. Installation of Sealants: Install sealants by proven techniques that result in sealants directly contacting and fully wetting joint substrates, completely filling recesses provided for each joint configuration, and providing uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability. Install sealants at the same time sealant backings are installed.

D. Tooling of Nonsag Sealants: Immediately after sealant application and prior to time skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated, to eliminate air pockets, and to ensure contact and adhesion of sealant with sides of joint. Remove excess sealants from surfaces adjacent to joint. Do not use tooling agents that discolor sealants or adjacent surfaces or are not approved by sealant manufacturer.
   1. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.

3.4 CLEANING

A. Clean off excess sealants or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved 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 or from damage resulting from construction operations or other causes so that they are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so that and installations with repaired areas are indistinguishable from original work.

3.6 GUARANTEE AND CERTIFICATION

A. This Contractor shall guarantee **in writing** that all sealant work will be free from defects of materials and workmanship for a period of five (5) years. The following types of failure will be adjusted:
   1. Leakage, cracking, crumbling, melting, shrinking or running of caulking, or staining of adjacent work by caulking.

B. This Contractor shall repair and replace work which becomes defective during guarantee term without cost to the Owner.

3.7 SCHEDULE

A. Exterior Joints:
   1. All expansion and control joints: Multi-Part, Non-Sag Urethane Sealant
   2. Metal frame and louver perimeters: Multi-Part, Non-Sag Urethane Sealant

3. All exposed joints between dissimilar materials: MultiPart, Non-Sag Urethane Sealant

B. Interior Joints
1. Drywall to hollow metal frames: Acrylic-Emulsion Sealant
2. Drywall to window frames or dissimilar materials: Acrylic-Emulsion Sealant
4. All expansion and control joints: Acrylic-Emulsion Sealant
5. Hollow metal frame and louver perimeters: Acrylic-Emulsion Sealant
6. Porcelain Plumbing fixtures: Acrylic-emulsion Mildew-Resistant Sealant
7. All exposed joints between drywall or other dissimilar materials: Acrylic-Emulsion Sealant.
8. Perimeter joints of all architectural woodwork as specified within Section 06 44 00 – Ornamental Woodwork: Acrylic-Emulsion Sealant and Section 12 32 16 – Manufactured Architectural Casework
9. Detention cell perimeters / cell bunk perimeters / detention penal fixtures perimeters: Epoxy Resin Sealant (apply only after painting)

END OF SECTION 07 92 00

SECTION 08 14 00 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, “The General Conditions of the Contract for Construction,”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY:

A. Extent and location of each type of flush wood door is indicated on drawings and in schedules within the specifications.

B. Types of doors required include the following:
1. Five-ply flush, bonded, solid core flush wood doors with wood veneer faces (Plain Sliced **White Maple**) and factory finishing for rated and non-rated openings as further described on the drawings.

C. Factory-premachining for hardware for wood doors is **mandatory**.

D. Factory finishing of wood doors is **mandatory** on all units.

E. Additional woodwork other than flush wood doors is specified in Section 06 44 00, "Ornamental Woodwork".

F. Metal door frames for flush wood doors are specified in Section 08 11 13, "Steel Doors and Frames".

G. Door hardware is specified in Section 08 71 00 "Door Hardware".

H. Glazing of wood doors is specified in Section 08 80 00 “Glass and Glazing”.

I. See Section 01 23 00 “Alternates” for work affected by this Section.

1.3 SUBMITTALS:

A. Product Data: Door manufacturer's technical data for each type of door, including details of core and edge construction, trim for openings and factory-finishing specifications.

B. Shop Drawings: Submit shop drawings indicating location and size of each door, elevation of each kind of door, details of construction, location and extent of hardware blocking, fire ratings, requirements for factory finishing and other pertinent data.

1. For factory-premachined doors, indicate dimensions and locations of cutouts for locksets and other cutouts adjacent to light and louver openings.

C. Samples: Submit samples for the following:
1. Doors for Factory Finish: Door faces with solid wood edging representing typical range of color and grain for each species of veneer and solid lumber required.

1.4 QUALITY ASSURANCE:

A. Quality Standards: Comply with the following standards:
1. NWWDA Quality Standard: I.S.1 "Industry Standard for Wood Flush Doors", of National Wood Window and Door Association (NWWDA).
2. AWI Quality Standard: "Architectural Woodwork Quality Standards"; including Section 1300 "Architectural Flush Doors", of Architectural Woodwork Institute (AWI) for grade of door, core construction, finish and other requirements exceeding those of NWWDA quality standard.

B. NWWDA Quality Marking: Mark each wood door with NWWDA Wood Flush Door Certification Hallmark certifying compliance with applicable requirements of NWWDA I.S. 1 Series.

C. Fire-Rated Wood Doors: Provide wood doors which are identical in materials and construction to units tested in door and frame assemblies per ASTM E 152 and which are labeled and listed for ratings indicated by UL or Warnock Hersey.

D. Manufacturer: Obtain doors from a single manufacturer.

E. Factory prefinishing shall meet the minimum performance standards of AWI finish system TR-6 (AWI #5) and OP-6 (AWI #11) with stain coat.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING:

A. Protect doors during transit, storage and handling to prevent damage, soiling and deterioration. Comply with requirements of referenced standards and recommendations of NWWDA pamphlet "How to Store, Handle, Finish, Install, and Maintain Wood Doors", as well as with manufacturer's instructions.

B. Identify each door with individual opening numbers which correlate with designation system used on shop drawings for door, frames, and hardware, using temporary, removable or concealed markings.

1.6 PROJECT CONDITIONS:

A. Conditioning: Do not deliver or install doors until conditions for temperature and relative humidity have been stabilized and will be maintained in storage and installation areas during remainder of construction period to comply with the following requirements applicable to project's geographical location:
   1. Referenced AWI quality standard including Section 100-S-3 "Moisture Content".

1.7 WARRANTY:

A. General: Warranties shall be in addition to, and not a limitation of, other rights the Owner may have under the Contract Documents.

B. Door Manufacturer's Warranty: Submit written agreement in door manufacturer's standard form signed by Manufacturer, Installer and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup or twist) or that show telegraphing of core construction in face veneers, or do not conform to tolerance limitations of referenced quality standards.
   1. Warranty shall also include reinstallation which may be required due to repair or replacement of defective doors where defect was not apparent prior to hanging.
   2. Warranty shall be in effect during following period of time after date of Substantial Completion.
   3. Solid Core Interior Doors:
      a. Life of installation.

C. Contractor's Responsibilities: Replace or refinish doors where Contractor's work contributed to rejection or to voiding of manufacturer's warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS:

A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
   1. Solid Core Doors with Wood Veneer Faces:
      a. VT Industries, Inc.
      b. Marshfield Door Systems
      c. Eggers Industries, Architectural Door Division.

2.2 INTERIOR FLUSH WOOD DOORS:

A. Solid Core Doors for Transparent Finish: Comply with the following requirements:
   1. Veneers: Grade A, **White Maple**, Plain sliced cut veneers. Match veneers for all pair doors.
   2. AWI Grade: Custom

3. Particleboard Core (PC-5) to comply with ANSI Stnd. A208.1- 1989 LD-2, with screw holding power of 125 lbs., modulus of rupture of 800 psi, modulus of elasticity of 150,000 psi and density of 30-35 lbs. per cubic foot.
4. Crossbands are wood-based composites of a minimum thickness of 1/16". Crossbands and face veneers are laminated to the core with Type 2 interior use glue using the Hot Press process. Crossbands must extend the full width of the door. Minimum properties include internal bond of 100 psi and density of 50 lbs. per cubic foot.
5. Stile Type: Matching
6. Rails (Horizontal Edges) - Rails are solid wood, structural composite lumber meeting the minimum requirements of WDMA, or medium density fiberboard meeting requirements of ANSI 208.2 (Medium Density Fiberboard for Interior Use).
7. Blocking Requirements Specified: Minimum 5” top rail and 5” bottom rail required

B. Fire-Rated Solid Core Doors: Comply with the following requirements:
1. Faces and AWI Grade: Provide faces and grade to match non-rated doors.
2. Construction: Manufacturer's standard core construction as required to provide fire-resistance rating indicated.
3. Edge Construction: Provide manufacturer's standard laminated edge construction for improved screw-holding capability and split resistance as compared to edges composed of a single layer of treated lumber.
4. Edge Construction: Provide edge construction with intumescent seals concealed by outer stile. Comply with specified requirements for exposed edges.
5. Pairs: Provide fire-retardant stiles that are listed and labeled for applications indicated without formed-steel edges and astragals. Provide stiles with concealed intumescent seals. Comply with specified requirements for exposed edges.

C. Factory Finishing – All doors to be finished at the factory, with UV cured system with performance properties equivalent to TR-6 or OP-6 Catalyzed Polyurethane per AWI Section 1500, Premium grade. Factory pre-finished doors to be individually protected with transparent poly-wrap at the factory. Final color, build, and sheen to be approved by architect based on actual review samples supplied by the manufacturer.

1. Finish Type: Transparent with stain coat. Color matching to Marshfield Door Systems., “**CLEAR 0-95**”.
2. Top and Bottom Rails: Factory sealed.

2.3 LOUVERS AND LIGHT FRAMES:

A. Metal Frames for Light Openings in Fire Doors: Manufacturer's standard frame formed of veneer wrapped 18-gage cold-rolled steel, factory-primed, and approved for use in door of fire-rating indicated.

B. Wood Frames for Light Openings in Non-rated Doors: Manufacturer's standard wood frame.

2.4 FABRICATION:

A. Fabricate flush wood doors to produce doors complying with following requirements:
   1. In sizes indicated for job-site fitting.
   2. Factory-prefit and premachine doors to fit frame opening sizes indicated with the following uniform clearances and bevels:
      a. Comply with tolerance requirements of AWI for prefitting. Comply with final hardware schedules and door frame shop drawings and with hardware templates.
      b. Coordinate measurements of hardware mortises in metal frames to verify dimensions and alignment before proceeding with factory premachining.

B. Metal Astragals: Premachine astragals and formed steel edges for hardware where required for pairs of fire-rated doors.

C. Openings: Cut and trim openings through doors to comply with applicable requirements of referenced standards for kind(s) of doors required.
   1. Light Openings: Trim openings with moldings of material and profile indicated.

PART 3 - EXECUTION

3.1 EXAMINATION:

A. Examine installed door frames prior to hanging door:
   1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with plumb jambs and level heads.
   2. Reject doors with defects.

B. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION:

A. Hardware: For installation see Section 08710 "Door Hardware" section of these specifications.

B. Manufacturer's Instructions: Install wood doors to comply with manufacturer's instructions and of referenced AWI standard and as indicated.
   1. Install fire-rated doors in corresponding fire-rated frames in accordance with requirements of NFPA No. 80.

C. Job-Fit Doors: Align and fit doors in frames with uniform clearances and bevels as indicated below; do not trim stiles and rails in excess of limits set by manufacturer or permitted with fire-rated doors. Machine doors for hardware. Seal cut surfaces after fitting and machining.
   1. Fitting Clearances for Non-Rated Doors: Provide 1/8 inch, at jambs and heads; 1/16 inch per leaf at meeting stiles for pairs of doors; and 1/8 inch from bottom of door to top of decorative floor finish or covering. Where threshold is shown or scheduled, provide ¼ inch clearance from bottom of door to top of threshold.
   2. Fitting Clearances for Fire-Rated Doors: Complying with NFPA 80.
   3. Bevel non-rated doors 1/8 inch in 2 inches at lock and hinge edges.
   4. Bevel fire-rated doors 1/8 inch in 2 inches at lock edge; trim stiles and rails only to extent permitted by labeling agency.

D. Prefit Doors: Fit to frames for uniform clearance at each edge.

3.3 ADJUSTING AND PROTECTION:

A. Operation: Rehang or replace doors which do not swing or operate freely.

B. Finished Doors: Refinish or replace doors damaged during installation.

C. Protect doors as recommended by door manufacturer to ensure that wood doors will be without damage or deterioration at time of Substantial Completion.

END OF SECTION 08 14 00

SECTION 08 31 13 - ACCESS DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes furnishing access doors for installation in the following types of construction:
   1. Gypsum Drywall and Unit Masonry partitions as required for access to moving parts, valves, and controls.

B. Installation of access doors is by Section 06 10 00 – Rough Carpentry within gypsum board partitions and by Section 04 20 00 – Unit Masonry within masonry partitions.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
   1. Product data in form of manufacturer's technical data and installation instructions for each type of access door assembly, including setting drawings, templates, instructions, and directions for installation of anchorage, devices.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain access doors for entire project from one source from a single manufacturer.

B. Size Variations: Obtain Architect's acceptance of manufacturer's standard size units, which may vary slightly from sizes indicated.

C. Coordination: Furnish inserts and anchoring devices that must be built into other work for installation of access doors. Coordinate delivery with other work to avoid delay.

1.5 PROJECT CONDITIONS

A. Verification: Obtain specific locations and sizes for required access doors from trades requiring access to concealed equipment, and indicate on submittal schedule.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide access doors by one of the following:
   1. Cesco Products
   2. J.L. Industries
   3. Milcor, Inc.
   4. Nystrom, Inc.
   5. The Williams Bros. Corporation of America

2.2 MATERIALS AND FABRICATION

A. General: Furnish each access door assembly manufactured as an integral unit, complete with all parts, and ready for installation.

B. Steel Access Doors and Frames: Fabricate units of continuous welded steel construction unless otherwise indicated. Grind welds smooth and flush with adjacent surfaces. Furnish attachment devices and fasteners of type required to secure access panels to types of support shown.

C. Frames: Fabricate from 16-gage steel.
   1. Fabricate frame with exposed flange nominal 1-inch wide around perimeter of frame for units installed in the following construction:
      a. Exposed masonry.
      b. Drywall finish.
      c. Plywood.
   2. For gypsum drywall furnish perforated frames with drywall bead.
   3. For installation in masonry construction, furnish frames with adjustable metal masonry anchors.

D. Flush Panel Doors: Fabricate from not less than 14 gage sheet steel, with concealed continuous piano hinge set to open 175 degrees. Finish with manufacturer's factory-applied prime paint.

E. Locking Devices: Furnish flush, screwdriver-operated cam locks of number required to hold door in flush, smooth plane when closed.
   1. Provide one cylinder lock per access door. Furnish 2 keys per lock. Key all locks alike, unless otherwise scheduled.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer's instructions for installation of access doors.

B. Coordinate installation with work of other trades.

C. Set frames accurately in position and securely attach to supports with face panels plumb or level in relation to adjacent finish surfaces.

3.2 ADJUST AND CLEAN

A. Adjust hardware and panels after installation for proper operation.

B. Remove and replace panels or frames that are warped, bowed, or otherwise damaged.

END OF SECTION 08 31 13

SECTION 08 42 29 – SLIDING AUTOMATIC ENTRANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, "The General Conditions of the Contract for Construction,", the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. Furnish and install impact rated sliding automatic aluminum door system (**total of 1**) as indicated on the drawings and herein specified complete with aluminum door assembly, door operator, controls, and all accessories.

B. This Section includes the following types of automatic entrance doors: Exterior impact rated, bi-parting, sliding automatic entrance doors.

C. Automatic doors and matching frame components to be installed within the following openings:
   1. Police Department: Vestibule 132

1.3 RELATED SECTIONS

A. The following sections contain requirements that relate to this section:
   1. Section 08 71 00 – "Finish Hardware" for any hardware being provided for these door openings.
   2. Section 08 41 13 – "Aluminum Entrances and Storefront" for sidelights and transom lights surrounding sliding automatic entrance aluminum framing.
   3. Section 08 44 33 – "Sloped Glazed Assemblies" for sloped glazed ceiling of vestibule.
   4. Section 08 80 00 – "Glass and Glazing" for glazing of sliding automatic entrances.
   5. Division 26 – Electrical for electrical connections including conduit and wiring for automatic entrance door operators.

1.4 REFERENCES

General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.

A. Underwriters Laboratories (UL):
   1. UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.

B. American National Standards Institute (ANSI) / Builders' Hardware Manufacturers Association (BHMA):
   1. ANSI/BHMA A156.10: Standard for Power Operated Pedestrian Doors.
   2. ANSI/BHMA A156.5: Standard for Auxiliary Locks and Associated Products

C. American Society for Testing and Materials (ASTM):
   1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
   2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

D. American Association of Automatic Door Manufacturers (AAADM):

E. National Fire Protection Association (NFPA):
   1. NFPA 101 – Life Safety Code.
   2. NFPA 70 – National Electric Code.

F. International Code Council (ICC):
   1. IBC: International Building

G. Building Officials and Code Administrators International (BOCA), 1999:

H. International Conference of Building Officials (ICBO):
   1. UBC 1997: Uniform Building Code

I. International Organization for Standardization (ISO):
   1. ISO 9001 - Quality Management Systems

J. National Association of Architectural Metal Manufacturers (NAAMM):
   1. Metal Finishes Manual for Architectural and Metal Products

K. American Architectural Manufacturers Association (AAMA):
   1. AAMA 607.1 - Clear Anodic Finishes for Architectural Aluminum.
   2. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.
   3. AAMA 701 Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.

1.5 DEFINITIONS

A. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.

B. Safety Device: Device that prevents a door from opening or closing, as appropriate.

1.6 PERFORMANCE REQUIREMENTS

A. Provide automatic entrance door assemblies capable of withstanding structural loads and thermal movements based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.

B. Thermal Movements: Provide automatic entrance doors that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

C. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

D. Operating Range: Minus 30 deg F to 130 deg F.

E. Opening-Force Requirements for Egress Doors: Not more than 50 lbf required to manually set door in motion if power fails, and not more than 15 lbf required to open door to minimum required width.

F. Closing-Force Requirements: Not more than 30 lbf required to prevent door from closing.

1.7 SUBMITTALS

A. Submit listed submittals in accordance with Conditions of the Contract and Division 1 Specification Sections.

B. Shop Drawings: Include plans, elevations, sections, details, hardware mounting heights, and attachments to other work.

C. Closeout Submittals:
1. Owner’s Manual.
2. Warranties.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained for installation and maintenance of units required for this Project.

B. Manufacturer Qualifications: A qualified manufacturer with a manufacturing facility certified under ISO 9001 and with company certificate issued by AAADM.

C. Certifications: Automatic sliding door systems shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards:
1. ANSI/BHMA A156.10.
2. NFPA 101.
3. Underwriter’s Laboratories 325 (UL) listed.
4. IBC
5. ICBO
6. BOCA

D. Source Limitations: Obtain automatic entrance door assemblies through one source from a single manufacturer.

E. Product Options: Drawings indicate sizes, profiles, and dimensional requirements of automatic entrance door assemblies and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."

F. 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.

G. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrance doors serving as a required means of egress.

1.9 PROJECT CONDITIONS

A. Field Measurements: Construction Manager shall verify openings to receive automatic entrance door assemblies by field measurements before fabrication and indicate measurements on Shop Drawings.

B. Mounting Surfaces: Construction Manager shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.

C. Other trades: Construction Manager shall advise of any inadequate conditions or equipment.

1.10 COORDINATION

A. Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic entrance doors to comply with indicated requirements.

B. Electrical System Roughing-in: Coordinate layout and installation of automatic entrance door assemblies with connections to power supplies.

1.11 WARRANTY

A. Automatic Entrance Doors shall be free of defects in material and workmanship for a period of one (1) year from the date of Substantial Completion.

B. During the warranty period the Owner shall engage a factory-trained technician to perform service and affect repairs. A safety inspection shall be performed after each adjustment or repair and a completed inspection form shall be submitted to the Owner.

C. During the warranty period all warranty work, including but not limited to emergency service, shall be performed during normal working hours.

PART 2 - PRODUCT

2.1 MANUFACTURER

A. Basis of Design: Sliding automatic impact resistant entrances shall be manufactured by Stanley Access Technologies; **Dura-Storm™ 2000** Series sliding automatic entrance doors.

B. Acceptable equivalent products to be manufactured by Horton Automatics, a division of Overhead Door Corporation; Dor-O-Matic of Harwood Heights, IL; or KM Systems of Monroe, NC.

2.2 MATERIALS

A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
   1. Headers, stiles, rails, and frames: 6063-T6
   2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.
   3. Sheet and Plate: ASTM B 209.

B. Sealants and Joint Fillers: Performed under Section 07 92 00 - "Joint Sealers".

2.3 AUTOMATIC ENTRANCE DOOR ASSEMBLIES

A. Provide manufacturer's standard automatic entrance door assemblies including doors, sidelites, framing, headers, carrier assemblies, roller tracks, door operators, activation and safety devices, and accessories required for a complete installation.

B. Sliding Automatic Entrance Doors:
   1. Bi-Parting sliding doors:
      a. Configuration: Two sliding leaves and two full sidelites.
      b. Traffic Pattern: Two-way.
      c. Emergency Breakaway Capability: Sliding leaves only.
      d. Mounting: Between jambs

2.4 COMPONENTS

A. Framing Members: Manufacturer's standard extruded aluminum reinforced as required to support imposed loads.
   1. Nominal Size: 1 ¾ inch by 4 ½ inch.

B. Stile and Rail Doors and Sidelites: Manufacturer's standard 1-¾ inch thick glazed doors with extruded-aluminum tubular stile and rail members. Incorporate concealed tie-rods that span full length of top and bottom rails or mechanically fasten corners with reinforcing brackets that are welded.
   1. Glazing Stops and Gaskets: Snap-on, extruded-security aluminum stops and preformed gaskets.
   2. Stile Design: Medium stile; 3.5 inch nominal width.
   3. Bottom Rail Design: Minimum 10 inch nominal height.
   4. Muntin Bars: Horizontal tubular rail member for each door; 4.25 inch nominal width.

C. Glazing: Furnished and installed under Division 8, Section 08 80 0 – Glass & Glazing. Glazing to be outboard stop with approved structural tape.

D. Headers: Fabricated from extruded aluminum and extending full width of automatic entrance door units to conceal door operators, carrier assemblies, and roller tracks. Provide hinged or removable access panels for service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.
   1. Mounting: Concealed, with one side of header flush with framing.
   2. Capacity: Capable of supporting doors up to 220 lb per leaf over spans up to 14 feet without intermediate supports.

E. Carrier Assemblies and Overhead Roller Tracks: Manufacturer's standard carrier assembly that allows vertical adjustment of at least 1/8 inch; consisting of urethane with precision steel lubricated ball-bearing wheels, operating on a continuous roller track. Support doors from carrier assembly by 2 inch diameter anti-riser wheels with factory adjusted

cantilever and pivot assembly. Minimum two ball-bearing roller wheels and two anti-rise rollers for each active leaf.
1. Minimum Load Wheel Diameter: 2 1/2 inch.

F. Thresholds: Manufacturer's standard thresholds as indicated below:
1. Continuous standard tapered extrusion double bevel.
2. All thresholds to conform to details and requirements for code compliance.

G. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.

H. Signage: Provide signage in accordance with ANSI/BHMA A156.10.

2.5 DOOR OPERATORS

A. Provide door operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, operation under normal traffic load for type of occupancy indicated.

B. Electromechanical Operators: Self-contained overhead unit powered by a minimum of 1/4 horsepower, permanent-magnet DC motor with gear reduction drive, microprocessor controller; and encoder.
1. Operation: Power opening and power closing.
2. Features:
   a. Adjustable opening and closing speeds.
   b. Adjustable back-check and latching.
   c. Adjustable braking.
   d. Adjustable hold-open time between 0 and 30 seconds.
   e. Obstruction recycle.
   f. On/Off switch to control electric power to operator.
   g. Energy conservation switch that reduces door-opening width.
   h. Variable rate open/closed speed control.
   i. Closed loop speed control with active braking and acceleration.
   j. Variable obstruction recycle time delay.
   k. Self adjusting stop position.
   l. Self adjusting closing compression force.
   m. Switch to open/Switch to close operation.
3. Mounting: Concealed.
4. Drive System: Synchronous belt type.

C. Electrical service to door operators shall be provided under Division 16 Electrical. Minimum service to be 120 VAC, 5 amps.

2.6 ELECTRICAL CONTROLS

A. Electrical Control System: Electrical control system shall include a microprocessor controller and a high-resolution position encoder. The encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position and speed.
   1. The high-resolution encoder shall have a resolution of not less than 1024 counts per revolution. Systems utilizing external magnets and magnetic switches are not acceptable.
   2. Electrical control system shall include a 24 VDC auxiliary output rated at 1 amp.

B. Performance Data: The microprocessor shall collect, and store performance data as follows:
   1. Counter: A non-resettable counter to track operating cycles.
   2. Event Reporting: Unit shall include non-volatile event and error recording including number of occurrences of events and errors, and cycle count of most recent events and errors.
   3. LED Display: Display presenting the current operating state of the controller.

C. Controller Protection: The microprocessor controller shall incorporate the following features to ensure trouble free operation:
   1. Automatic Reset Upon Power Up.
   2. Main Fuse Protection.
   3. Electronic Surge Protection.
   4. Internal Power Supply Protection.
   5. Resetable sensor supply fuse protection.
   6. Motor Protection, over-current protection.

D. Soft Start/Stop: A “soft-start” “soft-stop” motor driving circuit shall be provided for smooth normal opening and recycling.

E. Obstruction Recycle: Provide system to recycle the sliding panels when an obstruction is encountered during the closing cycle. If an obstruction is detected, the system shall search for that object on the next closing cycle by reducing door closing speed prior to the previously encountered obstruction location, and will continue to close in check speed until doors are fully closed, at which time the doors will reset to normal speed. If obstruction is encountered again, the door will come to a full stop. The doors shall remain stopped until obstruction is removed and operate signal is given, resetting the door to normal operation.

F. Programmable Controller: Microprocessor controller shall be field programmable.
   1. The following parameters may be adjusted:
      a. Operating speeds and forces as required to meet specified ANSI/BHMA standard.
      b. Adjustable and variable features specified.

c. Reduced opening position.

2. Manual programming shall be available through local interface which has a two-digit display with a selection control including three push buttons.

2.7 ACTIVATION AND SAFETY DEVICES

A. Combined Activation and Safety Sensors: Combined activation and safety sensors shall, in a single housing, detect motion and presence in accordance with ANSI/BHMA A156.10. Motion shall be detected using K-band microwave technology, presence by active infrared reflection technology.
   1. Mounting Height: Up to 11.5 feet (3.5 m) above finish floor
   2. Temperature Range: Between -31°F and 131°F (-35°C to 55°C) in all environmental conditions
   3. Relays: Form C, 50V at 0.3A for both activation and safety. Hold time of less than 0.5 seconds.
   4. Detection Pattern: When detection is made in the activation zone, and the entrance opens, the safety zone shall extend through the threshold on each side; creating an X-pattern. When activation and safety zones are cleared and the entrance closes the sensor will ignore the X-pattern safety zones.
   5. Combined motion and presence sensors shall be equal to or better than X-Zone Sensor by Optex.

B. Photoelectric Beams: In addition to the threshold sensor include a minimum of two (2) doorway holding beams. Photoelectric beams shall be pulsed infrared type, including sender receiver assemblies for recessed mounting.

C. Presence Sensor Monitoring: Sliding automatic entrances control system shall include a means to verify the functionality of all active presence sensors in accordance with ANSI/BHMA A156.10. A detected fault shall cause automatic operation to cease until the fault is corrected.

2.8 HARDWARE

A. Provide units in sizes and types recommended by automatic entrance door and hardware manufacturers for entrances and uses indicated.

B. Emergency Breakaway Feature: Provide release hardware that allows panel(s) to swing out in direction of egress to full 90 degrees from any position in sliding mode. Maximum force to open panel shall be 50 lbf according to ANSI/BHMA A156.10. Interrupt powered operation of panel operator while in breakaway mode.
   1. Emergency breakaway feature shall include at least one adjustable detent device mounted in the top of each breakaway panel to control panel breakaway force.

2. Wind Resistant Damper: Provide factory installed concealed gas dampers in sliding or non-sliding breakaway panels to protect door panels from wind damage. Dampers shall be designed to slow panel movement after breakout.

C. Locking: Hook bolt: Laminated-steel hook, mortise type, operated by exterior cylinder and interior thumb turn; with minimum 1 inch (25 mm) long throw bolt; ANSI/BHMA A156.5, Grade 1.

D. Control Switch: Provide manufacturer's standard header mounted rocker switches to allow for full control of the automatic entrance door. Controls to include, but are not limited to:
1. Power On/Off
2. One-way traffic
3. Reduced Opening
4. Open/Closed/Automatic

E. Sliding Weather Stripping: Manufacturer's standard replaceable components complying with AAMA 701; made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.
1. Provide double pile weather stripping on lead stiles of sliding panels and stiles adjacent to jambs.
2. Provide single pile weather stripping between carrier and header, lead stiles of sidelights, and on pivot stiles of sliding panels.

F. Weather Sweeps: Manufacturer's standard adjustable nylon brush sweep mounted to underside of door bottom.

2.9 FABRICATION

A. Factory fabricates automatic entrance door assembly components to designs, sizes, and thickness indicated and to comply with indicated standards.
1. Form aluminum shapes before finishing.
2. Use concealed fasteners to greatest extent possible.
   a. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
   b. Reinforce members as required to receive fastener threads.

B. Framing: Provide automatic entrance doors as prefabricated assemblies.
1. Fabricate tubular and channel frame assemblies with manufacturer's standard mechanical or welded joints. Provide sub-frames and reinforcement as required for a complete system to support required loads.
2. Perform fabrication operations in manner that prevents damage to exposed finish surfaces.
3. Form profiles that are sharp, straight, and free of defects or deformations.

4. Prepare components to receive concealed fasteners and anchor and connection devices.
5. Fabricate components with accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.

C. Doors: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.

D. Door Operators: Factory fabricated and installed in headers, including adjusting and testing.

E. Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated on the drawings.

F. Hardware: Factory install hardware to the greatest extent possible; remove only as required for final finishing operation and for delivery to and installation at Project site.

2.10 ALUMINUM FINISHES

A. Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.

B. Aluminum Surfaces:
1. Superior-Performance Organic Finish: AA-C12C40R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid-chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with AAMA 2605 and with coating and resin manufacturer's written instructions.

C. Class II, Dark Bronze Anodic Finish: AA-M12C22A31 Mechanical Finish: as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class II, clear coating 0.40 mils minimum complying with AAMA 611-98, and the following:
1. AAMA 607.1
2. Applicator must be fully compliant with all applicable environmental regulations and permits, including wastewater and heavy metal discharge.]

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine conditions for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of

automatic entrance doors. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Do not install damaged components. Fit frame joints to produce joints free of burrs and distortion. Rigidly secure non-movement joints.

B. Entrances: Install automatic entrance doors plumb and true in alignment with established lines and grades without warp or rack of framing members and doors. Anchor securely in place.
1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
2. Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.

C. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections.

D. Glazing: See Division 8 Section 08 80 00 "Glass & Glazing".

E. Sealants: Comply with requirements specified in Division7 Section “Joint Sealants” to provide weather tight installation.

3.3 FIELD QUALITY CONTROL

A. Testing Services: Factory Trained Installer shall test and inspect each automatic entrance door to determine compliance of installed systems with applicable ANSI standards.

3.4 ADJUSTING

A. Adjust door operators, controls, and hardware for smooth and safe operation, for weather-tight closure, and complying with requirements in ANSI/BHMA A156.10.

3.5 CLEANING AND PROTECTION

A. Clean glass and aluminum surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish. Comply with requirements in Division 8 Section 08800 - “Glazing”, for cleaning and maintaining glass.

END OF SECTION 08 42 29

SECTION 08 44 33 – SLOPED GLAZING ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, “The General Conditions of the Contract for Construction,”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes furnishing and installing the following types of aluminum entrances, storefront, and curtain wall work as indicated on the drawings and specified herein:
   1. Aluminum sloped glazing forming the roof of the new vestibule
   2. Complete storefront and window weatherstripping, door bottom seals, meeting stiles, and thresholds for aluminum entrances.

B. Related Sections: The following sections contain requirements that relate to this Section:
   1. Section 07 92 00 - "Joint Sealers" for sealing framing to existing masonry walls.
   2. Section 08 42 29 – “Sliding Automatic Entrances” for adjoining sliding doors, sidelights and transoms.
   3. Section 08 80 00 – “Glass and Glazing” for glazing of all aluminum entrances, windows units, and storefront framing as indicated on the drawings.

1.3 PERFORMANCE REQUIREMENTS

A. Entrance Performance Requirements:
   Comply with performance requirements specified, as determined by testing of glazed aluminum sloped glazing representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
   1. Glazed aluminum sloped glazing shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads. Failure also includes the following:
      a. Thermal stresses transferring to building structure.
      b. Glass breakage.
      c. Loosening or weakening of fasteners, attachments, and other components.
      d. Failure of operating units.

2. Delegated Design: Design glazed aluminum sloped glazing, including comprehensive engineering analysis by a qualified professional engineer, licensed to practice in Connecticut, using performance requirements and design criteria indicated.
3. Wind loads: Pro General Performance: Comply with performance requirements specified, as determined by testing of glazed aluminum sloped glazing representing those indicated for this Project without failure due to defective manufacture, fabrication, installation, or other defects in construction.
4. Glazed aluminum sloped glazing shall withstand movements of supporting structure including, but not limited to, story drift, twist, column shortening, long-term creep, and deflection from uniformly distributed and concentrated live loads. Failure also includes the following:
    a. Thermal stresses transferring to building structure.
    b. Glass breakage.
    c. Loosening or weakening of fasteners, attachments, and other components.
    d. Failure of operating units.
5. Snow loads: Provide Sloped Glazing system; include anchorage, capable of withstanding snow load design pressures based on the Current edition of the Connecticut State Building Code.
6. Air Infiltration: The test specimen shall be tested in accordance with ASTM E 283. Air infiltration rate shall not exceed 0.06 cfm/ft2 (.0003 m3/s·m2) at a static air pressure differential of 6.24 PSF (300 Pa).
7. Water Resistance, (static): The test specimen shall be tested in accordance with ASTM E 331. There shall be no leakage at a static air pressure differential of 12 PSF (575 Pa) as defined in AAMA 501.
8. Water Resistance, (dynamic): The test specimen shall be tested in accordance with AAMA 501.1. There shall be no leakage at an air pressure differential of 12 PSF (575 Pa) as defined in AAMA 501.
9. Uniform Load: A static air design load of 40 PSF (1916 Pa) shall be applied in the positive and negative direction in accordance with ASTM E 330. There shall be no deflection in excess of L/175 of the span of any framing member at design load. At structural test load equal to 1.5 times the specified design load, no glass breakage or permanent set in the framing members in excess of 0.2% of their clear spans shall occur.
10. Thermal Transmittance (U-factor): When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall not be more than: 0.46 (clear) or Project Specific ( ) BTU/hr/ft^2 /°F. per AAMA 507 or ( ) BTU/hr/ft^2 /°F. per NFRC 100.
11. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than 68_{frame} and 66_{glass} (clear),

12. Environmental Product Declaration (EPD): Shall have a Type III Product-Specific EPD created from a Product Category Rule.
13. Thermal Transmittance (U-factor): When tested to AAMA Specification 1503, the thermal transmittance (U-factor) shall not be more than: 0.46 (clear) or Project Specific ( ) BTU/hr/ft^2 /°F. per AAMA 507 or ( ) BTU/hr/ft^2 /°F. per NFRC 100.
14. Condensation Resistance (CRF): When tested to AAMA Specification 1503, the condensation resistance factor shall not be less than 68_{frame} and 66_{glass} (clear),
15. Environmental Product Declaration (EPD): Shall have a Type III Product-Specific EPD created from a Product Category Rule.
16. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

Shop Drawings: For glazed aluminum sloped glazing. Include plans, elevations, sections, full-size details, and attachments to other work.

Samples for Initial Selection: For units with factory-applied color finishes.

Samples for Verification: For each type of exposed finish required, in manufacturer's standard sizes.

Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified preconstruction testing agency, for glazed aluminum sloped glazing, indicating compliance with performance requirements.

Fabrication Sample: Of each vertical-to-horizontal intersection of aluminum-framed sloped glazing systems, made from 12" (304.8 mm) lengths of full-size components and showing details of the following:

1. Joinery
2. Glazing

1.4 SYSTEM PERFORMANCE REQUIREMENTS

A. General: Provide aluminum entrance and shear block storefront assemblies that comply with performance characteristics specified, as demonstrated by testing the manufacturer's corresponding stock assemblies according to test methods indicated.

1.5 SUBMITTALS

A. General: Submit the following in accordance with Conditions of the Contract and Division 1 Specification Sections.

1. Product data for each aluminum entrance and storefront system required, including:
   a. Manufacturer's standard details and fabrication methods.
   b. Data on finishing, hardware and accessories.

c. Recommendations for maintenance and cleaning of exterior surfaces.

2. Shop drawings for each aluminum entrance and storefront system required, including:
   a. Layout and installation details, including relationship to adjacent work.
   b. Elevations at 1/4-inch scale.
   c. Detail sections of typical composite members.
   d. Anchors and reinforcement.
   e. Hardware mounting heights.
   f. Provisions for expansion and contraction.
   g. Glazing details.
3. Hardware Schedule: Coordinate hardware with doors, frames, and related work to ensure proper size thickness, hand, function, and finish. Include item name, name of the manufacturer and complete designations of every item required for each door opening. Additional hardware is furnished under Section 08 71 00, "Door Hardware".
4. Samples for Initial Color Selection: Submit pairs of samples of each specified color and finish on 12-inch-long sections of extrusions or formed shapes. Where normal color variations are anticipated, include 2 or more units in each set of samples indicating extreme limits of color variations.
5. Samples for Verification Purposes: The Architect reserves the right to require additional samples, that show fabrication techniques and workmanship, and design of hardware and accessories.
6. Test Reports: Provide certified test reports from a qualified independent testing laboratory showing that aluminum entrance systems have been tested in accordance with specified test procedures and comply with performance characteristics indicated.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed installations of aluminum entrances similar in design and extent to those required for the project and whose work has resulted in construction with a record of successful in-service performance.

B. Manufacturer's Qualifications: Provide aluminum entrance systems produced by a firm experienced in manufacturing systems that are similar to those indicated for this project and that have a record of successful in-service performance.

C. Fabricator Qualifications: Provide aluminum entrance systems fabricated by a firm experienced in producing systems that are similar to those indicated for this Project, and that have a record of successful in-service performance. The fabricator shall have sufficient production capacity to produce components required without causing delay in progress of the Work.

D. Single Source Responsibility: Obtain aluminum entrance systems from one source and from a single manufacturer.

E. Design Criteria: The drawings indicate the size, profile, and dimensional requirements of aluminum entrance work required and are based on the specific types and models indicated. Aluminum entrance and storefront by other manufacturers may be considered, provided deviations in dimensions and profiles are minor and do not change the design concept as judged by the Architect. The burden of proof equality is on the proposer.
   1. Submit data for alternate manufacturers in accordance with Conditions of the Contract and Section 01 33 00, "Submittal Procedures".

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver aluminum entrance components in the manufacturer's original protective packaging.

B. Store aluminum components in a clean dry location away from uncured masonry or concrete. Cover components with waterproof paper, tarpaulin or polyethylene sheeting in a manner to permit circulation of air.
   1. Stack framing components in a manner that will prevent bending and avoid significant or permanent damage.

1.8 PROJECT CONDITIONS

A. Field Measurements: Check openings by accurate field measurement before fabrication. Show recorded measurements on shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of the work.
   1. Where necessary, proceed with fabrication without field measurements, and coordinate fabrication tolerances to ensure proper fit.

1.9 WARRANTY

A. Total Entrance Installation
   1. The responsible contractor shall assume full responsibility and warrant for one (1) year the satisfactory performance of the total entrance installation which includes that of the door, hardware, glass (including insulated units), glazing, anchorage and setting system, sealing, flashing, etc., as it relates to air, water, and structural adequacy as called for in the specifications and approved shop drawings.
   2. Any deficiencies due to such elements not meeting the specifications shall be corrected by the responsible contractor at their expense during the warranty period.

B. Material and Workmanship
   1. Provide written guarantee against defects in material and workmanship for three (3) years from the date of final shipment.

C. Anodic Finish
   1. Warranty period shall be for ten (10) years from the date of final shipment.

PART 2 – PRODUCTS

2.1 MANUFACTURER AND MODEL

A. All **Sloped Glazing** shall be Kawneer Series 1600 Sloped Glazing or equal.
B. System depth: 2-1/2" x 6" outside glazed pressure plate system.
C. Equivalents: Subject to compliance with all material and performance requirements outlined in these specifications, “or equal” products by other manufacturers will be considered for use subject to review by the Architect. The Architect’s decision regarding equivalency is final.
D. Tested to AAMA 501.

2.2 SUBSTITUTIONS

A. Substitutions: Refer to Substitutions Section for procedures and submission requirements.
   1. Pre-Contract (Bidding Period) Substitutions: Submit written requests ten (10) days prior to bid date.
   2. Post-Contract (Construction Period) Substitutions: Submit written request in order to avoid sloped glazing installation and construction delays.
   3. Product Literature and Drawings: Submit product literature and drawings modified to suit specific project requirements and job conditions.
   4. Certificates: Submit certificate(s) certifying substitute manufacturer (1) attesting to adherence to specification requirements for sloped glazing system performance criteria, and (2) has been engaged in the design, manufacturer and fabrication of aluminum sloped glazing for a period of not less than ten (10) years. (Company Name).
   5. Test Reports: Submit test reports verifying compliance with each test requirement required by the project.
   6. Samples: Provide samples of typical product sections and finish samples in manufacturer's standard sizes.
B. Substitution Acceptance: Acceptance will be in written form, either as an addendum or modification, and documented by a formal change order signed by the Owner and Contractor.

2.3 MATERIALS

A. Aluminum Extrusions: Alloy and temper recommended by glazed aluminum sloped glazing manufacturer for strength, corrosion resistance, and application of required finish and each framing member shall provide structural strength to meet specified performance requirements and complying with ASTM B 221: 6063-T6 alloy and temper.

B. Aluminum sheet alloy: Shall meet the requirements of ASTM B209.

C. Fasteners: Aluminum, nonmagnetic stainless steel or other materials to be non-corrosive and compatible with aluminum window members, trim hardware, anchors, and other components.

D. Anchors, Clips, and Accessories: Aluminum, nonmagnetic stainless steel, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

E. Pressure Plate: Pressure plate shall be aluminum and fastened to the mullion with stainless steel screws.

F. Reinforcing Members: Aluminum, nonmagnetic stainless steel, or nickel/chrome-plated steel complying with ASTM B 456 for Type SC 3 severe service conditions, or zinc-coated steel or iron complying with ASTM B 633 for SC 3 severe service conditions or other suitable zinc coating; provide sufficient strength to withstand design pressure indicated.

G. Sealant: For sealants required within fabricated sloped glazing system, provide permanently elastic, non-shrinking, and non-migrating type recommended by sealant manufacturer for joint size and movement.

H. Thermal Barrier: Thermal separator shall be extruded of a silicone compatible PVC (Poly Vinyl Chloride).

I. Tolerances: Reference to tolerances for wall thickness and other cross-sectional dimensions of glazed sloped glazing members are nominal and in compliance with AA Aluminum Standards and Data.

2.4 SLOPED GLAZING FRAMING

A. Framing Members: Manufacturer’s standard extruded- or formed-aluminum framing members of thickness required and reinforced as required to support imposed loads.
   1. Glazing System: 4 sided captured.
   2. Glazing Plane: Front.

B. Glass: 1" (25.4) insulating glass option. 1/4 " (6.3) or 1" (25.4) for Spandrel applications.

C. Brackets and Reinforcements: Manufacturer's standard high-strength aluminum with nonstaining, nonferrous shims for aligning system components.

D. Framing Sealants: Shall be suitable for glazed aluminum sloped glazing as recommended by sealant manufacturer.

E. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, nonstaining, nonbleeding fasteners and accessories compatible with adjacent materials. Where exposed shall be stainless steel.

F. Perimeter Anchors: When steel anchors are used, provide insulation between steel material and aluminum material to prevent galvanic action.
G. Packing, Shipping, Handling and Unloading: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
H. Storage and Protection: Store materials protected from exposure to harmful weather conditions. Handle sloped glazing material and components to avoid damage. Protect sloped glazing material against damage from elements, construction activities, and other hazards before, during and after installation.

2.5 GLAZING

A. Glazing: Comply with Division 08 Section “Glazing”.
B. 1600 Sloped Glazing: Outside glazed pressure plate format with 1" (25.4) double glazed insulating glass.
C. Glazing Gaskets: Gaskets to meet the requirements of ASTM C864.
D. Spacers and Setting Blocks: Manufacturer's standard elastomeric type.
E. Bond-Breaker Tape: Manufacturer's standard TFE-fluorocarbon or polyethylene material to which sealants will not develop adhesion.
F. Glazing Sealants: As recommended by manufacturer for joint type.

2.6 OPERABLE UNITS

A. Doors: Comply with Division 08 Section “Aluminum-Framed Entrances and Storefronts”.
B. Windows: Comply with Division 08 Section “Aluminum Windows”.

2.7 ACCESSORY MATERIALS

A. Bituminous Paint: Cold-applied asphalt-mastic paint complying with SSPC-Paint 12 requirements except containing no asbestos, formulated for 30-mil (0.762 mm) thickness per coat.

2.8 FABRICATION

A. Form or extrude aluminum shapes before finishing.
B. Fabricate components that, when assembled, have the following characteristics:
    1. Profiles that are sharp, straight, and free of defects or deformations.
    2. Accurately fitted joints.
    3. Physical and thermal isolation of glazing from framing members.
    4. Accommodations for thermal and mechanical movements of glazing and framing to maintain required glazing edge clearances.
    5. Provisions for field replacement of glazing from exterior.
    6. Fasteners, anchors, and connection devices that are concealed from view to greatest extent possible.
    7. Internal weeping system or other means to drain water passing joints, condensation occurring within framing members, and

moisture migrating within glazed aluminum sloped glazing to exterior.

C. Sloped Glazing Framing: Fabricate components for assembly following manufacturer's standard installation instructions.

D. After fabrication, clearly mark components to identify their locations in Project according to Shop Drawings.

2.9 ALUMINUM FINISHES

A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.

B. Factory Finishing:

1. Kawneer Permafluor™ (70% PVDF), AAMA 2605, Fluoropolymer Coating

PART 3 – EXECUTION

3.1 EXAMINATION

A. Examine areas, 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

A. General: Install sloped glazing systems plumb, level, and true to line, without warp or rack of frames with manufacturer’s prescribed tolerances and installation instructions. Provide support and anchor in place.

B. Dissimilar Materials: Provide separation of aluminum materials from sources of corrosion or electrolytic action contact points.

C. Glazing: Glass shall be outside glazed and held in place with extruded aluminum pressure plates anchored to the mullion using stainless steel fasteners spaced no greater than 9" (228.6) on center.

D. Water Drainage: Each light of glass shall be compartmentalized using joint plugs and silicone sealant to divert water to the horizontal weep locations. Weep holes shall be located in the horizontal pressure plates and covers to divert water to the exterior of the building.

E. Related Products Installation Requirements:

1. Sealants (Perimeter): Refer to Joint Treatment (Sealants) Section.
2. Glass: Refer to Glass and Glazing Section.
    a. Reference: ANSI Z97.1, CPSC 16 CFR 1201 and GANA Glazing Manual

3.3 FIELD QUALITY CONTROL

A. Field Tests: Architect shall select sloped glazing units to be tested as soon as a representative portion of the project has been installed, glazed,

perimeter caulked and cured. Conduct tests for air infiltration and water penetration with manufacturer's representative present. Tests not meeting specified performance requirements and units having deficiencies shall be corrected as part of the contract amount.

B. Testing: Testing shall be performed per AAMA 503 by a qualified independent testing agency. Refer to Testing Section for payment of testing and testing requirements.
   a. Air Infiltration Tests: Conduct tests in accordance with ASTM E 783. Allowable air infiltration shall not exceed 1.5 times the amount indicated in the performance requirements or 0.09 cfm/ft^2, which ever is greater.
   b. Water Infiltration Tests: Conduct tests in accordance with ASTM E 1105. No uncontrolled water leakage is permitted when tested at a static test pressure of two-thirds the specified water penetration pressure but not less than 8 psf (383 Pa).

C. Manufacturer's Field Services: Upon Owner's written request, provide periodic site visit by manufacturer's field service representative.

3.4 ADJUSTING, CLEANING AND PROTECTION

A. Protection: Protect installed product's finish surfaces from damage during construction. Protect aluminum sloped glazing system from damage from grinding and polishing compounds, plaster, lime, acid, cement, or other harmful contaminants.

B. Cleaning: Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Remove construction debris from project site and legally dispose of debris.

C. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

END OF SECTION 08 44 33

SECTION 08 80 00 – GLASS AND GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, “The General Conditions of the Contract for Construction,”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes furnishing and installing glazing for the following products, including those specified in other Sections, where glazing requirements are specified by reference to this Section:
   1. Insulated tempered glazing within aluminum entrances and sidelights, aluminum storefront, and sliding automatic entrances (**Type A**).
   2. Vision lites within wood and hollow metal doors and glazing of hollow metal frames (**Type B**).

B. Related Sections: The following sections contain requirements that relate to this Section.
   1. Section 08 14 00 “Flush Wood Doors” for glazed wood doors.
   2. Section 08 41 13 “Aluminum Entrances and Storefronts” for glazed exterior and interior aluminum framed doors, windows, and framed openings.
   3. Section 08 42 29 “Sliding Automatic Entrances” for glazed exterior door units and sidelights..
   4. Section 10 28 00 "Toilet and Bath Accessories", for factory glazed wall mounted mirrors in stainless steel frames over sinks and vanities..

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. General: Provide glazing systems that are produced, fabricated, and installed to withstand normal thermal movement, wind loading, and impact loading (where applicable), without failure including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; and other defects in construction.

B. Glass Design: Glass thickness indicated on Drawings are for detailing only. Confirm glass thickness by analyzing Project loads and in-service conditions. Provide glass lites for the various size openings in the thickness and strengths (annealed or heat-treated) to meet or exceed the following criteria:
   1. Minimum glass thickness of lites, whether composed of annealed or heat-treated glass, are selected so the worst-case probability of failure does not exceed the following:
      a. 8 lites per 1000 for lites set vertically or not over 15 degrees off vertical and under wind action. Determine minimum thickness of monolithic annealed glass according to ASTM E 1300. For other than monolithic annealed glass, determine thickness per glass manufacturer's standard method of analysis including applying adjustment factors to ASTM E 1300 based on type of glass.

C. Normal thermal movement results from the following maximum change (range) in ambient and surface temperatures acting on glass-framing members and glazing components. Base engineering calculation on materials, actual surface temperatures due to both solar heat gain and nighttime sky heat loss.
   1. Temperature Change (Range): 120 deg F (67 deg C) ambient; 180 deg F (100 deg C), material surfaces.

1.5 SUBMITTALS

A. General: Submit the following according to Conditions of Contract and Division 1 Specification Sections.

B. Product data for each glass product and glazing material

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials to comply with manufacturer's directions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.7 WARRANTY

A. General: Warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

B. Manufacturer's Warranty on Insulating Glass: Submit written warranty signed by manufacturer of insulating glass agreeing to furnish replacements for insulating glass units that deteriorate, f.o.b. point of manufacture, freight allowed Project site, within specified warranty period indicated below. Warranty covers only deterioration due to normal conditions of use and not to handling, installing, protecting, and maintaining practices contrary to glass manufacturer's published instructions.
   1. Warranty Period: Manufacturer's standard but not less than 10 years after date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products specified.

2.2 INSULATED GLASS UNITS

A. Configuration: Provide pre-assembled insulated glass units in the following configurations:
   1. Glass to be 1” inch overall insulating units, designated **Type A**, consisting of the following:
      a. Exterior lite: 1/4-inch thick, tinted float glass, tempered, sputter coated on second surface (2). Glazing color to match existing adjacent glazing.
      b. Coating: “Solarban” 60 Solar control Low-E (sputtered), as manufactured by Vitro Architectural Glass.
      c. Air space: 1/2”.
      d. Interior lite: inner layer of 1/4” clear “transparent” float glass, tempered.
   2. Air spacers are to be continuous, one-piece, tin-plated steel.
   3. All units shall carry a ten (10) year warranty against seal failure.

G. Performance Criteria:
   1. Glass to be Vitro Architectural Glass, Solarban 60 Solar Control Low-E Glass, or equal.
      a. Shading Coefficient: 0.44
      b. Solar Heat Gain Coefficient: 0.40
      c. Visible Light Transmission: 72%
      d. U-Value: 0.28
      e. Outdoor Visible Light Reflectance: 12%

2.3 TEMPERED FLOAT GLASS

A. Uncoated, Clear, Heat-Treated Float Glass: ASTM C 1048, Condition A (uncoated surfaces), Type I (transparent glass, flat), Class 1 (clear), quality q3 (glazing select), kind as indicated below.
   1. Kind FT (fully tempered), ¼ inch thickness, designated as **Type B**.
   2. Products: Subject to compliance with requirements, provide heat treated glass units by the following:
      a. Viracon, Inc.
      b. Guardian.

2.4 ELASTOMERIC GLAZING SEALANTS

A. General: Provide products of type indicated, complying with the following requirements:

   1. Compatibility: Select glazing sealants and tapes of proven compatibility with other materials they will contact, including glass products, seals of insulating glass units, and glazing channel substrates, under conditions of installation and service, as demonstrated by testing and field experience.
   2. Suitability: Comply with sealant and glass manufacturer's recommendations for selecting glazing sealants and tapes that are suitable for applications indicated and conditions existing at time of installation.

B. Elastomeric Glazing Sealant Standard: Provide manufacturer's standard chemically curing, elastomeric sealants of base polymer indicated that comply with ASTM C 920 requirements.
   1. Exterior Glazing Sealant - G.E. Silpruf.
   2. Interior Glazing Sealant - Pecora M242.

2.5 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape with a solids content of 100 percent, nonstaining and nonmigrating in contact with nonporous surfaces, with or without spacer rod as recommended by tape and glass manufacturers for application indicated, packaged on rolls with a release paper backing, and complying with AAMA 800 for products indicated below:
   1. AAMA 804.1.
   2. AAMA 806.1.
   3. AAMA 807.1.

B. Expanded Cellular Glazing Tape: Closed-cell, polyvinyl chloride foam tape, factory coated with adhesive on both surfaces, packaged on rolls with release liner protecting adhesive, and complying with AAMA 800 for product 810.5.

2.6 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials involved for glazing application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers and Sealers: Type recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85 plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side-walking).

F. Plastic Foam Joint Fillers: Preformed, compressible, resilient, nonstaining, nonextruding, nonoutgassing, strips of closed-cell plastic foam of density, size, and shape to control sealant depth and otherwise contribute to produce optimum sealant performance.

2.7 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine glass framing, with glazier present, for compliance with the following:
   1. Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.

2. Presence and functioning of weep system.
3. Minimum required face or edge clearances.
4. Effective sealing between joints of glass-framing members.

B. Do not proceed with glazing until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that are not firmly bonded to substrates.

3.3 GLAZING, GENERAL

A. Comply with combined recommendations of manufacturers of glass, sealants, gaskets, and other glazing materials, except where more stringent requirements are indicated, including those in referenced glazing publications.

B. Protect glass from edge damage during handling and installation as follows:
1. Use a rolling block in rotating glass units to prevent damage to glass corners. Do not impact glass with metal framing. Use suction cups to shift glass units within openings; do not raise or drift glass with a pry bar. Rotate glass lites with flares or bevels on bottom horizontal edges so edges are located at top of opening, unless otherwise indicated by manufacturer's label.
2. Remove damaged glass from Project site and legally dispose of off-site. Damaged glass is glass with edge damage or other imperfections that, when installed, weaken glass and impair performance and appearance.

C. Apply primers to joint surfaces where required for adhesion of sealants, as determined by pre-construction sealant-substrate testing.

D. Install elastomeric setting blocks in sill rabbets, sized and located to comply with referenced glazing standard, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

E. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

F. Provide spacers for glass sizes larger than 50 united inches (length plus height) as follows:

1. Locate spacers inside, outside, and directly opposite each other. Install correct size and spacing to preserve required face clearances, except where gaskets and glazing tapes are used that have demonstrated .ability to maintain required face clearances and comply with system performance requirements.
2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

G. Provide edge blocking to comply with requirements of referenced glazing publications, unless otherwise required by glass manufacturer.

H. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

3.4 TAPE GLAZING

A. Position tapes on fixed stops so that when compressed by glass their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously but not in one continuous length. Do not stretch tapes to make them fit opening.

C. Where framing joints are vertical, cover these joints by applying tapes to heads and sills first and then to jambs. Where framing joints are horizontal, cover these joints by applying tapes to jambs and then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until just before each lite is installed.

F. Apply heel bead of elastomeric sealant.

G. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

H. Apply cap bead of elastomeric sealant over exposed edge of tape.

3.5 PROTECTION AND CLEANING

A. Protect exterior glass from breakage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.

C. Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals during construction, but not less than once a month, for build-up of dirt, scum, alkali deposits, or stains, and remove as recommended by glass manufacturer.

D. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents and vandalism, during construction period.

E. Wash glass on both faces in each area of Project not more than 4 days prior to date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

END OF SECTION 08 80 00

SECTION 08 91 19 - LOUVERS AND VENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. Furnish and install drainable, fixed extruded louvers, bird screens and attachment brackets as shown on the drawings, as specified, and as needed for a complete and proper installation.
   1. 5” thick, aluminum storm resistant louvers in exterior wall construction as indicated on the drawings.

B. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Section 07 92 00 "Joint Sealants" for sealants installed in perimeter joints between louver frames and adjoining construction.
   2. Division 23 Section for ductwork connected to metal wall louvers.

1.3 DEFINITIONS

A. Louver Terminology: Refer to Air Movement and Control Association (AMCA) 501 for definitions of terms for metal louvers not otherwise defined in this Section or in referenced standards.

1.4 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product data for each type of product specified.

C. Shop drawings of louver units and accessories. Include plans, elevations, sections, and details showing profiles, angles, and spacing of louver blades; unit dimensions related to wall openings and construction; free areas for each size indicated; profiles of frames at jambs, heads, and sills; and anchorage details and locations.

D. Samples for initial selection in the form of manufacturer's color charts showing the full range of colors available for units with factory-applied color finishes.

E. Product test reports evidencing compliance of units with performance requirements indicated.

F. Product certificates signed by louver manufacturers certifying that their products comply with the specified requirements and are licensed to bear the AMCA seal based on tests made according to AMCA 500 and complying with the AMCA Certified Ratings Program.

G. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience.

1.5 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain louvers and vents from one source and by a single manufacturer where alike in one or more respects regarding type, design, and factory-applied color finish.

B. Performance Requirements: Provide AMCA and BSRIA test data as required to confirm that the louvers have the specified air and water performance characteristics.

C. SMACNA Standard: Comply with SMACNA "Architectural Sheet Metal Manual" recommendations for fabrication, construction details, and installation procedures.

D. Structural Requirements: Design all materials to withstand wind and snow loads as required by the applicable building code. Maximum allowable deflection for the louver structural members to be l/180 or 0.75 inch, whichever is less. Maximum allowable deflection for the louver blades to be l/120 or 0.50 inch across the weak axis, whichever is less.

1.6 PROJECT CONDITIONS

A. Field Measurements: Check actual louver openings by accurate field measurements before fabrication, and show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Where field measurements cannot be made without delaying the Work, guarantee opening dimensions and proceed with fabricating louvers without field measurements. Coordinate construction to ensure that actual opening dimensions correspond to guaranteed dimensions.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Louvers:
   a. Arrow United Industries
   b. Construction Specialties, Inc.
   c. Ruskin Mfg., Tomkins Industries, Inc.

B. For the purpose of establishing performance criteria the Contract Drawings and specifications have been based on Ruskin Mfg., Kansas City, MO.

2.2 MATERIALS

A. Aluminum Extrusions: ASTM B 211, Alloy 6063-T5 or T-52.

B. Fasteners: Of same basic metal and alloy as fastened metal or 300 series stainless steel, unless otherwise indicated. Do not use metals that are corrosive or incompatible with joined materials.
   1. Use types and sizes to suit unit installation conditions.
   2. Use Phillips flat-head screws for exposed fasteners, unless otherwise indicated.

C. Anchors and Inserts: Of type, size, and material required for type of loading and installation indicated. Use nonferrous metal or hot-dip galvanized anchors and inserts for exterior installations and elsewhere as required for corrosion resistance. Use toothed steel or expansion bolt devices for drilled-in-place anchors.

2.3 FABRICATION, GENERAL

A. Provide louver models, bird screens, structural supports and accessories as specified and/or shown on the drawings. Materials, sizes, depths, arrangements and material thickness to be as indicated or as required for optimal performance with respect to strength; durability; and uniform appearance.

B. Louvers to be mechanically assembled using stainless steel or aluminum fasteners.

C. Include supports, anchorage, and accessories required for complete assembly.

2.4 EXTERIOR WALL LOUVERS

A. 5” Deep Storm Resistant Fixed Horizontal Louver Model EME520DD, Wind Driven Rain Resistant Stationary Louver, Extruded Aluminum.
   1. Material: Heads, sills, jambs and mullions to be one-piece extruded aluminum members with integral caulking slot and retaining beads. Architectural Line Drainable Sight proof Storm Resistant Fixed-Blade designed to collect and drain water to exterior at sill by means of multiple gutters in blades and channels in jambs and

mullions. Louvers to be supplied with 4" high by full depth sill flashings formed from minimum 0.050" thick aluminum. Sill flashings to have welded side panels. Louvers and sill flashings to be installed in accordance with the manufacturer's recommended procedures to ensure complete water integrity performance of the louver system. Material thickness to be as follows: Heads, sills, jambs and mullions: 0.081". Fixed blades: 0.063".

2. AMCA Performance: A 4' x 4' unit shall conform to the following:
   Free Area 6.99 sq. ft.
3. Wind Driven Rain Performance: AMCA certified and licensed to bear the AMCA seal. The louver test was based on a 39.370"(1.00m) x 39.370" (1.00 m) core area. Unit tested at a rainfall rate of 3.0 inches per hour (75 mm/hr) and with a wind directed to the face of the louver at a velocity 29.1-mph (13 m/s). The test data shall show the water penetration effectiveness rating at each corresponding ventilation rate.

Core Ventilation Rate (m/s):	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5
Core Ventilation Rate (ft/min):	0	98	197	287	381	476	586	673
Free Area Ventilation Rate (ft/min):	0	226	389	583	778	972	1167	1361
Rating effectiveness:	A	A	A	A	A	A	A	A
Effectiveness Rating:	A = 1 to 0.99		B = 0.989 to 0.95		C = 0.949 to 0.80		D = 0.80 to 0	

2.5 FINISHES FOR EXTERIOR WALL LOUVERS

A. General: Comply with NAAMM "Metal Finishes Manual" for finish designations and application recommendations, except as otherwise indicated. Apply finishes in factory. Protect finishes on exposed surfaces prior to shipment. Remove scratches and blemishes from exposed surfaces that will be visible after completing finishing process. Provide color as indicated or, if not otherwise indicated, as selected by architect.

B. Three Coat Fluorocarbon Coating:
Louvers to be finished with a minimum 1.4 mil thick full strength 70% resin, 3 coat Fluoropolymer system.

C. All aluminum shall be thoroughly cleaned, etched and given a chromated conversion pre-treatment before application of the Kynar/Hylar coating. The coating shall consist of a primer, a high metallic color coat and a clear PVF2 topcoat. It shall receive a bake cycle of 17 minutes at 4500F. All finishing procedures shall be one continuous operation in the plant of the manufacturer.

D. Manufacturer to furnish an extended 20 limited warranty for the Kynar/Hylar coating. This limited warranty shall begin on the date of material shipment.

2.6 INSECT SCREENS

A. All exterior wall louvers to be furnished with mill finish insect screens.

B. Screens to be 18 x 16 aluminum mesh 0.011” diameter wire insect screens secured within 0.055” thick extruded aluminum frames. Frames to have mitered corners and corner locks.

PART 3 - EXECUTION

3.1 PREPARATION

A. Coordinate setting drawings, diagrams, templates, instructions, and directions for installation of anchorages. Coordinate delivery of such items to Project site.

3.2 INSTALLATION

A. Comply with manufacturer's instructions and recommendations for installation of the work.

B. Verify dimensions of supporting structure at the site by accurate field measurements so that the work will be accurately designed, fabricated and fitted to the structure.

C. Anchor louvers to the building substructure as indicated on architectural drawings.

D. Erection Tolerances:
1. Maximum variation from plane or location shown on the approved shop drawings: 1/8" per 12 feet of length, but not exceeding 1/2" in any total building length or portion thereof (non-cumulative).
2. Maximum offset from true alignment between two members abutting end to end, edge-to-edge in line or separated by less than 3": 1/16" (shop or field joints). This limiting condition shall prevail under both load and no load conditions.

E. Cut and trim component parts during erection only with the approval of the manufacturer or fabricator, and in accordance with his recommendations. Restore finish completely. Remove and replace members where cutting and trimming has impaired the strength or appearance of the assembly.

F. Do not erect warped, bowed, deformed or otherwise damaged or defaced members. Remove and replace any members damaged in the erection process as directed.

G. Set units level, plumb and true to line, with uniform joints.

3.3 ADJUSTING AND PROTECTION

A. Protect louvers and vents from damage of any kind during construction period including use of temporary protective coverings where needed and approved by louver manufacturer. Remove protective covering at time of Substantial Completion.

B. Restore louvers and vents damaged during installation and construction period, so that no evidence remains of correction work. If results of restoration are unsuccessful, as judged by Architect, remove damaged units and replace with new units.

1. Clean and touch up minor abrasions in finishes with air-dried coating that matches color and gloss of, and is compatible with, factory-applied finish coating.

3.4 CLEANING

A. Immediately clean exposed surfaces of louvers and vents that are not protected by temporary covering to remove fingerprints and soil during construction period. Do not let soil accumulate until final cleaning.

B. Before final inspection, clean exposed surfaces with water and a mild soap or detergent not harmful to finishes. Rinse surfaces thoroughly and dry.

END OF SECTION 08 91 19

SECTION 09 05 61– MOISTURE VAPOR EMISSION CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, “The General Conditions of the Contract for Construction,” Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes furnishing and installing single-coat, fast-curing, 100% solids epoxy moisture management system and self-leveling, high flow, hydraulic cement underlayment as specified herein, along with all accessories, over all concrete floor surfaces within areas to receive a resilient floor finish.

B. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Division 9 for flooring specifications related to areas receiving moisture management system and self-leveling underlayment.

1.3 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Section 01 33 00.

B. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include a list of completed projects with project name, addresses, names of architects and owners, and other information specified.

1.4 REFERENCES

A. ASTM F2170 - Relative Humidity in Concrete Floor Slabs Using in situ Probes

B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

C. ASTM C1583 - Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension

D. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials

E. ASTM D1308 – Standard Test Method for Effect of Household Chemicals on Clear and Pigmented Organic Finishes

F. ASTM D2369 – Standard Test Method for Volatile Content of Coatings

G. ASTM F3010 - Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings.

1.5 QUALITY ASSURANCE

A. Manufacturer Experience: Provide products of this section by companies which have successfully specialized in production of this type of work for not less than five (5) years. Contact Manufacturer Representative prior to installation.

B. Installation of the products must be completed by a factory-trained applicator using mixing equipment and tools approved by the manufacturer.

C. Underlayment shall be able to be installed from 1/8" to 1" in one pour and up to 5" with the addition of aggregate. It may also be feathered to match existing elevations.

D. Underlayment to be applied to a minimum thickness of 1/8" over highest point in the subfloor, with an average typical thickness of 1/4".

E. Underlayment compressive strength shall be 4100 psi after 28 days per ASTM C 109/mod (air cure only).

F. Underlayment shall be walkable after 2 hours and allow floor covering to be installed after 16 hours at 70°F.

G. Manufacturer's certification that the product is Portland cement-based having an inorganic binder content which is a minimum 100% Portland cement when tested per ASTM C 150: Standard Specification for Portland Cement.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver products in original packaging, labeled with product identification, manufacturer, batch number and shelf life.

B. Store products in a dry area with temperature maintained between 50° and 85° F and protect from direct sunlight.

C. Handle products in accordance with manufacturer's printed recommendations.

1.7 SITE CONDITIONS

A. Self-leveling concrete underlayment is a cementitious material. Observe the basic rules of concrete work.

B. Do not install below 50°F surface temperature.

C. Install quickly if floor is warm and follow hot weather precautions available from the manufacturer's Technical Service Department. Never mix with cement or additives other than manufacturer's approved products.

1.8 WARRANTY

A. Certified applicators must file a pre-installation checklist with the manufacturer and receive written confirmation of the approval to proceed to obtain the extended warranty as indicated below.

B. Upon receipt and approval of the pre-installation checklist, a twenty (20) year minimum manufacturer's warranty is to be provided by factory-trained installers.

PART 2 - PRODUCTS

2.1 PRODUCTS

A. Basis of Design: Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, PA, 15001, USA 724-203-5000, www.ardexamericas.com, or equal products meeting the performance criteria specified herein.
   1. ARDEX MC™ RAPID One-Coat Moisture Control System for Concrete to Receive ARDEX Products

   2. ARDEX K 15® Premium Self-Leveling Underlayment

B. Acceptable alternative moisture control systems meeting the performance requirements of the Basis of Design:
   1. Dependable Vapor Seal, Dependable Chemical Company
   2. HM/Skimflow ES, Dependable Chemical Company
   3. Koster Vap1 2000 / SL Premium, Koster Aquatecnic Ltd.

2.2 MOISTURE VAPOR EMISSION CONTROL

A. One-Coat Moisture Control System for all new concrete floor surfaces to receive finish flooring.

C. ARDEX MC™ RAPID

1. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (21° C+/-2°C) and 50% +/- 5% relative humidity:
2. Application: Manual
3. Material Requirements on CSP 3 Prepared Concrete: Approx. 250 - 270 sq. ft. (25 m2) per mixed unit for 10 mils, and approx. 170 – 109 sq. ft. (16 – 18 m2) per mixed unit for 14 mils
4. Permeability (ASTM E96): 0.06 perms
5. 14 pH solution (ASTM D1308): No effect
6. Working Time: 20 minutes
7. Pot Life: 20 minutes
8. VOC: 19.9 g/L, A+B, ASTM D2369
9. Walkable: Minimum of 4 hours
10. Install underlayment or topping: Minimum 4 hours,

2.3 HYDRAULIC CEMENT UNDERLAYMENT

A. Hydraulic Cement-based Self-Leveling Underlayment for all new concrete floor surfaces to receive moisture vapor emission control and finish flooring.

B. ARDEX K 15
1. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (21° C+/-2°C) and 50% +/- 5% relative humidity:
2. Application: Barrel Mix or Pump
3. Flow Time: 10 minutes
4. Walkable: 2 to 3 hours
5. Compressive Strength: Minimum 5,500 psi (385 kg/cm2) at 28 days, ASTM C109M.
6. Flexural Strength: 1,200 psi (84 kg/cm2) at 28 days, ASTM C348.
7 VOC: 0

C. Standard mixing ratio: ARDEX K-15 is mixed in 2-bag batches at one time. Mix each bag of ARDEX K-15 (55 lb.) with 7 quarts of water. Product shall be mixed in an ARDEX T-10 Mixing Drum using an ARDEX T-1 Mixing Paddle and a 1/2" heavy-duty drill (min. 650 rpm). Mix thoroughly for approximately 2-3 minutes to obtain a lump-free mixture. Follow written instructions per the ARDEX K-15 bag label.

D. Resilient mix for applications over cutback and non-water-soluble adhesive residues, wood, and metal: Use 6 qt. of water and 2 qt. of ARDEX E-25 Resilient Emulsion for each bag of ARDEX K-15.

E. Aggregate mix: For areas to be installed over 1 1/2" thick, aggregate may be added to reduce material costs. Mix ARDEX K-15 with water first, then add from 1/3 up to 1 part by volume of aggregate (1/8" to 1/4" or larger). Do not use sand.

F. For pump installations, ARDEX K-15 shall be mixed using the ARDEX Levelcraft Automatic Mixing Pump. Start the pump at 210 gallons of water per hour, and then adjust to the minimum water reading that still allows self-leveling properties. DO NOT OVERWATER! Check the consistency of the product on the floor to ensure a uniform distribution of the sand aggregate at both the top surface and bottom of the pour. If settling is occurring, reduce the water amount and recheck. Conditions during the installation, such as variations in water, powder, substrate, and ambient temperature, require that the water setting be monitored and adjusted carefully to avoid overwatering.

PART 3 - EXECUTION

3.1 PREPARATION

A. All precast concrete subfloors must be sound, solid, cleaned of prior flooring and adhesives, and primed:
   1. All concrete subfloors must be of adequate strength, clean, and free of all oil, grease, dirt, curing compounds and any substance that might act as a bond breaker before priming. Mechanically clean if necessary, using shot blasting or other. Acid etching and the use of sweeping compounds and solvents are not acceptable.
   2. Cutback and other non-water-soluble adhesive residues must be wet scraped to a thin, well-bonded layer
   3. All cracks in the subfloor shall be repaired to minimize telegraphing through the underlayment
   4. Substrates shall be inspected and corrected for moisture or any other conditions that could affect the performance of the underlayment or the finished floor covering

B. Mechanical preparation of the surface is required to obtain a minimum ICRI concrete surface profile of 3 (CSP 3). This substrate preparation must be by mechanical means, such as shot blasting.

C. The concrete must have a minimum tensile strength of at 150 psi for areas to receive normal foot traffic and 200 psi for areas of heavy commercial traffic when tested in accordance with ASTM C1583.

D. Prior to beginning the installation, the relative humidity within the concrete can be measured (ASTM F2170). No standing water shall be present.

E. If the concrete substrate is too uneven to provide a uniform film thickness of the ARDEX MC™ RAPID (typically CSP 6 or higher), the substrate can be pre-smoothed using ARDEX K 301™ Self-Leveling Exterior Concrete Topping, ARDEX MRP™ Moisture Resistant Patch or ARDEX K 60™ ARDITEX in certain situations.

3.2 JOINT PREPARATION

A. Dormant control joints and dormant cracks greater than a hairline (1/32'' / 0.79 mm) must be pre-filled with ARDEX ARDIFIX™. Dormant cracks and dormant control joints must be filled in strict accordance with the installation instructions provided by the ARDEX Technical Service Department. Once the dormant cracks and dormant control joints have been filled properly, broadcast sand to refusal, and allow these areas to cure thoroughly. Remove all excess sand prior to proceeding with the ARDEX MC RAPID installation.

B. All moving joints and moving cracks must be honored up through the ARDEX MC RAPID, the ARDEX underlayment and the floor covering by installing a fully flexible sealing compound designed specifically for use in moving joints, such as ARDEX ARDISEAL™ RAPID PLUS.

3.3 APPLICATION OF MOISTURE VAPOR EMISSSIONS CONTROL

A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.

B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.

C. Mixing: Comply with manufacturer's printed instructions and the following.
1. Each individual 22 lb. (10 kg) unit contains separate, pre-measured quantities of hardener (Part B) and resin (Part A). After opening each container, stir the individual components thoroughly before blending. The hardening agent (Part B) is added to the resin (Part A).
2. Pour all the hardener into the resin portion and stir thoroughly for a minimum of 3 minutes using a low-speed drill and an epoxy mixing paddle. Once mixed, pour some of the epoxy back into the hardener container, stir for 10 seconds, and then pour all the contents back into the resin container. Mix for an additional 30 seconds before applying.

D. Application: Comply with manufacturer's printed instructions and the following.
1. The required thickness for the ARDEX MC RAPID is dependent on application. Please refer to the technical data sheet for more information.
2. Apply the freshly mixed ARDEX MC™ RAPID at the minimum thickness specified in the technical data sheet to the prepared concrete surface in a uniform direction with a short-nap paint roller or notched squeegee with back-rolling for smoother surfaces, and a longer nap roller for more uneven substrates. To minimize the potential for pinhole formation, work the ARDEX MC™ RAPID into the surface with the roller to ensure maximum penetration. ARDEX

MC™ RAPID can also be worked into the surface with a paintbrush for hard-to-reach areas and corners.

3. A sand broadcast is required. Sand broadcast must proceed while the ARDEX MC RAPID is still in a fresh state (maximum 20 minutes).
4. Following the application of MC RAPID and sand broadcast, install the ARDEX Underlayment, ARDEX K 15® Premium Self-Leveling Underlayment, in accordance with printed instructions found in the corresponding technical brochure.
5. It is not necessary to re-test the substrate for moisture emissions prior to installing the floor covering.

3.4 APPLICATION OF UNDERLAYMENT

A. Installation
1. Pour or pump the liquid ARDEX K-15 and spread in place with the ARDEX T-4 Spreader. Use the ARDEX T-5 Smoother for featheredge and touch-up. Wear baseball shoes with non-metallic cleats to avoid leaving marks in the liquid ARDEX K-15. Underlayment can be walked on in 2-3 hours at 70° F.

3.5 PREPARATION OF FLOORING INSTALLATION

A. Underlayment can accept finish floor covering materials after 16 hours at 70°F and 50% relative humidity

B. Due to the wide range of adhesives that are used to install floor coverings, some adhesives may dry more quickly over ARDEX underlayment than over other substrates. If this condition occurs, priming the surface of the underlayment with ARDEX P-51 Primer diluted 1:3 with water will even out the drying of the adhesive. Allow the primer to dry 1-3 hours before proceeding with the adhesive installation.

3.6 FIELD QUALITY CONTROL

A. Where specified, field sampling of the ARDEX underlayment is to be done by taking an entire unopened bag of the product being installed to an independent testing facility to perform compressive strength testing in accordance with ASTM C 109/modified: air-cure only. There are no in situ test procedures for the evaluation of compressive strength.

3.7 PROTECTION

A. Prior to the installation of the finish flooring, the surface of the underlayment should be protected by the Construction Manager from abuse by other trades using plywood, Masonite, or other suitable protection course.

END OF SECTION 09 05 61

SECTION 09 21 00 - GYPSUM BOARD ASSEMBLIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes the following:
   1. Interior and Exterior non-load-bearing steel framing members for gypsum board assemblies
   2. Moisture, Mold, and Mildew-resistant gypsum backing board installed with gypsum board assemblies.
   3. Abuse resistant gypsum board finishes
   4. Fire rated shaft wall construction at horizontal and vertical conditions requiring a fire rated assembly.
   5. Cementitious fiber-mat reinforced sheathing located at all surfaces to receive tiled wall finishes.
   6. Sound attenuation blankets in interior partitions as indicated.

B. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Section 06 10 00 "Rough Carpentry" for the following:
      a. Installation of wood framing, blocking, and furring, and bullet resistant wall sheathing within gypsum board wall assemblies.
   2. Section 07 84 00 "Firestopping" for firestopping systems and fire-resistive rated joint sealants at gypsum board assemblies and penetrations.
   3. Section 09 30 13 "Ceramic Tiling" for ceramic tile.

1.3 DEFINITIONS

A. Gypsum Board Construction Terminology: Refer to ASTM C I 1 and GA-505 for definitions of terms related to gypsum board assemblies not defined in this Section or in other referenced standards.

1.4 ASSEMBLY PERFORMANCE REQUIREMENTS

A. Sound Transmission Characteristics: For gypsum board assemblies indicated to have STC ratings, provide materials and construction identical to those of assemblies whose STC ratings were determined per ASTM E

90 and classified per ASTM E 413 by a qualified independent testing agency.

1.5 SUBMITTALS

A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.

B. Product data for each type of product specified.

C. Product certificates signed by manufacturers of gypsum board assembly components certifying that their products comply with specified requirements.

1.6 QUALITY ASSURANCE

A. Fire-Test-Response Characteristics: Where fire-rated gypsum board assemblies are indicated, provide materials and construction identical to those of assemblies tested for fire resistance per ASTM E 1 19 by an independent testing and inspecting agency acceptable to authorities having jurisdiction.
   1. Fire Resistance Ratings: As indicated by reference to GA File Numbers in GA-600 "Fire Resistance Design Manual" or to design designations in UL "Fire Resistance Directory".

B. Single-Source Responsibility for Steel Framing: obtain steel framing members for gypsum board assemblies from a single manufacturer.

C. Single-Source Responsibility for Panel Products: Obtain each type of gypsum board and other panel products from a single manufacturer.

D. Single-Source Responsibility for Finishing Materials: obtain finishing materials from either the same manufacturer that supplies gypsum board and other panel products or from a manufacturer acceptable to gypsum board manufacturer.

E. Testing: Materials and construction are subject to testing and inspection by the Owner’s agent. Work or materials failing to meet the requirements of the Contract Documents and submitted design drawings will be subject to removal and replacement at no expense to the Owner.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages, containers, or bundles bearing brand name and identification of manufacturer or supplier.

B. Store materials inside under cover and keep them dry and protected against damage from weather, direct sunlight, surface contamination,

corrosion, construction traffic, and other causes. Neatly stack gypsum panels flat to prevent sagging.

C. Handle gypsum board to prevent damage to edges, ends, and surfaces. Do not bend or otherwise damage metal corner beads and trim.

1.8 PROJECT CONDITIONS

A. Environmental Conditions, General: Establish and maintain environmental conditions for applying and finishing gypsum board to comply with ASTM C 840 and with gypsum board manufacturer's recommendations.

B. Room Temperatures: For non-adhesive attachment of gypsum board to framing, maintain not less than 40 deg F (4 deg C). For adhesive attachment and finishing of gypsum board, maintain not less than 50 deg F (10 deg C) for 48 hours prior to application and continuously after until dry. Do not exceed 95 deg F (35 deg C) when using temporary heat sources.

C. Ventilation: Ventilate building spaces, as required, for drying joint treatment materials. Avoid drafts during hot dry weather to prevent finishing materials from drying too rapidly.

PART2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Steel Framing and Furring:
      a. Marino Industries Corp.
      b. Clark-Dietrich
      c. or equal
   2. Grid Suspension Assemblies:
      a. Chicago metallic Corp.
      b. National Rolling Mills Co.
      c. USG Interiors, Inc.
   3. Gypsum Board and Related Products:
      a. Georgia-Pacific Corp.
      b. Gold Bond Building Products Div., National Gypsum Co.
      c. United States Gypsum Co.
   4. Exterior Sheathing Board:
      a. G-P Gypsum Corp., DensGlass
      b. Certainteed, GlasRoc
      c. USG, Securock

2.2 STEEL FRAMING COMPONENTS FOR SUSPENDED AND FURRED CEILINGS

A. General: Provide components of sizes indicated but not less than that required to comply with ASTM C 754 for conditions indicated.

B. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing per ASTM E II 90 conducted by a qualified testing agency.

C. Wire for Hangers and Ties: ASTM A 641, Class I zinc coating, soft temper.

D. Hanger Rods: Mild steel and zinc-coated or protected with rust-inhibitive paint.

E. Angle-Type Hangers: Angles with legs not less than 7/8 inch wide, formed from 0.0635-inch-thick galvanized steel sheet complying with ASTM A 446 Coating Designation G90, with bolted connections and 5/16-inch-diameter bolts.

F. Channels: Cold-rolled steel, 0.05980-inch-minimum thickness of base (uncoated) metal and 7/16-inch-wide flanges, and as follows:
1. Carrying Channels: 2 inches deep, 590 lb per I 000 feet, unless otherwise indicated.
2. Carrying Channels: 1-1/2 inch deep, 475 lb per 1000 feet, unless otherwise indicated.
3. Furring Channels: 3/4 inch deep, 300 lb per 1000 feet, unless otherwise indicated.
4. Finish: Rust-inhibitive paint, unless otherwise indicated.
5. Finish: G-60 hot-dip galvanized coating per ASTM A 525 for framing for exterior soffits and where indicated.

G. Steel Studs for Furring Channels: ASTM C 645, with flange edges bent back 90 deg and doubled over to form 3/16-inch minimum lip (return), minimum thickness of base (uncoated) metal and minimum depth as follows:
1. Thickness: 0.0329 inch, unless otherwise indicated.
2. Protective Coating: Manufacturer's standard corrosion-resistant coating.
3. Protective Coating: G40 hot-dip galvanized coating per ASTM A 525 for framing for exterior soffits and ceiling suspension members in areas within 10 feet of exterior walls.

H. Steel Resilient Furring Channels: Manufacturer's standard product designed to reduce sound transmission, fabricated from steel sheet

complying with ASTM A 525 or ASTM A 568 to form 7/8-inch-deep channel of the following configuration:

I. Double-Leg Configuration: Hat-shaped channel, with 1-1/2-inch-wide face connected to flanges by double slotted or expanded metal legs (webs).
   1. Grid Suspension System for Interior Ceilings: ASTM C 645, manufacturer's standard direct-hung grid suspension system composed of main beams and cross furring members that interlock to form a modular supporting network.

2.3 STEEL FRAMING FOR INTERIOR WALLS AND PARTITIONS

A. General: Provide steel framing members complying with the following requirements:
   1. Component Sizes and Spacings: As indicated but not less than that required to comply with ASTM C 754 under the following maximum deflection and lateral loading conditions:
      a. Maximum Deflection: L/240 at 5 lbf per sq. ft.
      b. Protective Coating: G40 hot-dip galvanized coating per ASTM A 525 for all interior framing members.

B. Steel Studs and Runners: ASTM C 645, with flange edges of studs bent back 90 deg and doubled over to form 3/16-inch-wide minimum lip (return) and complying with the following requirements for minimum thickness of base (uncoated) metal and for depth:
   1. Thickness: 0.0 1 79 inch, for less than 6 inch depth unless otherwise indicated.
   2. Thickness: 0.0329 inch for 6 inch and greater depth.
   3. Depth: As indicated on the drawings

C. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.

2.4 GYPSUM BOARD PRODUCTS

A. General: Provide gypsum board of types indicated in maximum lengths available to minimize end-to-end butt joints.
   1. Thickness: Provide gypsum board in thickness indicated or, if not otherwise indicated, in 5/8 inch thickness to comply with ASTM C 840 for application system and support spacing indicated.

B. Gypsum Wallboard: ASTM C 36 and as follows:

C. Moisture, Mold, and Mildew Resistant Gypsum Board: ASTM C 1396 or ASTM C 630, manufactured with additives to enhance the water

resistance and fire resistance of the core; surfaced with moisture/mold/mildew resistant paper on front, back and long tapered edges, and Type X 5/8" minimum thickness:

1. Minimum Performance Properties
   a. Mold and Mildew Resistance: (ASTM D 3273) Minimum panel score of 10 or greater.
   b. Moisture Resistance: (ASTM C 473) shall not have surface absorption of not more than 5% of weight.
   c. Surface Burning Characteristics: (ASTM E 84) Flame spread of 15 and smoke development of 0.
2. Approved Products:
   a. XP Wallboard, National Gypsum Company
   b. Mold Tough, United States Gypsum Co.
   c. Dens Armor Plus, Georgia Pacific
3. To be utilized at **all** interior partitions and interior face of exterior walls where metal studs / furring occurs.
   a. Exceptions:
      1) Where surfaces are to receive ceramic tile finishes.
      2) Where abuse resistant gypsum board is indicated on the drawings.

D. Mold / Moisture Resistant gypsum core encased in an acrylic-coated, specially designed fiberglass mat on the face, back and sides: ASTM C 1178; Fiberglass mat backer and as follows:

1. Thickness: 5/8 inch thick.
2. Size: 48 by 96 inches.
3. Products: Subject to compliance with requirements, provide one of the following products where proprietary gypsum wallboard is indicated:
   a. Gold Bond EXP Tile Backer, by United States Gypsum Company.
   b. Durock Brand, Glass-Mat Tile Backerboard, by National Gypsum Company.
   c. approved equal.
4. To be utilized at all installations where ceramic tile **is** indicated for final wall finish.

E. Abuse Resistant, Mildew Resistant Gypsum Panels: ASTM D 3273 and as follows:

1. Type: Regular, unless otherwise indicated.
2. Thickness: 5/8 inch, or as indicated on the drawings.
3. Products: Subject to compliance with requirements, provide one of the following products where proprietary gypsum wallboard is indicated:
   a. Hi-Abuse® Brand XP Wallboard, National Gypsum Company.
   b. DensArmor Plus® Gypsum Board, Georgia Pacific.
   c. Mold Tough® VHI, United States Gypsum Company.

4. To be utilized at all gypsum board installations within Prisoner Processing / Detention areas and as indicated on the drawings. Refer to wall types for other conditions requiring abuse resistant gypsum board installations.

F. Exterior Soffit Board: ASTM C 931 and as follows:
1. Type: Regular, unless otherwise indicated.
2. Thickness: 5/8 inch
3. Products: Subject to compliance with requirements, provide one of the following products where proprietary gypsum wallboard is indicated:
   a. Regular Exterior Soffit Board, Gold Bond Building Products Div., National Gypsum Co.
   b. Exterior Gypsum Ceiling Board, USG.
   c. Exterior Soffit Gypsum Board, American Gypsum
4. To be utilized at all exterior conditions that are indicated to receive a gypsum board finish with indirect exposure to the weather.

2.5 SHAFT WALL FIRE RATED CONSTRUCTION SYSTEM

A. Shaft Wall Systems:
1. Liner Board: one (1) inch.
2. Gypsum Board Faceboard and Gypsum Base: 5/8 inch
3. Metal Studs: Type CH, 24 inches on centers, maximum
4. Products: Subject to compliance with requirements, provide one of the following products where proprietary gypsum wallboard is indicated:
   a. USG Cavity Shaftwall System, or equal.

2.6 TRIM ACCESSORIES

A. Accessories for Interior Installation: Corner beads, edge trim, and control joints complying with ASTM C 1047 and requirements indicated below:
1. Material: Formed metal, with metal complying with the following requirement:
   a. Sheet steel zinc-coated by hot-dip process.
2. Shapes indicated below by reference to Fig. I designations in ASTM C1047:
   a. Cornerbead on outside corners, unless otherwise indicated.
   b. LC-bead with both face and back flanges; face flange formed to receive joint compound. Use LC-beads for edge trim unless otherwise indicated.
   c. U-bead with face and back flanges; face flange formed to be left without application of joint compound. Use U-bead where indicated.
   d. One-piece control joint formed with V-shaped slot, with removable strip covering slot opening.

2.7 JOINT TREATMENT MATERIALS

A. General: Provide joint treatment materials complying with ASTM C 475 and the recommendations of both the manufacturers of sheet products and of joint treatment materials for each application indicated.

B. Joint Tape for Gypsum Board: Paper reinforcing tape, unless otherwise indicated.

C. Drying-Type Joint Compounds for Gypsum Board: Factory-packaged vinyl-based products complying with the following requirements for formulation and intended use.
   1. Ready-Mixed Formulation: Factory-mixed product.
   2. All-purpose compound formulated for both taping and topping compounds.

2.8 MISCELLANEOUS MATERIALS

A. General: Provide auxiliary materials for gypsum board construction that comply with referenced standards and recommendations of gypsum board manufacturer.

B. Spot Grout: ASTM C 475, setting-type joint compound recommended for spot grouting hollow metal door frames.

C. Fastening Adhesive for Metal: Special adhesive recommended for laminating gypsum panels to steel framing.

D. Steel drill screws complying with ASTM C 1002 for the following applications:
   1. Fastening gypsum board to steel members less than 0.03 inch thick.
   2. Fastening gypsum board to gypsum board.

E. Steel drill screws complying with ASTM C 954 for fastening gypsum board to steel members from 0.033 to 0. 1 1/2 inch thick.

F. Sound Attenuation Blankets: Unfaced mineral-fiber blanket insulation produced by combining mineral fibers of type described below with thermosetting resins to comply with ASTM C 665 for Type I (blankets without membrane facing):
   1. Mineral-Fiber Type: Fibers manufactured from glass.
   2. Sound Attenuation Batt Insulation, 3-1/2 inches thick, 16 inches wide, unfaced, or as indicated on the drawings.
   3. Manufacturers:
      a. “Ecotouch Sound Attenuation Batts”, Owens Corning
      b. “AcoustaTherm Batts”, Certainteed
      c. “Formaldehyde Free Fiberglass Insulation”, Johns Manville

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates to which gypsum board assemblies attach or abut, installed hollow metal frames, cast-in-anchors, and structural framing with Installer present for compliance with requirements for installation tolerances and other conditions affecting performance of assemblies specified in this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Ceiling Anchorages: Coordinate installation of ceiling suspension systems with installation of overhead structural assemblies to ensure that inserts and other provisions for anchorages to building structure have been installed to receive ceiling hangers that will develop their full strength and at spacing required to support ceilings.

3.3 INSTALLING STEEL FRAMING, GENERAL

A. Steel Framing Installation Standard: Install steel framing to comply with ASTM C 754 and with ASTM C 840 requirements that apply to framing installation.

B. Install supplementary framing, blocking, and bracing at termination's in gypsum board assemblies to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction. Comply with details indicated and with recommendations of gypsum board manufacturer or, if none available, with "Gypsum Construction Handbook" published by United States Gypsum Co.

C. Isolate steel framing from building structure at locations indicated to prevent transfer of loading imposed by structural movement. Comply with details shown on Drawings.
   1. Where building structure abuts ceiling perimeter or penetrates ceiling.
   2. Where partition framing and wall furring abut structure except at floor.
      a. Provide slip- or cushioned-type joints as detailed to attain lateral support and avoid axial loading.

D. Do not bridge building expansion and control joints with steel framing or furring members. Independently frame both sides of joints with framing or furring members as indicated.

E. All steel frame wall assemblies including gypsum board and sound attenuation blankets, are to extent to underside of structure above. All

voids at mechanical, electrical, fire protection, or plumbing to be filled solid.

3.4 INSTALLING STEEL FRAMING FOR SUSPENDED AND FURRED CEILINGS

A. Suspend ceiling hangers from building structural members and as follows:
   1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
   2. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
   3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
   4. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eyescrews, or other devices and fasteners that are secure and appropriate for structure as well as for type of hanger involved, and in a manner that will not cause them to deteriorate or fail due to -age, corrosion, or elevated temperatures.
   5. Do not support ceilings directly from permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
   6. Do not attach hangers to steel deck tabs.
   7. Do not attach hangers to steel roof deck. Attach hangers to structural members.
   8. Do not connect or suspend steel framing from ducts, pipes or conduit.

B. Sway-brace suspended steel framing with hangers used for support.

C. Install suspended steel framing components in sizes and at spacing indicated but not less than that required by the referenced steel framing installation standard.
   1. Wire Hangers: 0.1620-inch (8-gage) diameter, 4 feet O.C.
   2. Carrying Channels (Main Runners): 1-1/2 inch, 4 feet O.C.
   3 Rigid Furring Channels (Furring Members): 16 inches O.C.

D. Installation Tolerances: Install steel framing components for suspended ceilings so that cross-furring members or grid suspension members are

level to within 1/8 inch in 12 feet as measured both lengthwise on each member and transversely between parallel members.

E. Wire-tie or clip furring members to main runners and to other structural supports as indicated.

F. Grid Suspension System: Attach perimeter wall track or angle where grid suspension system meets vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.

3.5 INSTALLING STEEL FRAMING FOR WALLS AND PARTITIONS

A. Install runners (tracks) at floors, ceilings, and structural walls and columns where gypsum board stud assemblies abut other construction.

B. Installation Tolerances: Install each steel framing and furring member so that fastening surfaces do not vary more than 1/8 inch from the plane formed by the faces of adjacent framing.

C. Extend partition framing full height to structural supports or substrates above suspended ceilings. Cut studs 1/2 inch short of full height. Continue framing over frames for doors and openings and frame around ducts penetrating partitions above ceiling to provide support for gypsum board.
   1. For STC-rated and fire-resistive-rated partitions requiring partitions to extend to the underside of floor/roof slabs and decks or other continuous solid structural surfaces to obtain ratings, install framing around structural and other members extending below floor/roof slabs and decks, as needed, to support gypsum board closures needed to make partitions continuous from floor to underside of solid structure.

D. Install steel studs and furring in sizes and at spacings indicated but not less than that required by the referenced steel framing installation standard to comply with maximum deflection and minimum loading requirements specified:
   1. Single Layer Construction: Space studs at 16 inches o.c., or as indicated on drawings.

E. Install steel studs so that flanges point in the same direction and so that leading edges or ends of each gypsum board can be attached to open (unsupported) edges of stud flanges first.

F. Frame door openings to comply with details indicated, with GA-219, and with applicable published recommendations of gypsum board manufacturer. Attach vertical studs at jambs with screws either directly to frames or to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.

G. Extend vertical jamb studs through suspended ceilings and attach to underside of floor or roof structure above.

H. Frame openings other than door openings to comply with details indicated or, if none indicated, in same manner as required for door openings. Install framing below sills of openings to match framing required above door heads.

3.6 APPLYING AND FINISHING GYPSUM BOARD, GENERAL

A. Gypsum Board Application and Finishing Standards: Install and finish gypsum panels to comply with ASTM C 840 and GA-216.

B. Install sound attenuation blankets in all required interior partitions prior to installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

C. Install ceiling board panels across framing to minimize the number of abutting end joints and avoid abutting end joints in the central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

D. Install wall/partition board panels to minimize the number of abutting end joints or avoid them entirely. Stagger abutting end joints not less than one framing member in alternate courses of board. At high walls, install panels horizontally with end abutting joints over studs and staggered.

E. Locate both edge or end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Position adjoining panels so that tapered edges abut tapered edges, and field-cut edges abut field-cut edges and ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions. Avoid joints at corners of framed openings where possible.

F. Attach gypsum panels to steel studs so that the leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

G. Attach gypsum panels to framing provided at openings and cutouts.

H. Form control joints and expansion joints at locations indicated and as detailed, with space between edges of adjoining gypsum panels, as well as supporting framing behind gypsum panels.

I. Cover both faces of steel stud partition framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chase walls that are braced internally.

1. Except where concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts, pipes, and conduits.

J. Isolate perimeter of non-load-bearing gypsum board partitions at structural abutments, except floors, as detailed. Provide 1/4-inch-to-1/2-inch-wide spaces at these locations and trim edges with U-bead edge trim where edges of gypsum panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

K. Seal construction at perimeters, behind control and expansion joints, openings, and penetrations with a continuous bead of acoustical sealant including a bead at both faces of the partitions. Comply with ASTM C 919 and manufacturer's recommendations for location of edge trim and closing off sound-flanking paths around or through gypsum board assemblies, including sealing partitions above acoustical ceilings.

L. Space fasteners in gypsum panels according to referenced gypsum board application and finishing standard and manufacturer's recommendations.

3.7 GYPSUM BOARD APPLICATION METHODS

A. Single-Layer Application: Install gypsum wallboard panels as follows:
1. On ceilings, apply gypsum panels prior to wall/partition board application to the greatest extent possible and at right angles to framing, unless otherwise indicated.
2. On partitions/walls 10 feet or less in height, apply gypsum panels vertically (parallel to framing), unless otherwise indicated, and provide panel lengths that will minimize end joints.
3. On partitions walls greater than 10 feet in height, apply gypsum panels horizontally (perpendicular to framing), unless parallel application is required for fire-resistive-rated assemblies. Use maximum-length panels to minimize end joints.

B. Wall Tile Substrates: For substrates indicated to receive thin-set ceramic tile and similar rigid applied wall finishes, comply with the following:
1. Install water resistant gypsum board to comply with ANSI Al 08.1 1.

C. Single-Layer Fastening Methods: Apply gypsum panels to supports as follows:
1. Fasten with screws.

3.8 INSTALLING TRIM ACCESSORIES

A. General: For trim accessories with back flanges, fasten to framing with the same fasteners used to fasten gypsum board. otherwise, fasten trim accessories according to accessory manufacturer's directions for type, length, and spacing of fasteners.

B. Install corner beads at external corners.

C. Install edge trim where edge of gypsum panels would otherwise be exposed or semi-exposed. Provide edge trim type with face flange formed to receive joint compound except where other types are indicated.
   1. Install LC-bead where gypsum panels are tightly abutted to other construction and back flange can be attached to framing or supporting substrate.
   2. Install U-bead where indicated.

D. Install control joints and reveal joints at locations indicated, and where not indicated according to ASTM C 840, and in locations approved by Architect for visual effect.

3.9 FINISHING GYPSUM BOARD ASSEMBLIES

A. General: Apply joint treatment at gypsum board joints (both directions); flanges of corner bead, edge trim, and control joints; penetrations; fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration and levels of gypsum board finish indicated.

B. Prefill open joints, rounded or beveled edges, and damaged areas using setting-type joint compound.

C. Apply joint tape over gypsum board joints except those with trim accessories having concealed face flanges not requiring taping to prevent cracks from developing in joint treatment at flange edges.

D. Levels of Gypsum Board Finish: Provide the following levels of gypsum board finish per GA-214.
   1. Level 1 for ceiling plenum areas, concealed areas, and where indicated, unless a higher level of finish is required for fire-resistive-rated assemblies and sound-rated assemblies.
   2. Level 4 for gypsum board surfaces unless otherwise indicated.
   3. Level 5 for gypsum board surfaces at all ceilings and false work.

E. For level 4 gypsum board finish, embed tape in joint compound and apply three separate coats of joint compound over joints, angles, fastener heads, and accessories. Touch up and sand between coats and after last coat as needed to produce a surf ace free of visual defects and ready for decoration. Use the following joint compound combination:
   1. Embedding and First Coat: Ready-mixed, drying-type, all-purpose or taping compound.
   2. Fill (Second) Coat: Ready-mixed, drying-type, all-purpose or topping compound.
   3. Finish (Third) Coat: Ready-mixed, drying-type, all-purpose or topping compound.

F. Where level 5 gypsum board finish is indicated, apply joint compound combination specified for level 4 plus a thin, uniform skim coat of joint compound over entire surface. Use joint compound specified for the finish (third coat) or a product specially formulated for this purpose and acceptable to gypsum board manufacturer. Produce surfaces free of tool marks and ridges ready for decoration of type indicated.

G. Where level 1 gypsum board finish is indicated, apply joint compound specified for embedding coat.

H. Finish water-resistant gypsum backing board forming base for ceramic tile to comply with ASTM C 840 and board manufacturer's directions for treatment of joints behind tile.

3.10 CLEANING AND PROTECTION

A. Promptly remove any residual joint compound from adjacent surfaces.

B. Provide final protection and maintain conditions, in a manner suitable to Installer that ensures gypsum board assemblies remain without damage or deterioration at time of Substantial Completion.

C. Protect gypsum sheathing that will be left exposed to weather for more than one month as follows:
1. Protect cutouts, corners, and joints in the sheathing by filling with a flexible sealant or by applying sheathing tape recommended by sheathing manufacturer at the time sheathing is applied.

END OF SECTION 09 21 00

SECTION 09 30 00 - CERAMIC TILE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY/DESCRIPTION OF WORK

A. The extent of tile work is shown on Drawings/ Schedules. The work includes medium set porcelain floor tile, thin-set ceramic tile walls, ceramic mosaic floor tile and base, marble thresholds at doorways of ceramic tiled spaces, metal edge protection, uncoupling membrane, waterproofing membrane, grouting materials and all accessories as required.

1. Tile dimensions, coursing, colors, and manufacturer's products shall be as noted in Drawings/ Schedules as shown and specified.
2. Large Format Porcelain Floor tile.
3. Glazed wall tile.
4. Gray marble or beige filled travertine where marble thresholds are scheduled.
5. Uncoupling Membrane.
6. Waterproofing Membrane.
7. All leveling, patching and sealants are included in this section.

B. Related Work Specified Elsewhere:
1. Section 03 30 00 – Cast In Place Concrete
2. Section 10 28 00 - Toilet and Bath Accessories.
3. Section 07 92 00 - Joint Sealers.
4. Section 09 21 00 - Gypsum Board Assemblies.
5. Division 22 - Plumbing

1.4 QUALITY ASSURANCE

A. Furnish tile conforming with the Standard Grade Requirements of ANSI/TCA 137.1.

B. When using setting and grouting materials manufactured under TCA license, include identification and formula number on each container.

C. Provide materials obtained from only one source for each type of tile and color to minimize variations in appearance and quality.

D. Manufacturer's Products: Provide ceramic tile products, colors, textures, patterns, as noted on Drawings. Products where noted should be calibrated to ensure dimensional accuracy required to create patterns as shown in drawings.

1.5 SUBMITTALS (all products)

A. Manufacturer's Data.

B. Technical Information.

C. Warranty Information.

D. Drawings of floor or wall tile if required.

E. Details regarding patterns and layout information.

F. Certificates.

G. Electronic Submittals in addition to hard copies required.

H. Samples:
1. Tile: Submit an electronic copy and 3 tangible samples of each type and color of tile required, not less than 12" square on plywood or hardboard backing and grouted as required.
2. Marble Threshold: Submit 6" section of unit proposed for use.
3. Colored Grout: Manufacturer’s standard range of mineral oxide pigment grout colors.

I. Maintenance Stock:
1. After completion of work deliver replacement materials to the project site, as follows:
   a. For each type and color of tile, including trim and special shapes of each color and type, not less than **5%** of total tiled area.
2. Furnish replacement materials from same manufactured lot as material installed.

J. Tile Grade Certificate: Provide manufacturer's Master Grade Certificate bearing TCA certification mark for each shipment of tile.

1.6 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Deliver packaged materials and store in original containers with seals unbroken and labels intact until time of use, in accordance with manufacturer's directions.

1.7 PROJECTS CONDITIONS

A. Contractor shall phase ceramic tile work to proceed only after all toilet room lighting has been installed.

PART 2 - PRODUCTS

2.1 GENERAL

A. ANSI Ceramic Tile Standard: Provide tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.

1. Provide tile complying with Standard grade requirements unless otherwise indicated.

B. ANSI Standards for Tile Installation Materials: Provide materials complying with ANSI A108.02, ANSI standards referenced in other Part 2 articles, ANSI standards referenced by TNCA installation methods specified in tile installation schedules, and other requirements specified.

C. ISO 13007 Standards for Ceramic Tiles, Adhesives and Grouts.

D. FloorScore Compliance: Tile for floors shall comply with requirements of FloorScore Standard.

E. Low-Emitting Materials: Tile flooring systems shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

F. Factory Blending: For tile exhibiting color variations within ranges, blend tile in factory and package so tile units taken from one package show same range in colors as those taken from other packages and match approved Samples.

G. Mounting: For factory-mounted tile, provide back- or edge-mounted tile assemblies as standard with manufacturer unless otherwise indicated.

H. Retain subparagraph below if tile is used in swimming pools, on exteriors, or in wet areas. According to ANSI A137.1, manufacturers must specify whether back- or edge-mounted tile assemblies are suitable for these installations because mounting materials will decrease contact area of setting material to tile, and mounting materials may not be as strong or as waterproof as setting materials.

1. Where tile is indicated for installation in wet areas, do not use back- or edge-mounted tile assemblies unless tile manufacturer specifies

in writing that this type of mounting is suitable for installation indicated and has a record of successful in-service performance.

I. Factory-Applied Temporary Protective Coating: Where indicated under tile type, protect exposed surfaces of tile against adherence of mortar and grout by pre-coating with continuous film of petroleum paraffin wax, applied hot. Do not coat unexposed tile surfaces

2.2 CERAMIC AND PORCELAIN TILE

A. Large Format Rectangular Porcelain Floor Tile – CT-1 LFT setting materials must be used with LFT tile.
1. Manufacturer: Daltile, Portfolio.
2. Type: Porcelain Tile, Rectified Edges.
3. Size: 11-5/8” x 24-3/8”x 5/16” finish: Matte.
4. Pattern: staggered brick joint (not to exceed 33%).
5. Recommended grout joint: 3/16”.
6. Contact: Daltile, Cleo Galanos, cleo.galanos@daltile.com, cell:203-233-8585.
7. Or Approved Equal Products from the following manufacturers:
   a. Crossville, Garden State Tile, Pam King, pking@gstile.com, cell: 203-434-5547.
   b. American Olean, www.AmercicanOlean.com. Rep: Jared Mallet, email: jmallet@ucx.com.

WALL TILE

A. Large Format Rectangular Porcelain Floor Tile for the Wall (no sag) – CWT-1 LFT setting materials must be used with LFT tile. Note: between floor and wall tile will be MES-FL1 for a sanitary cove by Schuler Systems.

1. Manufacturer: Daltile, Acreage.
2. Type: Porcelain Tile, Rectified Edges.
3. Size: 8” x 48”x 5/16”- finish: Matte.
4. Pattern: 1/3” staggered bring joint running vertical in wall.
5. Recommended grout joint: 3/16”.
6. Contact: Daltile, Cleo Galanos, cleo.galanos@daltile.com, cell:203-233-8585.
7. Or Approved Equal Products from the following manufacturers:
   a. Crossville, Garden State Tile, Pam King, pking@gstile.com, cell: 203-434-5547.
   b. American Olean, www.AmercicanOlean.com. Rep: Jared Mallet, email: jmallet@ucx.com.

B. Wall tile, subway tiles, Glazed Ceramic Wall Tile: (CWT-2).
1. Manufacturer: Daltile. Color Wheel Classic- Trim Piece at Lobby.
2. Type: Glazed Rectangular tile-Glossy finish.
3. Size: 3” x 6” x 5/16”.

4. Style: Color Wheel Classic Linear.
5. Recommended Grout Width: 1/16”.
7. Contact: Daltile, Cleo Galanos, cleo.galanos@daltile.com, cell:203-233-8585.
8. Or Approved Equal Products from the following manufacturers:
   a. Crossville, Garden State Tile, Pam King, pking@gstile.com, cell: 203-434-5547.
   b. American Olean, Belnap White, www.AmericanOlean.com.

BASE TILE:

A. Porcelain Floor Tile Cove Base (CTB-1). This is for walls which are painted. Walls with wall tile to the floor (as with CWT-1) will require MES-FLI.

1.Large Format Rectangular Porcelain Floor Tile – CT-1 LFT setting materials must be used with LFT tile.

1. Manufacturer: Daltile, Portfolio.
2. Type: Porcelain Tile, Rectified Edges.
3. Size: 6” x 12” (P36C9TB) finish: Matte.
4. Note: on walls without CWT-1.
5. Recommended grout joint: 3/16”.
6. Contact: Daltile, Cleo Galanos, cleo.galanos@daltile.com, cell:203-233-8585.
7. Or Approved Equal Products from the following manufacturers:
   a) Crossville, Garden State Tile, Pam King, pking@gstile.com, cell: 203-434-5547.
   b) American Olean, www.AmercicanOlean.com. Rep: Jared Mallet, email: jmallet@ucx.com

2.3 MARBLE THRESHOLDS: (M.TH) (Grey Marble)

B. Provide sound Group "A" Travertine marble 7/8" thick, shaped as shown, with an abrasive hardness of not less than 10.0, when tested in accordance with ASTM C241. The top threshold shall not be more than 3/8" above lowest finish floor.

2.4 METAL EDGE PROTECTION

A. Stainless Steel Edge Protection Profile: (MES-FL1) for use with wall tile CWT-1.
   1. Manufacturer: Schluter Systems.
   2. Type: Dilex HKU- Sanitary Cove.
   3. Finish: SS- V4A – 316 SS – brushed SS.
   4. Equals products by the following manufactures:
      a. Blanke USA, www.blankecorp.com
      b. Homelux USA, www.homeluxusa.com

B. Profile for Wall Tile and Counter Transition: (MES-W1).
   1. Manufacturer: Schluter Systems.
   2. Type: Dilex- AHK 3/8". (AHK-1S0100AE) / Aluminum.
   3. Color: brushed chrome anodized.
   4. Equals products by the following manufactures:
      a. Blanke USA, www.blankecorp.com
      b. Homelux USA, www.homeluxusa.com

2.5 SETTING, WATERPROOFING, UNCOUPLING PRODUCTS, LEVELING, PRIMING, PATCHING GROUTING AND PROTECTION MATERIALS

B. Provide Non-Sag Mortar for floors walls and large format (on floors and walls):
   1. Manufacturer: Mapei.
   2. KeraFlex Super: for walls and floors. Exceeds ANSI- A118,4HTE & A118.11, ANSI-A11815H.
   3. Contact: Rick Lindsey, email: rlindsey@mapei.com, Cell: 603-957-2001.
   4. Equal Products by the approved manufacturers:
      a. Laticrete, www.laticrete.com.
      b. Hydroment by Bostik Americas, www.bostik-us.com.

C. Provide Grout- (GT-1 -GT-3).
   1. Manufacturer: Mapei.
   2. Flexcolor CQ: Ready to use Grout: Professional grade, ready to use color consistent quartz aggregate, for use with grout joints 1/16" to ½".
   3. Contact: Rick Lindsey, email: rlindsey@mapei.com, Cell: 603-957-2001.
   4. Equal Products by the approved manufacturers:
      a. Laticrete, www.laticrete.com.
      b. Hydroment by Bostik Americas, www.bostik-us.com.

D. Provide protective products for Water proofing and Crack Isolation Membrane under all tile products and at drains.
   1. Manufacturer: Mapei. Aqua Defense. And reinforcing fabric – Mapeband.
   2. Premixed liquid rubber with reinforced fabric exceeding ANSI A118.10 and 118.12 standards and having IAPMO certification as a shower pan liner.
   3. Contact: Rick Lindsey, email: rlindsey@mapei.com, Cell: 603-957-2001.
   4. Equal Products may be submitted for approval.

E. Provide a Self-leveler for flooring for all areas requiring floor tile.

All existing adhesives must be removed in accordance with the manufacturer's recommendations.

1. Manufacturer: Mapei.
2. Novoplan 2 Plus with Primer T.
3. Contact: Rick Lindsey, email: rlindsey@mapei.com, Cell: 603-957-2001.
4. Equal Products may be submitted for approval.

F. Provide a patching Compound for flooring when recommended by TCNA. All existing adhesives must be removed in accordance with manufacturer's recommendations.

1. Manufacturer: Mapei.
2. Mapecam Quick Patch.
3. Contact: Rick Lindsey, email: rlindsey@mapei.com, Cell: 603-957-2001.
4. Equal Products may be submitted for approval.

G. Provide a Silicone Sealant at all joints.

1. Manufacturer: Mapei.
2. Product: Mapesil T- Plus.
3. Contact: Rick Lindsey, email: rlindsey@mapei.com, Cell: 603-957-2001.
4. Equal Products may be submitted for approval.

PART 3 - EXECUTION

3.1 INSPECTION

A. Installer must examine the substrate and conditions under which ceramic tile is to be installed and notify the Contractor in writing of any conditions detrimental to the proper and timely completion of work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

3.2 INSTALLATION, GENERAL

A. Comply with the ANSI standard installation specifications for applications indicated.

A. Handle, store, mix and apply proprietary setting and grouting materials in compliance with the manufacturer's instructions.

B. For pre-grouted sheets, field grout perimeters of individual sheets and other un-grouted joints using same elastomeric material as used in the factory or as recommended by manufacturer for specific application.

C. Extend tile work into recesses and under equipment and fixtures, to form a complete covering without interruptions, except as otherwise shown.

Terminate work neatly at obstructions, edges and corners without disruption of pattern or joint alignment.

E. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight, aligned joints. Fit tile closely to electrical outlets, piping and fixtures so that plates, collars, or covers overlap tile.

F. Acceptability of Surfaces: Before tiling, be sure variations of surface to be tiled fall within maximum variations of 1/8" in 8' for walls and 1/16" in 8' for floors.

G. Surface preparation: Surface must be free of dust, grease, wax, plaster drippings or other extraneous material to assure proper adhesion. All movement joints must be located prior to starting to lay tile.

H. Cuts must be planned to be in the least conspicuous locations, and cuts under 2" (5 cm) should be avoided.

I. Install in accordance with the applicable standards.

3.3 SETTING AND GROUTING

A. Use setting materials only on properly prepared smooth, flat surfaces.

B. Unless otherwise shown, lay tile in grid pattern for ceramic tile. Align joints when adjoining tiles on floor, base, walls, and trim are the size. Lay out tile work and center tile fields both directions in each space or on each wall area. Adjust to minimize tile cutting. Provide uniform joint widths.

C. Set marble saddles in same setting material as floor tile.

D. Tint grout as directed by Architect to match samples.

E. Apply grout to all tile joints and at marble saddle in accordance with instructions and recommendations of approved grout manufacturer.

3.5 CLEAN, SEALING AND PROTECTION

A. Cleaning and Sealing:
1. Clean grout and setting materials from face of tile and marble where materials are workable. Leave surfaces clean and free of all foreign matter. Stained material will not be accepted.
2. Unglazed tile may be cleaned with acid solutions only when permitted by the tile and grout manufacturer's printed instructions, but not sooner than 14 days after installation. Protect metal

surfaces, cast iron and citreous plumbing fixtures from effects of acid. Flush the surface with clean water before and after cleaning.

3. Leave finished installation clean and free of cracked, chipped, broken, un-bonded, or otherwise defective tile work.
4. Seal all grout joints per sealer manufacturer's printed instructions.

B. Protection:

1. When recommended by tile manufacturer, apply a protective coat of neutral protective cleaner to complete tile walls and floors.
2. Protect installed tile work with Kraft paper or other heavy covering during the construction period to prevent damage and wear.
3. Prohibit all foot and wheel traffic from using tiled floors for at least 5 days.
4. Before final inspection, remove protective coverings and rinse neutral cleaner from all tile surfaces.

END OF SECTION 09 30 00

SECTION 09 51 13 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, "The General Conditions of the Contract for Construction,", the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. This section includes furnishing and installing acoustic panel ceilings with exposed suspension systems as specified herein and indicated on the drawings.

B. Related Sections: The following sections contain requirements that relate to this section:
   1. Division 21 for sprinkler heads in acoustic ceilings.
   2. Division 23 for grilles, registers, and diffusers in acoustic ceilings.
   3. Division 26 for lighting fixtures in acoustic ceilings.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
   1. Product data for each type of product specified.
   2. Samples for verification purposes of each type of exposed finish required, prepared on samples of size indicated below and of same thickness and material indicated for final unit of Work. Where finishes involve normal color and texture variations, include sample sets showing full range of variations expected.
      a. 6-inch-square samples of each acoustical panel type, pattern, and color.
      b. Set of 12-inch-long samples of exposed suspension system members, including moldings, for each color and system type required.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has successfully completed acoustical ceilings similar in material, design, and extent to those indicated for Project. The installer shall thoroughly review Contract Documents and be familiar with structure and all necessary requirements for attachment to same.

B. Fire-Performance Characteristics: Provide acoustical ceilings that are identical to those tested for the following fire-performance characteristics, per ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction. Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
   1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
      a. Flame Spread: 25 or less.
      b. Smoke Developed: 50 or less.

C. Single-Source Responsibility for Ceiling Units: Obtain each type of acoustical ceiling unit from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.

D. Single-Source Responsibility for Suspension System: Obtain each type of suspension system from a single source with resources to provide products of consistent quality in appearance and physical properties without delaying progress of the Work.
   1. Obtain suspension system from same manufacturer that produces acoustical ceiling units.

E. Coordination of Work: Coordinate layout and installation of acoustical ceiling units and suspension system components with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system components.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.

C. Handle acoustical ceiling units carefully to avoid chipping edges or damaging units in any way.

1.6 PROJECT CONDITIONS

A. Space Enclosure: Do not install interior acoustical ceilings until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

1.7 EXTRA MATERIALS

A. Deliver extra materials to Owner. Furnish extra materials described below that match products installed, are packaged with protective covering for storage, and are identified with appropriate labels.
   1. Acoustical Ceiling Units: Furnish quantity of full-size units equal to 2.0 percent of amount installed.
   2. Exposed Suspension System Components: Furnish quantity of each exposed component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Ceiling Panel Products: Subject to compliance with requirements, provide one of the following where indicated on the drawings:

   1. For use in 2 x 4 Grid Systems where indicated on drawings unless noted otherwise:
      a. 2 x 4 x 5/8 inch panels, “Dune” Item #1773, fine texture, square lay-in, Armstrong, or equal.
      b. NRC Range: .50
      c. Light Reflectance: 0.83
      d. Sag resistance: Humigard Plus
      e. Fire rating: Class A
      f. Color: White
      g. Warranty: 10 years

   2. For use in 2 x 2 Grid Systems within **Dispatch 104** where indicated on drawings:
      a. 2 x 2 x 1 1/2-inch panels, “Optima Open Plan”, Item #3254, Fiberglass with Tuffshield membrane, Armstrong, or equal.
      b. NRC Range: 1.00
      c. Articulation Class (AC) Range: 200
      d. Humidity Resistance: Humiguard Plus
      e. Color: White
      f. Warranty: 10 years
      g. Grid System: "Silhouette XL 9/16-inch Bolt-Slot, ¼” reveal", Armstrong World Industries, Inc., or equal

B. Ceiling Grid Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Non-Fire-Resistance-Rated Wide-Face Double-Web Steel Suspension Systems for use in ceilings designated above, unless noted otherwise:
      a. "15/16” Prelude XL", Armstrong World Industries, Inc.
      b. "200 Snap-Grid System", Chicago Metallic Corporation.
      c. "DX System", USG Interiors, Inc.
   2. Edge Moldings:

a. Armstrong World Industries, Inc.
b. Chicago Metallic Corporation.
c. National Rolling Mills, Inc.

2.2 ACOUSTICAL CEILING UNITS, GENERAL

A. Standard for Acoustical Ceiling Units: Provide manufacturers' standard units of configuration indicated that comply with ASTM E 1264 classifications as designated by reference to types, patterns, acoustical ratings, and light reflectance's, unless otherwise indicated.
1. Mounting Method for Measuring NRC: Type E-400 (plenum mounting in which face of test specimen is 15-3/4 inches [400 mm] away from the test surface) per ASTM E 795.

B. Colors and Patterns: Provide products to match appearance characteristics indicated under each product type. Color: white.

2.3 METAL SUSPENSION SYSTEMS, GENERAL

A. Standard for Metal Suspension System: Provide manufacturer's standard metal suspension systems of types, structural classifications, and finishes indicated that comply with applicable ASTM C635 requirements.

B. Finishes and Colors: Provide manufacturer's standard factory-applied finish for type of system indicated. Color: white.

C. Attachment Devices: Size for 5 times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.

D. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft temper.
1. Gage: Provide wire sized so that stress at 3 times hanger design load (ASTM C 635, Table 1, Direct-Hung), will be less than yield stress of wire, but provide not less than 0.106-inch diameter (12 gage).

E. Edge moldings and Trim: Metal of manufacturer's standard moldings for edges and penetrations that fit type of edge detail and suspension system indicated.
1. For lay-in panels with reveal edge details, provide stepped edge molding that forms reveal of same depth and width as that formed between edge of panel and flange at exposed suspension member.
2. For narrow faced suspension systems, provide suspension system manufacturer's standard edge moldings that match width and configuration of exposed runners.

2.4 NON-FIRE-RESISTANCE-RATED DIRECT-HUNG SUSPENSION SYSTEMS

A. Wide-Face Capped Double-Web Steel Suspension System: Main and cross-runners roll-formed from prepainted or electrolytic zinc-coated cold-rolled steel sheet, with prefinished 15/16-inch-wide metal caps on flanges; other characteristics as follows:
   1. Structural Classification: Intermediate-Duty system.
   2. End Condition of Cross-Runners: Override or Butt-edge type, as stated with Manufacturer.
   3. Cap Material and Finish: Steel sheet painted white.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and structural framing to which ceiling system attaches or abuts, with Installer present, for compliance with requirements specified in this and other sections that affect installation and anchorage of ceiling system. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half-width units at borders and comply with reflected ceiling plans.

3.3 INSTALLATION

A. General: Install acoustical ceiling systems to comply with installation standard referenced below, per manufacturer's instructions and CISCA "Ceiling Systems Handbook"
   1. Standards for Installation of Ceiling Suspension Systems: Comply with ASTM C 636 and ASTM E 580 for areas requiring seismic restraint.

B. Arrange acoustical units and orient directionally patterned units in a manner shown by reflected ceiling plans.

C. Suspend ceiling hangers from building structural members and as follows:
   1. Install hangers plumb and free from contact with insulation or other objects within ceiling space that are not part of supporting structural or ceiling suspension system. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
   2. Where width of ducts and other construction within ceiling space produces hanger spacings that interfere with the location of hangers at spacings required to support standard suspension

system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

3. Secure wire hangers by looping and wire-tying, either directly to structures or to inserts, eyescrews, or other devices that are secure and appropriate for substrate, and in a manner that will not cause them to deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
4. Do not attach hangers to the steel roof deck. Attach hangers to structural members.
5. Space hangers not more than 4'-0" o.c. along each member supported directly from hangers, unless otherwise shown, and provide hangers not more than 8 inches from ends of each member.

D. Install edge moldings of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges

E. Install acoustical panels in coordination with suspension system, with edges concealed by support of suspension members. Scribe and cut panels to fit accurately at borders and at penetrations.
1. Install hold-down clips in areas where required by governing regulations; space as recommended by panel manufacturer unless otherwise indicated or required.

3.4 CLEANING

A. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 09 51 13

SECTION 09 65 00 – RESILIENT FLOORING AND BASE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. Section includes furnishing and installing the following as indicated on the drawings and specified herein:
   1. Resilient Plank (LVP).
   2. Resilient – Rubber Base (B) and accessories (RRS).

B. Related Sections:
   1. Section, 09 30 00 - Ceramic Tile.
   2. Section, 09 68 10 - Carpeting Entry mat only.
   3. Section, 09 65 66 - Resilient- Rubber Sports Flooring (RSF).

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection: For each type of product indicated.

C. Samples for Verification: For each type of product indicated, in manufacturer's standard-size samples of each resilient product color, texture, and pattern required.

D. Product Schedule: For resilient products. Use same designations indicated on Drawings.

E. Shop Drawings: Submit shop drawings showing layout, profiles, and product components, including anchorage, accessories, finish colors, patterns, and textures.

1.4 QUALITY ASSURANCE

A. Mockups: Provide resilient products with mockups specified in other Sections.

1.5 DELIVERY, STORAGE AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by the manufacturer, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).

1.6 PROJECT CONDTIONS

A. Install resilient products after other finishing operations, including painting, have been completed.

B. Maintain ambient temperatures within range recommended by Johnsonite, but not less than 65 deg F (18 deg C) or more than 85 deg F (29 deg C) in spaces to receive resilient products during the following time periods:
   1. 48 hours before installation
   2. During installation
   3. 48 hours after installation

C. Maintain the ambient relative humidity between 40% and 60% during installation.

D. Until Substantial Completion, maintain ambient temperatures within range recommended by Johnsonite, but not less than 55 deg F (13 deg C) or more than 85 deg F (29 deg C).

1.7 EXTRA MATERIALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

B. Floor Tile: Furnish 1 box for every (50) boxes or fractions therefore, of each type, color and pattern of floor tile.

C. Sheet Goods: Furnish quantity of recycled rubber flooring units equal to 5 % of amount installed.

PART 2 - PRODUCTS

2.1 RESILIENT FLOORING, BASE, AND ACCESSORY PRODUCTS:

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A. ENHANCED RESILIENT TILE – (LVP-1):

1. Manufacturer: Mohawk Group.
   a. Resilient Vinyl Tile –Commercial Grade:
   b. Style # Hot and Heavy II – Bolder.
   c. Size: 18”x 36”.
   d. Thickness: 5.0mm.
   e. Installation- Full spread glue down w/ M99.0 adhesive.
   f. Wear Layer Thickness:20 mil.
   g. Tile Texture: Embossed, Type B – ASTM F 1700.
   h. See Finish Schedule for Colors Selections.
   i. Pattern: Monolithic Install.
   j. Contact: Mohawk Commercial Floors - John Talio, john_talio@mohawkind.com. Cell: 1-914-953-5368.
   k. Slip Resistance: ASTM D 2047, ADA Compliant.
   l. Static Load Limit, ASTM F 970: 1000 psi (lbs.sq.in) – 0.005 in.
   m. Residual Indentation, ASTM 1914: Passes < 8%
   n. Flexibility, ASTM F 137: Passes.
   o. Dimensional Stability: Federal Standard #501A, Method 6211: <0.02”/ft., Passes
   p. Resistance to Heat, ASTM F 1514: Passes.
   q. Resistance to Light, ASTM F 1515: Passes.
   r. Resistance to Chemicals, ASTM 925: Passes.
   s. Resistance to Fungi, ASTM G 21: Passes, Rate zero (Rate zero: Fungi Free).
   t. Antibacterial Activity, AATCC 147: Passes, resists the propagation of bacteria.
   u. Radiant Flux, ASTM E 648: greater than 0.45 watts/cm, NFPA Class I.
   v. Smoke Density, ASTM E 662: less than 450, Passes.
   w. IIC Sound Rating, ASTM E 492: 56 when tested over 6” concrete with ceiling plenum.
   x. Warranty:10 Year Limited Commercial Warranty.
   y. Equal Products:
      1. Raskin, Floor Nation, Glory Collection or Raskin Elevations. Contact: Carrie Bartucca, (Michael Halebian & CO.,inc) tluby@michaelhalebian.com.

B. RUBBER COVE BASE - B-1(6”) ,B-1A (4”) , B-2 (6”) & B-3 (6”).

1. B-1:

a. Manufacturer: Mohawk Group – Elemental Edges.
b. Type: Rubber with Toe.
c. Height: 4” an 6”h base.
d. Contact: Mohawk Commercial Floors - John Talio john_talio@mohawkind.com. Cell: 1-914-953-5368.
e. Equal Products:
1. Roppe Products: Contact:www.roppee.com.
2. Johnsonite Flooring: Contact: Carrie Bartucca, (Michael Halebian & CO. Inc) cbartucca@michaelhalebian.com, cell: 860-305-2599.

C. RESILIENT ACCESSORIES RRS-1-3, all accessories must be verified by contractor for exact site conditions.

A. RRS-1:
1. Manufacturer: Johnsonite, Tarkett Group.
2. Type: Adaptor from RT-1 to existing floor.
3. Model # : CTA-XX-Z.

B. RRS-2:
1. Manufacturer: Johnsonite, Tarkett Group.
2. Type: Transition from 1/8” resilient to existing floor.
3. Model #: CTA-XX-N.

C. RRS-3:
1. Manufacturer: Johnsonite, Tarkett Group.
2. Type: Transition from M-1 to existing floor.
3. Model#:CTA-XX-D.

E. Equal Products:
1. Roppe Industries.
2. Armstrong World Industries Inc.

2.1 INSTALLATION MATERIALS FOR RESILIENT PRODUCTS INCLUDE:

A. **ALL INSTALLATION MATERIALS FOR RESILIENT PRODUCTS INCLUDE**: Note: all flooring requires a primer, patching compounds for the prepping for the self-leveling compound as needed by site conditions per manufacturer’s recommendations for smooth installation. Self-leveling is required under all new resilient floors.

B.
1. Mapei Corporation- www.mapei.com. Rep: Rick Lindsay, RLindsey@mapei.com.
2. Ardex - www.ardex.com.
3. Or Equal, must be submitted for approval to the Architect.

4. All underlayers should be from a sole source or compatible in order to provide all warranties and recommendations by the manufacturer.

2.2 INSTALLATION MATERIALS FOR VINYL PLANK (LVP).

A. Trowel-able Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.

B. Floor Polish: Floor Finish is optional. If floor finish is desired, provide protective, neutral pH liquid floor-polish products recommended by floor tile manufacturer.

2.3 INSTALLATION MATERIALS FOR COVE BASE (B-1, B-1A,2,3) AND FLOOR ACCESSORIES, TRANSITION STRIPS, REDUCERS, ADAPTORS (RRS) ETC.

A. Rubber Base Adhesive
1. Type: #960 Solvent-free, Environmentally Safe Acrylic Cove.
2. Trowel Size: 1/8” x 1/8” x 1/8” SQ Notch.
3. Follow manufacturer’s standards.

PART 3 - EXECUTION

3.1 EXAMINATION

a. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the work.

b. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

c. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

1. Prepare Substrates according to ASTM F 710, Standard Practice for Preparing Concrete Flooring to Receive Resilient Flooring including the following testing:

a. Moisture Testing: Perform tests recommended by manufacturer. Proceed with installation only after substrates pass testing.

1) For all Products: Perform relative humidity test using in situ probes, ASTM F 2170. Must not exceed 80%.
2) Perform relative humidity test using situ probes according to ASTM F 2170. Proceed with installation only after substrate are below 95% relative humidity level.
3) The Calcium Chloride Test may be performed when recommended by the manufacturer.
4) Perform anhydrous calcium chloride test, ASTM F 1869. Results must not exceed 5 lbs. Moisture Vapor Emission Rate per 1,000 sq. ft. in 24 hours.
5) A pH test for alkalinity must be conducted. Results should range between 7 and 9. If the test results are not within the acceptable range of 7 to 9, the installation must not proceed until the problem has been corrected.
6) Alkalinity and Adhesion Testing: Perform tests recommended by manufacturer.
7) Any testing that is recommended by the manufacturer for resilient flooring, adhesive and all other prep products (underlayers) must be part of this project.
8) Do not install over OSB (Oriented Strand Board), particle board, chipboard, lauan or composite type under-layments.

B. Fill cracks, holes, depressions and irregularities in the substrate with good quality Portland cement-based underlayment leveling and patching compound and remove bumps and ridges to produce a uniform and smooth substrate.

C. Floor covering shall not be installed over expansion joints.

D. Do not install resilient products until they are same temperature as the space where they are to be installed.
   1. Move resilient products and installation materials into spaces where they will be installed at least 48 hours in advance of installation.

E. Sweep and vacuum clean substrates to be covered by resilient products immediately before installation.

3.3 INSTALLATION METHODS FOR RESILIENT PRODUCTS

A. VINYL PLANK INSTALLATION (LVP-1). Pattern: Brick Ashlar.

   1. Comply with the manufacturer’s written instructions for installing floor tile.

2. Lay out floor tiles / planks from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.

    a. Lay tiles / planks square with room axis.

3. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.

    i. a. Lay tiles / planks with grain running in one direction.

4. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

5. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
6. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.
7. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in finished floor areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.
8. Loose lay and click together floor tiles to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of surface imperfections.

A. INSTALLATION OF RESILIENT COVE BASE (B-1, B-1A,2,3).
1. General: Installation shall be as recommended by manufacturer.
2. Fit joints tight and vertical. Use as long lengths as is practicable. Miter internal corners. Use pre-formed outside corners.
3. Scribe to fit to doorframes and other obstructions.

B. INSTALLATION OF RESILIENT ACCESSORIES, TRANSITION STRIPS, REDUCERS, ADPATORES, ETC. (RSS-X).
1. General: Installation shall be as recommended by manufacturer.
2. Fit joints tight.
3. Use as long lengths as is practicable.
4. Scribe to fit to doorframes and other obstructions.

3.4 CLEANING AND PROTECTION FOR RESILIENT PRODUCTS

A. CLEANING AND PROTECTION FOR VINYL PLANK (LVP-1).
1. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
2. Perform the following operations immediately after completing resilient product installation:
3. Remove adhesive and other blemishes from exposed surfaces.
4. Sweep and vacuum surfaces thoroughly.
5. Damp-mop surfaces to remove marks and soil.
6. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
7. No traffic for 24 hours after installation.
8. No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.
9. Wait 72 hours after installation before performing initial cleaning.
10. A regular maintenance program must be started after the initial cleaning.

3.5 CLEANING AND PROTECTION FOR RESILIENT PRODUCTS

A. CLEANING AND PROTECTION FOR VINYL PLANK (LVP-1).
1. Comply with manufacturer's written instructions for cleaning and protection of resilient products.
2. Perform the following operations immediately after completing resilient product installation:
3. Remove adhesive and other blemishes from exposed surfaces.
4. Sweep and vacuum surfaces thoroughly.
5. Damp-mop surfaces to remove marks and soil.
6. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
7. No traffic for 24 hours after installation.
8. No heavy traffic, rolling loads, or furniture placement for 72 hours after installation.
9. Wait 72 hours after installation before performing initial cleaning.
10. A regular maintenance program must be started after the initial cleaning.

B. CLEANING AND PROTECTION FOR RUBBER COVE BASE (B-X) AND ACCESSORIES (RSS-X).
1. Comply with manufacturer's written instructions for cleaning and protection of resilient products.

2. Perform the following operations immediately after completing resilient product installation:
   a. Remove adhesive and other blemishes from exposed surfaces.
   b. Wipe down with clean cloth rubber base surfaces thoroughly.
   c. Damp-mop floor surfaces to remove marks and soil.

3. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

END OF SECTION 09 65 00.

SECTION 09 65 66 - RESILIENT ATHLETIC FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, “The General Conditions of the Contract for Construction,”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY OF WORK

A. The work of this section includes furnishing and installing the following resilient athletic flooring where indicated on the drawings and specified herein:

1. Sports Flooring-Vulcanized Composition Rubber Back Sheet Vinyl w/ weld rods.

B. Related Sections: Section(s) related to this section include:

1. Section: 03 30 00 Cast-in-Place Concrete
2. Section: 09 65 00 Resilient Flooring and Base.

1.3 SYSTEM DESCRIPTION

A. Performance Requirements: Provide Centaur Vulcanized Composition Rubber back sheet vinyl resilient flooring, which has been manufactured and installed to maintain performance criteria stated by manufacturer without defects, damage or failure.

1.4 SUBMITTALS

A. General: Submit listed submittals in accordance with Conditions of the Contract and Division.

1. Submittal Procedures Section.
2. Product data and certification letter indicating percentage of recycled content for both pre-consumer and post-consumer content.
3. Recycled content is defined in accordance with the International Organization for Standardization document, ISO 14021 Environmental labels and declarations.
    a. Post-consumer material - waste materials diverted from the waste stream after consumer or commercial use.
    b. Pre-consumer material - materials diverted from the waste

stream during the manufacturing process. Excluded are regrind, rework, and scrap.

B. Product Data: Submit product data, including manufacturer's guide specifications product sheet, for specified products.

C. Shop Drawings: Submit shop drawings showing layout, profiles and product components, including anchorage, accessories, finish colors, patterns and textures.

D. Samples: Submit selection and verification samples for finishes, colors and textures.

E. Quality Assurance Submittals: Submit the following:

1. Certificates: If required, certification of performance characteristics specified in this document shall be provided by the manufacturer.
2. Manufacturer's Instructions: Manufacturer's installation instructions.
3. Manufacturer's Field Reports: Manufacturer's field reports specified herein.

F. Closeout Submittals: Submit the following:

1. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operational Data) Section. Include methods for maintaining installed products and precautions against cleaning materials and methods detrimental to finishes and performance.
2. Warranty: Warranty documents specified herein.

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Installer Qualifications: Installer experienced in performing work of this section who has specialized in installation of work like that required for this project.
   a. Certificate: When requested, submit a certificate indicating qualification.
2. Manufacturer's Qualifications: Manufacturer capable of providing field service representation during construction and approving application method.
3. Maintenance: Maintain mock-up during construction for

workmanship comparison. Remove and legally dispose of mock-up when no longer required.

4. Incorporation: Mock-up may be incorporated into final construction upon Owner's approval.

B. Pre-installation Meetings: Conduct pre-installation meeting to verify project requirements, substrate conditions, manufacturer's instructions and manufacturer's warranty requirements. Comply with Division 1 Project Management and Coordination (Project Meetings) Section.

C. Pre-installation Testing: Conduct pre-installation testing for concrete substrate.

1.6 DELIVERY, STORAGE & HANDLING

A. General: Comply with Division 1 Product Requirements Sections.

B. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

C. Delivery: Deliver materials in manufacturer's original, unopened undamaged containers with identification labels intact.

D. Storage and Protection: Store materials at temperature and humidity conditions recommended by manufacturer and protect from exposure to harmful weather conditions.

1.7 PROJECT CONDITIONS

A. Temperature Requirements: Maintain air temperature in spaces where products will be installed for time period before, during, and after installation as recommended by manufacturer.

B. Field Measurements: Verify actual measurements/openings by field measurements before fabrication; show recorded measurements on shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid construction delays.

1.8 WARRANTY

A. Project Warranty: Refer to Conditions of the Contract for project warranty provisions.

B. Manufacturer's Warranty: Submit, for owner's acceptance, manufacturer's standard warranty document executed by authorized company official. Manufacturer's warranty is in addition to, and not a limitation of, other rights Owner may have under Contract Documents.
   1. Warranty Period: Ten (10) years commencing on Date of Substantial Completion.

1.9 MAINTENANCE

A. Extra Materials: Deliver to Owner extra materials from same production run as products installed. Package products with protective covering and identify with descriptive labels. Comply with Division 1 Closeout Submittals (Maintenance Materials) Section.
   1. Quantity: Furnish quantity of resilient flooring units equal to 5% of amount installed.
   2. Delivery, Storage and Protection: Comply with Owner's requirements for delivery, storage, and protection of extra materials.
   3. Cleaning: Furnish flooring manufacturer's neutral cleaner for initial cleaning and maintenance of finished floor surface.

PART 2 - MANUFACTURER

2.1 MANUFACTURER

A. Centaur, 715 Fountain Ave., Lancaster, PA 17601; Telephone: (800) 322-1923, (717) 295-3400; Fax: (717) 295-3414; Email: www.centaurfloors.com, or equal.

B. Contact: Thomas Luby, (Michael Halebian & CO. Inc) tluby@michaelhalebian.com. Mobile: 860-803-0525.

2.2 PRODUCT – **RSF-1 Heavy Duty Sheet Flooring** 7mm rolls (70"x 65' rolls) see plans for layout with Egrip Adhesive, testing must identify which Egrip is to be used based on the RH.

A. Flooring manufactured by Centaur.
   1. Centaur Vulcanized Composition Rubber Back Sheet Vinyl.
      a. Tenacity.
   2. Weld Rod.
   3. See 2.3 and 2.4 charts for product specification details.

2.3 VULCANIZED COMPOSITION RUBBER BACK VINYL SHEET FLOORING

CHART 1- Vulcanized Composition Rubber Back Vinyl Sheet Flooring-Tenacity.
5mm Base Layer / 2mm Surface Layer / 0.51mm (20 mil) Wear Layer

Made from a formulation of high quality post-consumer Vulcanized Composition Rubber granules encapsulated in a wear and water-resistant elastomeric network fusion bonded to a heterogeneous vinyl surface layer with a urethane topcoat

Performance Criteria	Test Method	Typical Result
Static Load Limit	ASTM F970 @ 250PSI	0.007"
Slip Resistance / Coefficient of Friction	ASTM D2047	> 0.8
Chemical Resistance	ASTM F925	Good
Abrasion Resistance	ASTM D3389 / EN 649	Pass
Chair Casters	ASTM D6962 BS EN 985	Pass
Flammability - Critical Radiant Flux	ASTM E648 / NFPA 253	Class I
Flammability - "Pill Test"	ASTM D2859	Pass
Resistance to Light	ASTM F-1515 / ISO 105-B02	Pass
Resistance to Heat	ASTM F1514	Pass
VOC's / FloorScore / CHPS / CA 01350	ASTM D-5116	Pass
Recycled Content	Manufacturer	60%
Dynamic Rolling Load	ASTM F2753	Pass
g-max	Clegg	343 Average
Force Reduction (20 kg mass)	ASTM F2569 / EN 14808	Class 1
Vertical Deflection / Deformation	ASTM F2157 / EN 14809	Pass
Vertical Ball Rebound	ASTM F2117 / EN 12235	Pass
Surface Slip Resistance	ASTM E303 / EN-13036	Pass
Impact Insulation Class (IIC)	ASTM E-492	55 (6" concrete, no ceiling)

Airborne Sound Transmission (STC)	ASTM E-90	52 (6" concrete, no ceiling)
Delta IIC (floor coverings)	ASTM E-2179	23 (6" concrete, no ceiling)
Noise Reduction Coefficient (NRC)	ASTM C-423	0.10
High Frequency IIC (HIIC)		60 (6" concrete, no ceiling)
Delta HIIC		31 (6" concrete, no ceiling)
Sounds Absorption Average (SAA)		0.07
Roll Dimensions	Manufacturer	Thickness 7mm x Width 70in (1.78m)
Standard Tolerance Width	Manufacturer	Width: +3/4in (19mm); - 0 in
Standard Tolerance Length	Manufacturer	Length: +1%; - 0%
Standard Tolerance Thickness	Manufacturer	Thickness: ± 0.4 mm

2.4 VULCANIZED COMPOSITION RUBBER BACK VINYL SHEET FLOORING WELD ROD

CHART-2 Vulcanized Composition Rubber Back Vinyl Sheet Flooring Weld Rod	
Material	Vinyl
Dimensions	3mm diameter rod x 166 LF [50.6 M] spool. Custom lengths not available.

2.6 BASE

1.Note: Base is not a Centaur product. See 09 65 00.

PART 3.0 - EXECUTION

3.1 MANUFACTURER'S INSTRUCTIONS

A. Compliance: Comply with manufacturer's product data, including product technical bulletins, product catalog installation instructions and product carton instructions for installation.

3.2 EXAMINATION

A. Site Verification of Conditions: Verify substrate conditions, which have

been previously installed under other sections, are acceptable for product installation in accordance with the manufacturer's instructions.

3.3 PREPARATION

A. Surface Preparation: all skim coats, leveling, priming, patching must be complete prior to the products installation. Products to include Mapei ECO570 to bond high performance rubber.

B. Underlayers must be supported by the manufacturer and include a warranty.

C. Manufacturer's for Underlayers include Mapei Corporation or Equal.

www.mapei.com, RLindsey@mapei.com.

3.4 ERECTION / INSTALLATION/APPLICATION / CONSTRUCTION

A. Vulcanized Composition Rubber Back Vinyl Flooring Installation: Comply with Centaur Technical Manual for installation procedures and techniques.

B. Finish Color/Textures/Patterns: See Finish Schedule.

3.5 CLEANING

A. Cleaning: Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions prior to Owner's acceptance. Remove construction debris from project site and legally dispose of debris.

3.6 PROTECTION

A. Protection: Protect installed product and finish surfaces from damage during construction.

END OF SECTION 09 65 66.

SECTION 09 68 10 - CARPETING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY / DESCRIPTION OF WORK

A. The extent of carpet work is shown on Drawings/ Schedules. The work includes Carpet Tile and all accessories and adhesives as required and Modular Carpet Entryway System.

1. Carpet Manufacturers, styles and colors, shall be as noted in Drawings/ Schedules as shown and specified.

B. Related Work Specified Elsewhere:
1. Resilient Flooring & Accessories, Division 9, 09 65 00

1.3 SUBMITTALS

A. Manufacturer's Data:

For information only, submit copies of manufacturer's technical information and installation instructions for all materials required, except bulk materials. Include certifications and other data as may be required to show compliance with these specifications. Transmit a copy of each instruction to the Installer.

B. Samples:
Submit 1 set of electronic samples and 3 set tangible samples of same thickness and material for final unit of work.

1. Carpet Tile: Not less than 24" square as required.
2. Maintenance Instructions, including recommended cleaning methods, cleaning solutions and stain removal methods.

C. Maintenance Stock:

1. After completion of work deliver replacement materials to the project site, as follows:
   a. For each type and color of carpet tile and roll goods, color and type, not less than **3%** of total carpeted area.

2. Furnish replacement materials from same manufactured lot as material installed.

D. Shop Drawings: Shop drawing must contain the following information:

1. Name of Job, general contractor, architect, installer.
2. Building address.
3. Scale.
4. Drawing for each area to be carpeted.
5. Construction of sub floor for each area.
6. Qty. of carpet needed for each area, including manufacturer in sequencing area.
7. Exact notations where dye lot changes occur.
8. Carpet pile direction of each area.
9. Name of manufacturer, style, backing system and color of carpet for each area.
10. Location and type of expansion joints, and edge moldings.
11. Type of wall base in each area.

E. Maintenance Instructions, including recommended cleaning methods, cleaning solutions and stain removal methods.

1.4 QUALITY ASSURANCE:

A. Installer Qualifications: Engage an experienced Installer who has successfully completed carpeting installations in material, design and extent to those indicated for Project. Installer shall thoroughly review Contract Documents and be familiar with structure and all necessary requirements for attachment to same.

B. Fire Performance Characteristics: Provide carpeting that is identical to those tested for the following fire-performance characteristics, per ASTM test method indicated below, by UL or other testing and inspecting organizations acceptable to authorities having jurisdiction.

1. Flame Resistance: Pass Methamine PU Test, DOC-FF1-70.
2. Flooring Radiant Panel ASTM E-648-78: Critical Radiant Flux, greater than 0.45 watts per CM2.
3. Smoke Chamber ASTM E-662-83: Less than 450.

C. Coordination of Work: Coordinate layout and installation of carpeting with other construction.

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING:

A. Deliver packaged materials and store in original containers with seals unbroken and labels intact until time of use, in accordance with

manufacturer's directions. Packaging shall contain manufacturer's name, product color and pattern name, identification and other related information. Store in a fully enclosed space where it will be protected against damage from moisture, direct sunlight, surface contamination and other causes.

B. Carpet shall be stored between 40 and 100 degrees Fahrenheit and shall be conditioned to between 65 and 95 degrees Fahrenheit and the humidity between 10% and 65% for a minimum of 48 hours prior to the installation.

1.6 PROJECT CONDITIONS

A. Space Enclosure: Do not install carpeting until space is enclosed and Weather-proof, wet-work in space is completed and nominally dry, painting and finish work is complete and work above ceilings is complete, tested, and approved. Maintain room temperature at a minimum of 65 and a maximum of 95 degrees Fahrenheit for a minimum of 48 hours before, during and 72 hours after installation. The installation site must be acclimated with HVAC in operation.

1.7 WARRANTY

A. Provide Certified Copies of the manufacturer's product warranties.

B. Warranty shall be sole source responsibility of the manufacturer. Second Source warranties or warranties that involve parties other than the manufacturer are unacceptable.

C. Warranties are official documents and shall not be issued on job sheets.

PART 2 - PRODUCTS

2.1 ENTRY MAT TILE (M-1 or Equal)

A. Basis of Design, System Overview, Modular Carpet Entryway System Tile (M-1).
1. Manufacturer: Mohawk Commercial Flooring.
2. Style: Step In Style II.
3. Construction: Tufted.
4. Size: 24" x 24"x .303".
5. Dye Method: 100% Solution Dyed.
6. Gauge: 5/32".
7. Face Weight: 30.0.
8. Stiches per Inch: 10.0.
9. Primary Backing System: EcoFlex NXT.
10. Installation method: Quarter Turn.
11. Flooring Radiant Panel- ASTM-E 648, Class 1. Class 1; ASTM-E-662 NBS smoke density: less than 450.

12. Warranty: 1 year Manufacturing defect warranty
13. Or Approved Equal products to Basis of Design Entry Mat Tile from the following manufacturers.
14. Contact: John Talio, john_talio@mohawkind.com. Cell: 1-914-953-5368.
15. Equal: Milliken OBEX/ CUTX/FIZZ. Contact: Tom McGuire, tom.mcguire@milliken.com, Cell: 860-490-0239.
16. Equal: J&J Catwalk II-7268, Contact: Chris Lacasse: email:chris.lacasse@jjflooring.com.

A. Adhesives / pre-applied methods only shall be per manufacturers' recommendation for compatibility with the backing system and substrate.

B. These products require a primer. Include all installation materials.

D. At the transition between carpet and other floor coverings, carpet edges must be protected and covered with appropriate molding. In transition areas, the edge of a hard surface flooring must be a minimum of 1/16" higher than carpeted flooring. Seam sealer must be applied to the edge of the carpet at the transition area. Transition strips shall be the same color as the resilient wall base in adjacent areas.

E. Acceptable equals must be available in same color and similar pattern.

F. Seam sealer must be applied to the edge of the carpet at the transition area.
Transition strips shall be the same color as the resilient wall base in adjacent area.

G. Acceptable equals must be available in same color and similar pattern and identical electrostatic dissipative qualities.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Installer must examine the substrate and conditions under which carpet is to be installed and notify the Contractor in writing of any conditions detrimental to the proper and timely completion of work. Do not proceed with the work until unsatisfactory conditions have been corrected in a manner acceptable to the Installer.

3.2 PREPARATION, GENERAL:

A. Clean floor of dust, dirt, solvents, oil, grease, plaster, paint and other substances detrimental to proper performance of adhesive and carpet. Allow floors to dry thoroughly. Floor temperature shall be a minimum of 60 degrees Fahrenheit for proper adhesive performance.

B. Verify that floors are level, with a maximum variation of 1/8” in 10 feet, noncumulative. Use leveling compound where required. Patched areas will need to be primed with Prime coat of approved Primer.

C. Ensure that concrete floors are free from scaling and irregularities and exhibit neutrality relative to acidity and alkalinity. Floor PH shall be between 5 and (and not exceed 9. When pH is between 9 and 12 and moisture is below 5 lbs or 80%, Prime Coat can be used to block pH. Should the pH be outside this range, do not proceed with the installation.

D. Calcium Chloride Test and Relative Humidity are not required unless manufacturer requires them to keep warranty.

E. All new flooring requires a Bond Test.

3.3 INSTALLATION:

A. General: Check matching of carpeting to verify there is no variation in dye lots.

B. Cut carpet where required in a manner to allow proper seam and pattern match. Ensure that cuts are straight, true and un-frayed. Never cut carpet over carpet as this can result in cutting of loops in lower carpet.

C. Ensure that seams are straight, not overlapped or peaked and free of gaps.

D. Cut and fit carpet neatly around projections from floor and to walls and other vertical surfaces.

E. Do not place heavy objects or furniture on carpeting for a minimum of 24 hours or until adhesive is set.

F. Install transition strips where carpeting terminates at other flooring. Use full- length pieces only. Butt tight to vertical surfaces.

3.4 CLEANING AND PROTECTION

A. Remove any excess adhesive from floor, base, and wall surfaces without damage.

B. Thoroughly clean carpeting per manufacturer’s written instructions prior to Final acceptance by Owner.

C. Carpet should be protected from heavy traffic and construction dust with a non- staining building material paper. Never use plastic sheeting as it will trap moisture inside and prevent proper curing of the adhesive.

END OF SECTION 09 68 10

SECTION 09 91 23 – INTERIOR PAINTING

PART 1 GENERAL

0.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.1 SUMMARY

A. Interior paint and coating systems including surface preparation.

1.2 RELATED SECTIONS

A. Section 03 30 00 - Cast-in-Place Concrete.

B. Section 04 20 00 - Unit Masonry: Concrete Masonry Units (CMU) and brick.

C. Section 05 12 16 - Fabricated Fireproofed Steel Columns.

D. Section 05 50 00 - Metal Fabrications.

E. Section 06 20 00 - Finish Carpentry.

F. Section 06 40 00 - Architectural Woodwork.

G. Section 08 11 13.16 - Custom Hollow Metal Doors and Frames.

H. Section 09 21 16.23 - Gypsum Board Shaft Wall Assemblies.

I. Section 23 05 00 - Common Work Results for HVAC.

J. Section 26 05 00 - Common Work Results for Electrical.

1.3 REFERENCES

A. Steel Structures Painting Council (SSPC):
1. SSPC-SP 1 - Solvent Cleaning.
2. SSPC-SP 2 - Hand Tool Cleaning.
3. SSPC-SP 3 - Power Tool Cleaning.
4. SSPC-SP5/NACE No. 1, White Metal Blast Cleaning.
5. SSPC-SP6/NACE No. 3, Commercial Blast Cleaning.
6. SSPC-SP7/NACE No. 4, Brush-Off Blast Cleaning.
7. SSPC-SP10/NACE No. 2, Near-White Blast Cleaning.
8. SSPC-SP11, Power Tool Cleaning to Bare Metal.

9. SSPC-SP 13 / NACE No. 6 Surface Preparation for Concrete.

B. Material Safety Data Sheets / Environmental Data Sheets: Per manufacturer's MSDS/EDS for specific VOCs (calculated per 40 CFR 59.406). VOCs may vary by base and sheen.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: For each paint system indicated, including.
1. Product characteristics.
2. Surface preparation instructions and recommendations.
3. Primer requirements and finish specification.
4. Storage and handling requirements and recommendations.
5. Application methods.
6. Cautions for storage, handling, and installation.

C. Selection & Verification Samples: Submit Draw Downs (size: 8” x 10”) for each color and scheme. Follow the finish schedule for “P” Paint color numbers. Draw downs should have “P” numbers on each tab and represent the exact product, color, and scheme.

D. Note: painting products must come from a sole source. If there is an issue product must be submitted to the Architect for approval.

E. Coating Maintenance Manual: Upon conclusion of project, the Contractor or paint manufacturer/supplier shall furnish a coating maintenance manual, such as Sherwin-Williams, "Custodian Project Color and Product Information" report or equal. Manual shall include an Area Summary with finish schedule, Area Detail designating where each product/color/finish was used, product data pages, Material Safety Data Sheets, care and cleaning instructions, touch-up procedures, and color samples of each color and finish used.

F. Only submit complying products based on project requirements. One must also comply with the regulations regarding VOCs (CARB, OTC, SCAQMD, LADCO). To ensure compliance with district regulations and other rules, businesses that perform coating activities should contact the local district in each area where the coating will be used.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: A firm or individual experienced in applying paints and coatings similar in material, design, and extent to those indicated for this Project, whose work has resulted in applications with a record of successful in-service performance.

B. Paint exposed surfaces. If a color of finish, or a surface is not specifically

mentioned, Architect will select from standard products, colors, and sheens available.

C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels unless indicated.

D. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish surfaces for verification of products, colors, and sheens.
   2. Finish area designated by Architect.
   3. Provide samples that designate primer and finish coats.
   4. Compatibility and Adhesion: Check after one week of drying and curing by testing in accordance with ASTM D3359; Adhesion by tape test. If coating system is incompatible, additional surface preparation up to and including complete removal may be required.
   5. Do not proceed with remaining work until the Architect approves the mock-up.
   6. Mock-up required for barn door antique finish application.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver manufacturer's unopened containers to the work site. Packaging shall bear the manufacturer's name, label, and the following list of information.
   1. Product name, and type (description).
   2. Application and use instructions.
   3. Surface preparation.
   4. VOC content.
   5. Environmental handling.
   6. Batch date.
   7. Color number.

B. Storage: Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

C. Store materials in an area that is within the acceptable temperature range, per manufacturer's instructions. Protect from freezing.

D. Handling: Maintain a clean, dry storage area, to prevent contamination or damage to the coatings.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 EXTRA MATERIALS

A. Furnish extra paint materials from the same production run as the materials applied and, in the quantities, described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.

B. Furnish Owner with an additional one percent of each material and color, but not less than 1 gal (3.8 l) or 1 case, as appropriate.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Sherwin-Williams, which is located at: 101 Prospect Ave.; Cleveland, OH 44115; ASD Toll Free Tel: 800-524-5979; Tel: 216-566-2000; Fax: 440-826-1989; Email: request info specifications@sherwin.com; Web:www.swspecs.com. Local rep: Heather Bourgeois, heather.r.bourgeois@sherwin.com.

B. Benjamin Moore Paint. www.benjaminmoore.com.

C. PPG paints. www.ppgpaints.com

2.2 APPLICATIONS/SCOPE

A. Interior Paint and Coating Systems: Indoor Environmental Quality-Low Emitting Materials.
   1. Concrete: Poured, precast, tilt-up, cast-in-place, cement board, plaster.
   2. Concrete: Non-vehicular floors.
   3. Metal: Aluminum, galvanized steel.
   4. Metal: Structural steel, joists, trusses, beams, partitions and similar items.
   5. Wood: Walls, ceilings, doors, trim and similar items.
   6. Drywall: Drywall board, Gypsum board.

2.3 PAINT MATERIALS - GENERAL

A. Paints and Coatings:
   1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such procedure is specifically described in manufacturer's product instructions.
   2. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color. Or follow manufactures product instructions for optimal color conformance.

B. Primers: Where the manufacturer offers options on primers for a particular substrate, use primer categorized as "best" by the manufacturer.

C. Coating Application Accessories: Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required, per manufacturer's specifications.

D. Color: Refer to Finish Schedule for paint colors, and as selected.

2.4 INTERIOR PAINT AND COATING SYSTEMS: See finish schedule for Paint colors and additional details.

A. Concrete Products Including: Block Filler- CMU Walls and Poured Concrete.

B. Metal: Hollow Metal (Steel) TR-1 (door frames):
1. Latex Systems:

a. Semi-Gloss Finish: High Performance Finish for Metal Doors, Door frames:

1) 1st Coat: S-W Pro Industrial Pro-Cryl Universal Primer, B66-1310 Series (5.0 mils wet, 2.0 mils dry).
2) 2nd Coat: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46- Series.
3) 3rd Coat: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, K46- Series (4 mils wet, 1.5 mils dry per coat).

C. Drywall: Walls, including Gypsum Board and similar substrates:
1. Latex Systems:

a. Eg-Shel / Satin Finish: High Performance (HP) Upgrade.
1) 1st Coat: S-W ProMar 200 Zero VOC Interior Latex Primer, B28W2600 (4 mils wet, 1.5 mils dry).
2) 2nd Coat: S-W ProMar 200 HP Zero VOC Latex Eg-Shel, B20-1950 Series.
3) 3rd Coat: S-W ProMar 200 HP Zero VOC Latex Eg-Shel, B20-1950 Series (4 mils wet, 1.7 mils dry per coat).

2. Epoxy Systems for Gypsum Board (EP); Water based EP-X:

a. Eg-Shel/Low Luster Finish:
1) 1st Coat: S-W ProMar 200 Zero VOC Interior Latex Primer, B28W2600 (4 mils wet, 1.5 mils dry).
2) 2nd Coat: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, K45- Series.
3) 3rd Coat: S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy, K45- Series (4 mils wet, 1.5 mils dry per coat).

D. Clear Coated Wood: Accessories.

1. Clear Coat Wood: Closet pole and shelves.

   a. Prepare wood by sanding to a smooth level as per the manufacturer's recommendation.
   b. 1st Coat: Minwax water-based Helmsman Indoor / Outdoor Spar Urethane.
   c. 2nd Coat: Minwax water-based Helmsman Indoor / Outdoor Spar Urethane.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared; notify Architect of unsatisfactory conditions before proceeding. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

B. Proceed with work only after conditions have been corrected and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.

C. Previously Painted Surfaces: Verify that existing painted surfaces do not contain lead based paints, notify Architect immediately if lead based paints are encountered.

3.2 SURFACE PREPARATION

A. General: Surfaces shall be dry and in sound condition. Remove oil, dust, dirt, loose rust, peeling paint or other contamination to ensure good adhesion.
   1. Prior to attempting to remove mildew, it is recommended to test any cleaner on a small, inconspicuous area prior to use. Bleach and bleaching type cleaners may damage or discolor existing paint films. Bleach alternative cleaning solutions are advised.
   2. Remove mildew before painting by washing with a solution of 1 part liquid household bleach and 3 parts of warm water. Apply solution and scrub the mildewed area. Allow solution to remain on the surface for 10 minutes. Rinse thoroughly with clean water and allow surface to dry before painting. Wear protective glasses or goggles, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach/water solution.
   3. Remove items including but not limited to thermostats, electrical outlets, switch covers and similar items prior to painting. After completing

painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

4. No exterior painting should be done immediately after a rain, during foggy weather, when rain is predicted, or when the temperature is below 50 degrees F (10 degrees C), unless products are designed specifically for these conditions. On large expanses of metal siding, the air, surface and material temperatures must be 50 degrees F (10 degrees F) or higher to use low temperature products.

B. Aluminum: Remove all oil, grease, dirt, oxide and other foreign material by cleaning per SSPC-SP1, Solvent Cleaning.

C. Block (Cinder and Concrete): Remove all loose mortar and foreign material. Surface must be free of laitance, concrete dust, dirt, form release agents, moisture curing membranes, loose cement, and hardeners. Concrete and mortar must be cured at least 30 days at 75 degrees F (24 degrees C). The pH of the surface should be between 6 and 9 unless the products are designed to be used in high pH environments. On tilt-up and poured-in-place concrete, commercial detergents and abrasive blasting may be necessary to prepare the surface. Fill bug holes, air pockets, and other voids with a cement patching compound.

D. Concrete, SSPC-SP13 or NACE 6: This standard gives requirements for surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of bonded protective coating or lining systems. The requirements of this standard are applicable to all types of cementitious surfaces including cast-in-place concrete floors and walls, precast slabs, masonry walls, and shotcrete surfaces. An acceptable prepared concrete surface should be free of contaminants, laitance, loosely adhering concrete, and dust, and should provide a sound, uniform substrate suitable for the application of protective coating or lining systems.

E. Cement Composition Siding/Panels: Remove all surface contamination by washing with an appropriate cleaner, rinse thoroughly and allow to dry. Existing peeled or checked paint should be scraped and sanded to a sound surface. Pressure clean, if needed, with a minimum of 2100 psi pressure to remove all dirt, dust, grease, oil, loose particles, laitance, foreign material, and peeling or defective coatings. Allow the surface to dry thoroughly. The pH of the surface should be between 6 and 9 unless the products are designed to be used in high pH environments.

F. Copper and Stainless Steel: Remove all oil, grease, dirt, oxide and other foreign material by cleaning per SSPC-SP 2, Hand Tool Cleaning.

G. Exterior Composition Board (Hardboard): Some composition boards may exude a waxy material that must be removed with a solvent prior to coating. Whether factory primed or unprimed, exterior composition board siding (hardboard) must be cleaned thoroughly and primed with an alkyd primer.

H. Drywall - Exterior: Must be clean and dry. All nail heads must be set and spackled. Joints must be taped and covered with a joint compound. Spackled nail heads and tape joints must be sanded smooth and all dust removed prior to painting. Exterior surfaces must be spackled with exterior grade compounds.

I. Drywall - Interior: Must be clean and dry. All nail heads must be set and spackled. Joints must be taped and covered with a joint compound. Spackled nail heads and tape joints must be sanded smooth and all dust removed prior to painting.

J. Galvanized Metal: Clean per SSPC-SP1 using detergent and water or a degreasing cleaner to remove greases and oils. Apply a test area, priming as required. Allow the coating to dry at least one week before testing. If adhesion is poor, Brush Blast per SSPC-SP16 is necessary to remove these treatments.

K. Plaster: Must be allowed to dry thoroughly for at least 30 days before painting unless the products are designed to be used in high pH environments. Room must be ventilated while drying; in cold, damp weather, rooms must be heated. Damaged areas must be repaired with an appropriate patching material. Bare plaster must be cured and hard. Textured, soft, porous, or powdery plaster should be treated with a solution of 1 pint household vinegar to 1 gallon of water. Repeat until the surface is hard, rinse with clear water and allow to dry.

L. Steel: Structural, Plate, And Similar Items: Should be cleaned by one or more of the surface preparations described below. These methods are used throughout the world for describing methods for cleaning structural steel. Visual standards are available through the Society of Protective Coatings. A brief description of these standards together with numbers by which they can be specified follow.
   1. Solvent Cleaning, SSPC-SP1: Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants. Solvent cleaning does not remove rust or mill scale. Change rags and cleaning solution frequently so that deposits of oil and grease are not spread over additional areas in the cleaning process. Be sure to allow adequate ventilation.
   2. Hand Tool Cleaning, SSPC-SP2: Hand Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before hand tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
   3. Power Tool Cleaning, SSPC-SP3: Power Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before power tool cleaning, remove visible oil, grease, soluble

welding residues, and salts by the methods outlined in SSPC-SP1.

4. White Metal Blast Cleaning, SSPC-SP5 or NACE 1: A White Metal Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
5. Commercial Blast Cleaning, SSPC-SP6 or NACE 3: A Commercial Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining. Staining shall be limited to no more than 33 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
6. Brush-Off Blast Cleaning, SSPC-SP7 or NACE 4: A Brush-Off Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, loose mill scale, loose rust, and loose paint. Tightly adherent mill scale, rust, and paint may remain on the surface. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP 1 or other agreed upon methods.
7. Power Tool Cleaning to Bare Metal, SSPC-SP11: Metallic surfaces that are prepared according to this specification, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxide corrosion products, and other foreign matter. Slight residues of rust and paint may be left in the lower portions of pits if the original surface is pitted. Prior to power tool surface preparation, remove visible deposits of oil or grease by any of the methods specified in SSPC-SP1, Solvent Cleaning, or other agreed upon methods.
8. Near-White Blast Cleaning, SSPC-SP10 or NACE 2: A Near White Blast Cleaned surface, when viewed without magnification, shall be free of all visible oil, grease, dirt, dust, mill scale, rust, paint, oxides, corrosion products, and other foreign matter, except for staining. Staining shall be limited to no more than 5 percent of each square inch of surface area and may consist of light shadows, slight streaks, or minor discoloration caused by stains of rust, stains of mill scale, or stains of previously applied paint. Before blast cleaning, visible deposits of oil or grease shall be removed by any of the methods specified in SSPC-SP1 or other agreed upon methods.
9. High- and Ultra-High Pressure Water Jetting for Steel and Other Hard Materials: SSPC-SP12 or NACE 5: This standard provides requirements for the use of high- and ultra-high pressure water jetting to achieve various degrees of surface cleanliness. This standard is limited

in scope to the use of water only without the addition of solid particles in the stream.

10. Water Blasting, SSPC-SP12/NACE No. 5: Removal of oil grease dirt, loose rust, loose mill scale, and loose paint by water at pressures of 2,000 to 2,500 psi at a flow of 4 to 14 gallons per minute.

M. Vinyl Siding, Architectural Plastics, EIFS and Fiberglass: Clean vinyl siding thoroughly by scrubbing with a warm, soapy water solution. Rinse thoroughly. Do not paint vinyl siding with any color darker than the original color unless the paint system features Sherwin-Williams VinylSafe technology. Painting with darker colors that are not Sherwin-Williams VinylSafe may cause siding to warp. Follow all painting guidelines of the vinyl manufacturer when painting. Only paint properly installed vinyl siding. Deviating from the manufacturer's painting guidelines may cause the warranty to be voided.

N. Stucco: Must be clean and free of any loose stucco. If recommended procedures for applying stucco are followed, and normal drying conditions prevail, the surface may be painted in 30 days. The pH of the surface should be between 6 and 9 unless the products are designed to be used in high pH environments such as Loxon.

O. Wood: Must be clean and dry. Prime and paint as soon as possible. Knots and pitch streaks must be scraped, sanded, and spot primed before a full priming coat is applied. Patch all nail holes and imperfections with a wood filler or putty and sand smooth.

3.3 INSTALLATION

A. Apply all coatings and materials with the manufacturer's specifications in mind. Mix and thin coatings according to manufacturer's recommendations.

B. Do not apply to wet or damp surfaces. Wait at least 30 days before applying to new concrete or masonry. Or follow manufacturer's procedures to apply appropriate coatings prior to 30 days. Test new concrete for moisture content. Wait until wood is fully dry after rain or morning fog or dew.

C. Apply coatings using methods recommended by manufacturer.

D. Uniformly apply coatings without runs, drips, or sags, without brush marks, and with consistent sheen.

E. Apply coatings at spreading rate required to achieve the manufacturers recommended dry film thickness.

F. Regardless of number of coats specified, apply as many coats as necessary for complete hide, and uniform appearance.

G. Inspection: The coated surface must be inspected and approved by the

Architect just prior to the application of each coat.

3.4 PROTECTION

A. Protect finished coatings from damage until completion of project.

B. Touch-up damaged coatings after substantial completion, following manufacturer's recommendation for touch up or repair of damaged coatings. Repair any defects that will hinder the performance of the coatings.

END OF SECTION 09 91 23.

SECTION 10 11 00 – VISUAL DISPLAY BOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, “The General Conditions of the Contract for Construction,”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes furnishing the following as indicated on the drawings and specified herein:
   1. Wall-mounted, porcelain enamel markerboards
   2. Wall-mounted, vinyl-fabric-faced cork tackboards

B. Related Sections: The following sections contain requirements that relate to this section:
   1. Section 06 10 00 - "Rough Carpentry" for wood blocking and grounds and for installation of all visual display boards.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of the Contract and Section 01 33 00.

B. Product Data: Include manufacturer's data substantiating that poster case and tackboard materials comply with requirements indicated.

C. Shop Drawings: Provide shop drawings for each type of visual display board required. Include sections of typical trim members, recessed trim, and dimensioned elevations. Show anchors, grounds, reinforcement, accessories, layout, and installation details.

D. Samples: Provide the following samples of each product for initial selection of colors, patterns, and textures, as required, and for verification of compliance with requirements indicated.
   1. Samples for initial selection of color, pattern, and texture:

      a. Porcelain Enamel Markerboard: Manufacturer's color charts consisting of actual sections of porcelain enamel finish showing the full range of colors available for each type of markerboard required.
      b. Vinyl-fabric-faced Cork Tackboards: Manufacturer's color charts consisting of actual sections of vinyl fabric, showing

the full range of colors, textures, and patterns available for each type of vinyl-fabric-faced cork tackboard indicated.

E. Certificates: In lieu of laboratory test reports, when permitted by the Architect, submit the manufacturer's certification that tackboard materials furnished comply with flame spread ratings indicated below.

1.4 QUALITY ASSURANCE

A. Fire Performance Characteristics: Provide tackboards with surface burning characteristics indicated below, as determined by testing assembled materials composed of facings and backings identical to those required in this section, in accordance with ASTM E 84, by a testing organization acceptable to authorities having jurisdiction.
   1. Flame Spread: 25 or less.
   2. Smoke Developed: 10 or less.

B. Design Criteria: The drawings indicate dimensional width requirements of poster cases and are based on the specific type and model indicated. Other poster cases having equal performance characteristics by other manufacturers may be considered if deviations in dimensions and profiles are minor and do not change the design concept or intended performance as judged by the Architect. The burden of proof of equality is on the proposer. **All visual display boards to be 4 feet-0 inches (4'-0") high by width indicated on documents.**

1.5 PROJECT CONDITIONS

A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication to ensure proper fitting. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay.
   1. Allow for trimming and fitting wherever taking field measurements before fabrication might delay the Work.

1.6 WARRANTY

A. Porcelain Enamel Markerboard Warranty: Furnish the manufacturer's written warranty, agreeing to replace porcelain enamel markerboards that do not retain their original writing and erasing qualities, become slick and shiny, or exhibit crazing, cracking, or flaking, provided the manufacturer's instructions with regard to handling, installation, protection, and maintenance have been followed.

   1. Warranty Period (markerboards / tackboards): Lifetime of the building.
   2. Warranty Period (poster case): One (1) year workmanship and materials.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide products of one of the following:
   1. Porcelain Enamel Marker Boards:
      a. Claridge Products and Equipment, Inc.
      b. Global Industries
      c. Best-Rite Manufacturing
   2. Vinyl-fabric-faced Tackboards:
      a. Claridge Products and Equipment, Inc.
      b. Global Industries
      c. Best-Rite Manufacturing
   3. Poster Cases:
      a. Claridge Products and Equipment, Inc.
      b. Global Industries
      c. Best-Rite Manufacturing

B. Basis of Design: Claridge Products and Equipment, Inc.

2.2 MATERIALS

A. Porcelain Enamel Markerboards: Provide balanced, high-pressure-laminated porcelain enamel markerboards of 3-ply construction consisting of face sheet, core material, and backing.
   1. Markerboard Face Sheet: Provide Manufacturer's standard 24-gauge steel porcelain enamel, Type 1 stretcher-leveled aluminized steel face sheet with fused porcelain enamel coating to steel at approximately 1000 deg F (538 deg C).
      a. Markerboard Cover Coat: Provide the manufacturer's standard light-colored special writing surface with gloss finish intended for use with liquid felt-tipped markers and magnetic aids.
   2. Core: Provide the manufacturer's standard 3/8-inch-thick particleboard core material complying with the requirements of ANSI A208.1, Grade 1-M-1.
   3. Backing Sheet: Provide the manufacturer's standard 0.015-inch-thick aluminum sheet backing.
   4. Laminating Adhesive: Provide the manufacturer's standard moisture-resistant thermoplastic-type adhesive.

B. Vinyl-Fabric-Faced Tackboards: Provide mildew-resistant, washable, vinyl fabric complying with FS CCC-W-408, Type II, weighing not less than 13 ounces per square yard, laminated to 1/4-inch-thick cork sheet. Provide fabric that has a flame spread rating of 25 or less when tested in accordance with ASTM E 84. Provide color and texture as scheduled or as selected from the manufacturer's standards.

1. Vinyl Manufacturer: Subject to compliance with requirements, provide products of one of the following:
   a. BF Goodrich, Koroseal, Harborweave.
   b. Claridge, Fabricork.
   c. K-Pro, Pro-Tak Fabrics.
2. Backing: Make panels rigid by factory laminating cork face sheet under pressure to 5/16-inch-thick particleboard backing.

C. Aluminum extrusions are to be 6063-T5 alloy, conforming to ASTM B-221.

D. Corners are to have hairline miters and be braced by means of internal aluminum angles. If welding is used, there shall be no visible welds. Fasteners are to be concealed when doors are closed. Frames shall have a continuous back-up member behind the door.

E. Metals and shapes shall be of sufficient thickness and with proper reinforcement to produce a surface that is free of “oil-canning” and strong enough for size, design, and application.

2.3 ACCESSORIES

A. Metal Trim and Accessories: Fabricate frames and trim of not less than 0.062-inch-thick aluminum alloy, size and shape as indicated, to suit type of installation. Provide straight, single-length units wherever possible; keep joints to a minimum. Miter corners to a neat, hairline closure.
   1. Where the size of boards or other conditions exist that require support in addition to the normal trim, provide structural supports or modify the trim as indicated or as selected by the Architect from the manufacturer's standard structural support accessories to suit the condition indicated.
   2. Field-Applied Trim: Provide the manufacturer's standard snap-on trim, with no visible screws or exposed joints.
   3. Chalktray: Furnish the manufacturer's standard continuous, solid extrusion-type aluminum chalktray with ribbed section and aluminum ends, for each markerboard.
   4. Map Rail: Furnish map rail at the top of each markerboard, complete with the following accessories:
      a. Display Rail: Provide continuous cork display rail approximately 1 inch wide, integral with the map rail.
      b. End Stops: Provide one end stop at each end of the display rail.

B. Metal Map Hooks: Provide 4 map hooks for each display rail.

2.5 FABRICATION

A. Porcelain Enamel Markerboards: Laminate facing sheet and backing sheet to core material under pressure with manufacturer's recommended flexible, waterproof adhesive.

B. Assembly: Provide factory-assembled markerboard and tackboard units, except where field-assembled units are required.
   1. Make joints only where total length exceeds maximum manufactured length. Fabricate with the minimum number of joints, balanced around the center of the board, as acceptable to the Architect.
   2. Provide the manufacturer's standard vertical joint system between abutting sections of markerboard.
   3. If required, provide manufacturer's standard mullion trim at joints between markerboard and tackboard.

2.6 FINISHES

A. General: Comply with NAAMM "Metal Finishes Manual, for recommendations relative to application and designations of finishes.
   1. Finish designations prefixed by "AA" conform to the system established by the Aluminum Association for designating aluminum finishes.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Deliver factory-built visual display units completely assembled in one piece without joints, wherever possible. Where dimensions exceed panel size, provide 2 or more pieces of equal length as acceptable to the Architect. When overall dimensions require delivery in separate units, prefit components at the factory, disassemble for delivery, and make final joints at the site. Use splines at joints to maintain surface alignment.

B. Install units in locations and at mounting heights indicated and in accordance with the manufacturer's instructions. Keep perimeter lines straight, plumb, and level. Provide grounds, clips, backing materials, adhesives, brackets, anchors, trim, and accessories necessary for a complete installation.
   1. Finished vertical surfaces shall be flat, free of warp or bends.

C. Coordinate job-site assembled units with grounds, trim, and accessories. Join parts with a neat, precision fit.

3.2 ADJUST AND CLEAN

A. Verify that accessories required for each unit have been properly installed and that operating units function properly.

B. Clean units in accordance with the manufacturer's instructions.

END OF SECTION 10 11 00

SECTION 10 28 00 - TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes furnishing toilet and bath accessory items as shown on the drawings and as specified herein.

B. Installation of toilet and bath accessories is specified in Section 06 10 00, "Rough Carpentry".

C. Installation of wood blocking is specified in Section 06 10 00, "Rough Carpentry".

D. Toilet compartments and related accessories are specified in Section 10 21 13, "Toilet Compartments".

1.3 SUBMITTALS

A. General: Submit the following according to Conditions of Contract and Division 1 Specifications Sections.

B. Product data for each toilet accessory item specified, including construction details relative to materials, dimensions, gages, profiles, mounting method, specified options, and finishes.

C. Schedule indicating types, quantities, sizes, and installation locations (by room) for each toilet accessory item to be provided for project.

D. Setting drawings where cutouts are required in other work, including templates, substrate preparation instructions, and directions for preparing cutouts and installing anchorage devices.

E. Maintenance instructions including replaceable parts and service recommendations.

1.4 QUALITY ASSURANCE

A. Inserts and Anchorages: Furnish accessory manufacturers' standard inserts and anchoring devices that must be set in concrete or built into masonry. Coordinate delivery with other work to avoid delay.

B. Single-Source Responsibility: Provide products of same manufacturer for each type of accessory unit and for units exposed to view in same areas, unless otherwise acceptable to Architect.

C. Catalog Standards: Manufacturer's catalog numbers may be shown on drawings for convenience in identifying certain work. Unless modified by notation on drawings or otherwise specified, catalog description for indicated number constitutes requirements for each item.
   1. The use of catalog numbers and specific requirements set forth in drawings and specifications are not intended to preclude the use of any other acceptable manufacturer's product or procedures which may be equivalent, but are given for purpose of establishing standard of design and quality for materials, construction, and workmanship.
   2. The approval of other listed manufacturers, products does not relieve the Contractor from compliance with the detailed requirements of this Section.

1.5 PROJECT CONDITIONS

A. Coordination: Coordinate accessory locations, installation, and sequencing with other work to avoid interference with and ensure proper installation, operation, adjustment, cleaning, and servicing of toilet accessory items.

1.6 WARRANTY

A. Warranty: Submit a written warranty executed by mirror manufacturer, agreeing to replace any mirrors that develop visible silver spoilage defects within warranty period.

B. Warranty Period: 15 years from date of Substantial Completion.

C. The warranty shall not deprive the Owner of other rights the owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide toilet accessories by one of the following:
   1. American Specialties, Inc. (ASI)

2. Bobrick Washroom Equipment, Inc. (Bobrick)
3. or equal.

2.2 MATERIALS, GENERAL

A. Stainless Steel: AISI Type 302/304, with polished No. 4 finish, 0.034-inch (22-gage) minimum thickness.

B. Brass: Leaded and unleaded, flat products, ASTM B 19; rods, shapes, forgings, and flat products with finished edges, ASTM B 16; Castings, ASTM B 30.

C. Sheet Steel: Cold-rolled, commercial quality ASTM A 366, 0.04-inch (20-gage) minimum. Surface preparation and metal pretreatment as required for applied finish.

D. Galvanized Steel Sheet: ASTM A 527, G60.

E. Chromium Plating: Nickel and chromium electro-deposited on base metal, ASTM B 456, Type SC 2.

F. Galvanized Steel Mounting Devices: ASTM A 153, hot-dip galvanized after fabrication.

G. Fasteners: Screws, bolts, and other devices of same material as accessory unit, or of galvanized steel where concealed.

2.3 PAPER TOWEL DISPENSERS (PTD)

A. Existing surface mounted Paper Towel Dispenser to be relocated.
1. Mounting: Surface mounted, concealed anchorage.
.

2.4 TOILET TISSUE DISPENSERS (T.T.D.)

A. Existing surface mounted Toilet Paper Dispenser to be relocated.
1. Mounting: Surface mounted, concealed anchorage.
2. Install one (1) unit for **for mounting adjacent to each toilet location**. Installation locations within these rooms will be as indicated on the drawings or determined in the field by Architect.

2.6 GRAB BARS (G.B.)

A. Stainless Steel Type: Provide grab bars with wall thickness not less than 0.05 inch (18 gage) and as follows:
1. Mounting: Concealed, manufacturer's standard flanges and anchorages.
2. Clearance: 1-1/2-inch clearance between wall surface and inside face of bar.

3. Gripping Surfaces: Manufacturer's standard nonslip texture.
4. Heavy-Duty Size: Outside diameter of 1-1/2 inches.
5. Subject to conformance with requirements, provide grab bar units manufactured by Bobrick Washroom Equipment, Inc.:
   a. "Model B-6806x18", for vertical side wall installation at accessible toilets.
   b. "Model B-6806x36", for rear wall installation at accessible toilets.
   c. "Model B-6806x42", for side wall installation at accessible toilets.

2.7 ROBE HOOKS (RH)

A. Single-Prong Single Robe Hook: Heavy-duty satin finished stainless steel single-prong robe hook; rectangular wall bracket with backplate for concealed mounting.
   1. Subject to conformance with requirements, provide "Model B-2116", Bobrick.
   2. Installation locations within rooms will be as indicated on the drawings or determined in the field by Architect.

2.8 SOAP DISPENSERS (SD / SDL)

A. Existing surface mounted Paper Towel Dispenser to be relocated.
   1. Mounting: Surface mounted, concealed anchorage

2.9 SANITARY NAPKIN DISPOSAL (SND)

A. Wall Mounted “Contura” Series Sanitary Napkin Disposal:
   1. Construction: 18-8 S, type 304, 22 gauge stainless steel with satin finish. All welded construction. Radius on side edges of container match corners and edges of cover.
   2. Subject to conformance with requirements, provide "Model B-270", BOBRICK.
   3. Installation locations within rooms will be as indicated on the drawings or determined in the field by Architect.

2.10 MIRRORS (MWF)

A. Wall Mounted Mirrors with Frames (M.W.F.):
   1. Subject to conformance with requirements, provide “Model B-104-2448”, BOBRICK. Provide mirror with optional 30” cord and plug.
   2. Installation locations within these rooms will be as indicated on the drawings or determined in the field by Architect.

2.11 FABRICATION

A. General: Only a maximum 1-1/2-inch-diameter, unobtrusive stamped manufacturer logo, as approved by Architect, is permitted on exposed face of toilet or bath accessory units. on either interior surface not exposed to view or back surface, provide additional identification by either a printed, waterproof label or a stamped nameplate, indicating manufacturer's name and product model number.

B. Surface-Mounted Toilet Accessories, General: Except where otherwise indicated, fabricate units with tight welded seams and joints, exposed edges rolled. Hang doors or access panels with continuous stainless steel piano hinge. Provide concealed anchorage wherever possible.

C. Framed Mirror Units, General: Fabricate frames for glass mirror units to accommodate wood, felt, plastic, or other glass edge protection material. Provide mirror backing and support system that will permit rigid, tamperproof glass installation and prevent moisture accumulation, as follows:
   1. Provide galvanized-steel backing sheet, not less than 0.034 inch (22 gage) and full mirror size, with non-absorptive filler material. Corrugated cardboard is not an acceptable filler material.

D. Mirror Unit Hangers: Provide system for mounting mirror units that will permit rigid, tamperproof, and theft proof installation, as follows:
   1. Heavy-duty wall brackets of galvanized steel, equipped with concealed locking devices requiring a special tool to remove.

E. Keys: Provide universal keys for access to toilet accessory units requiring internal access for servicing, resupply, etc. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install toilet accessory units according to manufacturers, instructions, using fasteners appropriate to substrate as recommended by unit manufacturer. Install units plumb and level, firmly anchored in locations and at heights indicated.
   1. Reinforcement of stud walls to support wall-mounted cabinets will be accomplished during wall erection by trade involved; however, indicating accurate location and sizing of reinforcement is responsibility of toilet and bath accessories installer.
   2. Install toilet accessory units furnished by the owner using fasteners appropriate to substrate as required.

B. Secure mirrors to walls in concealed, tamperproof manner with special hangers, toggle bolts, or screws. Set units plumb, level, and square at locations indicated, according to manufacturer's instructions for type of substrate involved.

C. Install grab bars to withstand a downward load of at least 250 lbs, complying with ASTM F 446.

3.2 ADJUSTING AND CLEANING

A. Adjust toilet accessories for proper operation and verify that mechanisms function smoothly. Replace damaged or defective items.

B. Clean and polish all exposed surfaces strictly according to manufacturer's recommendations after removing temporary labels and protective coatings.

END OF SECTION 10 28 00

SECTION 10 44 16 - FIRE EXTINGUISHERS AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes the following at locations indicated on drawings:
   1. Fire extinguishers
   2. Fire extinguisher cabinets (non-fire rated), for semi-recessed installations.
   3. Fire extinguisher mounting brackets

B. Related Sections: Section 06 40 00 “Rough Carpentry” for installation of fire extinguisher cabinets and accessories.

1.3 SUBMITTALS

A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.

B. Product data for fire extinguisher cabinets include rough-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type and materials, trim style, door construction, panel style, and materials.

C. Samples for initial selection purposes in the form of manufacturer's color charts consisting of actual units or sections of units showing full range of colors, textures, and patterns available for each type of fire extinguisher cabinet finish indicated or exposed to view.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility: obtain extinguishers and cabinets from one source from a single manufacturer.

B. Coordination: Verify that extinguisher cabinets are sized to accommodate type and capacity of extinguishers indicated and provided by Owner under separate Contract.

C. UL-Listed Products: Fire extinguishers shall be UL listed with UL Listing Mark for type, rating, and classification of extinguisher.

D. FM-Listed Products: Fire extinguishers approved by Factory mutual Research Corporation for type, rating, and classification of extinguisher with FM marking.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. J.L. Industries.
   2. Larsen's Manufacturing Co.
   3. Potter-Roemer, Inc.

B. For the purpose of establishing performance criteria the Contract Drawings and specifications have been based on Larsen’s Manufacturing Co.

2.2 FIRE EXTINGUISHERS

A. General: Provide fire extinguishers for each extinguisher cabinet and other locations indicated, in colors and finishes selected by Architect from manufacturer's standard that comply with authorities having jurisdiction and as follows:
   1. Multipurpose (MP) Dry Chemical Type: UL-rated 4A-80B:C, 10-lb nominal capacity, in enameled steel container, similar to Larsen’s, Model MP-10, or equal.

2.3 MOUNTING BRACKETS

A. Brackets: Designed to prevent accidentally dislodging extinguisher, of sizes required for type and capacity of extinguisher indicated, in plated finish, square edge trim
   1. Provide standard wall brackets (Larsen’s #546, or equal) for extinguishers not located in cabinets.

2.4 SEMI-RECESSED FIRE EXTINGUISHER CABINETS – POLICE STATION

A. General: Provide fire extinguisher cabinets of suitable size for housing fire extinguishers of types and capacities indicated.
   1. Provide fire extinguisher cabinets where indicated on the drawings.

B. A frameless, revolving, turntable door, with color and design options as outlined below. The door consists of a clear acrylic turntable which pivots on two bearings. This unique door design provides 180-degree visibility of the fire extinguisher.

C. Box: A semi-recessed cabinet with a white baked enamel box.

D. Trim Specification: The standard trim material is steel. Steel trims are one piece, constructed of cold-rolled steel with a standard finish of white baked enamel, which can be used as a finish coat. The standard door is clear acrylic.

E. Semi Recessed Fire Extinguisher Cabinet meeting the requirements of this specification shall be:
   1. Larsen's ROTA Series Fire Extinguisher Cabinet, Model No. R-2409, or equal.

2.5 FULLY RECESSED FIRE EXTINGUISHER CABINETS – SENIOR CENTER

A. General: Provide fire extinguisher cabinets of suitable size for housing fire extinguishers of types and capacities indicated.
   1. Provide fire extinguisher cabinets where indicated on the drawings.

B. Construction: Manufacturer's standard enameled steel box, with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated. Weld joints and grind smooth. Miter and weld perimeter door frames.

C. Cabinet Type: Suitable for mounting conditions indicated of the following types:
   1. Fully recessed: Cabinet box fully recessed in walls.

D. Trim Style: Fabricate trim in one piece with corners mitered, welded, and ground smooth.
   1. 5/16" Flat Trim: One-piece combination trim and perimeter door frame overlapping surrounding wall surface with exposed trim face and wall return at outer edge (backbend).
      a. Trim Metal: Of same metal and finish as door.

E. Door Style: Manufacturer's standard design.
   1. Vertical Duo-Panel:

F. Door Material and Construction: Manufacturer's "vertical duo" construction, of material indicated, coordinated with cabinet types and trim styles selected.
   1. Enameled Steel: Manufacturer's standard finish, hollow steel door construction with tubular stiles and rails.
   2. Door Glazing: Tempered float glass complying with ASTM C 1048, Type I, Quality q3, Class as follows:
      a. Clear glass, Class 1 (transparent), tempered.

G. Identify fire extinguisher in cabinet with FIRE EXTINGUISHER die-cut lettering applied to door.
   1. Application Process: Silk screen. Field applied decals will not be acceptable.

2. Lettering Color: Red
3. Application on Door: Vertical on metal section of the door, not on glazing.

H. Identify bracket-mounted extinguishers with FIRE EXTINGUISHER in red letter decals applied to wall surface.
1. Field applied decal.
2. Lettering Color: Red
3. Application: Vertical decal mounted over bracket location.

I. Door Hardware: Provide manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated. Provide door pull, exposed, and friction latch. Provide concealed or continuous-type hinge permitting door to open 180 deg.

J. Fully Recessed Fire Extinguisher Cabinet meeting the requirements of this specification shall be:
1. Larsen's Architectural Series Fire Extinguisher Cabinet, Model No. 2409-R2, or equal.
2. When indicated to be installed within a fire-rated partition wall, furnish and install Larsen's Architectural Series Fire Extinguisher Cabinet, Model No. FS-2409-R2, or equal

2.6 FINISHES FOR FIRE EXTINGUISHER CABINETS, GENERAL

A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying strippable, temporary protective covering prior to shipping.

2.7 STEEL FIRE EXTINGUISHER CABINET FINISHES

A. Surface Preparation: Solvent-clean surfaces complying with SSPS-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel complying with SSPC-SP 5 (white metal blast cleaning) or SSPC-SP 8 (pickling).

B. Baked Enamel Finish: Immediately after cleaning and pretreatment, apply manufacturer's standard two-coat baked enamel finish consisting of prime coat and thermosetting topcoat. Comply with paint manufacturer's instructions for applying and baking to achieve a minimum dry film thickness of 2.0 mils.
1. Color and Gloss: As selected by Architect from manufacturer's standard choices for color and gloss. Paint the following:
a. Exterior of cabinet, except for those surfaces indicated to receive another finish.
b. Interior of cabinet.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Follow manufacturer's printed instructions for installation.

B. Install in locations and at mounting heights indicated or, if not indicated, at heights to comply with applicable regulations of governing authorities.
   1. Prepare recesses in walls for fire extinguisher cabinets as required by type and size of cabinet and style of trim and to comply with manufacturer's instructions.
   2. Fasten mounting brackets and fire extinguisher cabinets to structure, square and plumb.

END OF SECTION 10 44 16

SECTION 10 51 00 - PERSONAL PROPERTY LOCKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes the following:
   1. Metal lockers and accessories, including the following:
      a. Personal Property lockers (**Dispatch Center 104**), 12 total, single tier.

B. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Section 06 10 00 "Rough Carpentry" for wood base, furring, and grounds and installation of Personal Property Lockers.

1.3 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product Data: Manufacturer’s printed data including materials, accessories, construction, finishes, assembly, and installation instructions for lockers and benches.

C. Shop Drawings: Layout and dimensions of metal lockers and benches. Indicate relationships to adjoining surfaces. Show locker elevations and details, fillers, trim, base, sloping tops, and accessories. Include numbering sequence for lockers. Indicate installation and anchorage requirements.

D. Samples for Initial Color Selection: Manufacturer's color charts showing a full range of available colors.

E. Maintenance Instructions: Instructions for cleaning lockers and for adjusting, repairing, and replacing locker doors and latching mechanisms.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility: Obtain locker units and accessories from one manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver lockers until spaces to receive them are clean, dry, and ready for locker installation.

B. Protect lockers from damage during delivery, handling, storage, and installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturer: Subject to compliance with requirements, provide products by one of the following:
1. Penco Products, Inc.
2. Republic Storage Systems Company, Inc.
3. Architect's approved equal

B. Products: Subject to compliance with requirements, provide each type of locker listed:
1. **Personal Property lockers (Dispatch 104)**:
a. 12"w X 18"d X 72"h, single-tier, single door (5-wide)

2.2 MATERIALS

A. Steel Sheet: ASTM A 366 (A 366M), commercial-quality, stretcher-leveled, cold-rolled carbon steel sheet, stretcher leveled, free of buckling, scale, and surface imperfections.

B. Fasteners: Zinc- or nickel-plated steel; slotless-type exposed bolt heads; self-locking nuts or lock washers for nuts on moving parts.

C. Equipment: Manufacturer's standard plated steel hooks or coat rods.

2.3 LOCKERS

A. Body: Form backs, tops, bottoms, sides, and intermediate partitions of flanged 24 gage minimum steel sheet.

B. Frames: Form channel frames of 16 gage minimum steel sheet or 12 gage angles. Form continuous integral strike on vertical frame members or weld 24 gage minimum latch hooks to latch strike frame.

C. Shelf: Form 16 gage minimum steel sheet hat shelf in single-tier units.

D. Door: One-piece steel sheet, flanged at all edges, constructed to prevent springing when opening or closing. Fabricate to swing 180 degrees.
1. Thickness: 16 gage minimum.

E. Reinforcing: Brace or reinforce inner face of doors over 15 inches wide.

F. Louvered Vents: Stamped, louvered vents in door face, as follows:
1. Single-Tier Lockers: No fewer than 6 louver openings top and bottom.

G. Hinges: Steel, full-loop, 5- knuckle tight pin, 2 inches high minimum. Weld to inside of frame and secure to door with not fewer than 2 factory-installed fasteners that are completely concealed and tamperproof when door is closed.
1. Provide at least 3 hinges for each door over 42 inches high; at least 2 hinges for each door 42 inches high or less.

I. Recessed Handle and Latch: Positive automatic, prelocking, pry-resistant latch and pull with rubber silencers; chromium-plated, heavy-duty, vandalproof lift-up handle, containing strike and eye for padlock; and with latching action as follows:
1. Single-Tier Lockers: Not less than 3-point latching.

J. Locking:
1. **Personal Property Lockers (Dispatch 104)**: Provide **built-in <u>combination</u> locks**. Each locker to be keyed to one (1) masterkey. Provide a minimum of four (4) masterkeys for Owner's use.

2.6 <u>LOCKER ACCESSORIES</u>

A. Equipment: Furnish each locker with the following items, unless otherwise shown:
1. Single-Tier Units: Not fewer than 3 single-prong wall hooks, 1 double prong ceiling hook, and 1 hat shelf.

B. Number Plates: Manufacturer's standard etched, embossed, or stamped, nonferrous-metal number plates with numerals not less than 3/8 inch (9 mm) high. Number lockers in sequence indicated. Attach plates to each locker door, near top, centered, with at least 2 fasteners of same finish as number plate.

C. Continuously Sloping Hoods: Manufacturer's standard continuously sloped hoods, not less than 0.0359-inch steel sheet. Provide closures at ends and sloped corner fillers as required for installation.

D. Finished End Panels: Manufacturer's standard finished end panels to conceal all fasteners where exposed to view.

2.7 FABRICATION

A. Fabricate 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 locker body panels, doors, shelves and accessories from 1-piece steel sheet unless otherwise indicated.

2.8 FINISHES, GENERAL

A. Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applying and designating finishes.

B. Finish all steel surfaces and accessories, except prefinished stainless-steel and chrome-plated surfaces.

C. Protect mechanical finishes on exposed surfaces from damage by applying strippable, temporary protective covering prior to shipment.

D. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within ½ of the range of approved samples. Noticeable variations in the same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved samples and they are assembled or installed to minimize contrast.

2.9 STEEL SHEET FINISHES

A. Surface Preparation: Solvent-clean surfaces complying with SSPC-SP 1 to remove dirt, oil, grease, and other contaminants that could impair paint bond. Remove mill scale and rust, if present, from uncoated steel complying with SSPC-SP 5 (White Metal Blast Cleaning) or SSPC-SP 8 (Pickling), and phosphatize surfaces.

B. Baked-Enamel Finish: Immediately after cleaning and pretreating, apply manufacturer's standard baked-enamel finish consisting of a thermosetting topcoat. Comply with paint manufacturer's instructions for application and baking to achieve a minimum dry film thickness of 1.1 mils on doors, frames, and 0.7 mil elsewhere.

1. Color and Gloss: As selected by Architect from manufacturer's standard colors. One (1) color may be selected for each installation location.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install metal lockers complete with accessories according to manufacturer's recommendations. Install plumb, level, rigid, and flush.

B. Connect together locker groups with standard fasteners according to manufacturer's recommendations, with no exposed fasteners on face frames.

C. Anchor lockers to bases and walls at intervals recommended by manufacturer but no greater than 36 inches. Install anchors through back-up reinforcing plates where necessary to avoid metal distortion, using concealed fasteners.

D. Install sloping hood units to lockers using concealed fasteners. Provide hairline joints and concealed splice plates.

3.2 ADJUSTING, CLEANING, AND PROTECTION

A. Adjust doors and latches to operate easily without binding. Verify that integral locking devices are operating properly.

B. Clean interior and exposed exterior surfaces and polish nonferrous metal surfaces.

C. Protect lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit locker use during construction.

D. Touch up marred finishes, or replace locker units that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

END OF SECTION 10 51 00

SECTION 11 31 00 - RESIDENTIAL APPLIANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, "The General Conditions of the Contract for Construction,", the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes furnishing and installing the following types of residential appliances as specified herein and indicated on the drawings:
   1. Microwave Oven (over the range model)
   2. Microwave Oven (countertop model)
   3. French-Door Type Refrigerator/Freezer
   4. Undercounter Refrigerator (ADA Countertop height)
   5. Cooktop

B. Related Sections: The following sections contain requirements that relate to this Section:
   1. Section 11 40 00 "Food Service Equipment" for commercial kitchen equipment and appliances.
   2. Section 12 32 16 "Manufactured Architectural Casework" for openings and dimensions to accommodate residential appliance installations.
   3. Plumbing connections for appliances are specified in Division 22.
   4. Electrical services and connections for appliances are specified in Division 26.

1.3 SUBMITTALS

A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.

B. Product data for each appliance type required indicating compliance with requirements, including installation instructions. Provide complete operating and maintenance instructions for each appliance.

C. Schedule: Submit schedule of appliances, using the same room designations as shown on drawings.

1.4 QUALITY ASSURANCE

A. Energy Ratings: Provide residential appliances that carry labels indicating energy cost analysis (estimated annual operating costs) and efficiency information as required by Federal Trade Commission.

B. UL and NEMA Compliance: Provide electrical components required as part of residential appliances that are listed and labeled by UL and comply with applicable NEMA standards.

C. AHAM Standards: Provide appliances that conform to the following standards of the Association of Home Appliance Manufacturers:
   1. Refrigerators/Freezers: Total volume and shelf area ratings certified according to ANSI/AHAM.

D. Single-Source Responsibility: Obtain appliances from a single supplier.
   1. Provide products from the same manufacturer for each type of appliance required.
   2. To the greatest extent possible, provide appliances by a single manufacturer for entire Project.

E. Design Criteria: The drawings indicate sizes, profiles, and dimensional requirements of residential appliances and are based on the specific types and models indicated. Appliances by other manufacturers may be considered, provided deviations in dimensions and profiles are minor and do not change the design concept as judged by the Architect. The burden of proof of equality is on the proposer.

1.5 DELIVERY AND STORAGE

A. Deliver appliances to the Project site in the manufacturer's undamaged protective packaging.

B. Delay delivery of appliances until utility rough-in is complete and construction in the spaces to receive appliances is substantially complete and ready for installation.

1.6 WARRANTIES

A. Warranty: Submit written warranties executed by the manufacturer of each appliance specified agreeing to repair or replace units or components that fail in materials or workmanship within the specified warranty period.
   1. Microwave Ovens: 1 - year limited warranty on parts and labor
   2. Refrigerator and Refrigerator/Freezer: 1-year limited warranty on parts and labor.
   3. Electric Range: 1-year limited warranty on parts and labor.
   4. Under counter Refrigerator: 1-year limited warranty on parts and labor.

B. Warranties specified above shall not deprive the owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide appliances manufactured by the following, or equal products meeting, or exceeding, the performance and features listed below:
1. General Electric Company
2 Summit Appliance Division, Felix Storch, Inc.
3. or equal products meeting, or exceeding, the specifications herein. Substitutions shall not compromise the design intent, features, or installation requirements of the appliances listed. Substitutions shall be able to meet the dimensional requirements of the specified equipment and be able to be placed within the locations indicated on the drawings for each appliance without the need for further dimensional adjustments to adjacent construction, or casework.

2.2 MICROWAVE OVENS – OVER THE RANGE MODEL

A. Over the Range model Microwave Oven with recirculating venting: Provide 1,000 watts, 1.9 cu. ft. oven capacity.
1. Controls: Solid state electronic touch-type.
2. Turntable, glass recessed
3. Electronic digital display with clock
4. Turntable with on / off controls
5. Sensor cooking controls
6. Weight and time defrost
7. Four-speed exhaust with boost, 400 CFM venting fan system
8. Power cord with straight plug type

B. Subject to compliance with requirements, provide the following:
1. "**Model JNM7196SKSS**" (or current model), with filter kit WB06X10807, for over-the-range installation, General Electric Company, or equal. Color to be stainless steel.

2.3 MICROWAVE OVENS - COUNTERTOP MODEL

A. Countertop model Microwave Oven: Provide 1,100 watts, 2.2 cu. ft. oven capacity.
9. Controls: Solid state electronic touch-type.
10. Turntable, glass recessed
11. Electronic digital display with clock
12. Auto defrost / time defrost
13. 10 power levels

14. Delay start with reminder
15. Timer on/off
16. Power cord with straight plug type

B. Subject to compliance with requirements, provide the following:
1. "**Model PCST22U1WSS**" (or current model), for countertop installation, General Electric Company, or equal. Color to be stainless steel.

2.4 BOTTOM MOUNT FREEZER / REFRIGERATOR

A. Counter Depth Refrigerator/Freezer: Provide freestanding, counter-depth, frost-free, bottom-mount freezer model refrigerator/freezer on adjustable rollers, and reversible doors with door shelves.
1. Capacity: Provide the following minimum values, measured according to ANSI/AHAM HRF-1 and certified by AHAM:
a. Total volume: 17.7 cu. ft.
b. Refrigerator volume: 13.0 cu. ft.
c. Freezer volume: 4.7 cu. ft.
d. Energy Star Qualified
e. ADA Compliant
2. Overall Dimensions: 67-9/10"H. x 31-1/10"W. x 27"D.

B. Subject to compliance with requirements, provide the following:
1. "**Model GBE17HYR**" (or current model), General Electric Company, or equal. Color to be stainless steel. Provide hinge side opening facing away from adjacent countertops.

2.5 ADA COMPLIANT UNDERCOUNTER REFRIGERATOR

A. Undercounter Refrigerator: Provide ADA Compliant, Undercounter Refrigerator with the following features:
1. Undercounter Refrigerator: Provide the following minimum values:
a. Total volume: 5.5 cu. ft.
b. 32.25” height for use in ADA compliant countertops
c. Fully finished black cabinet
d. Stainless Steel door
e. Automatic Defrost
f. One (1) piece interior liner
g. Hidden evaporator
h. Commercially approved, ETL-S listed to NSF-7 standards for use in commercial establishments
i. 115V AC/ 60Hz.
2. Overall Dimensions: 32.25"H. x 23.63"W. x 23.5"D.

B. Subject to compliance with requirements, provide the following:
1. "**Model FF7BKBISSTBADA"** (or current model), SUMMIT Commercial, Accucold Division, Felix Storch, Inc., or equal. Color to be stainless steel door with finished black cabinet.

2.6 COOKTOP

A. Cooktop: Provide built-in four-burner induction cooktop with front touch controls.
   1. Capacity: Provide the following minimum values, measured according to ANSI/AHAM HRF-1 and certified by AHAM:
      a. ADA Compliant
      b. Cooktop Burner Type: Radiant smooth top
      c. Cooktop Surface: Black Ceramic Glass
      d. Cooking Technology: Induction
      e. 11” burner 3600W
      f. 7” burner 3000W
      g. 7” burner 3000W
      h. 6” burner 2000W
      i. Cabinet Width: 30 inches
      j. Overall Dimensions: 28.5"W. x 19.625"D.

B. Subject to compliance with requirements, provide the following:
   1. "**Model PHP6030DWBB**" (or current model), General Electric Company, or equal. Color to be black.

2.7 FINISHES

A. General: Provide the manufacturer's standard porcelain enamel finish. Appliance colors shall be as listed above from manufacturer’s standard finishes.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with manufacturer's instructions and recommendations.

B. Built-in Equipment: Securely anchor units to supporting cabinets or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and rough openings are completely concealed.

C. Utilities: Refer to Division 16 for electrical requirements.

3.2 ADJUST AND CLEAN

A. Testing: Test each item of residential equipment to verify proper operation. Make necessary adjustments.

B. Accessories: Verify that accessory items required have been furnished and installed.

C. Cleaning: Remove packing material from residential equipment items and leave units in clean condition, ready for operation.

D. Door Swings: Installing contractor shall make all door swing adjustments as required for proper operations as directed by the Architect, or Owner. Reversing of door swings shall not be considered “additional services” and shall be completed at no additional cost to the Owner.

3.3 SCHEDULE

A. **Police –**
Dispatch Room 104: One (1) Over the Range Microwave
One (1) Cooktop
One (1) Bottom Mount Freezer / Refrig.

B. **Police –**
Records Room 117: One (1) Undercounter Refrigerator
One (1) Countertop Microwave

END OF SECTION 11 31 00

SECTION 12 24 13 - WINDOW TREATMENTS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201 - 2017, “General Conditions of the Contract for Construction”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and or Subcontractor who performs this Work. Note also all Addenda.

1.2 SUMMARY / DESCRIPTION OF WORK

A. This Section includes furnishing and installing manual sun control / light filtering and black out manual roller shades in window returns and dual shade units as specified herein and where indicated on Finish Schedule and Finish Plan.

1.3 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
   1. Product data for each type of product specified.
   2. Samples for verification purposes of color of aluminum slat and of same thickness and material indicated for final unit of Work.
      a. 6-inch-length samples of each color.
      b. Product data sheet.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has successfully provided and installed aluminum window blind similar in material, design, and extent to those indicated for Project. The installer shall thoroughly review Contract Documents and be familiar with structure and all necessary requirements for attachment to same.

B. Coordination of Work: Coordinate installation of aluminum blinds and end brackets with other construction.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver blinds to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

B. Handle window blind units carefully to avoid chipping edges or damaging units in any way.

1.6 PROJECT CONDITIONS

A. Space Enclosure: Do not install window blinds until all painting has been completed and all dust-generating activities have been completed.

PART 2 - PRODUCTS

2.1 MANUALLY OPERATED WINDOW TREATMENTS (WT-1, WT-2 & WT-3 all units to receive valances:

A. Type, (**WT-1 Light Filtering shades - NEXD**: Sun Control Roller type Window Shades for exterior windows with (WT-1) listed on the finish floor plans. Subject to compliance with requirements, provide one of the following:

1. WT-1 Draper Manual Flex-Shades with Phifer - SheerWeave-PW2500 -light filtering 3% fabric mounted in window casing. See fabric details below.

B. Fabric for light filtering shades- Shade Cloth: Phifer - SheerWeave-SW2400.
1. Style: Sheerweave SW2400, 3%.
2. Fabric: 36% Fiberglass, 64% vinyl on fiberglass.
3. Openness Factor: 3% openness.
4. Maximum Width without seams: 63”, 98” & 126”
5. Mesh Weight per Sq. /Yd.: 114.1 oz/yd
6. Fire Classification: California US Title 19 (small scale); NFPA 701-2004 TM # 1 (small scale) and BS 5867 2008. Part two type B performance.
7. NRC: in accordance with ASTM C423-90A (NRC.55).
8. Warranty: 10-year interior.

E. Manufacturer’s Contact: Eric Guffey, eguffey@draperinc.com, Direct: 765-856-1300.
1. Equals from the following manufacturers:
   a. Mecho Systems.
   b. Hunter Douglas.
   c. Exact lines must be submitted and reviewed for Architect’s Approval.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and structural framing to which window blinds attach, with Installer present, for compliance with requirements specified in this and other sections that affect installation and anchorage. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Verify that openings are ready to receive blinds.

3.3 INSTALLATION

A. General: Install window blinds and hardware in accordance with manufacturer’s instructions. Secure in place with concealed fasteners.

B. Install blinds so that they are centered on the window opening with no more than ½” clearance on either side. Blind length shall touch windowsill.

3.4 TESTING AND DEMOSTRATION

A. Demonstrate operation of motorized roller window shades to Owner's designated representatives.

3.5 ADJUSTMENTS AND CLEANING

A. Clean exposed surfaces of dirt and finger marks, including head rails, fascia, and fabric. Comply with manufacturer's instructions for cleaning.

B. Adjust blinds / shades for smooth operation.

END OF SECTION 12 24 13

SECTION 12 32 16 - MANUFACTURED ARCHITECTURAL CASEWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Instructions to Bidders, AIA Document A201-2017, “The General Conditions of the Contract for Construction,”, the Supplementary General Conditions and Division 1, General Requirements, are a part of this Section and shall be binding on the Contractor and/or Subcontractor who performs this work. Note also all Addenda.

1.2 SUMMARY

A. This Section includes furnishing and installing the following:
   1. Laminate clad cabinets (plastic-covered casework).
   2. Cabinet tops (countertops: plastic laminate and solid surface).
   4. Backsplashes, filler panels and scribe pieces for complete installation.

B. Related Sections: The following sections contain requirements that relate to this section:
   1. Section 06 44 00 "Ornamental Woodwork" for exposed architectural woodwork.
   2. Section 12 35 53 “Laboratory Casework” for wood laboratory casework with resin countertops and resin sinks.
   3. Furring, blocking, and other carpentry work that is not exposed to view is specified in Section 06 10 00 "Rough Carpentry".

1.3 DEFINITIONS

A. Exposed Surfaces: Surfaces visible when drawers and opaque doors are closed; behind clear glass doors; bottoms of casework 43 inches or more above finished floor.

B. Semi-exposed Surfaces: Surfaces which become visible when opaque doors are open or drawers are extended; bottoms of casework are more than 30 inches and less than 42 inches above finished floor.

C. Concealed Surfaces: Surfaces considered concealed when surfaces not visible after installation; bottoms of casework less than 30 inches above finished floor; tops of casework over 78 inches above finished floor and not visible from an upper level; stretchers, blocking, and components concealed by drawers.

D. Flush Overlay: Door and drawer faces cover cabinet frame with space between faces sufficient for operating clearance.

1.4 SUBMITTALS

A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data for each type of product and process specified in this section and incorporated into items of architectural casework during fabrication, finishing, and installation.

C. Shop drawings for casework and fittings showing plan layout, elevations, ends, cross-sections, service run spaces, location and type of service fittings, together with associated service supply connection required.
   1. Include details and location of anchorages and fitting to floors, walls, and base, including required blocking or back-blocking.
   2. Include layout of units with relation to surrounding walls, doors, windows, and other building components.
   3. Coordinate shop drawings with other work involved.
   4. Include manufacturer's recommendations for blocking and securing of casework units and fittings.

D. Samples for initial selection purposes of the following in form of manufacturer's color charts consisting of actual units or sections of units showing full range of colors, textures, and patterns available for each type of material indicated.
   1. Plastic laminate.
   2. Exposed cabinet hardware, including locks, one unit of each type and finish.

E. Product certificates signed by casework manufacturer certifying that products comply with specified requirements.

F. Qualification data for firms and persons specified in "Quality Assurance" article to demonstrate their capabilities and experience. Include list of completed projects with project names, addresses, names of Architects and Owners, and other information specified.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Firm experienced in successfully producing architectural casework similar to that indicated for this Project, with sufficient production capacity to produce required units without causing delay in the Work.

B. Single-Source Manufacturing and Installation Responsibility: Engage a qualified Manufacturer to assume undivided responsibility for casework specified in this section, including fabrication, finishing, and installation.

C. AWI Quality Standard: Comply with applicable requirements of "Architectural Casework Quality Standards" published by the Architectural Casework Institute (AWI) except as otherwise indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect casework during transit, delivery, storage, and handling to prevent damage, soilage, and deterioration. Keep covered with polyethylene film or other protective coating.

B. Do not deliver casework until painting, wet work, grinding, and similar operations that could damage, soil, or deteriorate casework have been completed in installation areas. If casework must be stored in other than installation areas, store only in areas whose environmental conditions meet requirements specified in "Project Conditions."
   1. Follow procedures and schedules as provided by the Construction Manager.

1.7 PROJECT CONDITIONS

A. Environmental Conditions: Do not install casework until optimum temperature and humidity conditions for casework have been attained and stabilized so that casework is within plus or minus 1.0 percent of optimum moisture content from date of installation through remainder of construction period.

B. Field Measurements: Where casework is indicated to be fitted to other construction, check actual dimensions of other construction by accurate field measurements before manufacturing casework; show recorded measurements on final shop drawings. Coordinate manufacturing schedule with if construction progress to avoid delay of Work.
   1. Where field measurements cannot be made without delaying the Work, guarantee dimensions and proceed with manufacture of casework without field measurements. Coordinate other construction to ensure that actual dimensions correspond to guaranteed dimensions.

C. Field Measurements: Verify countertop size and shape prior to fabrication by field measurements taken after base units are installed.

1.8 GUARANTEE

A. Casework to be guaranteed for a period of three (3) years for manufacturing and workmanship defects from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PLASTIC LAMINATE

A. High pressure plastic laminate shall be used on all exposed surfaces of cabinets, doors, filler strips, and drawer faces and shall meet all NEMA standards.

B. Colors to be as scheduled on finish plans:
   1. Wilsonart, Paige Plourde, 978-809-9578
   2. Nevamar
   3. Lab Designs, Nancy Royer, nancyr@surfacematerials.com, 203-605-1441

2.2 COUNTER TOPS AND WINDOWSILLS / APRONS (SOLID SURFACE)

A. Provide solid surface countertops, windowsills, aprons, and edge treatment where indicated on drawings. Provide sink cutouts as required.

B. Solid surface product and color to be as scheduled on the finish plans.

C. All seams in solid surface to be polished until no longer visible.

2.3 MELAMINE LAMINATED PARTICLE BOARD

A. Thermofused impregnated decorative overlay bonded to 45 pound density industrial grade particle board for all non-exposed surfaces only that are exposed to view upon final installations.

B. Particle board shall have a moisture content not to exceed 8%.

C. Interior melamine laminate color is white.

D. White melamine laminate for cabinet interiors behind doors and drawers and interior of all open cabinets.

2.4 LAMINATE EDGES

A. Front edges of cabinet boxes to match door/drawer face in a PVC or high pressure laminate edgebanding.

B. Door and drawer front edges to be PVC edge banding, 3mm thick, in choice of colors. Architect to select final color from manufacturer's colors to closely match the laminate face.
   1. Dollken
   2. Canplast
   3. Charter Industries

2.5 HARDWARE

A. Hinges: One pair per door up to and including 42 inch height. One and one-half pair over 42 inches in height.
   1. Fully concealed, spring loaded, self-closing hinge opens to 170 degree and fully adjustable in all dimensions,

B. Door and Drawer Pulls
   1. All drawer pulls to be 5” o.c., stainless steel bar pull, Emtek #S62005SS, or equal.
   2. All door pulls to be 4” o.c. stainless steel bar pull, Emtek #S62004SS, or equal.

C. Drawer guides
   1. Standard drawers, side mounted, manufactured from zinc plated roll formed steel. Ball bearing/nylon roller action with positive stop, 100 lb. load rating.

D. Adjustable shelf supports
   1. Shelf support clip for adjustable cabinet shelves to be heavy duty steel pin surrounded by molded nylon.

E. Cabinet locks.
   1. All drawers and cabinet doors to receive keyed tumbler locks. All casework located within rooms shall be keyed alike. Provide masterkeying for all casework.
   2. Furnish two (2) keys per lock installation.
   3. Manufacturers
      a. Hafele
      b. Knape & Vogt
      c. Blum

G. Counter Support Brackets:
   1. Counter support brackets, surface mounted (unless noted otherwise), as manufactured by Rakks, Rangine Corporation, Millis, MA, (800)-826-6006, or equal. Provide for counter supports as indicated on the drawings (noted below) and to provide for unsupported counter width not to exceed 36". Provide with powder coated finish and 5/8 inch rubber grommet. Color to be selected from manufacturer's standard colors.
      a. Model # EH-1212 (for counter tops up to 18” deep)
      b. Model # EH-1818 (for counter tops up to 24” deep)
      c. Model # EH-1824 (for counter tops up to 30” deep)

H. Grommets:
   1. 3” diameter desk grommet with flip top cord slot cover
   2. Color: Black
   3. “XG Flip Top Series”, 3” hole, as manufactured by Doug Mockett & Company, or equal.

2.6 CABINET CONSTRUCTION

A. Bases
   1. Cabinet bases shall be integral to cabinet with loose front toe board for continuous field installation. Rubber or vinyl base furnished and installed by others.

B. Cabinet Tops and Bottoms
   1. Wall and tall cabinets (and base cabinet bottoms) ¾" thick melamine laminated particle board. White on inside and outside surfaces.
   2. Base Cabinets to have two stretchers across top of cabinet, ¾" thick x 3-3/4" deep melamine laminated particle board. Cabinets over 27" wide shall have a third stretcher between door and drawer.
   3. Exposed edges of cabinets shall match door/drawer face color, in high pressure laminate edgebanding.

C. Cabinet Ends
   1. Exposed ends ¾" thick, laminated particle board. White melamine on inside surface and high pressure plastic laminate on outside surface.
   2. Concealed Ends ¾" thick melamine laminated particle board. White on inside and outside surface.
   3. Front edges shall match door/drawer face color, in high pressure laminate edgebanding.
   4. All standard cabinets sides 21" or higher to have holes drilled for adjustable shelves 1-1/4" on center.

D. Fixed and Adjustable Shelves
   1. ¾" white melamine laminated particle board two sides for all shelving not exposed to view upon final installation. Front edge of shelves to be edge banded in PVC. 1" thick shelves for cabinets over 30" wide. <u>All exposed shelving to have high pressure laminate finish to match door/drawer face color</u>.

E. Cabinet Backs
   1. Standard cabinet backs to be 3/4" particle board with white melamine laminate on inside surface and tan color melamine laminate on outside surface. All edges dadoed to fit into sides, tops and bottoms.
   2. Exposed exterior backs to be high pressure laminate to match door/drawer face.

F. Doors and Drawer Fronts
   1. All doors and drawer fronts to be 11/16" thick, 45 lb density particle board with high pressure plastic laminate, .030 in thickness on faces and white high pressure cabinet liner on inside faces.

2. Door and drawer front edges shall be edged to match face in 3mm PVC edgebanding.

G. Drawers
1. Drawer fronts shall be applied to drawer sub front.
2. Drawer sides, back and subfront to be 3/4", white melamine laminated particle board. All exposed edges are PVC edge banded, color to match laminate.
3. Drawer sides, back and subfront to be dowel and glue assembly for a secure fit.
4. Drawer bottom to be ¼" white melamine laminated particle board and is dadoed and glued into drawer sides, back and sub front.

H. Countertops
1. Solid surface supported by ¾" plywood. Exposed edges shall match horizontal surface and shall be built up to a 1-1/2" thickness. Counter tops shall be bull-nosed with square edged back splash, butt joints to be ground and polished.

I. Accessories
1. Soffit Trim: provide ¾", thick by width indicated on the drawings. Soffit trim in matching high pressure laminate as cabinet door face.

J. Workmanship
1. All exterior, exposed, vertical surfaces shall be finished with high pressure plastic laminate unless otherwise indicated.
2. Cabinet parts shall be accurately machined and constructed with glue and dowel method.
3. Cabinet ends shall be dadoed to receive bottoms, tops and backs. Backs shall be securely glued into sides, tops and bottoms.
4. Drawer bottom shall be fully housed into drawer sides, back and sub front using dadoed construction. Drawer sides, backs and subfront shall be glue and dowel construction for a secure fit.
5. All cases shall be square, plumb and true.

PART 3 - EXECUTION

3.1 STORAGE AND PROTECTION

A. Casework shall be protected in transit. Store under cover in a ventilated building not exposed to extreme temperature and humidity changes. Do not install casework in building until concrete, masonry and gypsum board work is dry.

3.2 WORKMANSHIP

A. Erect casework straight, level and plumb and securely anchor in place. Scribe and closely fit to adjacent work. Cut and fit work around pipes, ducts, etc.

B. Install all items complete and adjust all moving parts to operate properly.

C. Leave surfaces clean and free from defects at time of final acceptance.

D. Provide vertical, clear, and consistent reveals at all door and drawer installations. Failure to maintain a consistent reveal through normal hardware adjustments will require the removal and reinstallation of doors / drawers or cabinets prior to final acceptance by the Owner.

3.3 CLEAN UP

A. Installer to remove all cartons, debris, sawdust, scraps, etc. and leave spaces clean and all casework ready for use.

END OF SECTION 12 32 16

JACUNSKI HUMES
ARCHITECTS, LLC
15 MASSIRIO DRIVE SUITE 101
BERLIN, CONNECTICUT
TEL 860 828 9221 FAX 860 828-9223