PROJECT MANUAL

For

JESSE BOYD ELEMENTARY KITCHEN HOOD REPLACEMENT

Spartanburg School District Seven
Spartanburg, South Carolina

BID DOCUMENTS

McMillan Pazdan Smith Architecture
Spartanburg, South Carolina
MPS #020500

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Invitation to Bid

You are invited to submit a sealed bid for the Kitchen Hood Replacement at Jesse Boyd Elementary School located in Spartanburg School District Seven in Spartanburg, South Carolina. Bids will be received until 2:00 P.M. on April 29, 2021 at the Spartanburg School District Seven District Office located at 610 Dupre Drive, Spartanburg, South Carolina 29307, at which time the bids will be opened and read aloud.

Digital copies of bidding requirements, plans, and specifications may be obtained directly from McMillan Pazdan Smith, 127 Dunbar Street, Spartanburg SC. Contact Caitlin Shuler at 864-585-5678 or email cshuler@mcmillanpazdansmith.com.

All bids shall be accompanied by a certified check or bid bond, in the amount of 5% of the base bid payable to The Spartanburg School District Seven Board of Trustees.

The successful bidder will be required to furnish and pay for a satisfactory performance and payment bonds in the amount of 100% of the contract sum.

No Bid shall be withdrawn for a period of thirty (30) days subsequent to the opening of the bids without the consent of the owner.

The Owner reserves the right to reject any or all bids or to waive any informalities in the bidding.

Applicants must have a contractor license in the state of South Carolina, and must be qualified under the provisions of the contractor's licensing law "(South Carolina Code of Laws of 1976, Title 40, Chapter 11)". This project is covered under provisions of code of laws of South Carolina (1976) and as amended.

NON-MANDATORY PRE-BID CONFERENCE: A pre-bid conference will be held at 3:30 PM April 13, 2021 at Jesse Boyd Elementary School, 1505 Fernwood-Glendale Road, Spartanburg, South Carolina 29307. General Contractors wishing to submit a bid on this project must attend. Subcontractors are also invited to attend. All contractors meet at the main entrance at 3:30 PM.

Spartanburg School District Seven
Spartanburg, South Carolina
March 21, 2021

DATE: March 21, 2021

CONSTRUCTION SERVICES

PROJECT NAME: Jesse Boyd Elementary School Kitchen Hood Replacement

PROJECT NUMBER: MPS Project # 020500

PROJECT LOCATION: Jesse Boyd Elementary School, 1505 Fernwood-Glendale Road, Spartanburg, SC 29307

BID SECURITY REQUIRED? Yes ☒ No ☐

PERFORMANCE BOND REQUIRED? Yes ☒ No ☐

PAYMENT BOND REQUIRED? Yes ☒ No ☐ **CONSTRUCTION COST RANGE: $** $

DESCRIPTION OF PROJECT: The work consists of the replacement of the kitchen hood at Jesse Boyd Elementary School.

BIDDING DOCUMENTS/PLANS MAY BE OBTAINED FROM: Digital copies of bidding requirements, plans, and specifications may be obtained directly from McMillan Pazdan Smith, 127 Dunbar Street, Spartanburg SC. Contact Caitlin Shuler at 864-585-5678 or email cshuler@mcmillanpazdansmith.com.

PLAN DEPOSIT AMOUNT: $ N/A **IS DEPOSIT REFUNDABLE** Yes ☐ No ☐ N/A ☒

IN ADDITION TO THE ABOVE OFFICIAL SOURCE(S), BIDDING DOCUMENTS/PLANS ARE ALSO AVAILABLE AT:

ARCHITECT-ENGINEER NAME: McMillan Pazdan Smith Architecture

A-E CONTACT: Donald L. Love Jr., AIA

A-E ADDRESS: **Street/PO Box**: PO Box 5331

City: Spartanburg **State:** SC **ZIP**: 29304-

EMAIL: dlove@mcmillanpazdansmith.com

TELEPHONE: 864-585-5678 **FAX:** 864-542-9451

AGENCY/OWNER: Spartanburg School District Seven

AGENCY PROJECT COORDINATOR: Terry Gilmer

ADDRESS: **Street/PO Box**: 717 Union Street

City: Spartanburg **State: SC** **ZIP:** 29306-

EMAIL: tgilmer@spart7.org

TELEPHONE: 864-594-4500 **FAX:**

PRE-BID CONFERENCE: Yes ☒ No ☐ **MANDATORY ATTENDANCE:** Yes ☐ No ☒

PRE-BID DATE: 4/13/2021 **TIME:** 3:30 pm **PLACE:** 1505 Fernwood-Glendale Rd. Spartanburg, SC

BID OPENING DATE: 4/29/2021 **TIME:** 2:00 pm **PLACE:** Spartanburg School District Seven Office, 610 Dupre Drive, Spartanburg, SC 29307

BID DELIVERY ADDRESSES:

HAND-DELIVERY:

Attn: Erika Alexander
610 Dupre Drive
Spartanburg, SC 29307

MAIL SERVICE:

Attn: Erika Alexander
610 Dupre Drive
Spartanburg, SC 29307

1. Advertisements for Monday's publication are due by 12 noon on Friday / Advertisements for Thursday's publication are due by 12 noon on Wednesday.
2. To submit and advertisement for publication, fill out this form, save to your computer and attach to an email submitted to SCBO@mmo.sc.gov. Receipt of your advertisement request will be confirmed by return email.
3. Please check your ad in SCBO after it is published to ensure it has been included and that the information reflected is correct.
4. You can include any information you wish. One way to do this is to unprotect this document. If you want to be able to tab through the fields, you must have enforcement of the protection start again once you made your change(s). Starred item are required fields and must be completed to creating a SCBO advertisement.
5. Buyers: You can download this form to your computer to a SCBO folder and complete and save the form as a template. (Applicable fields would include buyer name, agency address, etc.) Each time you open it, do a 'save as," rename the file and place it in your SCBO folder. This should make the process less labor intensive.
6. Please share any comments or ideas at the following link: http://procurement.sc.gov/PS/ccs/MMO-ccs-index.phtm.

AIA® Document A701™ – 2018

Instructions to Bidders

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

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

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

TABLE OF ARTICLES

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.

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.)

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

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

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

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

§ 3.2 Modification or Interpretation of Bidding Documents

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

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

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

§ 3.3 Substitutions

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

§ 3.3.2 Substitution Process

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

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

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

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

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

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

§ 3.4 Addenda

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

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

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

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

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

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

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

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

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

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

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

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

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

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

§ 4.2 Bid Security

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

(Insert the form and amount of bid security.)

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

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

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

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:
(Indicate how, such as by website, host site/platform, paper copy, or other method Bidders shall submit their Bid.)

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

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

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

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

§ 4.4 Modification or Withdrawal of Bid

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

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

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

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

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

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

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

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

ARTICLE 6 POST-BID INFORMATION
§ 6.1 Contractor's Qualification Statement
Bidders to whom award of a Contract is under consideration shall submit to the Architect, upon request and within the timeframe specified by the Architect, a properly executed AIA Document A305™, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted for this Bid.

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

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

.1 a designation of the Work to be performed with the Bidder's own forces;

.2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and

.3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

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

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

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

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND
§ 7.1 Bond Requirements
§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

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

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

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.
(If Payment or Performance Bonds are to be in an amount other than 100% of the Contract Sum, indicate the dollar amount or percentage of the Contract Sum.)

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

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

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

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

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS
§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

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

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

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

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

.5 Drawings

Number	Title	Date

.6 Specifications

Section	Title	Date	Pages

.7 Addenda:

Number	Date	Pages

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

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

[ ] The Sustainability Plan:

Title	Date	Pages

[ ] Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages

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

Additions and Deletions Report for
AIA® Document A701™ – 2018

This Additions and Deletions Report, as defined on page 1 of the associated document, reproduces below all text the author has added to the standard form AIA document in order to complete it, as well as any text the author may have added to or deleted from the original AIA text. Added text is shown underlined. Deleted text is indicated with a horizontal line through the original AIA text.

Note: This Additions and Deletions Report is provided for information purposes only and is not incorporated into or constitute any part of the associated AIA document. This Additions and Deletions Report and its associated document were generated simultaneously by AIA software at 09:14:48 ET on 09/06/2019.

There are no differences.

Certification of Document's Authenticity

AIA® Document D401™ – 2003

I, , hereby certify, to the best of my knowledge, information and belief, that I created the attached final document simultaneously with its associated Additions and Deletions Report and this certification at 09:14:48 ET on 09/06/2019 under Order No. 5381382073 from AIA Contract Documents software and that in preparing the attached final document I made no changes to the original text of AIA® Document A701™ – 2018, Instructions to Bidders , as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.

_____

(Signed)

_____

(Title)

_____

(Dated)

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

The following supplements modify the "Instructions to Bidders", AIA Document A701, 2018 Edition. Where a portion of the instructions to bidder is modified or deleted by these supplementary instructions, the unaltered portions of the instructions to bidders shall remain in effect.

Article 2 BIDDERS REPRESENTATIONS

Add the following new subparagraphs 2.1.5 through 2.1.7:

2.1.5 When a Bidder enters “self-performed” where the Proposal requests a list of Subcontractors to be used on this Project, the Bidder certifies that he is licensed and qualified to perform the respective trade/craft applicable to the requested subcontractor. The Bidder also certifies that his tradesmen/craftsmen for the listed trade/craft are skilled, trained, and qualified in their respective trades/crafts, are already in the Bidder’s employ, and that the Bidder will not “shop” for tradesmen/craftsmen for this specific project. The Bidder shall also include supporting documentation showing successfully completed projects where the bidder used his own tradesmen/craftsmen, and the average length of employment of the respective tradesmen/craftsmen.

2.1.6 In submitting a Bid for this Project, the Bidder affirms and represents that the submitted Bid, including the bids of all subcontractors, is based entirely on products and work specified and indicated in the Bidding Documents, including all Addenda. If awarded the Contract for this Project, the Bidder also agrees to accept all responsibility, risks, and liabilities associated with bidding products and installing work that are not in strict compliance with the Bidding Documents. These responsibilities, risks, and liabilities include replacing non-conforming products and work with conforming products and work, including work already in place, at no additional cost to the Owner.

2.1.7 In submitting a bid for this Project, the Bidder affirms and represents that all craftsmen and tradesmen from the various construction disciplines, including those of all subcontractors, will be skilled and experienced in their respective crafts and trades and meet all qualifications set forth in the specifications. If, after Contract Execution, it is determined that a subcontractor does not meet the specified qualifications, the Owner may ask the Contractor to replace the unqualified subcontractor with a qualified subcontractor at no adjustment to the Contract sum or Contract time.

ARTICLE 3 BIDDING DOCUMENTS

3.1.1 Add the following to this subparagraph

Digital copies of bidding requirements, plans, and specifications may be obtained directly from McMillan Pazdan Smith, 127 Dunbar Street, Spartanburg SC. Contact Caitlin Shuler at 864-585-5678 or email cshuler@mcmillanpazdansmith.com.

3.3.2 Add the following subparagraph to 3.3.2:

3.3.2.1 All requests for substitutes shall be submitted, in accordance with Article 3.3, on the Request For Substitute form that is bound with the Bidding Requirements in the Project Manual. Only one request for substitution shall be submitted on each form. The correct Request For Substitute Form, as bound in the Project Manual, must be received by the Architect prior to the time stated in the Instructions To Bidders. Verbal requests for a substitute or requests submitted on the incorrect request for substitute form will not extend the submittal deadline established by the Instructions To Bidders. Incomplete forms or forms received after the time established in the Instructions To Bidders will not be considered. Where supporting information is submitted, provide manufacturer's published information for the same standards and in the same units of measurements as those published for the specified product. Submittals not meeting these requirements will not be reviewed.

ARTICLE 4 BIDDING PROCEDURES

4.1.1 - Add the following to this subparagraph:

A copy of the bid proposal form is attached: One (1) executed copy of this form shall be enclosed as the proposal.

4.2.1 Add the following to this subparagraph:

The amount of the bid security shall be 5% of the base bid in the form of a certified check or bid bond payable to.

Add the following to sub-paragraphs 4.2.4 through 4.2.7 to paragraph 4.2

4.2.4 To be acceptable, a Bid Bond shall:

4.2.4.1 Be issued by a surety company licensed to do business in South Carolina;

4.2.4.2 Be issued by a surety company having, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty'. In addition, the surety shall have a minimum "Best Financial Strength Category" of "Class V, and in no case less than five (5) times the contract amount.

4.2.4.3 Be accompanied by a certified and current power of attorney by the attorney-in-fact who executes the bond on the behalf of the surety company; and,

4.2.4.4 Be enclosed in the bid envelope at the time of Bid Opening, either in paper copy or as a Bid Bond authorization number provided on the Bid Form.

4.2.5 By providing Bid Security, the Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bidding Documents and will, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. The Bidder shall forfeit to the Owner as liquidated damages the amount of the Bid Security if the Bidder fails to:

4.2.5.1 Correct any Bid deficiency as required by the Bidding Documents and the Manual; or,

4.2.5.2 Enter into such Contract; and,

4.2.4.3 Furnish such bonds, if required.

4.2.6 The Owner shall have the right to retain the Bid Security of any or all Bidders until such time as one of the three conditions listed below has been met.

4.2.6.1 The Contract for Construction has been executed and both Labor and Material Payment and Performance Bonds, if required, have been furnished; or,

4.2.5.2 The specified time has elapsed so that Bids may be withdrawn; or,

4.2.65.3 The Owner has rejected all Bids.

4.2.7 Bidders submitting a Bid Security not meeting the required amount, surety rating or financial strength rating shall have one working day from the Bid Opening to cure the deficiency or the Bid shall be considered non-responsive.

4.3. Add the following to this subparagraph:

In addition to the bidders name and address, the outside of the envelope should also indicate the bidders license number and the contractors license number.

4.4.1 Add the following to this subparagraph:

The bid may not be withdrawn for a period of Thirty (30) days following the receipt of bids.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

7.1.1 Add the following to this subparagraph:

The successful bidder shall be required to furnish a performance and payment bond in the amount of 100% of the contract sum.

NON-MANDATORY PRE-BID CONFERENCE: A pre-bid conference will be held at 3:30pm April 13, 2021 at Jesse Boyd Elementary School, 1505 Fernwood-Glendale Road, Spartanburg, South Carolina 29307. General Contractors wishing to submit a bid on this project are encouraged to attend. Subcontractors are also invited to attend. All contractors meet at the main entrance at 3:30 PM.

PROPOSAL BY

_____
Name of General Contractor Submitting Proposal

Board of Trustees
Spartanburg School District Seven
Spartanburg, South Carolina

Reference: Jesse Boyd Elementary School
Kitchen Hood Replacement
Spartanburg School District Seven
Spartanburg, South Carolina

ADDENDA
The following addenda have been received by this contractor:

Addendum #1 _____Dated: _____
Addendum #2 _____Dated: _____
Addendum #3 _____Dated: _____
Addendum #4 _____Dated: _____
Addendum #5 _____Dated: _____

The undersigned, having familiarized themselves with the local conditions affecting the cost of the work, and with the drawings and specifications, including all addenda prepared by McMillan Pazdan Smith hereby propose to furnish all labor, material, equipment and services necessary for the Kitchen Hood Replacement at Jesse Boyd Elementary School for Spartanburg School District Seven, in Spartanburg, South Carolina in accordance with the above documents for the lump sum of:

BASE BID: _____
_____Dollars ($_____.)

SUBCONTRACTORS

Listed below are the names of the subcontractors this contractor will employ on this project to install the applicable portion of the work.

Electrical: _____
_____

Mechanical: _____
_____

In submitting this bid, it is understood that:

The Owner reserves the right to reject any or all bids, and/or award the contract in accordance with their best interest.

This bid proposal may not be withdrawn for a period of thirty (30) days from the date of bid opening.

The bidder agrees to the conditions set forth in the paragraph titled “Time of Completion and Liquidated Damages” in the Supplementary General Conditions of the specifications.

Security, in the sum of 5% of the base bid, is submitted in accordance with the Supplementary Instructions to Bidders.

General Contractor: _____

By: _____

Address: _____
_____

Phone Number: _____
Fax Number: _____
Contractor’s License Number: _____

AIA® Document A201™ – 2017

General Conditions of the Contract for Construction

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

THE OWNER:
(Name, legal status and address)

THE ARCHITECT:
(Name, legal status and address)

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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(Topics and numbers in bold are Section headings.)

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.

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

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

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

§ 1.3 Capitalization

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

§ 1.4 Interpretation

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

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

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

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

§ 1.6 Notice

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

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

§ 1.7 Digital Data Use and Transmission

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

§ 1.8 Building Information Models Use and Reliance

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

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

ARTICLE 2 OWNER

§ 2.1 General

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

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

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

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

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

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

§ 2.3 Information and Services Required of the Owner

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

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

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

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

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

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

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

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

ARTICLE 3 CONTRACTOR

§ 3.1 General

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

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

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

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

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

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

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

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

§ 3.3 Supervision and Construction Procedures

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

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

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

§ 3.4 Labor and Materials

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

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

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

§ 3.5 Warranty

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

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

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

§ 3.7 Permits, Fees, Notices and Compliance with Laws

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

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

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

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

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

§ 3.8 Allowances

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

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- **.1** allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- **.2** Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- **.3** whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

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

§ 3.9 Superintendent

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

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

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

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

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

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

§ 3.11 Documents and Samples at the Site

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

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

§ 3.12 Shop Drawings, Product Data and Samples

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

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

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

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

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

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

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

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

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

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

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely

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

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

§ 3.13 Use of Site

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

§ 3.14 Cutting and Patching

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

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

§ 3.15 Cleaning Up

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

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

§ 3.16 Access to Work

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

§ 3.17 Royalties, Patents and Copyrights

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

§ 3.18 Indemnification

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

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

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

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

§ 4.2 Administration of the Contract

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

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

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

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

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

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

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

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

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

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

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

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

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

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

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

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

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

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

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

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

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

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

§ 5.3 Subcontractual Relations

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

§ 5.4 Contingent Assignment of Subcontracts

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

.1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and

.2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

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

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

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

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

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

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

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

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

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

§ 6.2 Mutual Responsibility

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

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

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

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

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

§ 6.3 Owner's Right to Clean Up

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

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

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

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

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

§ 7.2 Change Orders

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

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

§ 7.3 Construction Change Directives

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

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

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

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

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

.1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
.2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
.4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
.5 Costs of supervision and field office personnel directly attributable to the change.

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

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

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

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

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

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

§ 7.4 Minor Changes in the Work

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

ARTICLE 8 TIME

§ 8.1 Definitions

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

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

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

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

§ 8.2 Progress and Completion

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

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

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

§ 8.3 Delays and Extensions of Time

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

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

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

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

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

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

§ 9.2 Schedule of Values

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

§ 9.3 Applications for Payment

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

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

§ 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;
.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.

§ 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.

§ 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;
.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 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 procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

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

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

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

§ 11.3 Waivers of Subrogation

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

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

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

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

§11.5 Adjustment and Settlement of Insured Loss

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

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

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

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

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

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

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

§ 12.2.2 After Substantial Completion

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

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

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

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

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

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

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

§ 12.3 Acceptance of Nonconforming Work

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

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

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

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

§ 13.3 Rights and Remedies

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

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

§ 13.4 Tests and Inspections

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

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

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

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

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

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

§ 13.5 Interest

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

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

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

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

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

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

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

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

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

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

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

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

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

§ 14.3 Suspension by the Owner for Convenience

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

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

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

§ 14.4 Termination by the Owner for Convenience

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

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

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

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

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

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

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

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

§ 15.1.2 Time Limits on Claims

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

§ 15.1.3 Notice of Claims

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

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

§ 15.1.4 Continuing Contract Performance

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

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

§ 15.1.5 Claims for Additional Cost

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

§ 15.1.6 Claims for Additional Time

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

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

§ 15.1.7 Waiver of Claims for Consequential Damages

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

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

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

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

§ 15.2 Initial Decision

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

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

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

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

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

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

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

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

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

§ 15.3 Mediation

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

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

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

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

§ 15.4 Arbitration

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

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

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

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

§ 15.4.4 Consolidation or Joinder

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

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

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

SECTION 00 00 08 - SUPPLEMENTARY CONDITIONS

The following supplements modify the "General Conditions of the Contract for Construction", AIA Document A201, 2017 Edition. Where a portion of the General Conditions is modified or deleted by these supplementary conditions, the unaltered portions of the General Conditions shall remain in effect.

ARTICLE 3.9 SUPERINTENDENT

Replace the existing subparagraph 3.9.1 with the following new subparagraphs 3.9.1, 3.9.1.1 and 3.9.1.2.

3.9.1 Within 14 days of starting Work, the Contractor shall designate the Project Manager, Superintendent, and other key individuals who shall be assigned to the Project through and including Final Completion. The superintendent shall represent the Contractor, and communications given to the Superintendent shall be as binding as if given to the Contractor.

3.9.1.1. The superintendent employed shall be fluent in the English language and shall have a minimum of five years experience as a superintendent on projects of similar size, scope, and complexity, and be experienced in the type of Work to be undertaken. The Owner may request verification of this experience and shall, at its own discretion, approve the superintendent. The approved superintendent shall not be changed during the course of construction without the prior written consent of the Owner. Should a representative leave the Contractor’s employ, the Contractor shall promptly designate a new representative that is acceptable to the Owner.

3.9.1.2 Failure of the Architect or Owner to present reasonable objection, in writing, to the proposed superintended, within 14 days of the superintendent being named, will constitute no reasonable objection.

3.9.1.3 The Owner shall have the right at any time to direct a change in the Contractor’s representatives if their performance is unsatisfactory. In the event of such demand, the Contractor shall, within seven calendar days after notification thereof, replace said representative with a representative acceptable to the Owner. The Contractor shall continue to submit representatives until an acceptable representative is approved.

3.9.1.4 The Contractor shall not change the Superintendent without the prior written consent of the Owner, which consent shall not be unreasonably withheld. The Superintendent shall be present at he Project until final completion including the punchlist.

3.9.1.5 The Superintendent shall be in attendance at the Project Site and be shall attend all project meetings throughout the Work, including through completion of the punchlist.

Subparagraph 3.10.1 – Delete in its entirety and substitute the following:

“The General Contractor is responsible for the sequencing, scheduling and coordinating the Work, for monitoring the progress of the Work, and for taking appropriate action to keep the Work, including Work performed by all subcontractors, on schedule. Within seven (7) working days after signing the Contract, unless otherwise extended by the Owner at the time of the signing of

the Contract, the Contractor shall prepare and submit directly to the Architect a preliminary plan and construction schedule for substantially completing the Work based upon the date of Substantial Completion. The construction schedule submittal shall be complete in every respect and shall include all subcontract Work activities, phase milestone dates, and be signed by the Contract.

3.10.1.1 The Construction Schedule shall describe in narrative form the sequence of activities and their duration required to complete the Work and allow for work Completion sufficiently in advance of the dates established for each phase of the Project to permit correction of "punch list" items. No changes shall be made to the phase milestone dates of the date of Substantial Completion without the Owner and Architect's prior review and approval.

3.10.1.2 The Construction Schedule shall be in graphic form and shall show start and end dates of every phase of the Work and all construction activities, logic relationships and dependencies, predecessor and successor relationship of all activities to each other, critical path milestones, submittal schedules (that allow two (2) weeks time for Architect and Owner review and Architect approval), including date of submittal, date required to be returned after review, and date of supply or fabrication lead time, dollar value of each activity and percentage of Work to be completed each month and the manpower/staffing required to complete the Work on each activity in the time given. The Progress Schedule shall be updated monthly, showing actual progress versus the anticipated progress. The most current schedule update shall be submitted with each monthly Application for Payment and shall clearly show the planned original scheduled progress along with the actual work progress.

3.10.1.3 If the Contractor establishes or has reason to believe that the delivery of an item of material or equipment, the shortage of qualified labor, delays or other occurrences may cause a delay in the execution of the Work in accordance with the established Construction Progress Schedule, he shall so notify the Architect immediately.

3.10.1.4 The Owner's or Architect's silence as to a submitted schedule that exceeds time limits current under the Contract Documents shall not relieve the Contractor of its obligation to meet those time limits, nor shall it make the Owner or Architect liable for any of Contractor's damages incurred as a result of increased construction time or not meeting those time limits. Similarly, the Owner's or Architect's silence as to a Contractor's schedule showing performance in advance of such time limits shall not create or infer any rights in favor of the Contractor for performance in advance of such time limits.

Add the following new subparagraphs:

3.10.4 No progress payment will be payable to the Contractor until after it has submitted a preliminary construction schedule which is acceptable to the Owner. Neither the second progress payment nor any subsequent payment shall be payable to the Contractor until a fully complete progress schedule agreed to by all Primes has been submitted, and approved by the Architect and Owner.

3.10.5 The responsibility for Construction planning and the effective efficient implementation of such, or the converse, to meet the date of Substantial Completion, are the total responsibility of the Contractor, and such responsibility shall not transfer to the Owner and Architect. Review of the original accepted Construction Progress Schedule, and subsequent modifications thereto, by the Owner and/or the Architect shall be limited to the

general clarifications set out above. Such review shall not operate to imply the agreement of the Owner/Architect to the Contractor's planned procedures, coordination, critical path scheduling, etc., as being appropriate or reasonable."

Add the following new subparagraph 3.15.3 to Article 3.15

3.15.3 Daily Cleanup: The Contractor shall comply with the following daily cleanup requirements:

.1. Do not allow trash, debris, waste, defective materials, and unused materials, equipment and tools to collect in the work areas, areas objectionable to the Owner, or in areas that will be unsightly to passersby. Remove these items on a regular schedule, and dispose of in approved manner and container..

.2. Keep work area clean and free of clutter.

.3. Secure all materials, equipment, and tools to prevent movement during windy conditions. Do not allow material or debris to become airborne.

.5. Cover all materials, equipment, and tools completely at the end of each day to prevent water entry and so that covers will not loosen or separate during windy conditions.

.6. Promptly remove all unused or unneeded sharp or pointed objects, including sheet metal, that may puncture cause injury or damage to the Work.

.7. Keep all fasteners, anchors, etc, including screws and nails, in rigid storage containers until ready for use. Put all used or defective mechanical fasteners in a designated rigid container that is clearly marked**, SCRAP**. Do not allow used or defective fasteners to mix with new fasteners.

.8. Correct all defects not corrected during normal operations by end of each work day.

Add the following subparagraphs 5.3.2 and 5.3.3 to Paragraph 5.3:

5.3.2 Excluding the usual reduction or reassignment of a work force when a subcontractor's portion of the Work nears completion, a subcontractor shall not take any measures that will interrupt, impede, or delay the progress of his portion of the Work or the overall Project without notifying the Architect and without written approval from the Contractor. These measures include ceasing or slowing progress of the Work, reducing the assigned work force, or redirecting or reassigning the work force to another project. Failure to provide the following information in requesting approval from the Contractor may result in disapproval of the request:

.1 Effective Date

.2 Nature of the request

.3 Reason for the request

.4 Impact on the project schedule

.5 Name of person making the request

.6 Date of resuming normal operations

5.3.3 If a subcontractor fails to assign and maintain an adequate work force so as to diligently make consistent and uninterrupted progress in his portion of the Work, or the subcontractor ceases work, reduces the assigned work force, or redirects or reassigns the work force to another project, then the

Contractor shall notify the subcontractor, in writing, to resume or continue work. If, within seven calendar days from date of notification to resume or continue work, the subcontractor fails to resume or continue work or to provide the Contractor and the Architect with an acceptable reason for not resuming or continuing work, then the Contractor may, at his option, reassign the uncompleted portion of the subcontractor's Work to another subcontractor that is acceptable to the Owner and the Architect. All costs associated with the Contractor's reassignment of the subcontractor's uncompleted Work, including project delays and correcting the subcontractor's unacceptable work, shall be the responsibility of the original subcontractor. On reassignment of the original subcontractor's uncompleted portion of the Work, the original subcontractor shall promptly invoice the Contractor for all acceptable work completed prior to the reassignment of the uncompleted portion of the Work. If the Contractor chooses not to reassign the uncompleted portion of the subcontractor's work to another subcontractor, then the Contractor shall notify the Owner and the Architect as to what action shall be taken, and the impact, if any, on the Contract.

Article 7 - Changes in Work

7.2 Change Orders

Add the following Subparagraphs 7.2.3 and 7.2.4 to Paragraph 7.2:

"7.2.3 A change order, when issued, shall be full compensation, or credit, for the extra work included, omitted, or substituted plus the Contractor's fee as determined in subparagraph 7.2.4. It shall show on its face, the adjustment in time for completion of the project as a result of the change in the work. Each change order shall include all costs directly related to the Work, including all overhead, miscellaneous expenses, and incidentals. The Contractor shall submit a written and detailed itemized proposal for each Change Order under consideration (Change Proposal Requests) within 21 days of receipt of a pricing request. Cost of work shall mean the sum of all costs that can be directly related to the Work and are paid by the Contractor in the proper execution of the approved Change Order. Such costs shall be no higher than the prevailing costs in the locality of the Project. All costs shall be completely and accurately itemized and shall be fully and accurately substantiated by receipts, vouchers, invoices, certified affidavits ,etc.

7.2.4 The allowance for the Contractor's fee percentage to cover overhead and profit shall be in accordance with the following schedule:

.1 For costs incurred under subparagraphs 7.3.7.1 and 7.3.7.2 using the Contractor's own workforces: Fifteen (15) percent; Deductive Changes: 5 percent

.2 For costs incurred under subparagraphs 7.3.7.3 through 7.3.7.5: Zero (0) percent.

.3 For Work performed by the Contractor's Subcontractor, 7.5 percent of the amount due the Subcontractor.

.4 The amount of credit to be allowed by the Contractor to the Owner for changes that result in a net decrease in the cost will be in the amount of the actual net decrease plus the Contractor's fee which shall be equal to ten (10) percent of the net decrease.

.5 When both additions and credits are involved in the same change order, the adjustment in the Contractor's fee shall be computed on the net change in accordance with subparagraphs 7.2.4.1 through 7.2.4.4.

Add the following subparagraph .6 to subparagraph 7.3.6

.6 Payments made by the Contractor for Work performed by subcontractors. If a subcontractor is to be paid on the basis of a Cost Of The Work Plus A Fee subcontract, then the subcontractor's cost of work shall be determined in the same manner as for the Contractor.

8.2 Progress And Completion

Add the following sentence to the end of subparagraph 8.2.1.

The date for substantial completion of the project is set forth in the Agreement.

9.2 SCHEDULE OF VALUES

Add the following new subparagraph:

9.2.2 The Contractor and each Subcontractor shall prepare a trade payment breakdown for the Work for which each is responsible, such breakdown of the Schedule of Values shall be dated and signed by the Contractor and listed on AIA Document G702A in the same numerical order and Sections as listed in the Specification so that each major item of Work and each subcontracted item of Work is shown. The form shall be divided in detail sufficient to exhibit areas, floors and/or sections of the Work, and/or by convenient units and shall be updated as required by either the Owner or the Architect as necessary to reflect (1) total value, (2) percent of the Work completed to date, (3) value of Work completed to date, (4) percent of previous amount billed, (5) previous amount billed, (6) current percent completed, (7) value of Work completed to date, (8) description of the item, (9) quantities (units), (10) labor, (11) materials and (12) equipment where applicable. General, plumbing, mechanical, and electrical also shall be broken down accordingly by category as the Architect may additionally require. Any trade breakdown which fails to include sufficient detail, is unbalanced or exhibits "front-loading" of the value of the Work shall be rejected. If trade breakdown had been initially approved and subsequently used, but later found improper for any reason, sufficient funds shall be withheld from future Application's for Payment to ensure an adequate reserve (exclusive of normal retainage) to complete the Work.

9.3 Applications For Payment

Add the following clause 9.3.1.3 to 9.3.1:

9.3.1.3 The owner shall pay 96.5 percent of the amount due the contractor on account of progress payments. No retainage will be released until all close out documents are submitted.

Add the following sub-paragraph to sub-paragraph 9.8.2:

9.8.2.1 The Architect will only make two (2) inspections to determine substantial completion. If these inspections determine that the work is not substantially complete, either because of major items not completed or an excessive number of punchlist items, successive inspections requested by the Contractor shall be charged to the Contractor at a rate of $400.00 per person per half day" and will be deducted from the final Application For Payment.

Add the following sub-paragraph to sub-paragraph 9.10.1:

9.10.1.1. The Architect will only make two (2) inspections to determine final completion. If these inspections determine that the work is not finally complete, successive inspections requested by the Contractor shall be charged to the Contractor at a rate of $400.00 per person per half day" and will be deducted from the final Application For Payment.

Add the following new sub-paragraph 9.10.6 to paragraph 9.10:

9.10.6 In addition to any other damages, failure of the Contractor to achieve Final Completion within sixty (60) after the specified date of Substantial Completion, subject to authorized extensions, will result in the Contractor's being responsible for excess Architect's fees. Excess Architects fees will include the cost of all necessary services, as determined by the Owner and the Architect, incurred after sixty (60) days beyond the date of Substantial Completion. Excess fees will be deducted from the Amount due the Contractor.

Add the following paragraph 9.11 to Article 9

9.11 Liquidated Damages

9.11.1 The contractor and the contractor's surety, if any, shall be liable for and hereinafter stipulated as liquidated damages for each calendar day of delay until the work is substantially complete:

Two Hundred Fifty Dollars ($250.00)

11.1 Contractor's Liability Insurance

Add the following subparagraph to 11.1.1:

11.1.1.1 In accordance with the General Conditions, the Contractor shall maintain the following insurance for the project.

A. Workmen's Compensation - Statutory - and Employers' Liability Insurance that complies with the laws of the state in which the work is located shall be carried on all employees engaged in any and all phases of the work required under this contract.

Minimum Limits:

Workmen's Compensation - Statutory
Employer's Liability: $500,000 Each Accident
By Disease: $500,000 Each Employee
$500,000 Policy Limit

B. General Liability (Bodily Injury and Property Damage Liability) including completed operations coverage, products liability coverage, Broad Form Property Damage and Blanket Contractual Liability Coverage. To cover all phases of the operations required under this contract. Occurrence Form.

Minimum Limits:

General Aggregate.....$2,000,000.00
Products-Completed Operations
Aggregate.....$2,000,000.00
Personal & Advertising Injury...$1,000,000.00
Each Occurrence.....$1,000,000.00

C. Owner's & Contractor's Protective Bodily Injury and Property Damage Liability Insurance must be provided by the contractor for the benefit of the Owner covering the entire operation involved in the contract. The minimum limits of liability required for such insurance are as follows:

Same Limits as General Liability Coverage.

Extend policy to include interest of Architects.

D. Automobile Bodily Injury and Property Damage Liability Insurance shall be carried on all automobiles, trucks and similar vehicles that will be used in any phase of the work required under this contract. The minimum limits of liability required for such insurance are as follows:

$1,000,000.00 Combined Single Limit per occurrence for Bodily Injury and Property Damage.

E. Excess Umbrella Liability (Occurrence Form)

Minimum Limit - $2,000,000.00 Each Occurrence
$2,000,000.00 Aggregate

F. Builder's "All Risk, Including Theft and Earthquake" Insurance in an amount equal to the full amount of the contract, shall be provided by the Owner.

11.5 Performance Bond and Payment Bond

Delete Subparagraph 11.5.1 and substitute the following paragraph 11.5.1:

11.5.1 The Contractor shall furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder. Bonds may be obtained through the Contractor's usual surety source and the cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 100 percent of the Contract Sum.

11.5.1.1 The Surety shall have, at a minimum, a "Best Rating" of "A" as stated in the most current publication of "Best's Key Rating Guide, Property-Casualty". In addition, the Surety shall have a minimum "Best Financial Strength Category" of "Class V", and in no case less than five (5) times the contract amount.

11.5.1.2 Both Performance Bond and Payment Bond shall be written on AIA Document A312-Performance Bond which is a combined Performance and Payment Bond. The required bonds shall be made payable to the Owner.

11.5.1.3 The Performance and Labor and Material Payment Bonds shall:

(1) be issued by a surety company licensed to do business in South Carolina; and,

(2) be accompanied by a current power of attorney and certified by the attorney-in-fact who executes the bond on the behalf of the surety company; and,

(3) remain in effect for a period not less than one (1) year following the date of Substantial Completion or the time required to resolve any items of incomplete Work and the payment of any disputed amounts, whichever time period is longer; and,

(4) display the Surety's Bond Number. A rider including the following provisions shall be attached to each Bond stating that:

(a) The Surety hereby agrees that it consents to and waives notice of any addition, alteration, omission, change, or other modification of the Contract Documents. Any addition, alteration, change, extension of time, or other modification of the Contract Documents, or a forbearance on the part of either the Owner or the Contractor to the other, shall not release the Surety of its obligations hereunder, and notice to the Surety of such matters is hereby waived.

(b) The Surety agrees that it is obligated under the bonds to any successor, grantee, or assignee of the Agency.

(5) Notwithstanding the foregoing, any bonds required by this Contract shall meet the requirements of the SC Code of Laws, as amended.

Add the following new Subparagraphs 11.5.3 and 11.5.5 after subparagraph 11.5.2:

11.5.3 The Contractor shall furnish all required bonds to the Owner before final execution of the Contract.

11.5.3.1 If the Work is to be commenced prior thereto in response to a letter of intent, the Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished.

11.5.3.2 The Contractor shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix thereto a certified and current copy of the power of attorney.

11.5.4 The Contractor shall keep the Surety informed of the progress of the Work, and, where necessary, obtain the Surety's consent to, or waiver of:

11.5.4.1 notices of changes in the Work;

11.5.4.2 requests for reduction or release of retention;

11.5.4.3 requests for final payment; and

11.5.4.4 any other item required by the Surety.

11.5.4.4 The Owner may, in the Owner’s sole discretion, inform the Surety of the progress of the Work and obtain consents as necessary to protect the Owner’s rights, interest, privileges, and benefits under and pursuant to any bond issued in connection with the Work.

11.5.5 If at anytime a surety on any such bond is declared bankrupt or loses its right to do business in the state in which the project is located, or is removed from the list of surety companies accepted on Federal Bonds, the Contractor shall, within 10 calendar days after notice from the Owner to do so, substitute an acceptable bond(s) in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. No further payments from the Owner will be deemed due nor shall be made until the new surety or sureties have furnished an acceptable bond(s) to the Owner. The bonds furnished hereunder shall name as obligees the Owner,

Owner's partners, and affiliates, any lender(s) of the Owner secured in whole or in part by a lien on the Project, and the title insurance company(ies) that has (have) issued title policies to Owner or its lender(s), and the bond(s) shall be automatically increased in the amount of any additive Change Orders. The bond(s) shall have affixed to it (them) a certified and current copy of a power of attorney for the attorney-in-fact who executes the bond(s) on behalf of the surety(ies).

12.2 Correction of Work
Add the following Subparagraph 12.2.1.1 to Paragraph 12.2.1:

12.2.1.2When the correction of defective and rejected work results in the Contractor or applicable subcontractor falling behind schedule or will delay or prevent other trades from performing their portion of the Work, the Contractor or applicable subcontractor shall use all possible means to maintain the original schedule and to allow other trades to perform their portion of the Work. . Accordingly, the Contractor and applicable subcontractor shall not be granted additional time or moneys to maintain the original schedule.

15 Claims And Disputes

Delete the existing subparagraph 15.1.5.2 and substitute the following new subparagraphs

15.1.5.2 For the purpose of this Contract, the Contractor shall anticipate 4 scheduled work days per calendar month as "normally bad or severe weather" and that are unsuitable for performing the Work. These days will not be considered as justification for an extension in Contract Time. If abnormal weather conditions result in a loss of scheduled work days that exceed the anticipated bad or severe weather days, the Contractor may submit a Claim for an extension in Contract Time for the scheduled work days that exceed the anticipated days. Only whole days will be considered for an extension of Contract Time. Fractions of days are not acceptable.

15.1.5.3All weather-related Claims for an extension in Contract Time shall be submitted, to the Architect for approval, within 15 calendar after the last day of the month for which the Claim is being submitted. Claims submitted after this time may be rejected. All weather-related Claims for an extension in Contract Time will be reviewed and approved by the Architect on an individual basis. As a minimum, each weather-related Claim for an extension in Contract Time shall include the following information:

.1 Impact of the lost time

.2 Portions of the Work involved

.3 Measures to be taken to make up lost time

.4 Number of days extension being requested

.5 Building trades affected by lost scheduled work days

.6 Dates of scheduled work days lost because of weather

.7 Number of scheduled work days lost because of weather

.8 Weather conditions that caused the loss of each scheduled work day

.9 Supporting documentation of weather conditions that justify the claim

List of Drawings and Specifications:

Drawings prepared by the Architect, numbered and titled as listed below, together with the specifications show and describe the work to be performed. Drawings and specifications shall be considered complementary so that anything shown upon one, or described by the other, or implied by either or both, shall be executed and performed as if shown and/or described by both. Drawings and specifications shall be used for this work only and are the property of the architect, and must be returned upon the completion of the work.

Specifications:

General Conditions
Supplementary Conditions

Divisions 1 and 31-33

Drawing List:

Index	Title
GENERAL DRAWINGS:	
G010	F3 FORM
G011	IEBC CODE INFO
ARCHITECTURAL DRAWINGS:	
A200	REFLECTED CEILING PLANS
ROOFING DRAWINGS:	
R100	ROOF PLANS
R200	DETAILS
STRUCTURAL DRAWINGS:	
S100	ROOF FRAMING & DETAILS
HVAC DRAWINGS:	
HVAC-1	HVAC PLANS
HVAC-2	HVAC SCHEDULES & DETAILS
ELECTRICAL DRAWINGS:	
E001	GENERAL NOTES, LEGENDS & EXISTING PANEL SCHEDULES
E100	KITCHEN HOOD REPLACEMENT DEMOLITION PLAN
E200	KITCHEN HOOD REPLACEMENT MECHANICAL POWER PLAN
E300	ELECTRICAL SPECIFICATIONS

REQUEST FOR SUBSTITUTE FORM

INSTRUCTIONS

Please read the specifications before completing this form.
This form is only applicable to requests for substitutes that are made during the Bidding Phase. All requests for substitutes after Contract Execution shall be in accordance with the General Requirements Section 01 25 00 Substitution Procedures. Although the form is detailed and the requested information is specific, it is no more than what was requested from manufactures that are listed in the project specifications. However, approval of this form does not necessarily imply approval for future projects. Products, materials, and components not specified or approved but are installed will be removed and replaced with acceptable products, materials, components at the Contractors expense.

Submit this form along with all required supporting product data, specifications and performance criteria when requesting the use of products or services that are not listed in the Specifications. The Architect must receive this Request For Substitute form no later than the time stated in the Bidding Requirements for submitting product substitutions. If no time is stated, then no later than 10 days prior to date of bid opening.

Where the Contract Documents list at least three manufacturers or products, the Architect reserves the option to reject any and all requests for substitute. Where the Contract Documents list only one manufacture or product without “Or equal” or similar language, substitutes will not be considered. Where the Contract Documents list less than 3 products or manufacturers, substitutes may be reviewed and evaluated on an individual base.

Receipt of inquiries or submittals without this completed Request For Substitute form will not extend the deadline. Include only one request for substitution on each form. Verbal requests for a substitute or requests submitted on the incorrect request for substitute form are not acceptable and will not extend the submittal deadline established by the Instructions To Bidders. Incomplete forms; forms with vague or unspecific answers; forms without supporting data to substantiate equal or superior quality/design; forms that do not include requested proof, verification, reports, and substantiating documentation; or forms received after the time established in the Instructions will be disapproved. Disapproval will not extend the submittal deadline.

The manufacturer’s published literature, description, capabilities, operating and performance parameters, options, accessories, etc. of all submitted substitutes shall meet or exceed those published by the manufacturer of the specified item even if they are not specifically mentioned in the Contract Documents. Products of manufacturers other than those specified may be acceptable after proper submittal to the Architect and after the Architect’s review. However, manufacturers capable of providing specified products shall not, for the convenience of their normal production methods, vary from the specified product.

Where test data and standards are being submitted as supporting data and for comparison with the specified item, submit certified data provided by an independent testing laboratory. Prepare supporting data in side-by-side tabular form showing the submitted criteria next to each specified performance criteria and denoting the differences between the specified item the substitute item. Show submitted data using same tests and standards and with the values and results in the same units of measure as those shown for the specified item. Where a performance criterion is not listed in the specifications, comply with the specified product manufacturer’s published data for performance criteria. Identify and define all abbreviations and acronyms. All substitutes shall meet all of the minimum performance criteria of the specified product. Submittals not complying with this provision will be considered incomplete, unacceptable, and will be rejected. Where not applicable or NA is entered, state why the item is not applicable. Knowingly and intentionally providing incorrect information is fraud.

Complete the following parts as follows:
PART 1: Complete for all requests for substitutes. Contains general, substitute product, marketing/sales, manufacturer, warranty.
PART 2: Complete only for countertops and casework, millwork, etc. substitutes.
PART 3: Complete only for steel
PART 4: Complete only for painting substitutes.
PART 5: Complete only for all roofing substitutes.
PART 6: Complete only for metal roof manufacturer substitutes
PART 7: Complete for all metal roof installers

PART 1 (All Substitutes)
Project Name
Jesse Boyd Kitchen Hood Replacement Project Number 020500
Spartanburg School District Seven
Spartanburg, South Carolina

Date:

Specification No.:

Drawing No. Reference:

Name of Specified Item:

Substitute Information

Name of Substitute:

Manufacturer of Substitute:
Name:

Address:

Telephone No.: Fax No:
Years in Business:

General Information
1. Has the entity submitting this Request For Substitute read and fully understands the applicable specifications and stated provisions. Yes ___ No____. If no, please explain.

2. Is this request at the request of subcontractor or general contractor? Yes___ No___
If yes, please give the name and address of that subcontractor or general contractor.

3. If the entity requesting the substitute will not be the installer, please provide the following information about the intended installer:
Name:

Address:

Telephone No.: Fax No:
Years in Business: Years installing this product:

Did the manufacturer certify the installer? Yes___ No____ If yes, when:
Is the certification still effective? Yes____ No___
Did the manufacturer train the installer? Yes____ No____ If yes, when:

4. If the entity requesting the substitute is a distributor, list all installers within 50 miles of the project site that you sell to:

5. Who will service the substitute?

6. Why is this substitute being requested? (Competitive pricing or being local are not acceptable answers. Please be specific!)

Substitute Product Information

1. Including installation and operational costs, will the substitute be less expensive than the specified entity? Yes_____ No____ Same____. (Don't know or can't be determined are not an acceptable answers)

a. If No or the same, why should the substitute be considered? If more expensive, why is it more expensive? (Please be specific!).

b. If less expensive, why is it less expensive? (Please be specific)

2. What is the functional and physical difference between the specified item and the substitute? If there are no differences, why should this substitute be approved? (Please be specific!)

3. Other than cost, what are the proven and verifiable benefits or advantages of the substitute item? (Please be specific! Convince us. Don't just reference product data. Being local does not necessarily mean better or more economical. Mention any unique benefits or attributes). If there are none, why should this substitute be approved?

a. If the substitute is more economical, why is it more economical? Please provide detailed cost comparison including material and labor as to why costs are more economical.

b. If the substitute is better, why/how is it better? Show side-by-side comparison

c. What does the substitute do that the specified will not do?

d. If service for the substitute is better, why/how is it better?

4. Are there any known failures of the substitute? If so, where and when did the failures occur and what was the probable cause of the failures?

5 Will the Owner have difficulty getting the substitute serviced or repaired?

6 Does the substitute installer meet all of the specified qualifications and requirements? Yes:___ No:___. If no, please describe the differences.

7. Will the proposed substitution affect dimensions shown on the Drawings? Yes ___ No____. If yes, please explain.

8. Will the proposed substitution have an adverse affect on other trades, the construction schedule, or specified warranty requirements. Yes ___No____ If yes, please explain.

10. Will maintenance and service parts for the proposed substitution will be readily available locally? Yes ___No____ If no, please explain.

11. Will the proposed substitute meet or exceed all aspects of the specifications, including overall performance, appearance, and manufacturer's/installers qualifying criteria stated in the Contract Documents? Yes ___No____ If no, please explain.

12 Will the proposed substitute meet all applicable governing codes, regulations, and listed or indicated UL assemblies? Yes ___No ____Not Applicable_____ If no, please explain.

13. Does the substitute have any affect on other contractors or trades? Yes___No____. If yes, please explain.

Installer Information

If this request for substitute is being submitted by a manufacturer, general contractor, or distributor, complete the following installer information for each installer that may be selected. If this is for a metal roof installer, omit this section and complete Part 7 of this form.

1. Who will install the substitute Product? Provide
   Name
   Address
   Telephone No.
   Contact Person?
2. How long has installer been in business? _____Years
3. How long has the installer operated under this name? _____Years
4. Has installer ever operated under a different name? Yes___ No___
5. If yes, under what name?
6. If this request for substitute is being submitted by a manufacturer, general contractor, or distributor, how long have you had a business relationship with the installer? ___years.
7. Will installer purchase the substitute or specified product directly from the manufacturer? Yes_____ No_____. If no, please provide name and address of entity the product will be purchased from?
8. Years experience installing the specified or substitute product/system? _____years.
9. When required by the contract documents, has the installer been trained, qualified, and approved by the manufacturer prior to the date of Advertisement or Invitation for Bids for this project? Yes_____ No_____. If yes, how was approval obtained?

10. Has the installer ever had a manufacturer's approval or certification revoked because of unsatisfactory performance? Yes____ No____. If yes, please explain.

11. Will installer maintain a trained work force, including a non-working supervisor on project site at all time installation is in progress? Yes_____ No_____. If no, please explain why?

12. Will the installer install the entire product/system with own employees? Yes____ No. ____ If no, please explain.

13. Does the installer presently have the staff and equipment on board to perform the contracted work? Yes_____ No_____. If no, please explain. For the purpose of this Contract, the installer's own employees are considered employees for which the installer contributes directly to and is directly financially responsible for the following employee expenses:

a. All Federal, State and Local Taxes
b. Social Security
c. Insurance
d. Workers Compensation
e. Holidays
f. Vacations
g. Sick Time
h. Retirement

14. Has the installer successfully completed a minimum of 5 projects of the size and complexity as required fro this project? Yes_____ No_____.

15. Has the installer completed at least 80% of projects on time and under budget? Yes_____ No_____.

16. Has the installer been refused a bond in the last 5 years? Yes_____ No_____. If no, please submit proof.

17. Does the installer provide a written warranty? If yes, length of material and labor warranty? Material ___ years. Labor warranty? __years. If no, please explain.

18. How many warranty claims have been filed against the installer within the last 3 years? None____ Labor _____ Product_____

19. Are there any judgments, claims, or arbitration proceedings or suits pending against the installer? Yes_____ No____. If yes, please explain.

20. Has the installer ever failed to complete any portion of any assigned or contracted work? Yes___ No____ If yes, please explain.

21. Does the installer have verifiable means to provide necessary funds to honor warranty requirements? Yes_____ No_____. Please submit proof.

22. Has the installer ever filed for protection under either Chapter 7 or 11 of the US Bankruptcy Laws within last 5 years under this name or any other name? Yes_____ No_____. If yes, please explain

23. Does the installer have a current and active open line of credit with the product/system/material manufacturer (A distributor is not acceptable). Yes_____ No____. If no, please explain. If the manufacturer does not sell directly to installers, where will the product/system/material manufacturer be purchased?

Sales/Marketing Information

1. How long has this substitute been on the market? _____ years.
2. Did this substitute replace a previous product? Yes____ No____. If yes, why.

3. Is the substitute an improvement of a previous product? Yes____ No____. If yes, what is the improvement.

4. What was the annual sales volume of this substitute last year?

5. How much more or less is this than the previous year's volume? More Less
6. In sales volume of this product, where does the manufacturer rank compared to other manufacturers of the same product? Top 5 10, 15, 20 of _____manufacturers.

7. How long has the substitute been marketed locally (within 75 miles) to the project? _____years. List 3 local installations of comparable type, size, and scope where substitute has been successfully used and has been in place and in use for a minimum of 3 years:
   a.
   b.
   c.

8. If the product has not been installed locally (within 75 miles), why do you think that is so?

9. If substitute has been marketed elsewhere, but not locally to the project, why?

10. Is substitute listed in SWEETS Catalogs? Yes___ No___ If no why?

11. Is product listed in AIA Masterspec? Yes___ No___If no, why?

12. Has this same substitute been marketed under a different name or by a different manufacturer? Yes___ No____ If so, please state details

Manufacturer/Fabricator Information

1. How long has the manufacture been in business? _____ years.

2. How long has the manufacturer been operating under the present name? ____years.

3. Has the manufacturer operated under any other name? Yes___ No____ If so, what name?

4. What other products does the manufacturer produce?

5. Has the manufacture, supplier, or contractor ever failed to complete any portion of any assigned or contracted work? Yes___ No____ If yes, please explain.

6. Does the substitute manufacturer meet all of the specified qualifications and requirements? Yes:___ No:___. If no, please describe the differences.

7. When specified, will the installers be certified and factory-trained by the manufacturer? Yes ___No____ Not Applicable_____ If no, please explain.

8. Does the manufacturer presently meet all specified qualifying criteria. Yes___No____. If no, please explain.

9. Does the manufacturer comply with the special warranty provisions, when they are specified. Yes ___No____ Not Applicable_____ If no, please explain.

10. Will the installer meet all specified qualifying criteria. Yes___No____. If no, please explain.

Warranty Information

1. Does substitute manufacturer provide a warranty? Yes:_____ No:_____.

2. If no, why not?

3. If yes, are the warranty provisions equal to or better than those of the specified product, including the exclusions? Yes:_____ No:_____.

4. What provisions or exclusions does the substitute manufacturer's warranty have that are not in the specified warranty?

5. If the manufacturer's warranty period exceeds the time the manufacturer has been in business or the time the product has been available or marketed, how was the warranty time determined? Please be specific.

6. How many warranty claims have been filed against this product in the last 5 years? If product is less than 5 years old, then how may claims since the product was introduced? 0___ 1-5___ 6-10___ Over 10___.

7. Are there outstanding warranty claims against this product now? Yes:___ No:___. If yes, what is the longest period? ___months. What is its disposition.

8. If there has been warranty a claim, what was the basis of the claim?

9. If there was more than one claim, were the claims for the same reason? Yes:___ No:___. If yes, what is the reason? If claim is related to a design or manufacturing problem, has the problem been corrected?

10. Does warranty require Owner's signature for proper execution? Yes_____ No_____. If yes, Can it be revised to exclude Owner's signature? Yes____ No_____.
If the warranty cannot be revised, will the manufacturer issue a certified letter stating that the Owner's signature does not deprive the Owner of other rights, including, but not limited to, provisions under the Uniform Commercial Code and the Magnusson Moss Act.
Yes____ No_____.

11. Is the warranty pro-rated? Yes_____ No____.

12. Are there any judgments, claims, or arbitration proceedings or suits pending against the substitute entity? Yes_____ No____. If yes, please explain.

Foreign Manufacturer

1. Is the manufacturer of proposed item foreign owned? Yes:_____ No:_____
2. Is proposed item manufactured or assembled outside of the United States? Yes:_____ No:_____. If yes, what percentage? _____percent.

3. Is proposed item manufactured or assembled from components or materials manufactured or assembled outside of the United States? Yes:_____ No:_____. If Yes, what portion of the components or materials are manufactured or assembled outside the United States? _____ percent
4. Do you certify that the substitute product complies with the "Made In America" provisions stipulated elsewhere in the Contract Documents? Yes_____ No_____

LEED Projects
Complete this portion if this is a LEED project
1. If the project anticipates LEED certification, what credits are affected by this proposed substitute?

2. How does the proposed substitute affect anticipated LEED credits?

3. Does the substitute meet same LEED credits as specified product? Yes___ No____

4. Has substitute been successfully been used on a LEED certified project? Yes__ No__
If yes, What project? What certification?

5. **Life Cycle Assessment (LCA):** Submit, with this form, a complete LCA as stipulated by LEED requirements. The Life Cycle Assessment for the substitute shall meet or exceed that of the specified entity. Substitutes that do not include the LCA requirement or that do not meet the LCA of the specified entity are not acceptable and will not be approved. As a minimum, include the following:
a. LCA of Specified Entity:
b. LCA of Substitute:
c. Source of LCA

7. Recycled Content
Is product manufacturer form recycled materials? Yes___No____. If yes, provide the following information:
a. Percent Pre-Consumer Content : ____%
What is its Source?
Is it all tested? Yes____ No____ If yes, how?
If not, why?

Is it all inspected? Yes____ No____ If yes, how?
If not, why?

Is it all Graded? Yes____ No____ If yes, how?
If not, why?

b. Percent Post Consumer Content ____%
What is its Source?
Is it all tested? Yes____ No____ If yes, how?
If not, why?

Is it all inspected? Yes____ No____ If yes, how?
If not, why?

Is it all Graded? Yes____ No____ If yes, how?
If not, why?

Is it tested or graded for quality consistency? Yes____ No____ If yes, how?
If not, why?

Acknowledgements

1. Will the undersigned will pay for costs resulting in changes to the building design, including architectural and engineering design, detailing, and construction costs caused by incorporating the requested substitution or costs associated with any delays caused by deliveries of the substitute? Yes ___No____. If no, please explain.

2. If it is determined that a substitute does not fully comply with the Contract Documents after the substitute has been accepted or installed, will the undersigned assume responsibility for all applicable costs, including removal and installation of non-conforming products, to provide one of the specified products that does comply with the specifications. Yes ___No____ If no, please explain.

3. Is it understood and agreed to that final and ultimate approval of the substitute shall be determined at final completion of the project. Failure to provide equivalent substitutes in appearance, function, and performance to that specified, may result in the removal of the substitute and the installation of approved product at contractor's expense. Yes_____ No____. If no, please explain.

Enclosed Attachments:

1.
2.
3.
4.

Certification Of Performance And Assumption Of Liability

As a manufacturer or representative of the proposed substitution, it is presumed that you are the most knowledgeable of the proposed substitution. By signing this request, you certify that all information provided in this request is accurate and true. Additionally, you certify that the product, material, component, or service being submitted as a substitute for that specified meets or exceeds the performance, function, and appearance criteria listed in the specifications and in the manufacturer's published literature, and that all information provided in this Request For Substitute, including other applicable Parts, is true and accurate. The Signee also agrees to assume all liability for the ultimate performance, function, and appearance criteria of the submitted substitute.

Person Making Request:
Name:

Signature:

Company:
Address:

Telephone No.: Fax. No.:

Approved substitutes and manufacturers will be released by Addendum as described in the Instructions To Bidders

For Architect's Use

Approved: ____ Approved As Noted: ____
Disapproved: ____ Because
Received Too Late: ____
Incomplete Form: ____
Insufficient/Improper Supporting Data: ____
Does Not Meet Specifications: ____

PART 2 (Complete For Casework Substitutes Only)
Provide the following additional supporting information if this request is for wood or plastic laminate casework, library furniture, band and music casework, science casework, millwork fabrication:

1. Size of Shop (sq. ft)?_____ Size of Warehouse Sq. ft.)_____No of Employees?___
2. Type of Equipment

3. Do you specialize in any type of casework or product?

4. Do you produce your own shop drawings? ____ Are you AWI Certified? _____

5. Prior to approval, would you produce a small base cabinet sample constructed according to the specifications and consisting of a back splash, drawer, door, shelf, toe recess, and AWI stamp? _____.

6. Please provide the following information in tabular format
   a. Current Projects: List Each Project Your Firm Is Presently Committed To; Location of Each Project; Expected Date of Completion for Each Project, Dollar Value of Each Project.

   b. Completed Projects Within Last Five Years, Especially Those Within 100 Miles Of The Project: Name of Project, Location of Project, Date Completed, Dollar Value of Project; General Contractor, Name and Telephone Number of Owner's Contact Person, Note any project not completed on time and explanation.

PART 3 (Complete For Steel Fabrication Only)
Provide the following additional supporting information if this request is for structural steel including columns, beams, girders, joists, cold form metal framing, miscellaneous metals, and metal buildings:

1. Size of Shop (sq. ft)?_____ Size of Warehouse Sq. ft.)_____No of Employees?___

2. Type of Equipment?

3. What type of steel components do you process? Structural beams, columns, etc.____, miscellaneous metals (stairs, landings, railing, etc.)____, roof and floor deck ____, bar joists ____, cold formed metal framing ____.

4. If awarded this project, do you have sufficient staff, equipment, materials, and storage space to meet established delivery schedules? Yes____ No_____. If no, what is lacking and what are the plans?

5. Approximate tons of steel processed last year? _____Tons.

6. Is this More____, Same _____, or Less_____ than last year?

7. What is the largest single project by tons that you can successfully process and complete?

_____Tons.

8. Do you specialize in any type of steel work or products?

9. Do you produce your own shop drawings? Yes ____ No_____
10 If yes, can they be stamped by a licensed professional engineer registered in the state of project location? Yes _____ No _____

11. Are you AISC Certified? Yes____ No____. A Member of SSPC Yes___ No___
12. Member of MBMA? Yes ____ No_____

13. Do you perform in-house shop painting? Yes____ No_____. If not, where is it done and how do you control quality and schedules?

14. What method of surface preparation do you use? Hand Tool____, Power Tool____, Sand blast____, Wheel-A-Brader___, Solvent Clean____

15. What method of shop painting? Spray____, Roller____, Brush____, Powder Coat____

16. Can you apply high performance shop primers? Inorganic Zinc____, Epoxy____

17. Do you perform in-house hot-dipped galvanizing? Yes____ No____

18. Do you process aluminum fabrications? Yes_____ No_____

19. Do you perform in house aluminum anodizing? Yes____ No____. If yes, Class 1 Yes___ No____

20. Please provide the following information in tabular format
    a. Current Projects: List Each Project Your Firm Is Presently Committed To; Location of Each Project; Expected Date of Completion for Each Project, Dollar Value of Each Project.

    b. Completed Projects Within Last Five Years, Especially Those Within 100 Miles Of The Project: Name of Project, Location of Project, Date Completed, Dollar Value of Project; General Contractor, Name and Telephone Number of Owner's Contact Person, Not an project not completed on time.

21. Do you purchase steel from American sources_____ or foreign sources_____. If purchased from foreign sources, what country? _____

22. What are your contingency plans if there are problems with steel deliveries?

23. Do you do your own steel erection? Yes____ No____. If no, who will you contract with to perform erection for this project?

24. When supplying cold-formed metal framing including roof trusses, do you do shop fabrication_____, site fabrication_____, both_____

PART 4 (Complete For Paint Substitutes)

1. Provide the following additional supporting information if this request is for a paint manufacturer.

a. Does the paint manufacturer have products and paint systems listed with the Master Painters Institute at the time of invitation or advertisement for bids for this project? Yes____ No____

b. Can the paint manufacturer provide published complete product performance data sheets for the specified products. These sheets shall be available at the time of invitation or advertisement for bids for this project? Yes____ No____ If no, how can performance criteria be compared?

c. Does the paint manufacturer have the production volume capacity to develop, produce and deliver the volume of paint and coatings required for this project within the required lead times to meet delivery dates without delaying the project? Yes____ No____

d. Is the paint manufacturer actively engaged in researching and developing its own paint and coating formulations? Yes____ No____ If no, why not? How is new technology incorporated?

e. Does the paint manufacturer specialize in manufacturing paint and protective coatings of the type specified for this project? Yes____ No____
If no, will the paint manufacturer actually produce the required products? Yes____ No____

f. Does the paint manufacturer employ a fully trained and experienced technical staff capable of providing necessary field support to investigate problems regarding surface preparation, application, and performance of supplied paints and coatings? Yes____ No____

g. Does technical staff shall have their own diagnostic equipment including dry film thickness gauges and adhesion gauges, etc. Yes____ No____

If yes, where is the technical specialist located, list the diagnostic equipment that is readily available and the experience in its use.
Technical Specialist:
Diagnostic Equipment:

If no, how are paint systems checked?

PART 5 (Complete For All Roof Substitutes)
Provide the following additional supporting information for all roofing requests for substitutes. Complete part 5 also for metal roofing.

1. Does the roof manufacturer of the proposed product maintain a Certification/Training Program and a network of Certified and Trained Roofing Contractors?
Yes ___No ___ If yes, how are roofing contractors certified? Is recertification required? If the certified installers leave the company, does the roofing contractor maintain certification?

2. Provide a list of certified contractors that will install the roof system for this project and the date they were certified.

3. Does the installer have a formal and written safety program? Yes_____ No____. If no, please explain.

4. What is the average annual dollar value of contracted work?

5. What is the present dollar value of contracted work in house?

6. Warranties

a. Does the roof system manufacturer have roof systems of the type specified currently in service for at least as long as the specified warranty period. Yes____ No_____

b. Does the roof system manufacturer have an established, dedicated, and verifiable source of funds, such as a warranty pool, dedicated for warranty claims.
Yes ___ No ___ If yes, what is the source of funds?

If no, why not?

c. Does warranty exclude damage from animal fat? Yes____ No_____

d. Does warranty exclude damage from wind up to and including 73 mph measured at the nearest weather station? Yes____ No_____

e. Does warranty exclude damage from hail up to and including 1-inch diameter hail measured at the nearest weather station when installed without using a rigid underlayment such as DensDeck or gypsum board? Yes____ No____.

f. Does warranty exclude damage from ponding water? Yes____ No____

g. Where periodic inspections are required, can the roof system manufacturer provide an inspector that is roof technical specialist that specializes in the type roof system to be installed and shall not be an employee, a representative, an owner, a holder, or a subsidiary of the Contractor, or the installer? This inspector shall also be a (Registered Roof Observer (RRO) and recognized and current member of RCI (Roof Construction Institute). Yes_____ No_____. If no, why?

7. Are all shop drawings prepared by roof manufacturer's employees and at the roof manufacturer's facilities and are the shop drawings sealed by a permanent, full time, direct employee of the roof manufacturer who is a registered professional engineer licensed in the state where the panels are to be installed? Yes ___ No ___

8. Will the roofing subcontractor that is contractually bound to the General Contractor actually perform all of the installation with its own labor forces or will the installation be subcontracted to another entity? Yes___ No____ If no, why? Remember, subcontracting by the roofing subcontractor is contrary to the specifications?

PART 6 (Complete For Metal Roof Manufacturer Substitutes)
Provide the following additional supporting information if this request is for a metal roof. Provide all requested certifications, proof, and supporting information with this submittal.

1. Is the metal roof manufacturer's product certified by the American Institute of Steel Construction (AISC)? Yes ___ No __ If yes, provide copy of mill certification.

2. Has the metal roof manufacturer been manufacturing proposed product for a minimum of 10 years? Yes ___ No ___ If yes, show proof.

3. Steel
   a. Will the metal roof manufacturer provide mill certified 50,000 minimum yield strength materials for this project? Yes___ No ___If yes, provide certification.
   If no, why not?

   b. Are roof panels fabricated from steel processed outside the United States? Yes ___ No ___

4. Does the metal manufacturer provide a low gloss finish (10%) to minimize oil canning? Yes ___No ___

5. Has the metal roof manufacturer's submitted product been tested and approved for the following minimum testing standards?
   UL-580 Class 90 Wind Uplift: Yes ___ No ___

   ASTM E-1680 Air Infiltration: Yes ___ No ___

   ASTM E-1646 Water Penetration: Yes ___No ___

   ASTM E-1592 Wind Uplift (Where Required): Yes ___No ___

   ASTM E-100 Class A Fire Resistance: Yes ___No ___
   If yes, provide verification and a copy of the test approval.

6. Warranty
   a. Does the metal roof manufacturer provide Third Party Inspection and Certification of completed systems for issuance of specified weather-tightness warranty?
   Yes ___ No ___ If yes, provide the name of the Third Party firm providing the inspections, and the organization they belong to. Either RCI (Roof Consultants Institute) or IRWC (Institute of Roofing and Waterproofing Consultants).

   If no, why not?

   b. Does the metal roof manufacturer offer a non-prorated single source weather-tight warranty for 20 years covering all materials they provide?
   Yes ___No___ If yes, provide a copy of the warranty.
   If no, why not?

   c. What is the limit of liability by the metal roof manufacturer for the proposed weather-tight warranty? Does this include panels, flashing, valleys, side laps, end joints, ridges, closures, gutters, downspouts, internal gutters, accessories, etc.? Yes ___No ___. If no, why not?

What is excluded from the warranty?

d. Does warranty include all materials and the labor required to replace these materials? Yes ___No ___ If no, why not?

7. The metal roof manufacturer certifies that required metal roofing panels can be delivered to the project site so as to not interrupt or delay the construction progress or schedules or the work of other trades. Yes_____ No_____.

8. Is the finish a pass-through type warranty? YES____ NO_____. If yes, will you subrogate directly with the finish manufacture to expedite resolution for valid finish warranty claims or assume responsibility for the balance of the term of the finish warranty if the finish manufacturer is no longer in business? YES___ NO_____. If no, explain.

PART 7 (Complete For Metal Roof Installers)

1. Has the installer been trained, qualified, certified, and approved by the metal roof panel manufacturer prior to the date of Advertisement or Invitation for Bids for this project? Yes_____ No_____. Submit proof of date of certification and names of certified individuals
2. Will installer maintain a factory trained and certified installer on the project site at all time when roofing operations are being conducted? Yes_____ No_____.
3. Will the installer maintain a full-time non-working supervisor/foreman on the job site during times that roofing work is in progress and who is experienced in installing roofing systems similar to type and scope required for this Project? Yes_____ No_____.
4. Has the installer successfully completed a minimum of 5 roof projects of the size and complexity as that specified using roof materials provided by the manufacturer of the roof panels to be installed on this project? Yes_____ No_____. Submit proof.
5. Does the installer have 7 continuous years experience specializing in the specified roofing system? Yes_____ No_____. Submit proof.

6 Has the installer operated under the same name for at least 5 years? Yes_____ No_____. Submit proof.

7. Does the installer presently have the staff and equipment on board to perform the contracted work? Yes_____ No_____.
8. Has the installer been refused a bond in the last 5 years? Submit proof. Yes_____ No_____.
9. Will the installer purchase the entire roof system, as defined in the specification, directly from the manufacturer or manufacturer's authorized distributor? Yes_____ No_____.
10. Will the installer install the entire roof system with own forces? For the purpose of this Contract, the installer's own employees are considered employees for which the installer contributes directly to and is directly financially responsible for the following employee expenses:
    a. All Federal, State and Local Taxes
    b. Social Security
    c. Insurance
    d. Workers Compensation
    e. Holidays
    f. Vacations

g. Sick Time
h. Retirement
Yes_____ No_____.

11. Has the installer ever had a roofing system manufacturer's certification revoked because of unsatisfactory performance? Yes_____ No_____.
12. Has the installer completed at least 80% of projects on time and under budget? Yes_____ No_____.
13. Will the installer respond to Owner's request for repair work within 24 hours of notification? Yes_____ No_____.
14. Has the installer ever filed for protection under either Chapter 7 or 11 of the US Bankruptcy Laws within last 5 years under this name or any other name? Yes_____ No_____.
15. Does the installer have verifiable means to provide necessary funds to honor contractor's 2-year warranty? Yes_____ No_____. Submit proof.
16. Will installer submit, with the bid package, a letter from the metal roof system manufacturer stating the dates the installer was certified and dates the installer attended manufacturer's installation schools prior to full certification, and as a minimum, the foreman of the crew installing the roof system has attended the manufacturer's factory school prior to the project being bid? Yes_____ No_____.
17. The installer certifies that metal roofing installation performed under this contract will not interrupt or delay the construction schedules or the work of other trades. Yes_____ No_____.

ASBESTOS FREE CERTIFICATION

For
Jesse Boyd Elementary School
Kitchen Hood Replacement
Spartanburg School District Seven
Spartanburg, South Carolina

This is to certify that the material furnished and/or installed by the undersigned subcontractor/vendor during the project, further described by McMillan Pazdan Smith Architecture Drawings and Specifications, contains no asbestos fibers.

Subcontractor/Vendor _____

Trade/Material Supplied: _____
_____

Date: _____

Certified by: _____

Title: _____

MOISTURE CONTROL CERTIFICATION

For
Jesse Boyd Elementary School
Kitchen Hood Replacement
Spartanburg School District Seven
Spartanburg, South Carolina

This is to certify that the below listed Contractor has read, understands, and has complied with the following requirements described in this Project Manual:

1. Using the Owner's HVAC system during construction, if permitted, as described in Division 1 General Requirements.
2. A Moisture Control Meeting was conducted in accordance with Division 1 Specification – Project Meetings and responsible entities reviewed all applicable drawings, details, shop drawings, and manufacturer's data for conflicts, compatibility, and coordination problems during installation. Discussion topics included, but were not limited to, the following:
    1. Reviewing installation details
    2. Delivery problems
    3. Keeping materials dry
        a. Methods
        b. Definition of wet materials
        c. Disposition of wet materials
        d. Wet materials are to be removed and not installed
    4. Below grade waterproofing and backfilling
        a. Coordination with other trades
        b. Drain pipe
        c. Backfill
    5. Through-wall flashing and Weeps
        a. Location
        b. Inspection and photos
        c. Joints and seams
        d. End dams
        e. No patching
        f. Cavity clearance and cleanliness
    6. Setting windows
        a. End dams
        b. Sealing
        c. Slope and drainage
    7. Window flashing
        a. End dams
        b. Sealing
        c. Slope and drainage
    8. Protecting roof membrane
        a. Cigar/cigarette butts
        b. Foot traffic
        c. Coordination with other trades
    9. Acclimatizing the building
    10. Installing carpentry, woodwork and casework
    11. Installing wood, drywall, insulation, and painting

3. Provide the following information regarding the Moisture Control Meeting. This form is not complete without the requested information:

Meeting Date:
Meeting Location:
Meeting Moderator or Coordinator:
List of Attendees

Meeting Minutes

The Contractor further certifies that

1. All sub-contractors, including all tiers of sub-contractors and all suppliers were given copies of these requirements.
2. All construction disciplines, trades, and entities complied with all moisture control and intrusion provisions stipulated, implied, or inferred in the Contract Documents.

General Contractor: _____
Address: _____
_____
_____

Contractor's License Number: _____

By: _____

Title:_____

Date: _____

Phone Number: _____

Submit this executed Moisture Control Certification at Substantial Completion. Application For Payment will not be processed without this completed and signed form.

CERTIFICATION OF SITE VISIT

FOR

Jesse Boyd Elementary School
Kitchen Hood Replacement
Spartanburg School District Seven
Spartanburg, South Carolina

OWNER: Spartanburg School District Seven

I, _____, certify that the following listed representatives of _____ visited the project site on the listed dates, and we have completely evaluated and fully understand the existing conditions, Scope of Work, and have read and fully comprehend the Contract Documents relative to the Work to be completed as described in the Contract Documents.

Name of General Contractor: _____
Signature: _____
Date: _____

Coordinate and arrange for site visits with Donald L. Love, Jr. of McMillan Pazdan Smith at dlove@mcmillanpazdansmith.com.

Conflicts between existing conditions and the Contract Documents are noted.

PROJECT SITE VISIT

1.
Representative: _____Date of Visit:_____
Noted Conflicts With Contract Documents:

SECTION 01 10 00 – SUMMARY OF WORK

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Work covered by Contract Documents.
2. Type of Contract.
3. Work phases.
4. Work under other contracts.
5. Products ordered in advance.
6. Owner-furnished products.
7. Specification formats and conventions.

B. Related Sections include the following:

1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 WORK COVERED BY CONTRACT DOCUMENTS

1. The Work consists of a kitchen hood replacement for Jesse Boyd Elementary School.
    - Selective Demolition of Ceiling finishes and roofing
    - Plaster ceiling repairs
    - Painting
    - Roof repairs
    - Electrical for kitchen hood
    - Mechanical for kitchen hood
    - Kitchen hood installation

1.4 TYPE OF CONTRACT

A. Project will be constructed under a single prime Contract.

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

1.5 WORK PHASES, SCHEDULE OF WORK AND STAFFING REQUIREMENTS

Begin work on receipt of Notice to Proceed. Notice to Proceed may be issued after a 16 day waiting period and School Board approval.

Substantial Completion: August 1, 2021

Complete punch lists not more than 30 days after Punch List is issued by Architect.

1.6 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 48-division format and CSI/CSC's "MasterFormat" numbering system.

1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because not all available Section numbers are used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.

B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. The Architect will interpret words and meanings. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase. Retain this Article only when Project is subject to unusual general requirements that do not belong elsewhere but that affect entire Project. See Evaluations for model text. Delete Article if no unusual requirements.

PRODUCTS (Not Used)

EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 14 00 - WORK RESTRICTIONS

PART 1 - GENERAL

1.1 SUMMARY

A This section of the Specifications includes but is not limited to the following:
1. Contractor's use of the premises
2. Owner's use of the premises
3. Background checks
4. Substance abuse
5. Contractor Conduct

1.2 DEFINITIONS

A. Contractor: As defined in AIA Document A201, General Conditions of the Contract.

B. Subcontractor: Any contractor, consultant, individual, or other entity that has its contract directly with the (primary) Contractor. Subcontractors are responsible for the implementation of the safety, health, and environmental requirements of this program for the work to be done by their own employees as well as any work done by their subcontractors. For the purposes of this program, a contractor may be either a Subcontractor or Sub-Subcontractor or consultant.

C. Sub-Subcontractor: Any contractor, sub-contractor, consultant, individual, or other entity working for a Subcontractor (has other contractors under contract to perform work on the site of this project). They shall also be responsible for all provisions specified in this program.

D. Owner: As defined in the Contract Documents.

E. Architect: As defined in AIA Document A201- General Conditions of the Contract.

1.3 RELATED DOCUMENTS

A. Drawings, general provisions of the Contract, including General Conditions, other Division 1 Specification Sections, and all other contract bid documents apply to this Section.

1.4 CONTRACTOR'S USE OF PREMISES

A. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

B. Maintain the existing building in a weather tight condition throughout construction. Repair damage caused by construction operations. Take precautions necessary to protect the building during the construction period.

C. Keep accesses, drives, parking lots, and side streets clear.
1. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize requirements for storage of materials.
2. Schedule deliveries to minimize use of driveways and entrances.
3. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

D. All fire exits from the building, as determined by the architect, must be maintained during construction unless noted otherwise on the drawings. Construction of fences and/or tunnels to maintain these exits is the responsibility of the General Contractor.

E. Contractor will be required to wear badges with the employee's name and company name clearly indicated on the badge. No access to the interior of the building is permitted without coordination with SSD 7 and the school staff. Check-in with school personnel is required on a daily basis.

1.5 OWNER'S USE OF PREMISES

1. If, in the opinion of the Architect, the General Contractor does not properly water tight the building from the elements – the Owner maintains the right to call in a third party Industrial Hygienist for the purpose of evaluating the infiltration of moisture. This Industrial Hygienist will prepare a report of corrective action necessary to prevent future mold and mildew issues and the General Contractor is solely responsible for the corrective action necessary, as well as all costs associated with the services of the Industrial Hygienist and any additional surface or air quality testing fees that may be required to insure a safe building. No finishes, including drywall work are to commence until the building is permanently enclosed.
2. Partial Occupancy: The Owner reserves the right to occupy and to place and install equipment in completed areas of building, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute partial or full acceptance or approval of the total Work or any portion of the Work.
3. In the event the Contractor fails to meet the approved schedule and this failure to meet the scheduled completion dates affect the delivery of Owner furnished furniture and / or equipment – the Owner has the right (at the sole expense of the contractor) to procure the services of security guards to protect furniture and / or equipment that has been delivered to the project until such time as contractor has met the requirements for the Owner's permanent occupancy of the building (Substantial Completion). The Contractor further agrees that they will pay for all handling, shipping and storage costs associated with the storage of furniture and equipment that cannot be delivered and placed in the building due to the Contractor's failure to meet the scheduled completion dates.

1.6 BACKGROUND CHECKS

A. The Contractor shall be responsible and liable for the conduct and actions of their employees and all individuals working under them.

B. The Owner may, at any time, request verification of criminal background investigation for any employee or subcontractor on Owner's property.

1.7 SUBSTANCE ABUSE

A. General
1. The use of any type of tobacco product on the Owner's property is prohibited. Workers will be asked to leave the site for the balance of the day on their first offense. Workers will be asked to permanently leave the site after the second offense.

2. The Contractor shall remind employees that remaining "drug/alcohol-free" is a condition of employment for this Project. Alcohol and illegal drug use pose a serious threat to workplace safety and health.

3 The General Contractor shall implement and enforce a Drug and Alcohol Free Workplace Substance Abuse Program for all personnel on this project. This includes, but is not limited to, educating all employees on the project on the requirements of the Drug Free Workplace Program for this project. Copies of this program shall be maintained on site for review by the Owner.

4. As a minimum, the program shall include the following:
   a. The use, possession, sale, transfer, acceptance, or purchase of illegal drugs and/or controlled substances at any time is strictly prohibited except prescription medications as legally prescribed by a physician. The use, possession of an open container, personal sale, transfer or acceptance of alcohol on the construction project property or while performing business is strictly prohibited. Any violation of this policy will be grounds for immediate termination and may result in a report to the appropriate law enforcement authorities.

   b. Prescription drugs shall not be used by any person other than the individual to whom it is prescribed. Such substances or non-prescription (over-the-counter) drugs shall be used only as prescribed or indicated. Employees shall be removed from the project if the side effects of prescription drugs adversely affect the safe completion of their work activity. Employees should be encouraged to discuss with their supervisor and physician any effects of medication that could adversely affect their safety or the safety of others on the project.

   c. Employees of Contractors may be tested for substance abuse when involved in an incident that results in injury to them or cause injury to another employee or damage to property. A decision to test an individual for substance abuse following an incident will be based on an objective evaluation of observable signs of substance abuse regarding an individual's behavior, appearance, speech or body odor. This decision will be made by or in conjunction with a medical professional or other individual with the knowledge to recognize the signs of substance abuse.

   d. Employees who fail a drug or alcohol test shall not be allowed to work on the this project or enter the Owner's property 60 days.

   e. The all entities shall implement a drug-free work place program that is consistent with this program.

1.8 CONTRACTOR CONDUCT

A. The Contractor shall acknowledge and respect the Owner's working environment.

B. To the greatest extent possible, no one shall interact with member of the student body.

C. Abusive or offensive language, or gestures, in dealing with members of the student body, faculty, staff, or visitors to the campus or project site, is unacceptable behavior and will not be tolerated. No one shall make sexually suggestive comments or gestures to anyone on or near (passer-by) this job site. Sexual harassment in any form, whether verbal, visual, physical, or emotional, which is threatening or harmful, both physically or mentally, to a second party of another gender or same gender; or so perceived by a third party is unacceptable and will result in immediate termination.

D. All personnel shall be fully dressed at all times including but not limited to shoes, socks, pants and at least a full "T" shirt. Tank tops are not allowed. No article of clothing shall display any graphic that may be construed as obscene, distasteful, or disrespectful.

E. No one shall use profane language.

F. No one may consume food or drinks anywhere within the project site except in designated approved areas; smoking is not permitted on the project site.

G. Certain areas of the building/site complex not under this renovation shall be off limits to all workers.

H. The Owner reserves the right to recommend removal or termination of any one who violates these conditions.

PART 1 - PRODUCTS (Not Used)

PART 2 - EXECUTION (Not Used)

END OF SECTION 01 14 00

SECTION 01 21 00 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements governing allowances.

1. Selected materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.

B. Types of allowances include the following:

1. Lump-sum allowances.

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

1. Division 1 Section "Modification Procedures" specifies procedures for submitting and handling Change Orders.
2. Division 1 Section "Quality Control Services" specifies procedures governing the use of allowances for inspection and testing.

1.3 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise the Architect of the date when the final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.

B. At the Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by the Architect from the designated supplier.

1.4 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.

B. Submit invoices or delivery slips to show the actual quantities of materials delivered to the site for use in fulfillment of each allowance.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly upon delivery for damage or defects.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Contingency Allowance: Contractor shall include in his base bid the lump sum of $50,000.00 to be used by the School District and the Architect. Items charged to the contingency allowance shall not be included in or considered for the general contractor's overhead and profit.

For all allowances, any money remaining after the procurement of the allowance item is complete shall be transferred to the contingency allowance and not subject to contractor overhead and profit.

For all allowances, the architect / owner will receive proposals from outside subcontractors and shall assign the contract of the successful bidder to the general contractor for administration and coordination. Items charged to the allowance are not subject to contractor overhead and profit.

END OF SECTION 01 21 00

SECTION 01 25 00 – SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

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

1. AIA A701 Instructions To Bidders
2. Division 01 Section "References" specifies the applicability of industry standards to products specified.
3. Division 01 Section "Submittal Procedures" specifies requirements for submitting the Contractor's construction schedule and the Submittal Schedule.
4. Division 01 Section "Product Requirements" specifies requirements governing the Contractor's selection of products and product options.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for handling substitution requests, that do to extenuating circumstances as determined collectively by the Owner and the Architect, require a substitution to be made after award of the Contract. Examples of extenuating circumstances include, specified product is no longer manufactured or available, change in Project scope or design renders the specified product unusable. Failure to account for adequate ordering lead time does not constitute extenuating circumstances.

1. Submittals shall comply with provisions and requirements of the Instructions To Bidders.
2. Substituting products and manufacturers after Contract Execution is allowed when extenuating circumstances arise that require consideration of requesting substitutes for specified products.
3. Substitute product shall be consistent with, comply with and meet the intent of the Contract Documents and shall not increase Contract sum or Contract time.

1.3 DEFINITIONS

A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents.

B. Substitutions: Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor. The following are not considered to be requests for substitutions:

1. Substitutions requested during the bidding period, and accepted by Addendum prior to award of the Contract, are included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
2. Revisions to the Contract Documents requested by the Owner or Architect.

3. Specified options of products and construction methods included in the Contract Documents.
4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

A. Substitution Request Submittal: Submit 3 copies of request for consideration, using the Substitution Request Form in Division 00 of Project Manual.

1. Timing: The Architect will consider requests for substitution if received within 60 days after commencement of the Work and the request complies with requirements specified elsewhere in this Project Manual.
2. Requests received more than 60 days after commencement of the Work may be considered or rejected at the discretion of the Architect.
    a. Where the Contract Documents list at least three entities, the Architect reserves the option to reject request for a substitute.
    b. Where the Contract Documents list only one entity without “Or equal” or similar language, a substitute will not be considered.
    c. Where the Contract Document lists less than 3 entities, a substitute may be reviewed and evaluated on an individual basis.

3. Performance Criteria: Meet or exceed the minimum performance criteria called for in the Specifications and those published by the manufacturer of the specified item even if they are not specifically mentioned in the Specifications. Submittals not complying with this provision will be considered incomplete, unacceptable, and will not be reviewed.

4. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
    a. Identify the product or the fabrication or installation method to be replaced. Include related Specification Section and Drawing numbers.
    b. Statement indicating why specified material or product cannot be provided.
    c. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
    d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, necessary to accommodate proposed substitution.
    e. Product data: Manufacturer’s published description, capabilities, operating and performance parameters, options, accessories.
    f. Performance Criteria: Detailed comparison of significant qualities of proposed substitute with those of the Work specified. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated. Prepare supporting date in tabular form showing the submitted criteria next to the each specified performance criteria.
    g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
        1) Reports shall be based on same tests and standards and with the values and results in the same units of measure as those shown for the specified item.

h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
i. Samples, where applicable or requested.
j. Cost information, including a proposal of the net change, if any in the Contract Sum.
k. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
l. The Contractor's certification that the proposed substitution conforms to requirements in the Contract Documents and is appropriate for the applications indicated.
m. The Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure to produce indicated results.

5. Products of manufacturers other than those specified may be acceptable, however, manufacturers capable of providing specified products shall not, for convenience of their normal production methods, vary from the specified product.
6. Architect's Action: If necessary, the Architect will request additional information or documentation for evaluation within one week of receipt of a request for substitution. The Architect will notify the Contractor of acceptance or rejection of the substitution within 2 weeks of receipt of the request, or one week of receipt of additional information or documentation, whichever is later. Acceptance will be in the form of a change order.

a. Form of Acceptance: Change Order.
b. Use the product specified if the Architect cannot make a decision on the use of a proposed substitute within the time allocated.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Conditions: The Architect will consider the Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, the Architect will return the requests without action except to record noncompliance with these requirements.

1. The request complies with **all** of the following conditions:

a. Extensive revisions to the Contract Documents are not required.
b. Requested substitution is consistent with the Contract Documents and will produce indicated results.
c. Requested substitution is compatible with other portions of the Work.
d. Requested substitution has been coordinated with other portions of the Work.
e. Requested substitution provides specified warranty.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to contractors involved.
h. Requested substitution will not adversely affect Contractor's construction schedule.
i. The request is timely, fully documented, and properly submitted, and

2. The request complies with **one** of the following conditions:

a. The specified product or method of construction cannot be provided within the Contract Time. The Architect will not consider the request if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
b. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
c. The requested substitution offers the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner must assume. The Owner's additional responsibilities may include compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.
d. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
e. The specified product or method of construction cannot be provided in a manner compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.
f. 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.
g. 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 provides the required warranty.

3. The Architect will not consider substitutions for materials not ordered properly or when the ordering was not adjusted for lead time. Where a specified product or material cannot be delivered in time for reasons beyond the control of the Contractor, submit the following with the Request For substitution. Requests without the following information will be denied:

a. Statement from the supplier that the specified products or materials cannot be provided in sufficient time to be incorporated in to the Work.
b. Statement from the supplier as to the normal lead time required for the specified products or materials and that this lead is common knowledge in the industry.
c. Statement from the supplier that the specified products or materials were ordered within the normal lead-time. If the specified products or materials were not ordered within the normal lead time, provide a statement from the supplier as to the date the Contractor initially inquired about the specified products or materials, the date the order was placed by the Contractor, and the date the order was received by the supplier.

B. Final approval of the substitute shall be determined at final completion of the Project. Failure to provide equivalent substitutes in appearance, function, and performance to that specified, may result in removal of the substitute and installation of approved product at Contractor's expense.

C. Unapproved Products:

1. Product, material, component, or system that is not listed in the Specifications or was not approved by addendum during the Bidding Phase and is installed on this Project without the written approval of the Architect may, at the Architect’s discretion, be subject to removal and replacement with a specified product, material, component, or system. Costs, including Project delays, the Architect’s expenses, additional testing/inspection, associated with this removal and replacement shall be at the Contractor’s expense.
2. Shop drawings: Submitting unapproved products, materials, components, or systems on shop drawings is not an acceptable approval procedure. The Contractor's submittal and

the Architect's acceptance of shop drawings, product data, or samples for construction activities not complying with the Contract Documents do not constitute an acceptable or valid request for substitution, nor do they constitute approval. Products, materials, components, or systems that were not previously approved by the Architect and are submitted on the shop drawings are also subject to removal at the Contractor's expense even thought the shop drawing containing an unapproved product, material, component, or system has been approved by the Architect.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 25 00

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for handling and processing Contract Modifications.

B. Related Sections include the following:
   1. Division 01 Section "Product Requirements" for administrative procedures for handling requests for substitutions made after Contract award.
   2. Division 1 Section "Submittal Procedures" for requirements for the Contractor's construction schedule.
   3. Division 1 Section "Payment Procedures" for administrative procedures governing Applications for Payment.
   4. Division 1 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after award of the Contract.

1.3 MINOR CHANGES IN THE WORK

A. Minor changes in the Work are defined as instructions or interpretations that do not affect the Contract Sum or Contract Time.

B. The Architect will have the authority to issue supplemental instructions authorizing Minor Changes in the Work, and will do so on AIA Document G710, "Architect's Supplemental Instructions".

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: The Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

   1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop Work in progress or to execute the proposed change.
   2. Within 20 days after receipt of Proposal Request, unless specified otherwise, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

      a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.

b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
c. Include costs of labor and supervision directly attributable to the change.
d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

B. Contractor-Initiated Proposals: If latent or unforeseen conditions require Modifications to the Contract, Contractor may propose changes by submitting a request for a change to the Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Form: Use AIA Document G709 for Proposal Requests.

1.5 ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, base each Change Order proposal on the difference between purchase amount and the allowance, multiplied by final measurement of Work-in-place. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other margins claimed.
3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs because of a change in scope or nature of the allowance described in the Contract Documents, whether for the Purchase Order amount or Contractor's handling, labor, installation, overhead, and profit. Submit claims within 21 days of receipt of the Change Order or Construction Change Directive authorizing Work to proceed. Owner will reject claims submitted later than 10 days after such authorization.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

1.6 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, the Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.7 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: The Architect may issue a Construction Change Directive on AIA Document G714, in particular when the Owner and the Contractor disagree on the terms of a Proposal Request. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. A Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of Work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Sections include the following:
   1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
   2. Division 01 Section "Submittal Procedures" for administrative requirements governing preparation and submittal of Contractor's construction schedule and submittals schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's construction schedule.

   1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

      a. Application for Payment forms with Continuation Sheets.
      b. Submittals schedule.
      c. Contractor's construction schedule.
      d. List of subcontractors.
      e. Schedule of allowances.
      f. Schedule of alternates.
      g. List of products.
      h. List of principal suppliers and fabricators.

   2. Submit the Schedule of Values to the Architect at earliest possible date but no later than 7 days before the date scheduled for submittal of initial Applications for Payment.
   3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the Schedule of Values:

    a. Project name and location.
    b. Name of Architect.
    c. Architect's project number.
    d. Contractor's name and address.
    e. Date of submittal.

2. Submit draft of AIA Document G703 Continuation Sheets.
3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

    a. Related Specification Section or Division.
    b. Description of the Work.
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.
    e. Name of supplier.
    f. Change Orders (numbers) that affect value.
    g. Dollar value: Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training in the amount of 5 percent of the Contract Sum.
5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

    a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.

7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Allowances: Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

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

10. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

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

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

B. Payment Application Times: Submit progress payments to Architect by the 25th day of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.

C. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.

D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the Schedule of Values and Contractor's construction schedule. Use updated schedules if revisions were made. Submit schedule with Application for Payment, regardless of whether revised or not.
2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
3. Submit copies of invoices for each item of material/equipment listed in the Application For Payment. If material/equipment is stored off-site, submit certificate of insurance to substantiate that the materials/equipment are stored in a bonded warehouse.

E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. Each copy shall include waivers of lien and similar attachments.

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

1. List of subcontractors.
2. Schedule of Values.
3. Contractor's construction schedule (preliminary if not final).
4. Products list.
5. Schedule of unit prices.
6. Submittals schedule (preliminary if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's Subcontractors.
9. Copies of building permits.
10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
11. Initial progress report.
12. Report of preconstruction conference.
13. Certificates of insurance and insurance policies.
14. Performance and payment bonds.
15. Data needed to acquire Owner's insurance.
16. Initial settlement survey and damage report if required.

G. Application for Payment at Substantial Completion: After issuance of the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

H. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Transmittal of required project construction records to Owner.
10. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)
PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 00 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. Coordination Drawings.
2. Administrative and supervisory personnel.
3. Construction progress documentation including Construction Schedules and construction reports.
4. Preconstruction and periodic construction photographs required in other sections.
5. Requests for Information (RFIs).

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.

C. Related Sections include the following:

1. Division 01 Section "Project Meetings" for submitting and distributing meeting and conference minutes.
2. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Division 01 Section "Payment Procedures" for submitting the Schedule of Values.
4. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
5. Division 01 Section "Quality Requirements" for submitting a schedule of tests and inspections.
6. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.
7. Division 02 Section "Selective Structure Demolition" for photographic documentation before selective demolition operations commence.

D. The Specifications may contain materials, products, equipment, or procedures that are not applicable to this Project. Refer to the Drawings for materials, products, and equipment applicable to this Project. Materials, products, equipment, or procedures that are not shown or indicated on the Drawings or in the Specifications, but would be inferred as being required by a person who is competent and experienced in the applicable trade/s, shall be furnished and installed to ensure a quality, complete and fully functional installation. If there is a question regarding the applicability of a material, product, equipment, or procedure on the Drawings or in the Specifications, contact the Architect for an Information at least 10 days prior to date of Bid Opening.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Event: The starting or ending point of an activity.

E. Major Area: A story of construction, a separate building, or a similar significant construction element.

F. Milestone: A key or critical point in time for reference or measurement.

G. RFI: Request from Contractor seeking information or clarification of the Contract Documents.

1.4 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, which depend on each other for proper installation, connection, and operation.

1. 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.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of components, including mechanical and electrical.
3. Coordinate temporary enclosures with required inspections and tests to minimize the necessity of uncovering completed construction for that purpose.
4. Make adequate provisions to accommodate items scheduled for later installation.
5. Schedule construction operations in sequence where installation of one part of the Work depends on installation of other components, before or after its own installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

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

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.

1.5 SUBMITTALS

A. Submittals schedule: Submit 3 copies of schedule. Arrange the following information in a tabular format:

1. Scheduled date for first submittal.
2. Specification Section number and title.
3. Submittal category (action or informational).
4. Name of subcontractor.
5. Description of the Work covered.
6. Scheduled date for Architect's final release or approval.

B. Preliminary construction schedule: Submit 2 opaque copies.

1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.

C. Contractor's construction schedule: Submit 2 opaque copies of initial schedule, large enough to show entire schedule for entire construction period.

D. Contractor’s Statement of Responsibility: As required in IBC, Section 17.

E. Field Condition Reports: Submit 2 copies at time of discovery of differing conditions.

F. Special Reports: Submit 2 copies at time of unusual event.

G. Coordination Drawings: Prepare Coordination Drawings for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.

1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:

    a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
    b. Indicate required installation sequences.
    c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

2. Sheet Size: At least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
3. Number of Copies: Submit 1 opaque and 1 electronic pdf copy of each submittal. Architect will return 1 copy.

    a. Where Coordination Drawings are required for operation and maintenance manuals, mark up and retain 1 returned copy as a Project Record Drawing.

4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.

H. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including cell and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.

1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current.

1.6 ADMINISTRATIVE AND SUPERVISORY PERSONNEL

A. General: In addition to Project superintendent, provide other administrative and supervisory personnel required for proper performance of the Work.

1. Include special personnel required for coordination of operations with other contractors.

1.7 CONSTRUCTION SCHEDULES

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's construction schedule with the Schedule of Values, list of subcontracts, submittals schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from parties involved.

2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.8 REQUESTS FOR INFORMATION (RFIs)

A. Procedure: Immediately on discovery of the need for clarification of the Contract Documents, and if not possible to request information at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing Information and the following:

1. Project name.
2. Date.
3. Name of Contractor.
4. Name of Architect.
5. RFI number, numbered sequentially.
6. Specification Section number and title and related paragraphs.
7. Drawing number and detail references.
8. Field dimensions and conditions.
9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
10. Contractor's signature.
11. Attachments: Include drawings, descriptions, measurements, photos, product data, shop drawings, and other information necessary to fully describe items needing Information.
    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.
12. Software-Generated RFIs: Software-generated form with substantially the same content as AIA Form G716.
    a. Attachments shall be electronic files in Adobe Acrobat PDF format.
    b. Identify each page of attachments with the RFI number and sequential page number.

C. Architect's Action: Architect will review each RFI, determine action required, and return it.

1. The following RFIs will be returned without action:
    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for coordination information already indicated in the Contract Documents.
    d. Requests for adjustments in the Contract Time or the Contract Sum.
    e. Requests for information of Architect's actions on submittals.
    f. Incomplete RFIs or RFIs with errors.

2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

    a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

D. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request.
9. Identification of related Field Order, Work Change Directive, and Proposal Request.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.

1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with preliminary schedule. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead-time for manufacture or fabrication.
3. Indicate the following:

    a. Scheduled date for the first submittal.
    b. Related Section number.
    c. Submittal category (shop drawings, product data, or samples).
    d. Name of the subcontractor.
    e. Description of the part of the Work covered.
    f. Scheduled date for resubmittal.
    g. Scheduled date for the Architect's final release or approval.

4. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."

B. Time Frame: Extend schedule from date established for commencement of the Work to date of Final Completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittals schedule.
4. Startup and Testing Time: Include not less than 15 days for startup and testing.
5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
6. Work Restrictions: Show the effect of the following items on the schedule:

a. Coordination with existing construction.
b. Limitations of continued occupancies.
c. Uninterruptible services.
d. Partial occupancy before Substantial Completion.
e. Use of premises restrictions.
f. Provisions for future construction.

g. Seasonal variations.
h. Environmental control.

7. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:

a. Structural completion.
b. Permanent space enclosure.
c. Completion of mechanical installation.
d. Completion of electrical installation.
e. Substantial Completion.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion**.**

F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall Project schedule.

G. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules and works with currently available Windows operating system.

2.3 PRELIMINARY CONSTRUCTION SCHEDULE

A. Bar-Chart Schedule: Submit preliminary horizontal bar-chart-type construction schedule within 7 days of date established for commencement of the Work.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 60 days of construction. Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

2.4 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's construction schedule within 30 days of date established for commencement of the Work. Base schedule on the Preliminary construction schedule and whatever updating and feedback was received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require 3 months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.5 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events (refer to special reports).
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Partial Completions and occupancies.
19. Substantial Completions authorized.

B. Material Location Reports: At monthly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site.

C. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.6 SPECIAL REPORTS

A. General: Submit special reports directly to Owner within 1 day of an occurrence. Distribute copies of report to parties affected by the occurrence.

B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Employ skilled personnel or outside consultant with experience in scheduling and reporting techniques.

B. Meetings: Individual responsible for scheduling shall attend meetings related to Project progress, alleged delays, and time impact.

C. Contractor's construction schedule updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate Actual Completion percentage for each activity.

D. Distribution: Distribute copies of approved schedule to Architect**,** Owner, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

SECTION 01 31 19 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for project meetings including, but not limited to, the following:

1. Preconstruction conferences.
2. Preinstallation conferences.
3. Moisture coordination meeting.
4. Ceiling coordination meeting.
5. Project meetings.

B. Related Sections include the following:

1. Division 01 Section "Project Management & Coordination" for a description of the division of Work among separate contracts and responsibility for coordination activities not in this Section, for preparing and submitting Contractor's construction schedule.
2. Division 01 Section "Submittal Procedures" for procedures for submitting the Contractor’s construction schedule.

C. The following sections specify requirements for a preinstallation conference:
1. Division 06 Section “Millwork and Laminated Plastic Casework”
2. Division 08 Section “Door Hardware”
3. Division 09 Section “Gypsum Board Assemblies”
4. Division 09 Section “Acoustical Tile Ceilings”
5. Division 09 Section “Resilient Tile Flooring”
6. Division 09 Section “Painting”

1.3 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to invited attendees.
3. Minutes: Have an experienced note-taker record and type complete and accurate meeting minutes for scheduled and unscheduled meetings that pertain to the Project, regardless of who called or scheduled the meeting. Record significant discussions and agreements achieved. Organize the minutes of the proceedings in chronological order.

Distribute the meeting minutes to everyone concerned, including Owner and Architect, within 72 hours of the meeting.

4. Minutes shall include, but are not limited to the items listed below.

    a. Convening time, date, and place
    b. Attendees
    c. Discussion topics and how initiated
    d. Action items and person responsible for item
    e. Key events
    f. Decisions made and by whom
    g. Unresolved issues and disposition of those issues

1.4 PRECONSTRUCTION CONFERENCE

A. Schedule a preconstruction conference before starting construction, at a time convenient to Owner, and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for RFIs.
    g. Procedures for testing and inspecting.
    h. Procedures for processing Applications for Payment.
    i. Distribution of the Contract Documents.
    j. Submittal procedures.
    k. Preparation of Record Documents.
    l. Use of the premises and existing building.
    m. Work restrictions.
    n. Owner's occupancy requirements.
    o. Responsibility for temporary facilities and controls.
    p. Construction waste management and recycling.
    q. Parking availability.
    r. Office, work, and storage areas.
    s. Equipment deliveries and priorities.
    t. First aid.
    u. Security.
    v. Progress cleaning.
    w. Working hours.

3. Minutes: Record and distribute meeting minutes.

1.5 PREINSTALLATION CONFERENCES

A. Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. The Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Review of mockups.
    i. Possible conflicts.
    j. Compatibility problems.
    k. Time schedules.
    l. Weather limitations.
    m. Manufacturer's written requirements and recommendations.
    n. Project Specifications.
    o. Documentation requirements.
    p. Warranty requirements.
    q. Compatibility of materials.
    r. Acceptability of substrates.
    s. Temporary facilities and controls.
    t. Space and access limitations.
    u. Regulations of authorities having jurisdiction.
    v. Testing and inspecting requirements.
    w. Installation procedures.
    x. Coordination with other work.
    y. Required performance results.
    z. Protection of adjacent work.
    aa. Protection of construction and personnel.

3. Have an experienced person record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
5. Remind the manufacturer’s representative of provisions in the Contract Documents that require him/her to inspect not only for compliance with the manufacturer’s requirements but also compliance with the Specifications when Specifications are more stringent. Inspection reports shall include deviations from both manufacturer’s requirements and the Specifications. Provide the Manufacturer’s representative with a copy of the Project Specifications including Addenda.
6. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
7. A sample agenda with discussion topics for a pre-roofing conference is included at the end of this section.

1.6 MOISTURE COORDINATION MEETING

A. Conduct a moisture coordination meeting prior to installing any materials related to moisture intrusion.
   1. Complete the Moisture Certification Form and submit at Substantial Completion. Application For Payment will not be processed without the completed form.

B. Representatives of the following entities shall be in attendance: Architect, General Contractor, and installers of the HVAC, masonry, windows, waterproofing, damproofing, vapor retarder, and roofing. Representatives of the applicable materials manufacturers are encouraged to attend also. Attendee shall be qualified and authorized to make or suggest changes, modifications, or revisions to installation details.

C. Prior to convening this meeting, responsible entities shall review all applicable drawings, details, shop drawings, and manufacturer's data for conflicts, compatibility, and coordination problems during installation. Discussion topics include, but are not limited to, the following:
   1. Reviewing installation details
   2. Delivery problems
   3. Keeping materials dry
      a. Methods
      b. Definition of wet materials
      c. Disposition of wet materials
      d. Wet materials are to be removed and not installed
      e. Protection of lumber, treated and untreated
      f. Moisture content of treated lumber, KD to 16 percent
      g. Project thermometer and location
   4. Setting entrances and storefronts
      a. End dams
      b. Sealing
      c. Slope and drainage
      d. Inspection of opening by window manufacturer
   5. Installing carpentry, woodwork and casework
      a. Building in the dry
      b. Acclimating the building
      c. All wet work complete
   6. Installing drywall, insulation, and painting
      a. Building in the dry
      b. Acclimating the building
      c. All wet work complete
   7. Installing floor covering
      a. Testing substrate for moisture
      b. Relative humidity test
      c. Calcium chloride test
      d. Who conducts the test
      e. Procedures if moistures level are too high
      f. Importance of concrete mixes with low W:C ratio

1.7 PROGRESS MEETINGS:

A. Progress meetings will be held every two weeks. Coordinate dates of meetings with preparation of payment requests. Notify the Owner and the Architect of scheduled meeting dates.

   1. Attendees: In addition to representatives of Owner and Architect, each Contractor, subcontractor, supplier, and other entity concerned with current progress or involved in

planning, coordination, or performance of future activities shall be represented at these meetings. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion related to status of Project.

    a. Contractor's construction schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Work hours.
        10) Hazards and risks.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Status of correction of deficient items.
        14) Field observations.
        15) RFIs.
        16) Status of proposal requests.
        17) Pending changes.
        18) Status of Change Orders.
        19) Pending claims and disputes.
        20) Documentation of information for payment requests.
        21) Safety.
        22) Security.

3. Minutes: Record the meeting minutes.
4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.

    a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

B. Coordination Meetings: Conduct Project coordination meetings as required. Project coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences.

1. Attendees: In addition to representatives of Owner and Architect, each Contractor, subcontractor, supplier, and other entity concerned with current progress or involved in

planning, coordination, or performance of future activities shall be represented at these meetings. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress. Include topics for discussion related to status of Project.

    a. Combined Contractor's construction schedule: Review progress since the last coordination meeting. Determine whether each contract is on time, ahead of schedule, or behind schedule, in relation to Combined Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    b. Schedule Updating: Revise Combined Contractor's construction schedule after each coordination meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.
    c. Safety Issues.
    d. Review present and future needs of each contractor present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site utilization.
        8) Temporary facilities and controls.
        9) Work hours.
        10) Hazards and risks.
        11) Progress cleaning.
        12) Quality and work standards.
        13) Change Orders.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 19

SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Contractor's construction schedule.
2. Daily construction reports.
3. Field condition reports.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of the Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

1.3 SUBMITTALS

A. Format for Submittals: One paper copy.

B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working electronic copy of schedule, using software indicated, and labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.

C. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.

1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
3. Total Float Report: List of all activities sorted in ascending order of total float.
4. Earnings Report: Compilation of Contractor's total earnings from commencement of the Work until most recent Application for Payment.

D. Field Condition Reports: Submit at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

B. Coordinate Contractor's construction schedule with the schedule of values,list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for commencement of the Work to date of final completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
2. Startup and Testing Time: Include not less than 15 days for startup and testing.
3. Final Acceptance: Indicate completion in advance of date established for Final Acceptance, and allow time for Architect's administrative procedures.

C. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Work under More Than One Contract: Include a separate activity for each contract.
3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
4. Work Restrictions: Show the effect of the following items on the schedule:

    a. Coordination with existing construction.
    b. Limitations of continued occupancies.
    c. Uninterruptible services.
    d. Use of premises restrictions.
    e. Provisions for future construction.
    f. Seasonal variations.
    g. Environmental control.

5. Work Stages: Indicate important stages of construction for each major portion of the Work.

D. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, and final acceptance.

1. Notify Architect and Owner 48 hours prior to planned milestone inspection.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

A. General: Prepare network diagrams using AON (activity-on-node) format.

B. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.

1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 60 days after date established for commencement of the Work.

    a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.

2. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
3. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to correlate with Contract Time.

C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the start-up network diagram, prepare a skeleton network to identify probable critical paths.

1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:

    a. Preparation and processing of submittals.
    b. Mobilization and demobilization.
    c. Purchase of materials.
    d. Delivery.

e. Fabrication.
f. Utility interruptions.
g. Installation.
h. Work by Owner that may affect or be affected by Contractor's activities.
i. Testing
j. Punch list and final completion.
k. Activities occurring following final completion.

2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.

    a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.

E. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:

1. Contractor or subcontractor and the Work or activity.
2. Description of activity.
3. Principal events of activity.
4. Immediate preceding and succeeding activities.
5. Early and late start dates.
6. Early and late finish dates.
7. Activity duration in workdays.
8. Total float or slack time.
9. Average size of workforce.
10. Dollar value of activity (coordinated with the schedule of values).

F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:

1. Identification of activities that have changed.
2. Changes in early and late start dates.
3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.

2.3 REPORTS

A. Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain or snow.
7. Accidents.
8. Meetings and significant decisions.
9. Unusual events.
10. Stoppages, delays, shortages, and losses.
11. Meter readings and similar recordings.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Services connected and disconnected.
17. Equipment or system tests and startups.
18. Final Acceptance authorized.

B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

B. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their

assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:

1. Submittal procedures.
2. Action submittals.
3. Information submittals.
4. Delegated design.

B. Related Sections include the following:

1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the Schedule of Values.
2. Division 01 Section "Project Management and Coordination" for submitting and distributing meeting and conference minutes, for submitting schedules and reports, including Contractor's Construction and Submittals Schedules, construction photographs and Coordination Drawings.
3. Division 01 Section "Quality Requirements" for submitting test and inspection reports and mockup requirements.
4. Division 01 Section "Closeout Procedures" for submitting warranties, Record Drawings and Record product data operation and maintenance manuals and demonstration of equipment and training of Owner's personnel.
5. Division 01 Section “References” for permits, certifications and similar documents.
6. Divisions 02 through 33 Sections for specific requirements for submittals in those Sections.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information that requires Architect’s responsive action.

B. Informational Submittals: Written information that does not require Architect’s responsive action. Submittals may be rejected for not complying with requirements.

C. Field samples: Full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials, used to establish the standard by which the Work will be judged.

D. Mockups: Full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

1.4 SUBMITTAL PROCEDURES

A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Coordinate each submittal with the applicable specification by clearly indicating, on each copy the submittal, the appropriate drawing number, specification number, and the specific product, material, equipment, or component that is applicable to the submittal. Submittals without this information will not be reviewed.
3. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

B. Submittals Schedule: Comply with requirements in Division 01 Section "Project Management and Coordination" for list of submittals and time requirements for scheduled performance of related construction activities.

C. Processing Time: Allow enough time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 10 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.

    a. Products in Specification Divisions 21 through 33.

5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 21 days for review of each submittal. Submittal will be returned to Architect, before being returned to Contractor.

    a. Products in Specification Divisions 21 through 33.

D. Identification: Place a permanent label or title block on each submittal for identification.

1. Indicate name of firm or entity that prepared each submittal on label or title block.
2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Include the following information on label for processing and recording action taken:

    a. Project name.
    b. Date.
    c. Name and address of Architect.
    d. Name and address of Contractor.

e. Name and address of subcontractor.
f. Name and address of supplier.
g. Name of manufacturer.
h. Submittal number or other unique identifier, including revision identifier.

1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 06 10 00.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 06 10 00.01.A).

i. Number and title of appropriate Specification Section.
j. Drawing number and detail references.
k. Location(s) where product is to be installed.
l. Other necessary identification.

E. Deviations: Highlight, encircle, or otherwise specifically identify deviations from the Contract Documents on submittals.

F. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
2. Additional copies submitted for maintenance manuals will not be marked with action taken and will be returned.

G. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will discard submittals received from sources other than Contractor.

1. Transmittal Form: Provide locations on form for the following information:

a. Project name.
b. Date.
c. Destination (To:).
d. Source (From:).
e. Names of subcontractor, manufacturer, and supplier.
f. Category and type of submittal.
g. Submittal purpose and description.
h. Specification Section number and title.
i. Drawing number and detail references.
j. Transmittal number, numbered consecutively.
k. Submittal and transmittal distribution record.
l. Remarks.
m. Signature of transmitter.

2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same label information as related submittal.

H. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.

2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked "No corrections noted".

I. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

J. Use for Construction: Use only final submittals with mark indicating "No corrections noted" taken by Architect.

1.5 CONTRACTOR'S USE OF ARCHITECT'S CAD FILES

A. General: At Contractor's written request, copies of Architect's CAD files will be provided to Contractor for Contractor's use in connection with Project, subject to the following conditions:

1. Complete the attached letter of waiver for CADD/Electronic File Transfer located at the end of this Section of the Specifications at the time files and documents are being requested on electronic media. Files on electronic media will not be delivered to the Contractor until receipt of this waiver.

2. Architect will charge a $100 per sheet service fee.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

A. General: Prepare and submit Action Submittals required by individual Specification Sections.

1. Submit electronic submittals directly to extranet specifically established for Project.

B. Product data: Collect information into a single submittal for each element of construction and type of product or equipment. 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.

1. Include the following information, as applicable:

a. Manufacturer's written recommendations.
b. Manufacturer's product specifications.
c. Manufacturer's installation instructions.
d. Material Safety Data Sheets (MSDS).
e. Standard color charts.
f. Manufacturer's catalog cuts.
g. Wiring diagrams showing factory-installed wiring.
h. Printed performance curves.
i. Operational range diagrams.
j. Mill reports.
k. Standard product operation and maintenance manuals.
l. Compliance with specified referenced standards.
m. Testing by recognized testing agency.
n. Application of testing agency labels and seals.
o. Notation of coordination requirements.

2. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as shop drawings, not as product data.
3. Mark each copy of each submittal to show which products and options are applicable. Where printed product data includes information on several products that are not required, mark copies to indicate the applicable information.
4. Submit product data before or concurrent with Samples.
5. Number of Copies: Submit 4 copies of product data, unless otherwise indicated. Architect will return 3 copies. Mark up and retain one returned copy as a Project Record Document.

    a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.

6. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.

    a. Do not proceed with installation until a copy of product data is in the Installer's possession.
    b. Do not permit use of unmarked copies of product data in connection with construction.

C. Shop drawings: Prepare Project-specific information, drawn accurately to scale. Do not base shop drawings on reproductions of the Contract Documents or standard printed data. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Standard information prepared without specific reference to the Project is not a shop drawing.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
    f. Shopwork manufacturing instructions.
    g. Templates and patterns.
    h. Schedules.
    i. Design calculations.
    j. Compliance with specified standards.
    k. Notation of coordination requirements.
    l. Notation of dimensions established by field measurement.
    m. Relationship to adjoining construction clearly indicated.
    n. Seal and signature of professional engineer if specified.
    o. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit shop drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches. Sheets in a set must be the same size.
3. Number of Copies: Submit 1 opaque (bond) copy and 1 electronic pdf copy of each submittal. Architect will return 1 opaque and 1 electronic pdf copy. Mark up and retain one returned copy as a Project Record Drawing.
4. Do not use shop drawings without an appropriate final stamp indicating action taken.

D. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:

    a. Generic description of Sample.
    b. Product name and name of manufacturer.
    c. Sample source.
    d. Number and title of appropriate Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

    a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
    b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

    a. Number of Samples: Submit 1 full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

    a. Number of Samples: Submit 3 sets of Samples. Architect will retain 1 Sample set; remainder will be returned. Mark up and retain one returned Sample set as a Project Record Sample**.**

        1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
        2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least 3 sets of paired units that show approximate limits of variations.

E. Product Schedule or List: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product.
2. Number and name of room or space.

3. Location within room or space.
4. Number of Copies: Submit 3 copies of product schedule or list, unless otherwise indicated. Architect will return 2 copies.

    a. Mark up and retain one returned copy as a Project Record Document.

F. Contractor's construction Schedule: Comply with requirements specified in Division 01 Section "Project Management and Coordination".

G. Submittals Schedule: Comply with requirements specified in Division 01 Section " Project Management and Coordination".

H. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

I. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

J. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references covered by subcontract.
4. Number of Copies: Submit 3 copies of subcontractor list, unless otherwise indicated. Architect will return 2 copies.

    a. Mark up and retain one returned copy as a Project Record Document.

2.2 INFORMATIONAL SUBMITTALS

A. General: Prepare and submit Informational Submittals required by other Specification Sections.

1. Number of Copies: Submit 2 copies of each submittal, unless otherwise indicated. Architect will not return copies.
2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Have certificates and certifications signed by an officer or other individual authorized to sign documents on behalf of that entity.
3. Test and Inspection Reports: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

C. Contractor's construction schedule: Comply with requirements specified in Division 01 Section " Project Management and Coordination".

D. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure

Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.

F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.

H. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

I. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.

K. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.

L. Research/Evaluation Reports: Prepare written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

1. Name of evaluation organization.
2. Date of evaluation.
3. Time period when report is in effect.
4. Product and manufacturers' names.
5. Description of product.
6. Test procedures and results.
7. Limitations of use.

M. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "Quality Requirements."

N. Preconstruction Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.

O. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.

P. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements specified in Division 01 Section "Closeout Procedures."

Q. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of

assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

R. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:

1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

S. Manufacturer's Field Reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:

1. Name, address, and telephone number of factory-authorized service representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

T. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

2.3 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Submittal: In addition to shop drawings, product data, and other required submittals, submit three copies of a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. No corrections noted
2. Make corrections noted
3. Submit 1 corrected copy for file
4. Revise and resubmit
5. Rejected – see remarks

C. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

D. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

E. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 01 33 00

Date:
Attn: *Subcontractor Name:*
Subcontractor Address:

Reference: CADD / Electronic File Transfer to Contractor
Project Number:
Project Name:

Dear Subcontractor Contact:

At your request and for a fee, we will provide electronic files for your convenience and use in the preparation of shop drawings related to the referenced project, subject to the following terms and conditions.

Our electronic files are compatible with: *AutoCAD 2008*. We make no representation as to the compatibility of these files with your hardware or your software beyond the specified release of the referenced specifications.

Data contained on these electronic files are part of our instruments of service and shall not be used by you or anyone else receiving these data through or from you for any purpose other than as a convenience in the preparation of shop drawings for the referenced project. Other use or reuse by you or by others will be at your sole risk and without liability or legal exposure to us. You agree to make no claim and hereby waive, to the fullest extent permitted by law, any claim or cause of action against us, our officers, directors, employees, agents or sub-consultants that may arise out of or in connection with your use of the electronic files.

Furthermore, you shall, to the fullest extent permitted by law, indemnify and hold us harmless against damages, liabilities or costs, include reasonable attorneys' fees and defense costs, arising out of or resulting from your use of these electronic files.

These electronic files are not construction documents. Differences may exist between these electronic files and corresponding hard-copy construction documents. We make no representation regarding the accuracy or completeness of the electronic files you receive. In the event that a conflict arises between the signed or sealed hard-copy construction documents prepared by us and the electronic files, the signed and sealed hard-copy construction documents shall govern. You are responsible for determining if a conflict exists by your use of these electronic files, you are not relieved of your duty to fully comply with the Contract Documents, including and without limitation, the need to check, confirm and coordinate dimensions and details, take field measurements, verify field conditions and coordinate your work with that of other contractors for the Project.

Because information presented on the electronic files can be modified, unintentionally or otherwise, we reserve the right to remove indicia of ownership and /or involvement from each electronic display.

We will furnish you electronic files of the following drawing sheets: *List of Drawings.*

Under no circumstances shall delivery of the electronic files for use by you be deemed a sale by us, and we make no warranties, either express or implied, of merchantability and fitness for a particular purpose. In no event shall we be liable for loss or consequential damages as a result of your use or reuse of these electronic files.

_____	_____
Consultant name and firm name	*Contractor name and firm name*
_____	_____
Date	*Date*

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control. Quality-control shall include:

1. Independent testing and inspections described and specified in the Contract Documents and required in Chapter 1 of the International Building Code, version in effect.
2. Special Inspections required by Chapter 17 of the International Building Code, version in effect.
3. Testing or inspections requested by authority having jurisdiction.
4. Tests requested by the Owner where these Owner-requested tests results show compliance with Contract Documents

B. The services of an independent testing laboratory and the Special Inspector will be arranged and paid for by the Owner.

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

1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

D. Seismic force resisting systems include:
1. Structural steel frames and X-bracing
2. Suspended ceiling systems
3. Additional systems requiring special inspection include:
    a. Mechanical ductwork and piping containing flammable, combustible or highly toxic materials
    b. Exterior wall panels and their anchors unless panel is less than 5 psf and only for Seismic Design categories D through F. Reference IBC 1707.7
    c. Anchorage of electrical equipment used for emergency or standby power system

E. Related Sections include the following:

1. Division 01 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
2. Divisions 02 through 33 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include Contract enforcement activities performed by Architect.

C. Mockups: Full-size, physical assemblies that are constructed on-site. Mockups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mockups establish the standard by which the Work will be judged.

D. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

E. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

F. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.

G. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.

H. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

I. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

J. Testing Agency: An entity engaged to perform specific tests, inspections, or both, of materials and construction. Testing laboratory shall mean the same as testing agency.

K. Special Inspector: A qualified entity, engaged to conduct special tests and inspections required by authorities having jurisdiction.

1.4 CONFLICTING REQUIREMENTS

A. General: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated whether numeric values are minimum or maximum. Refer uncertainties to Architect for a decision before proceeding.

1.5 CONTRACTOR RESPONSIBILITY

A. Provide Contractor's Statement of Responsibility as required in IBC 1706. Template included at end of Section.

B. Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel; at least 24 hours prior to expected time needed tests. Provide the following:

1. Access to the Work and manufacturers' facilities when access is requested or scheduled.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

C. Arrange for and coordinate testing required by the Contract documents, governing authorities, and for additional testing requested by the, Owner, Architect, or Engineers.

D. Provide incidental labor and facilities to:

1. Obtain and handle samples at the site or at source of Products to be tested,
2. Facilitate tests, and
3. Provide storage and curing of test samples

E. Deliver to agency or laboratory at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.

F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

G. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 30 days of date established for the Notice to Proceed.

1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

H. Keep a copy of Special Inspector reports in the job trailer.

1.6 TESTING AGENCY RESPONSIBILITY

A. Agency shall provide sampling, testing, inspecting, monitoring and reporting as described in this specification and in Divisions 2 through 33. Types and frequency of tests include but are not limited to those tests described on the Drawings and in the Specifications.

1. Monitoring and control of soil compaction, soil classification, undercutting, soil stabilization, excavation, concrete, masonry, welding, drainage and sewerage, fire proofing application, and other disciplines indicated in the Specifications for testing or monitoring
2. When blasting is permitted, provide seismic readings in areas where blasting is to be conducted, if requested by the Owner.

B. Testing shall be in accordance with pertinent codes and regulations, and with noted standards of the American Society for Testing and Materials.

C. Duties:
1. Agency shall provide qualified personnel to perform required inspections and tests.
2. Agency shall notify the Architect and the Contractor promptly of irregularities or deficiencies, or non-conformance of products or materials observed in the Work during performance of its services.
    a. Determine the location from which test samples will be taken and in which in-situ tests are conducted
    b. Take specimens and samples for testing, unless otherwise provided in the Contract Documents.
    c. Test samples of mixes submitted by Contractor.
    d. Deliver specimens and samples to the testing laboratory.
    e. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
    f. Perform additional tests required by Architect.
    g. Attend pre-construction meetings and progress meetings.
    h. Submit reports outlined in Article “Submittals”.
3. The Owner may, with or without cause, ask the independent testing agency, engineer, or consultant to evaluate any portion of the Work or materials, completed or incomplete, installed or staged.

1.7 SPECIAL INSPECTOR RESPONSIBILITY

A. Special Tests and Inspections: Owner will engage a qualified special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:

B. Special Tests and Inspections: As required by authorities having jurisdiction, as indicated in individual Specification Sections, and as follows:

1. Required tests are noted in Division 00 Section “Statement of Special Inspections”.
2. Verifying that manufacturer maintains detailed fabrication and quality control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
3. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
4. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.

5. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
6. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
7. Retesting and reinspecting corrected work.
8. Complete “Final Report of Special Inspections” and submit to Owner, with copies to Design Professional in Responsible Charge and Building Official.

1.8 SUBMITTALS

A. Qualification Data: For testing agencies specified in "Quality Assurance" Article, to demonstrate their capabilities and experience.

1. Proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
2. Resumes: Of at least 2 of the following listed professionals that will be available for this Project, for Owner and Architect review. After Project initiation, only those professionals whose resumes were submitted and reviewed by the Owner will be authorized to perform the required testing.
3. After Project initiation, if an approved professional is no longer able to perform the responsibilities of this Project, then the testing agency shall immediately submit the resume of a replacement professional for review.
4. Resumes shall indicate applicable training, experience, including experience with local projects of similar size, scope, and complexity.

    a. Technician
    b. Staff Engineer
    c. Senior Registered Engineer

B. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Description of test and inspection.
3. Identification of applicable standards.
4. Identification of test and inspection methods.
5. Number of tests and inspections required.
6. Time schedule or time span for tests and inspections.
7. Entity responsible for performing tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

C. Reports:

1. Agency shall issue a copy of the inspector’s hand written and legible report of the inspection/testing activities to the Architect within 24 hours of the conclusion of the testing/inspection.
2. Agency shall submit a certified written report, of each inspection, test, or similar service, to the Owner, the Architect, the Contractor, and to such other interested persons as directed by the Owner, within 4 business days of the inspection/testing activity.
3. Agency shall submit additional copies of each written report directly to the governing authority, when the authority so directs.
4. Reports shall include the following:

    a. Date of issue.

b. Project title and number.
c. Name, address, and telephone number of testing agency.
d. Name and signature of laboratory inspector.
e. Dates and locations of samples and tests or inspections.
f. Names of individuals making tests and inspections.
g. Description of the Work and test and inspection method.
h. Identification of product and Specification Section.
i. Complete test or inspection data.
j. Test and inspection results and an interpretation of test results.
k. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
l. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
m. Recommendations on retesting and reinspecting.

D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.9 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

C. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities that are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and regulations governing the Work.

G. Special Inspector Qualifications: Qualified Inspector and Testing Agency approved by the Building Official.

1. The Testing Laboratory shall maintain a full-time licensed Professional Engineer (P.E.) on staff who shall certify the test reports, train the testing technicians and be in responsible charge of the field and laboratory testing operations.
2. Special inspections shall be performed by inspectors with qualifications indicated below and who are under the supervision of a licensed Professional Engineer. Inspectors shall not be permitted to independently evaluate test results.
    a. Inspectors performing visual inspections of welding shall be ICC certified "Structural Steel and Welding Special Inspectors".
    b. Technicians performing non-destructive testing such as ultrasonic testing, radiographic testing, magnetic particle testing or dye-penetrant testing shall be certified as an ASNT-TC Level II or Level III technicians.
    c. Inspectors performing inspections of spray fireproofing shall be ICC certified "Spray-Applied Fireproofing Special Inspector".
    d. Technicians performing standard tests described by specific ASTM Standards shall have training in the performance of such tests and must be able to demonstrate, either by oral or written examination, competence for the test to be conducted.

H. Testing Agency Qualifications: An NRTL, an NVLAP, or an AASHTO accredited independent agency, authorized to operate in State in South Carolina, with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

1. Laboratory Staff: Maintain a full time registered Engineer on staff to review services
2. Technician: Technicians shall have a minimum of 5 years experience of soils testing and have a NICET Level I Soils Certification.
3. Testing Equipment: Calibrated at reasonable intervals with devices of an accuracy traceable to either National Bureau of Standards or accepted values of natural physical constants.

I. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

J. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

    a. Provide test specimens representative of proposed products and construction.
    b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
    c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
    d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
    e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
    f. When testing is complete, remove test specimens, assemblies, mockups, and laboratory mockups; do not reuse products on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

K. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect **7** days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
    a. Allow 7 days for initial review and each re-review of each mockup.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed, unless otherwise indicated.

L. Laboratory Mockups: Comply with requirements of preconstruction testing and those specified in individual Sections in Divisions 02 through 33.

1.10 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies and special inspectors engaged and a description of types of testing and inspecting they are engaged to perform.
2. Payment for these services will be made directly by the Owner.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report of each quality-control service, to the individuals noted in the Article “Submittals”.

4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."

D. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

1.11 LIMITS ON TESTING AUTHORITY

A. Agency, laboratory and Special Inspector may not do the following:

1. Release, revoke, alter, or enlarge on requirements of Contract Documents,
2. Approve or accept any portion of the Work,
3. Assume duties of Contractor, and
4. Stop the Work.

1.12 PAYMENT FOR SERVICES

A. Testing and Special Inspections shall be paid for by the Owner.

1. When initial testing required by the Contract Documents or testing requested by the Architect, Engineer, or Owner indicates non-compliance with the Contract Documents, that initial testing and subsequent re-testing occasioned by the non-compliance shall be performed by the same testing laboratory and the costs thereof shall be paid by the Contractor.
2. The Owner will also pay for testing and inspection specifically requested by the Owner, Architect, or Engineer over and above those described in this specification.

B. Testing shall be paid for by the Contractor

1. If testing shows that suspected work or materials do not meet the Contract Documents, the Contractor shall be responsible for expenses associated with:

a. Testing, retesting, and removing defective work
b. Replacing defective work with conforming work
c. Architect’s fees and expenses relative to the defective work
d. Maintaining the construction schedule and date of Substantial Completion that were effective immediately prior to discovery of defective work

2. Tests and inspections not required by the Contract Documents but requested by the Contractor or for his convenience.
3. Travel of Special Inspector to manufacturing plant more than 100 miles from Project site.

PART 2 - PRODUCTS

2.1 MATERIALS

A. For sample construction, use the same materials as those proposed for installation under this Contract.

PART 3 - EXECUTION

3.1 SPECIFIC TESTING REQUIRED BY THE PROJECT MANUAL

A. Inspection and testing required by codes or ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents. Required inspections and tests include but not limited to:

3.2 TEST AND INSPECTION LOG

A. Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and modifications as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

3.3 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.
2. Comply with the Contract Document requirements for Division 01 Section "Cutting and Patching."

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

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

LIST OF CHAPTER ONE INSPECTIONS

The following is a list of third party inspections required by Chapter One of the current International Building Code as applicable to Jesse Boyd Elementary School. This work shall be performed by a third party inspection agency hired by the Owner (Spartanburg School District Seven) and they shall be given a minimum of 24 hours notice when requesting each inspection.

Building Code

- 110.3.5 – Lath and Gypsum Board Inspections
- 110.3.8 – Other inspections as required
- 110.3.9 – Special Inspections Chapter 17
- 110.3.10 – Final Inspections

Mechanical Code

- 107.1.2 – Rough-in inspection

Electrical Code

- 107.1.2 – Rough-in inspection

END OF SECTION 01 40 00

Contractor's Statement of Responsibility

I, _____, of _____ am responsible for installation of the following seismic force resisting system, designated seismic system or components listed in the Seismic Quality Assurance Plan:

A. _____.

B. _____.

1. I acknowledge that I am aware of the project's special inspection requirements.

2. I acknowledge that control will be exercised to obtain conformance with the construction documents approved by the Building Official.

3. Procedures for exercising control within the Contractor's organization, the method and frequency of reporting and the distribution of the reports:

   a. _____

   b. _____

   c. _____

4. Identification and qualifications of the person(s) exercising such control and their positions(s) in the organization:

   Name Position

   a. _____

   b. _____

   c. _____

I have submitted this statement to the Owner and the Building Official.

_____ _____

Signed Date

SECTION 01 45 10 SPECIAL INSPECTIONS AND STRUCTURAL TESTING

PART 1 GENERAL

1.1 SCOPE

A. This section includes a listing of special inspections to be performed during the progress of this project. A "Certificate of Occupancy" cannot be issued without documentation that these inspections have been performed and the work is in conformance with the Contract Documents.

1. Related Work: Requirements of Division 01 Section Quality Requirements shall apply to this section. This section includes additional requirements for Special Inspections.

1.2 RESPONSIBILTY

A. It shall be this Owner's responsibility to contract for Special Inspections; however, the Contractor shall be responsible for proper notification when inspection is required in the progress of the work, providing access to facilitate the inspection and making corrections necessary when work is not in compliance with the Contract Documents.

1.3 REPORTS

A. Copies of inspection reports signed by person performing the inspection or test shall be submitted to Owner's Representative, Architect, Contractor and Building Official. A copy shall also be kept in the job trailer.

1.4 GENERAL REQUIREMENTS

A. Special Inspections and Structural Testing shall be in accordance with Chapter 17 of the Current International Building Code.

B. The program of Special Inspections and Structural Testing is a Quality Assurance Program intended to ensure that the work is performed in accordance with the Contract Documents.

C. This specification section is intended to inform the Contractor of the Owner's Quality Assurance Program and the extent of the Contractor's responsibilities. This specification section is also intended to notify the Special Inspector, Testing Laboratory and other Agents of the Special Inspector of their requirements and responsibilities.

1.5 SPECIAL INSPECTIONS

A. Special Inspections shall be performed by a qualified Inspector and/or approved Testing Agency, acceptable to the Building Official.

1. Contractor shall be responsible to notify Inspector in a timely manner when required inspections need to be performed.
2. The Inspection/Testing firm shall be responsible for immediately notifying in writing the Owner and Building Officials of all failed inspections and/or tests. The Architect will be notified by the Owner.

1.6 SCHEDULE OF INSPECTIONS AND TESTS

A. Required inspections and tests are described in the "Statement of Special Inspections" attached at the end of this section and in the individual specification sections for the items to be inspected or

tested.

1.7 QUALIFICATIONS

A. The Testing Laboratory and individual technicians shall be approved by the Building Official.

B. The Testing Laboratory shall maintain a full-time licensed Professional Engineer (P.E.) on staff who shall certify the test reports. The Engineer shall be responsible for the training of the testing technicians and shall be in responsible charge of the field and laboratory testing operations.

C. Special inspections shall be performed by inspectors as indicated below:
1. Special inspections of soils may be performed by inspectors with an education and background in geotechnical engineering.
2. Technicians performing sampling and testing of concrete shall be ACI certified "Concrete Field Testing Technicians - Grade 1".
3. Inspectors performing inspections of concrete work, such as inspections of concrete placement, batching, reinforcing, curing and protection, shall be ICC certified "Reinforced Concrete Special Inspector".
4. Inspectors performing visual inspections of welding shall be ICC certified "Structural Steel and Welding Special Inspectors". Technicians performing non-destructive testing such as ultrasonic testing, radiographic testing, magnetic particle testing or dye-penetrant testing shall be certified as an ASNT-TC Level II or Level III technicians.
5. Inspectors performing inspections of spray fireproofing shall be ICC certified "Spray-Applied Fireproofing Special Inspector".
6. Technicians performing standard tests described by specific ASTM Standards shall have training in the performance of such tests and must be able to demonstrate, either by oral or written examination, competence for the test to be conducted. They shall be under the supervision of a licensed Professional Engineer and shall not be permitted to independently evaluate test results.

1.8 SUBMITTALS

A. The Special Inspector and Testing Laboratory shall submit to the Owner and Building Official for review a copy of their qualifications which shall include the names and qualifications of each of the individual inspectors and technicians who will be performing inspections or tests.

B. The Special Inspector and Testing Laboratory shall disclose any past or present business relationship or potential conflict of interest with the Contractor or any of the Subcontractors whose work will be inspected or tested.

1.9 PAYMENT

A. The Owner shall engage and pay for the services of the Special Inspector, Agents of the Special Inspector and the Testing Laboratory.

B. If any materials which require Special Inspections are fabricated in a plant which is not located within 100 miles of the project, the Contractor shall be responsible for the travel expenses of the Special Inspector or Testing Laboratory.
1. Expenses shall be adequate to provide same-day round-trip transportation to remote plant.
2. Expenses shall include travel, lodging and meals.

C. The Contractor shall be responsible for the cost of any retesting or re-inspection of work which fails to comply with the requirements of the Contract Documents.

1.10 CONTRACTOR RESPONSIBILITIES

A. Contractor's Statement of Responsibility: Each Contractor responsible for the construction of a seismic force resisting system, designated seismic system or components listed in the Seismic Quality Assurance Plan shall submit a "Contractor's Statement of Responsibility", attached at the end of this section, to the Building Official and the Owner prior to the commencement of work. The Contractor's statement of responsibility contains the following:
1. Acknowledgement of awareness of the project's special inspection requirements.
2. Acknowledgement that control will be exercised to obtain conformance with the construction documents approved by the Building Official.
3. Procedures for exercising control within the Contractor's organization, the method and frequency of reporting and the distribution of the reports.
4. Identification and qualifications of the person(s) exercising such control and their positions(s) in the organization.

B. The Contractor shall cooperate with the Special Inspector and his agents so that the Special Inspections and Testing may be performed without hindrance.

C. The Contractor shall review the "Statement of Special Inspections" and shall be responsible for coordinating and scheduling inspections and tests. The Contractor shall notify the Special Inspector or Testing Laboratory at least 48 hours in advance of a required inspection or test. Un-inspected work that required inspection may be rejected solely on that basis.

D. The Contractor shall provide incidental labor and facilities to provide access to the work to be inspected or tested, to obtain and handle samples at the site or at the source of products to be tested, and to facilitate tests and inspection, storage and curing of test samples.

1. Providing incidental labor and facilities includes, but is not limited to, all necessary or requested manpower, equipment, tools, and any other requested special means of assistance to accommodate and facilitate both special and routine inspections and testing, whether scheduled or unscheduled, as described in this Section of the Specifications and elsewhere in the Contracted Documents. Without exception, the Contractor shall provide to all individuals conducting testing and inspections that are stipulated, referenced, or implied, or inferred by the Contract Documents, the required or requested safest, fastest, simplest, easiest, and most convenient method to access and egress to all areas to be inspected and tested. These provisions are part of complying and cooperating with special and routine testing and inspection requirements and are included in the Contract Sum and Contract Time.

E. The Contractor shall keep at the project site the latest set of construction drawings, field sketches, approved and field use shop and erection drawings, and specifications for use by the Inspectors and Testing technicians.

F. The Special Inspections program shall in no way relieve the Contractor of his obligation to perform work in accordance with the requirements of the Contract Documents or from implementing an effective Quality Control Program. All work that is to be subjected to Special Inspections shall first be reviewed by the Contractor's Quality Control personnel.

G. The Contractor shall be solely responsible for construction site safety.

1.11 LIMITS ON AUTHORITY

A. The Special Inspector or Testing Laboratory may not release, revoke, alter or enlarge on the

requirements of the Contract Documents.

B. The Special Inspector or Testing Laboratory will not have control over the Contractor's means and methods of construction.

C. The Special Inspector or Testing Laboratory shall not be responsible for construction site safety.

D. The Special Inspector or Testing Laboratory has no authority to stop the work.

1.12 RECORDS AND REPORTS

A. Detailed daily reports shall be prepared of each inspection and teat by the Special Inspector and Testing Laboratory. Reports shall include:
1. Date of test or inspection
2. Name of Inspector or Technician
3. Location of specific areas tested or inspected
4. Description of test or inspection and results
5. Applicable ASTM standard
6. Weather conditions
7. Engineer's seal and signature

B. The Special Inspector shall submit interim reports to the Owner and Building Official at the end of each week which includes all inspections and test reports received that week. Copies shall be sent to the Architect and Contractor.

C. Any discrepancies from the Contract Documents found during a Special Inspection shall be immediately reported to the Contractor and Owner. If the discrepancies are not corrected, the Special Inspector shall notify the Owner and Building Official. Reports shall document all discrepancies identified and the corrective action taken.

D. The Testing Laboratory shall immediately notify the Owner and Building Official by telephone, fax or email of any test results which fail to comply with the requirements of the Contract Documents.

E. At the completion of the work requiring Special Inspections, each Inspection Agency and Testing Laboratory shall provide a statement to the Owner and Building Official that all work was completed in substantial conformance with the Contract Documents and that all appropriate inspections and tests were performed.

1.13 FINAL REPORT OF SPECIAL INSPECTIONS

A. The "Final Report of Special Inspections" shall be completed by the Special Inspector and submitted to the Owner and Building Official prior to the issuance of a "Certificate of Use and Occupancy".

B. The "Final Report of Special Inspections" will certify that all required inspections have been performed and will itemize any discrepancies that were not corrected or resolved.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 01 45 10

Table 5.27-2: SCHEDULE OF SPECIAL INSPECTIONS

Project: Jesse Boyd Elementary Kitchen Hood Replacement
Spartanburg School District Seven
Spartanburg, South Carolina

Instructions
The Engineer of Record shall determine the material and/or work on the project requiring Special Inspections. The Special Inspection requirements shall be based on Section 1704 of Chapter 17 of the Current International Building Code. Any deviations from the requirements of Section 170. If Inspection is by "Other", the inspecting entity shall be identified.

Chapter 17 Inspections
Chapter 1 Inspections

MATERIALS	TYPE OF INSPECTION	CODE REFERENCE	PROVIDED BY:		
			Architect	Engineer	Testing Agent
Lath & Gypsum Bd.		110.3.5			X
Other Inspections	As called for by jurisdiction authority	110.3.8			X
Final Inspections	After all work is complete	110.3.10			X

Chapter 17 Inspections

MATERIALS	TYPE OF INSPECTION	SPECIFICATION REFERENCE	PROVIDED BY:		
			Architect	Engineer	Other
Structural Steel	Periodic Verification	Field Inspection			X
	Identification markings conform to ASTM standards on high-strength bolts, nuts and washers	Field Inspection			X
	High-strength bolting: Bearing – type connections	Field Inspection			X
	Multi-pass fillet welds (cont)	Field Inspection			
	Single-pass fillet welds >.5/16" (cont):	Field Inspection			
	Single-pass fillet welds.</5/16" (cont):	Field Inspection			X
	Roof deck screws	Field Inspection			X
	Floor deck welds	Field Inspection			X
	Roof deck welds	Field Inspection			X
	Inspect steel frame joint details for compliance with approved construction documents	Field Inspection			X
Steel Deck	Inspection of Field Welds and Bolts (Periodic)	Field Inspection			X
	Inspection of Roof Deck & Welds (Periodic)	Field Inspection			X

Electrical Comp	Inspection of Label & Anchorage of Electrical Equipment				**X**
Mechanical Comp	Manufacturer Certification Required on Mechanical Equipment			**X**	
	Inspection of Label & Anchorage of Mechanical Equipment				**X**
MEP	Seismic Isolators, Review of Submittal			**X**	
	Seismic Isolators Field Inspection of Installation				**X**

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes requirements for temporary utilities, support facilities, security and protection facilities.

B. Related Sections include the following:

1. Division 01 Section "Summary of Work" for limitations on utility interruptions and other work restrictions.
2. Division 01 Section "Submittal Procedures" for procedures for submitting copies of implementation and termination schedule and utility reports.
3. Division 01 Section "Execution" for progress cleaning requirements.
4. Divisions 02 through 49 Sections for temporary heat, ventilation, and humidity requirements for products in those Sections.
5. Division 31 Section "Dewatering" for disposal of ground water at Project site.

1.3 USE CHARGES

A. General: Include cost or use charges for temporary facilities in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to**,** Architect, testing agencies, and authorities having jurisdiction.

1.4 SUBMITTALS

A. Site Plan: Show temporary facilities, utility hookups, staging areas, and parking areas for construction personnel.

1.5 QUALITY ASSURANCE

A. Comply with ANSI A10 “Construction and Demolition Standards Package”.

B. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70, NFPA 241 “Standard for Safeguarding Construction, Alterations and Demolition Operations”.

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

1.6 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

B. Temporary Utilities: Prepare schedule indicating dates for termination of each temporary utility. Change over from temporary service to permanent service at the earliest date acceptable to the Owner.

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

D. Project Thermometer: Provide an accurate, easily read, accessible thermometer at the job trailer, mounted to avoid damage and direct sun. Maintain thermometer in working condition from commencement of construction activities through substantial completion. If a job trailer is not used on this Project, install the thermometer in another suitable location.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pavement: Comply with Division 32 pavement Sections.

B. Portable Chain-Link Fencing: Minimum 2-inch, 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts at 10 foot spacing; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts, with 1-5/8-inch OD top and bottom rails. Provide concrete bases for supporting posts and lockable entrance gates.

C. Plastic fencing: Open mesh orange plastic mesh fence 5 feet high with lockable entrance gates.

D. Lumber and Plywood: Comply with requirements in Division 06 Section "Rough Carpentry".

E. Gypsum Board: Minimum 1/2 inch thick by 48 inches wide by maximum available lengths; regular-type panels with tapered edges. Comply with ASTM C 36/C 36M.

F. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

G. Sticky Mat: Multipayer pad of 36” x 48” adhesive mats in a reusable plastic frame with non-skid backing, similar to Cole Cleanroom Sticky Mat or TackMat Contamination Control Mat.

H. Paint: Comply with requirements in Division 09 painting Sections.

2.2 TEMPORARY FACILITIES

A. Storage and Fabrication Sheds: Sized, furnished, and equipped to accommodate materials and equipment for construction operations, including temporary utility service. Sheds may be open shelters or fully enclosed spaces within the building or elsewhere on-site.

1. Store combustible materials apart from building.

2.3 EQUIPMENT

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

B. Fire Extinguishers: Portable, UL rated, dry-chemical extinguishers with class and extinguishing agent required by locations and classes of fire exposures. Class A fire extinguishers for temporary offices and similar spaces.
1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

C. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Maintain, relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Division 01 Section "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Engage the appropriate local utility company to install temporary service or connect to existing service. Where company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with company recommendations.

1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if 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.
3. Obtain easements to bring temporary utilities to the site where the Owner's easements cannot be used for that purpose.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.

1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

C. Water Service: Water Service: Install water service and distribution piping of sizes and pressures adequate for construction purposes until permanent water service is in use. Contractor to provide all necessary materials and labor to run water to construction area. If the owner has an existing service available, and the Contractor taps into the Owner's existing service, provide an operable and readable meter to measure Contractor's usage, and ensure that the water supply to the Owner's service is not contaminated. All connections to the Owner's or municipal water source shall include backflow protection.

D. Electric Power Service: Provide weatherproof, grounded electric power service and distribution service of size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnectors, automatic ground fault interrupters, main distribution switch gear, and sub-panels. Contractor to provide all materials and labor to distribute power to construction site and to provide temporary lighting.

1. Power Distribution System: Install wiring overhead, and rise vertically where least exposed to damage.

2. Electrical Outlets: Provide properly configured NEMA polarized outlets. Provide outlets equipped with ground-fault circuit interrupters, reset button and pilot light, for connection of power tools and equipment.

3. Electrical Power Cords: Provide grounded extension cords; use 'hard-service" cords where exposed to traffic

4. Temporary Lighting: After overhead floor or roof has been installed, provide temporary lighting with local switching. Temporary lighting shall full security and protection requirements without operating the entire system. Temporary lighting shall provide adequate lighting for construction operations and traffic conditions.

E. Temporary Heat: Provide temporary heat required by construction activities for curing or drying of completed installations or for protection of installed construction from adverse effects of low temperatures or high humidity. Select safe equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce the ambient condition required and minimize consumption of energy.

1. Use of Propane or gasoline-burning space heaters, open flame, or salamander heating units or heaters that produce fumes, smoke, or moisture are not acceptable. Where specifications require a space to be conditioned before performing specific Work, conditions shall be maintained using controlled heat as specified prior to, during, and after installation.

F. Temporary Telephones: Provide temporary telephone service throughout the construction period for all personnel engaged in construction activities. Cell phones are acceptable.

1. Provide superintendent with cellular telephone.

G. Sanitary facilities include temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.

1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.

3.3 SUPPORT FACILITIES INSTALLATION

A. General: Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

D. Project Identification and Temporary Signs: Provide Project identification and other signs as indicated on Drawings. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.

1. Provide temporary, directional signs for construction personnel and visitors.
2. Maintain and touchup signs so they are legible.

E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

F. Existing Stair Usage: Use of Owner's existing stairs may be permitted, as long as stairs are cleaned and maintained in a condition acceptable to Owner. At Substantial Completion, restore stairs to condition existing before initial use.

1. Provide protective coverings, barriers, devices, signs, or other procedures to protect stairs and to maintain means of egress. If, despite such protection, stairs become damaged, restore damaged areas so no evidence remains of correction work.

G. Temporary Use of Permanent Stairs: Cover finished, permanent stairs with protective covering of plywood or similar material so finishes will be undamaged at time of acceptance.

H. Project Identification and Temporary Signs: Provide Project identification and other signs after coordination with Owner. Install signs where indicated to inform public and individuals seeking entrance to Project. Unauthorized signs are not permitted.

1.Prepare project identification and other signs on grade B-B high density overlay plywood. Install signs where indicated to inform the public and persons seeking entrance to the Project. Support project signs on posts or framing of preservative-treated wood or steel.

2. Engage an experienced sign painter to apply graphics. Comply with details shown on the drawing 01 50 50 Construction Project Sign.
3. Obtain graphic logo information on magnetic media, including design, color, placement, arrangement, proportions, and verbiage, from the Architect's Construction Administration Department.
    a. a. The sign shall be 4' 0" wide x 6' 0" high. The background shall be off-white with red and black letters. Top of sign shall be 9' 0" above finish grade. Sign to be mounted on two 4" x 4" posts with two 2" x 4" diagonal braces to grade. Sign location to be chosen by Architect. Sign to be painted by a professional sign painter and erected within two (2) weeks of start of construction. Image shall be on both sides of sign for a total of two (2) signs
4. Do not alter the logo in any manner. Alterations to the logo or any other graphics or verbiage shall be corrected at the Contractor's expense.
5. The Architect shall approve all completed project signs through shop drawing submittals prior to erection. Unacceptable signs shall be redone promptly at the Contractor's expense, even if already erected.
6. Unauthorized signs shall be removed promptly at the Contractor's expense.
7. Position and orient the sign so as to be readily visible and legible by both directions of traffic that is traveling at the speed limit on the main thoroughfare. When the sign is installed at an intersection with the main thoroughfare, prepare a double-sided sign that is visible by traffic traveling both roads.

8. Provide temporary, directional signs for construction personnel and visitors.
9. Maintain and touchup signs so they are legible at all times.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

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

B. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

C. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

D. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner and tenants from fumes and noise.

1. Construct dustproof partitions of not less than nominal 4-inch studs with 5/8-inch gypsum wallboard with joints taped on occupied side, and 1/2-inch plywood on construction operations side. Or with (Construct dustproof partitions with 2 layers of 3-mil polyethylene sheet on each side.)

    a. Construct vestibule and airlock at each entrance to occupied premises through temporary partition with not less than 48 inches between doors. Maintain sticky or water-dampened foot mats in vestibule.

2. Insulate partitions to provide noise protection to occupied areas.
3. Cover floor with 2 layers of 3-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant plywood.
4. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
5. Protect air-handling equipment.
6. Weather strip openings.
7. Provide fire-rated temporary partitions where called for on the drawings.

E. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.

1. Prohibit smoking in construction areas.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

F. The contractor shall provide temporary orange construction fencing around materials to be left on site and around roof access points.

3.5 OPERATION, TERMINATION, AND REMOVAL

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

B. Maintenance: Maintain facilities in good operating condition until removal.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street

paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.

3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 56 39 – TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the protection of trees that interfere with, or are affected by, execution of the Work, including:
   1. Tree protection
   2. Tree pruning
   3. Demolition near trees
   4. Excavation near roots
   5. Utility installation near trees
   6. Regrading within tree dripline
   7. Tree maintenance and protection

B. Related Sections include the following:

   1. Division 32 Section “Planting” for planting replacement trees.

1.3 DEFINITIONS

A. Drainage Fill: free draining material.

B. Certified Arborist: Individual certified by International Society of Arboriculture (ISA).

1.4 REFERENCES

A. ANSI A300: Standards for Tree Care Operations: Part 1 – Pruning and Part 5 - Management of Trees and Shrubs During Site Planning.

1.5 SUBMITTALS

A. Qualification Information: For Certified Arborist

1.6 QUALITY ASSURANCE

A. Predemolition Conference: Attend conference at Project site to comply with requirements in Division 01 Section "Project Meetings." Review methods and procedures for protecting and working around existing trees.

1.7 AVOIDING TREE DAMAGE

A. Protection Perimeter: Based on a radius of 1 foot per 1 inch of tree diameter measured 8 feet above grade, unless shown otherwise on Drawings.

B. Protect tree root systems from damage, flooding, and erosion.

C. Take care not to contact canopy or truck when operating large equipment or vehicles in the proximity of protected trees.

D. Do not operate or idle equipment, particularly paving equipment, and trucks under the canopy of protected trees.

E. Uncovered Roots: When roots have been excavated, but not cut, cover within 2 days.

F. Severed Roots: Re-cover roots that have been pruned within 1 hour of uncovering them.

1.8 STORAGE, AND HANDLING

A. Do not store materials, including soil, under the canopy of protected trees.

PART 2 - PRODUCTS (not used)

PART 3 - EXECUTION

3.1 INSTALLATION OF TREE PROTECTION BARRIER

A. Construct a tree protection barrier around each tree or group of trees that is to remain, and as shown in plans.

B. Construct barrier immediately after hand removal of pavement within drip line of tree and before any additional demolition or construction-related activities occur.

C. Leave tree protection in place until site work dictates that the barrier be moved to the tree protection site work location.

D. Do not relocate the tree protection fencing closer to the existing trees than indicated on the plans.

3.2 TREE PRUNING

A. Prune trees affected by the Work, as indicated on the Drawings. Prune dead wood and limbs which would, in the opinion of the Certified Arborist, interfere with the use of the site after construction. Do not prune trees merely to make construction more efficient or accessible.

B. Prune trees to compensate for root loss caused by damaging or cutting root system. Prune trees according to ANSI A300 as follows:

1. Crown cleaning
2. Crown thinning
3. Crown reduction
4. Vista pruning
5. Crown restoration.

C. Cut branches with sharp pruning instruments; do not break or chop.

D. Chip branches removed from trees. Spread or stockpile chips where indicated or dispose of as indicated in Division 01 Section “Construction Waste Management and Disposal”.

3.3 FIELD QUALITY CONTROL

A. Have the Arborist remain on site during pruning and overhead or underground utility installation within or near the established protection area.

3.4 DEMOLITION NEAR TREES

A. Break up concrete and other pavements within the drip line of trees within the protection perimeter with a jackhammer and remove by hand to prevent root and root crown injuries. Avoid lifting large sections of concrete near the tree.

B. Pavements outside the drip line can be lifted in large sections provided they are kept out of protection area.

C. When removing/loading demolition debris, do not scoop materials from below the existing grade; avoid inadvertent digging and damage in the root area.

D. Cut off pipe and conduit, that have grown into trunks and root systems, close to the tree. Do not remove portions underneath the bark or wood. Do not remove bark growing around the pipe, conduit or other attachments.

E. While removing overhead poles or other infrastructure near trees, do not push or allow them to fall into the tree canopies.

3.5 EXCAVATION METHODS NEAR ROOTS

A. Air Spade: Use Model 2000 Air Spade equipped with a 225 scfm nozzle to excavate soil near tree roots and to determine location of tree roots.

B. Compressor: Use a minimum 250 scfm air compressor to operate the Air Spade and nozzle combination listed above.

C. Sewer Vacuum: A sewer vacuum may be used to remove soil dislodged by the Air Spade if it cannot be easily blown clear of the hole or trench.

D. Dig interval exploratory or test trenches with the Air Spade to determine the location of roots before digging within the established protection perimeter.

1. Test trenches: 8 inches deep and 4 to 6 inches wide.

E. Root conflicts:

1. When roots are encountered in test trenches, do not cut if they are larger than 2 inches in diameter or are closer than the established protection perimeter.
2. Cut roots smaller than 2 inches in diameter that must be severed with a hand pruning saw.
3. Do not use paint and wound treatment on cut surfaces.

3.6 UTILITY INSTALLATION NEAR TREES

A. For the installation of utility lines, consult the Arborist after digging test trenches, to establish an acceptable method for excavation. Use one of the methods described in this section and approved by the Agency having power of Jurisdiction.

B. Boring under tree roots shall be an acceptable method for the installation of utilities in order to avoid cutting roots. Bores shall be at a minimum depth of 30 inches.

C. Buried Wiring and Plumbing: Install wiring for street or traffic lights, communication conduits, or plumbing for irrigation in a trench using an air spade, when in conflict with roots 2 inches or greater in diameter, or closer than the established protection perimeter. Fit the conduit and plumbing around the tree roots.

D. Sewer Lines: Consult the Arborist before digging existing sewer lines for replacement, in areas with roots 2 inches or greater in diameter, or closer than the established protection perimeter.

E. Water Service Lines: When possible, place water service lines in the same trench as the sewer lines. If a separate trench is needed within the established protected perimeter or where there are roots 2 inches or greater in diameter, dig with an Air Spade and the install the pipe beneath the tree roots.

3.7 REGRADING WITHIN DRIP LINE OF EXISTING TREES

A. Grade Lowering: Where new finish grade is indicated below existing grade around trees, slope grade beyond drip line of trees. Maintain existing grades within drip line of trees unless indicated otherwise on the Drawings.

1. Root Pruning: Prune tree roots exposed during grade lowering. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots with sharp pruning instruments; do not break or chop.

B. Minor Fill: Where existing grade is 6 inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

C. Moderate Fill: Where existing grade is more than 6 inches, but less than 12 inches, below elevation of finish grade, place drainage fill, filter fabric, and topsoil on existing grade as follows:

1. Place drainage fill 2 inches above finish grade elevation for at least 18 inches from tree trunk. For balance of area within drip-line perimeter, place drainage fill up to 6 inches below elevation of grade.
2. Place filter fabric with edges overlapping 6 inches minimum.

3. Place topsoil layer of to finish grade. Do not compact drainage fill or topsoil. Hand grade to required finish elevations.

3.8 TREE REPAIR AND REPLACEMENT

A. Repair trees damaged by construction operations within 24 hours of damage. Treat damaged trunks, limbs, and roots according to written instructions of the arborist. Where cuts and minor abrasions occur to living tissue of trees and shrubs, trace back injured cambium according to arboriculture practice and thoroughly apply a commercially prepared, penetrating-type tree wound paint to the wounds. Use red if no arborist on project.

B. Remove and replace dead and damaged trees that the arborist determines to be incapable of restoring to a normal growth pattern.

1. If damaged or dead tree is less than 6 inch diameter, replace with new tree of the same size and species as that being replaced; plant and maintain as specified in Division 32 Section “Planting”.
2. If damaged or dead tree is 6 inches caliper size or more at breast height, replace with new tree of 6 inch caliper size and of a species selected by Owner.

C. Aerate surface soil, if compacted during construction, 10 feet beyond drip line and no closer than 36 inches to tree trunk. Drill 2 inch diameter holes a minimum of 12 inches deep at 24 inches o.c. Backfill holes with an equal mix of augered soil and sand.

3.9 MAINTENANCE AND PROTECTION

A. Do not apply fertilizer to trees in the Project area prior to construction.

B. Water and fertilize trees impacted by construction during construction.

END OF SECTION 01 56 39

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

B. Related Sections include the following:
   1. Division 01 Section "Substitution Procedures" for administrative procedures for making substitution requests after award of the Contract.
   2. Division 01 Section "Closeout Procedures" for submitting warranties for Contract closeout.
   3. Divisions 02 through 49 Sections for specific requirements for warranties on products and installations specified to be warranted.

1.3 DEFINITIONS

A. Products: 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 are self-explanatory and have well-recognized meanings in the construction industry.

   1. Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
   2. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, current as of date of the Contract Documents.
   3. New Products: Items that have not previously been incorporated into another project or facility**,** except that products consisting of recycled-content materials are allowed, unless explicitly stated otherwise. Products salvaged or recycled from other projects are not considered new products.
   4. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
   5. Foreign Product: Distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside the United States and its possessions. Products produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens of, nor living within, the United States and its

possessions are considered to be foreign products. Products that are produced in foreign facilities owned by American firms are also considered to be foreign products.

6. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
7. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.4 SUBMITTALS

A. Product List: Submit a list, in tabular from, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.

1. Coordinate product list with Contractor's construction schedule and the submittals schedule.
2. Form: Tabulate information for each product under the following column headings:

    a. Specification Section number and title.
    b. Generic name used in the Contract Documents.
    c. Proprietary name, model number, and similar designations.
    d. Manufacturer's name and address.
    e. Supplier's name and address.
    f. Installer's name and address.
    g. Projected delivery date or time span of delivery period.
    h. Identification of items that require early submittal approval for scheduled delivery date.

3. Initial Submittal: Within 30 days after date of commencement of the Work, submit 3 copies of initial product list. Include a written explanation for omissions of data and for variations from Contract requirements.

    a. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.

4. Completed List: Within 30 days after date of commencement of the Work, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
5. Architect's Action: Architect will respond in writing to Contractor within 15 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.
6. Certify that products, material, components, equipment, and systems, comply with the requirements specified on the Drawings, in this section and with Divisions 2 through 33.

B. Product Substitution Requests: Refer to Division 1 Section “Substitution Procedures” for requirements and process.

C. Comparable Product Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 8 days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.

D. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

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

B. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

C. Products with recycled content: Recycled content must be free of hazardous material contamination.

D. Foreign Product Limitations: Except under one or more of the following conditions, provide domestic products, not foreign products, for inclusion in the Work.

1. No available domestic product complies with the Contract Documents.
2. Domestic products that comply with the Contract Documents are available only at prices or terms substantially higher than foreign products that comply with the Contract Documents.

E. Comply with provisions of the Contract Documents including providing such entities that include, but are not limited to, the products, materials, equipment, components, or systems that were proposed at the time bids were received.

1. Except for extenuating circumstances, as determined by the Architect, notification of not being able to meet the provisions of the Contract Documents will not be considered after receipt of bids. Comply with the Contract Documents at no increase in Contract Sum or Contract Time.

2. Out Of Stock Items: Neither the Owner or the Architect will be responsible for the Contractor's failure to allow for adequate lead times to ensure delivery of products, materials, or equipment to prevent installation delays.

    a. The Contractor shall be responsible for ordering, shipping, handling, storage, duty, fee, and costs applicable to ordering products, materials, and equipment for on-time installation.
    b. If products, materials, or equipment are discontinued or are no longer available at the time they are ordered, the Contractor shall be responsible for costs incurred by the Architect and the Owner in selecting and approving a substitute and for the cost differential between the originally specified product, material, or equipment and the selected substitute. The Owner and Architect reserve the right to select and approve substitutes.

3. Products, materials, components, etc. not specified or indicated in the Contract Documents or approved in writing by the Architect prior to use shall not be incorporated into the Work. Unspecified or unapproved products, materials, components, etc. used on the project or incorporated into the work shall be removed and acceptable products, materials, components, etc. installed at no increase in Contract Amount or Time.

1.6 ASBESTOS-CONTAINING MATERIALS

A. Do not use products, materials, components, and equipment that contain asbestos fibers, in the construction of this Project. Certify to the Owner that no asbestos has been used in the construction of this Project. Require each supplier of material to furnish certification that no asbestos fiber is contained in the product supplied. Compile certifications and furnish the Owner with a copy.

B. During execution of the Work, if asbestos or asbestos-containing materials are suspected of being delivered or being present, perform the following steps immediately:

1. Immediately, stop work in the suspected area.
2. Immediately, notify the Contractor, Owner, and the Architect.
3. Do not touch, disturb or approach the suspected area or materials.
4. Erect a barrier around the suspected area or materials, not less than 10 feet from the suspected area or materials. If the area is in a room or space that can be sealed or closed to traffic, seal or close off the space. If there are HVAC vents to the space, seal the vents.
5. Erect a sign that is clearly legible from at least 10 feet. Use weatherproof lettering if the sign will be exposed to weather. Post the sign at each access to the area and around the barrier. Space the signs around the barrier a maximum of 8 feet apart. The sign shall contain the following wording:

DANGER

ASBESTOS-CONTAINING MATERIALS ARE PRESENT. DO NOT ENTER OR CROSS THE BARRIER WITHOUT WRITTEN PERMISSION AND APPROVED PROTECTIVE CLOTHING

1.7 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Order materials to compensate for lead times and manufacturer's delays.
3. 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.
4. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
5. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
6. Repair damaged or defaced components, or remove and replace with acceptable components.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units in a clean dry location away from uncured masonry or concrete.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store cementitious products and materials on elevated platforms.
5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

1.8 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
6. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
7. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.

B. Product Selection Procedures: Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.

1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements. Substitution will not be permitted.
4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed that complies with requirements.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system.
8. 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.

    a. Manufacturer's recommendations may be contained in published product literature or by the manufacturer's certification of performance.

9. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions

in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.

10. Compliance with Standards, Codes, and Regulations: Where Specifications only require compliance with an imposed code, standard, or regulation, select a product that complies with the standards, codes, or regulations specified.
11. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

    a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.

12. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.

    a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
    b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

13. Allowances: Refer to individual Specification Sections and "Allowance" provisions in Division 1 for allowances that control product selection and for procedures required for processing such selections.

C. Electrical Provisions: Where electrical components or equipment are specified or required, provide a complete and operable system complying with the specified or required electrical equipment or component manufacture’s warranty requirements. Include items such as transformers, power supplies, switches, controllers, relays, wire, conduit, circuit breakers, junction boxes, transfers, and other electrical devices, components, and materials.

    1. Where such items are not available from the specified or required electrical equipment or component manufacturer, provide such items recommended by it to meet its warranty requirements.

2.2 PRODUCT SUBSTITUTIONS

A. Refer to Division 1 Section, “Substitution Procedures”.

2.3 COMPARABLE PRODUCTS

A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

1. Evidence that the proposed product does not require extensive revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
3. Evidence that proposed product provides specified warranty.
4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
5. Samples, if requested.

2.4 GOVERNING AUTHORITIES

A. Materials and work shall be in compliance with applicable codes, ordinances, laws, regulations, and requirements of local, state, and federal governing authorities having jurisdiction.

B. The Owner will not pay for furnishing items required by applicable codes, ordinances, laws, regulations, and requirements of local, state, and federal governing authorities even though such may not be shown or indicated on the Drawings or called for in the Specifications.

C. Submit discrepancies noted within the Drawings, within the Specifications, and between the Drawings and Specifications to the Architect prior to bidding.

1. Discrepancies submitted after the bidding, will be considered by the Architect. Should the Contractor base his bid on a lesser quality or install the item incorrectly, the Contractor may be responsible for the additional costs.
2. Where conflicts arise that were not brought to the Architect's attention, the Architect will make an interpretation, even if the interpretation or judgment is the most expensive or complex of the conflicting issues.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Where specifications requirements are more stringent or severe than the manufacturer's requirements, comply with the specifications unless the manufacturer states, in writing, that the specification requirements are detrimental to performance and will void the manufacturer's warranty. Anchor each product securely in place, accurately located and aligned with other Work.
   1. All Work is to be performed by and all materials are to be installed by craftsmen that are skilled, trained and experienced in their respective trades.
   2. All Work is to be performed to and all materials are to be installed to the highest level of quality and workmanship that meets or exceeds manufacturer's instructions and industry standards and shall meet the quality and performance requirements of the Architect. Work not conforming to this requirement shall be removed and replace with conforming work.
   3. Where specific manufacturers and product names are not listed, provide materials and products that are the best types and that are best suited for the intended use as indicated in the Contract Documents, and that will provide the maximum longevity with minimum maintenance. Where more than one product can be used in an application, the best product shall be selected and used. Work not conforming to this requirement shall be removed and replace with conforming work.
   4. All products and materials shall be installed using the best procedures, techniques and practices recommended or suggested by the respective manufacturers and industry

standards. Provide all supplementary materials and products recommended or suggested by the applicable manufactures and industry standards even if the supplementary materials and products are not indicated or specified. Work not conforming to this requirement shall be removed and replace with conforming work.

5. Bring all conflicts within the drawings, within the specifications, and between the drawings and specifications to the Architect's attention. Where such conflicts that were not brought to the Architect's arise, the Architect will interpret and judge for the best interest of the Owner even if the interpretation or judgment is the most expensive or complex of the conflicting issues.
6. Before, during, and after their installation, and until substantial completion, continuously protect all materials, finishes, equipment, assemblies, and subassemblies from weather, deterioration, premature wear, damage, theft, or vandalism.
7. When installing items, including but not limited to materials, components, assemblies, subassemblies, and systems, ensure that all supports, substrates, and surfaces to receive installed items meet the manufacturer's requirements, and are in a suitable condition, to receive the installed items. Beginning installation shall be inferred as acceptance of existing conditions and that the installer accepts full responsibility for the performance and aesthetics of the completed Work.
    a. This evaluation includes, but is not limited to, conducting applicable testing to determine the presence and effects of moisture; the soundness, strength, and integrity of substrates so as to prevent separation or delamination, sag, or excess deflection; the compatibility of adjoining, connecting, or contacting materials; proper support of elements and members to prevent sag or excessive deflection. Where bracing or supports are not specifically shown on the Drawings, but are required to achieve, aesthetics, structural requirements, support, etc, applicable members shall be provided and installed.
8. Where materials, components, assemblies, subassemblies, and systems, co-exist with or are dependent on the proper performance of other materials, components, assemblies, subassemblies, and systems, ensure that all necessary measures are taken to preserve that synergistic relationship.
9. Clean exposed surfaces to a like-new condition, to the satisfaction of the Architect, and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

B. Fasteners: Unless specified or required otherwise, comply with the following:
    1. Use fasteners of the proper type, design, size, and length as recommended by the manufacturers of the components or material being fastened for the intended application.
    2. Fasteners shall provide proper and secure attachment without damaging the components or materials being fastened or the substrate.
    3. Install fasteners is a pattern and density recommended by the applicable manufacturers, referenced agencies, and governing authorities to ensure suitable fastening to meet conditions. Where there is a conflict in recommended fastening, the most severe shall govern.
    4. Fasteners that are used in exterior applications, are exposed to weather or moisture, or are in contact with earth, interior and exterior treated wood, interior and exterior cementitious materials, or dissimilar materials shall be corrosion-proof.
    5. Use fasteners that will not penetrate surfaces that will be exposed to view or that will be finished.
    6. Where fasteners must completely penetrate the substrate to which materials or components are being attached, fasteners shall be of the recommended length so as not to penetrate completely through the substrate more than 3/4 inch, unless the manufacturer recommends otherwise. In no case shall fasteners extend past the bottom of the metal roof deck flutes.

7. After being tightened to the recommended torque, bolts shall be of proper length to penetrate items being fastened and have sufficient thread exposed to accept a flat washer, lock washer and a nut with 3/8 inch of bolt extending past the nut.

C. Control, Expansion, and Contraction Provisions
1. If provisions for control, expansion, and contraction in materials and systems are indicated on the Drawings or described in the specifications, these provisions shall be installed. If provisions for control, expansion, and contraction in materials and systems, such as concrete, plaster, masonry, EIFS, drywall, flooring materials, roof systems, and metal are not provided on the Drawings or in the specifications, notify the Architect during the Bidding Phase for an evaluation, clarification, and determination. If applicable, the Architect will provide drawings or specifications or both to address the situation. If the Architect is not notified during the Bidding Phase that there are no provisions for control, expansion, and contraction on the Drawings or in the Specifications, and it is later determined that these provisions are required, then the contractor shall provide the required Control, Expansion, and Contraction provisions at no adjustment to the Contract Price or Time. As a minimum, material and system manufacturer's requirements and instructions for control, expansion, and contraction shall be followed.

3.2 MOISTURE CONTROL

A. The intent of these specifications is not to state, suggest, or imply that the Architect is a moisture or mold specialist or expert. Instead, the specifications are the minimum directives to the Contractor regarding the handling and installation of materials. Furthermore, these specifications do not relieve the Contractor of any additional or other responsibilities, duties, or procedures, including hiring and paying for applicable specialists or consultants, necessary to ensure that the building is free of mold and or any other conditions that may promote mold or may be interpreted as detrimental to any form of Indoor Air Quality. The Contactor shall be responsible for all coincidental damage related to moisture intrusion or moisture accumulation related to the Contractor's failure to take the necessary precautions and preventive measure to prevent moisture intrusion and accumulation.

B. Fibrous and cellulose-base materials and products that become wet and are not dried within 24 hours can and usually do initiate and promote the growth of mold and mildew. Saturation of these materials is not necessary to initiate the mold cycle. Preventing and detecting the spread of mold, mildew, other fungi, and their related spores is of paramount importance during construction of this Project and after Owner occupancy. The Contractor shall be ever mindful of how the procedures used to handle, stage, and install materials and products will impact and affect the growth of mold and mildew during construction and after Owner occupancy.
1. Building materials and products that are prone to absorbing and retaining moisture include, but are not limited to, the following:
a. Carpet
b. Drapery
c. Drywall
d. Masonry
e. Concrete
f. Furniture
g. Insulation
h. Casework,
i. Fiberboard
j. Wood floor
k. Wood doors
l. Fabric items
m. Particleboard
n. Finish carpentry

o. Acoustical ceiling
p. Wood finishes and trim
q. Cellulose, fibrous, or moisture absorbing materials and products
r. Any material or product that may promote, encourage, or sustain mold or mildew growth or the spores of same.

C. At the time of Contract Execution, submit the following:
1. A signed Moisture Control Certification, which is located in front of this Project Manual.
2. Complete and detailed procedures that describe the following conditions:
a. Manufacturer's certification for any listed materials or products that are normally used in the building shell and for which the manufacturer claims that moisture will not harm the material or product will not promote or support the growth of mold or mildew.
b. Identification of moisture and mold on or in any of the listed materials and products, whether being unloaded, staged, or in-place.
c. Protection of any of the listed materials and products during staging, handling, and while in place.
d. Disposition of materials and products that are wet, show signs of having been wet, or have evidence of mold or mildew on arrive at the site or off-site staging/storage location.
d. Removal of materials or products that have been identified as being wet or having signs of mold or mildew.

D. Methods to prevent mold, mildew, other fungi, and their related spores include, but are not limited to, the following:
1. Comply with the provisions for "Temporary Use Of Owner's HVAC" as stipulated in Section 01500 of the Specifications.

2. Establish and enforce proper and effective construction sequencing throughout the project to protect moisture sensitive products and materials from contamination.

3. Monitor interior humidity levels and provide proper ventilation during construction to promote drying and curing of concrete, masonry, fireproofing, drywall, etc. and to prevent mold/mildew formation. This is especially critical during humid or wet weather conditions.

4. Take necessary precautions for moisture conditions/surfaces that may be concealed after constructions.

5. Immediately dry leaks, spills, or other moisture that has entered the structure or building shell and monitor and regulate, as necessary, water generating activities to prevent mold/mildew contamination.

6. Be constantly alert for any signs of mold, mildew, and musty odors and take prompt remedial and preventative action at their first sign. Encapsulation is not an acceptable treatment.

7. Erect the exterior finish (masonry, siding, EIFS, etc.) of the building shell as quickly as possible to protect internal components (sheathing, insulation, blocking, etc.) of building shell. Protect these components until the exterior finish is installed.

8. Use all possible means and methods to prevent moisture intrusion into the structure after any of the listed materials or products have been installed.

9. Any listed material or product that arrives on the job site wet or shows evidence of having been wet shall be considered defective, shall be rejected, and promptly removed from the site.

10. Keep the listed materials and products from direct contact with moisture. Use all necessary means to keep materials dry during staging and after installation. Take all measures to close openings in the building shell after installation of building materials and products. Promptly remove from the site all materials and products that have become wet and have an unacceptable moisture level or that may produce or encourage the growth of mold as determined by an independent testing laboratory that is acceptable to the Owner and Contractor.

11. When materials and products are wrapped, and moisture has condensed on the inside of the wrapping, the materials that are wrapped shall be tested by the independent testing agency. If the agency determines that the materials are wet, those materials shall be removed from the site promptly at the contractor's expense.

12. Do not install any of the listed materials and products until they are completely protected from direct contact with moisture or water.

13. Promptly remove from the site all materials and products, including porous products such as masonry, that show signs of mold, mildew, and musty odors even if already installed. Procedures to only clean surfaces to remove the mold, mildew, and musty odors are not acceptable.

14. Take all measures to prevent scrap and waste materials from being covered or buried in the construction.

15. Prevent moisture accumulation and promote drying by providing air circulation and temperature control during installation of systems that dissipate moisture such as plaster, sprayed fireproofing, concrete, drywall finishing, etc. Refer to Section 01500 for procedures regarding temporary use of the Owner's HVAC system.

16. None of the listed materials or products shall be installed until the building is completely in the dry, and not prior to completing moisture producing operations (concreting, plastering, plastering, sprayed fireproofing, etc. Any of these materials or products that are installed prior to the building being in the dry or completing moisture producing operations shall be promptly removed from the site and replaced with new materials at the contractor's expense.

17. Coordinate construction activities to ensure that the listed materials and products are not exposed to moisture or to conditions that will initiate, promote, or encourage the growth of mold or mildew or that will otherwise be detrimental to the materials and products. Where a manufacturer's requirements for ambient conditions (such as the HVAC operational and temperature and humidity stabilized at expected operating levels) exceed these requirements, the most stringent shall govern.

18. Keep all HVAC duct covered and sealed when the system is not operating to prevent dust from entering system. Keep air-conditioning ducts free of moisture and condensation pans and lines operational and unclogged. Ensure that other water sources are not draining into condensation pans.
    a. Keep HVAC filters and ducts clean during construction. (Use pleated filters).
    b. Do not operate HVAC when dusty (sawing, sweeping, sanding, etc.) operations are being performed.
    c. Use air filtration devices (dust collectors) on sanding and sawing equipment.

d. Use freestanding air filtration devices.
e. Do not operate HVAC when doors and windows are open.

19. Do not conduct any dust-producing activities when the HVAC system is operating. Secure the system and seal all duct openings prior to performing any dust-producing operations.

END OF SECTION 01 60 00

SECTION 01 73 00 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Field engineering and surveying.
3. General installation of products.
4. Moisture Control.
5. Coordination of Owner-installed products.
6. Progress cleaning.
7. Starting and adjusting.
8. Protection of installed construction.
9. Correction of the Work.

B. Related Sections include the following:

1. Division 01 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
2. Division 01 Section "Submittal Procedures" for submitting surveys.
3. Division 01 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
4. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 SUBMITTALS

A. Certificates: Submit certificate signed by land surveyor professional engineer certifying that location and elevation of improvements comply with requirements.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

C. Certified Surveys: Submit 2 copies signed by land surveyor.

D. Final Property Survey: Submit 2 copies showing the Work performed and record survey data.

1.4 QUALITY ASSURANCE

A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.

1. Before construction, verify the location and points of connection of utility services.

B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

a. Description of the Work.
b. List of detrimental conditions, including substrates.
c. List of unacceptable installation tolerances.
d. Recommended corrections.

2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.

1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
3. Inform installers of lines and levels to which they must comply.
4. Check the location, level and plumb, of every major element as the Work progresses.
5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 MOISTURE CONTROL

A. General: The Contractor shall be responsible to maintain the building free of mold and other conditions that may promote mold or may be interpreted as detrimental to Indoor Air Quality, including hiring and paying for applicable specialists or consultants, if necessary.

1. The Contactor shall be responsible for coincidental damage related to moisture intrusion or accumulation related to the Contractor's failure to take the necessary precautions and preventive measure to prevent moisture intrusion and accumulation.

B. At the time of Contract Execution, submit the following:

1. Complete and detailed procedures that describe the following conditions:
    a. Manufacturer's certification for listed materials or products that are normally used in the building shell and for which the manufacturer claims that moisture will not harm the material or product will not promote or support the growth of mold or mildew.
    b. Identification of moisture and mold on or in listed materials and products, whether being unloaded, staged, or in-place.
    c. Protection of listed materials and products during staging, handling, and while in place.
    d. Disposition of materials and products that are wet, show signs of having been wet, or have evidence of mold or mildew on arrival at the site or off-site staging/storage location.
    e. Removal of materials or products that have been identified as being wet or having signs of mold or mildew.

C. Fibrous and cellulose-base materials and products that become wet and are not dried within 24 hours can initiate and promote the growth of mold and mildew. Saturation of these materials is not necessary to initiate the mold cycle.

1. Detecting the presence of and preventing the spread of mold, mildew, other fungi, and their spores is of paramount importance during construction of this Project and after Owner occupancy. Procedures used to handle, stage, and install materials and products will impact and affect the growth of mold and mildew during construction and after Owner occupancy.
2. Building materials and products that are prone to absorbing and retaining moisture include, but are not limited to, the following:
    a. Drywall
    b. Insulation
    c. Casework
    d. Fiberboard
    e. Wood products such as flooring, doors, trim and finishes
    f. Fabric items
    g. Particleboard
    h. Finish carpentry
    i. Carpet
    j. Acoustical ceiling tile
    k. Other cellulose, fibrous, or moisture absorbing materials and products
    l. Material or product that may promote, encourage, or sustain mold or mildew growth or their spores.
3. Where a manufacturer's requirements for ambient conditions (such as the HVAC operational and temperature and humidity stabilized at expected operating levels) exceed these requirements, the most stringent shall govern.

D. Methods to prevent mold, mildew, other fungi, and their related spores include, but are not limited to, the following:

1. Establish and enforce effective construction sequencing throughout the Project to protect moisture sensitive listed products and materials from contamination. Keep materials dry during staging and after installation.
2. Erect the exterior cladding of the building shell as quickly as possible to protect internal components of building shell. Protect these components until the exterior finish is installed.
3. Monitor interior humidity levels, provide ventilation and temperature control during installation of systems that dissipate moisture such as plaster, sprayed fireproofing, concrete, and drywall finishing, especially during humid or wet weather conditions.
4. Do not install listed materials or products until the building is completely in the dry, exterior openings are closed and moisture producing operations are completed.
5. Take necessary precautions for moisture conditions/surfaces that may be concealed after constructions.
6. Immediately dry leaks, spills, or other moisture that has entered the structure or building shell.
7. Watch for signs of mold, mildew, and musty odors and take prompt remedial and preventative action at their first sign. Encapsulation is not an acceptable treatment.
8. Reject and remove wetted listed material or product:
    a. That arrives on the job site wet or shows evidence of having been wet; it shall be considered defective.
    b. If moisture has condensed on the inside of wrapping of listed materials and products, have the material tested. An independent testing laboratory, acceptable to the Owner and Contractor, shall make the determination
    c. That are installed prior to the building being in the dry or completing moisture producing operations. Replace with new materials at no additional expense to the Owner.
    d. That show signs of mold, mildew, and musty odors, even if already installed. Applies also to porous products such as masonry. It is not acceptable to only clean surfaces to remove the mold, mildew, and musty odors.
    e. That become wet and have an unacceptable moisture level or may produce or encourage the growth of mold. An independent testing laboratory, acceptable to the Owner and Contractor, shall make the determination.
9. Comply with the provisions for Temporary Use Of Owner's HVAC Equipment, found in Division 1 Section "Temporary Facilities and Controls".
10. Keep HVAC ducts sealed when the system is not operating. If use is intermittent, secure the system prior to performing dust-producing operations. Keep them free of moisture. Keep condensation pans and lines operational and unclogged. Ensure that other water sources are not draining into condensation pans.
11. Prior to Substantial Completion, contract with an independent licensed and professional testing agency, acceptable to the Owner and Architect, which specializes in indoor air quality.
    a. Take recommended and required corrective action to bring unacceptable conditions to an acceptable level, as determined by additional air sampling, at no additional cost to the Owner. This testing agency shall be responsible for, but not limited to the following:
        1) Sampling air of all spaces and analyzing for mold and mold spores.
        2) Sending copies of reports to the Owner, the Architect, and the Contractor. Show actual levels of each space tested and denote areas that are not within acceptable limits.

3) Submitting recommendations to bring unacceptable areas to acceptable levels.
4) Acceptable levels/conditions shall be determined by comparing samples of indoor air with samples of background and outside air. The mold content of indoor air samples shall not exceed that of the background and outdoor air samples. Additionally, the indoor air samples shall not contain traces of mold that would not ordinarily be found in the outside air.

E. At Substantial Completion, execute a Moisture Control Certification, located in Division 00 of the Project Manual.

3.5 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated on drawings.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
4. Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the indicated results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Anchors and Fasteners: Provide anchors and fasteners to secure each component in place, accurately located and aligned with other portions of the Work.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Do not use products, cleaners, and installation materials that are considered hazardous.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area.

D. Daily Cleaning: Comply with the following daily cleanup requirements:

1. Do not allow trash, debris, waste, defective and unused materials, equipment and tools to collect in the work areas, areas objectionable to the Owner, or in areas that will be unsightly to passersby. Remove these items regularly and dispose of in approved manner.
2. Keep work area clean and free of clutter.
3. Secure materials, equipment, and tools to prevent movement during windy conditions. Do not allow material or debris to become airborne.
4. Cover materials, equipment, and tools completely at the end of each day to prevent water entry and so that covers will not loosen or separate during windy conditions.
5. Promptly remove unused or unneeded sharp or pointed objects, including sheet metal, that may puncture, cause injury or damage to the Work.
6. Keep fasteners and anchors, including screws and nails, in rigid storage containers until ready for use. Put used or defective mechanical fasteners in a designated rigid container that is clearly marked, SCRAP. Do not allow used or defective fasteners to mix with new fasteners.

E. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

F. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

G. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect to ensure freedom from damage and deterioration at time of Substantial Completion.

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

I. Clean and provide maintenance on completed construction through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Protect construction in progress and adjoining materials in place, during handling and installation. Apply protective covering where required to assure protection from damage or deterioration at Substantial Completion.

B. Maintain completed construction through the remainder of the construction period. Adjust and lubricate operable components to assure operability without damaging effects.

C. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

D. Limiting Exposures: Supervise operations to prevent Work, completed or in progress, from harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period, such as the following:

1. Excessively high or low temperatures.
2. Thermal shock.
3. Excessively high or low humidity.
4. Water or ice.
5. Light.
6. Puncture, abrasion.
7. Heavy traffic.
8. Soiling, staining, and corrosion.
9. Rodent and insect infestation.
10. Combustion.

11. Electrical current.
12. Unusual wear or other misuse.
13. Contact between incompatible materials.
14. Misalignment.
15. Excessive weathering.
16. Unprotected storage.
17. Improper shipping or handling.
18. Theft and vandalism.

E. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."

1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 73 00

SECTION 01 73 29 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes procedural requirements for cutting and patching.
   1. Providing and paying for all required personnel air monitoring according to OSHA Standard 29 CFR 1926.62, relative to lead-based paints.

B. Related Sections include the following:

   1. Division 02 Section "Selective Demolition" for demolition of selected portions of the building.
   2. Divisions 02 through 33 Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.
   3. Division 07 Section "Firestopping" for patching fire-rated construction.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

C. Lead-Based Paint: The most severe of paint that contains more than 6 percent lead by weight (600 mg/kg) as stipulated by the SCDHEC (South Carolina Department of Health and Environmental Control) or requirements as stipulated by other governing authorities having jurisdiction.

1.4 SUBMITTALS

A. Cutting and Patching Proposal: Submit a proposal describing procedures at least 15 days before the time cutting and patching will be performed, requesting approval to proceed. Include the following information:

   1. Extent: Describe cutting and patching, show how they will be performed, and indicate why they cannot be avoided.
   2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building's appearance and other significant visual elements.

3. Products: List products to be used and firms or entities that will perform the Work.
4. Dates: Indicate when cutting and patching will be performed.
5. Utility Services and Mechanical/Electrical Systems: List services/systems that cutting and patching procedures will disturb or affect. List services/systems that will be relocated and those that will be temporarily out of service. Indicate how long services/systems will be disrupted.
6. Structural Elements: Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.
7. Architect's Approval: Obtain approval of cutting and patching proposal before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

B. Certifications: Submit a copy of the following certifications to the Architect:

1. For each applicator, their current lead certification, in conformance with OSHA Standard 29CFR1926.62, showing date, place, and type of certification. Lead paint certifications for each applicator shall be maintained throughout the painting contract.
2. Lead physicals for each applicator in conformance with OSHA Standard 29CFR1926.62. Lead physicals for each applicator shall be maintained throughout the painting contract.

1.5 QUALITY ASSURANCE

A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.

1. Elements that might otherwise be overlooked as structural elements and that require Architect's approval of a cutting and patching proposal.

B. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operating elements include the following:

1. Primary operational systems and equipment.
2. Air or smoke barriers.
3. Fire-suppression systems.
4. Mechanical systems piping and ducts.
5. Control systems.
6. Communication systems.
7. Conveying systems.
8. Electrical wiring systems.
9. Operating systems of special construction in Division 13 Sections.

C. Miscellaneous Elements: Do not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Miscellaneous elements include the following:

1. Water, moisture, or vapor barriers.
2. Membranes and flashings.
3. Exterior curtain-wall construction.

4. Equipment supports.
5. Piping, ductwork, vessels, and equipment.
6. Noise- and vibration-control elements and systems.

D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1. If possible retain the original Installer or fabricator to cut and patch the exposed Work. If it is impossible to engage the original Installer or fabricator, engage another recognized experienced and specialized firm.
2. Comply with the recommendations and instructions of the manufacturer of the Work to be cut and patched and of the materials being used for cutting and patching.
3. Incorporate materials and procedures of a quality not less than used in the original construction, recommended by the manufacture of the Work being cut and patched, and acceptable to the Architect.
4. Match the finish, profile, and dimensions, and shall not compromise design, function, operation, and performance of the Work that was cut and patched.
5. Where cutting and patching is necessary on work that is under warranty, cutting and patching shall not compromise, void or reduce the conditions and provisions of warranties or insurance that are in effect.
6. Where cutting and patching may compromise the conditions and provisions of a warranty or insurance, notify the Architect prior to starting cutting or patching operations.
7. The Architect reserves the right to accept and approve cutting and patching. Acceptance and approval shall be based on overall aesthetics, performance, function, and operation.

E. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.6 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. In-Place Materials: Use materials identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with in-place finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize or prevent interruption to occupied areas.

E. Lead-based paints:
1. Applicators involved in the disturbance of lead-based paint must comply with OSHA 29 CFR 1926.62. OSHA requires that the employees involved in the contact of lead-based paint must be trained, must have medical examinations (if the action level is exceeded during work activities involving the disturbance of lead-based paint), and must have an exposure assessment performed. If the employee is exposed to levels over the Permissible Exposure Limit (PEL), other work engineering and personnel protective equipment requirements of OSHA must be followed in accordance with 29 CFR 1926.62.
2. Perform required personnel air monitoring to establish employee exposure assessments in accordance with OSHA 29 CFR 1926.62 when working with lead-based paints. Send copy of the air monitoring reports to the Architect.
3. Prior to the disturbance of lead-based painted surfaces, place a layer of six mil polyethylene sheeting on the floor beneath the work area. The intent of work-related activities involving the disturbance of lead-based paint is to minimize large accumulations of lead. Clean up floors and other surfaces contaminated with lead-based paint dust/chips by vacuuming and/or wet wipe methods to minimize the likelihood of lead becoming airborne. The vacuum shall be equipped with HEPA filters. Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.
4. All construction debris having painted surfaces exceeding 0.06% lead must be disposed of in a municipal solid waste landfill (lined landfill) according to SCDHEC Division of Solid and Waste Planning and Recycling pertaining to waste disposal requirements. Hazardous waste shipments shall be accompanied by a Uniform Hazardous Waste

Manifest that shall be properly completed and copies returned to the Architect before the Contractor receives final payment.

5. Upon completion of all work activities involving the disturbance of lead-based painted surfaces including the exterior of the building, the Environmental Consultant will conduct a final visual inspection of the areas. Provided the areas are visibly clean, clearance testing shall be performed. The clearance test will include the collection of wipe samples from the interior areas of the building. These results will be compared to current regulatory requirements as outlined EPA 40 CFR Part 745. Should the clearance samples fail to meet the regulatory requirements outlined in EPA 40 CFR Part 745, the contractor will be required to perform additional cleaning, and a second clearance test will be performed at the Contractor's expense for all professional and laboratory fees.

3.3 PERFORMANCE

A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay. All cutting and patching shall be by the general contractor.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
6. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.

a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
b. Restore damaged pipe covering to its original condition.

3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

D. Replacing Existing Materials, Components, Equipment: Where the Work requires the removal of existing materials, components, and equipment (items) and replacing them with new, the replacement items shall match the finish, appearance, and function of that removed, unless directed otherwise.

1. If there is a conflict with these requirements or there is an uncertainty with these requirements, notify the Architect for interpretation and clarification. Do not order or install replacement materials, components, or equipment without this understanding. There will be no additional compensation in time or money for installed replacement items that do not meet this requirement.
2. Where a replacement item does not match the existing item, or when installed, the replacement item will leave mounting holes or unfinished surfaces, notify the Architect for interpretation.
3. When it is necessary to install new items as a replacement for existing items, and the mounting holes and exposed surfaces from the previous items will be exposed, fill the vacant holes and dress smooth, even, and flush with the adjacent surfaces. Finish filled areas and exposed surfaces to match the color and gloss of the existing adjacent surfaces.
4. Contact the Architect for the disposition of items that are to be removed and replaced with new items.
5. Where the Work requires the replacement of electrical or electronic items, comply with the requirements of applicable governing authorities. Wire and coax shall be concealed, unless otherwise approved. If exposed wire/coax is approved, run it in metallic conduit/wire molding finished to match adjacent surfaces. Exterior installations shall be in approved weatherproof conduit.

E. Replacing Roofing Materials: In addition to other provisions of this section,

1. Coordinate cutting and patching with the roof system manufacturer and ensure that it records the work being done. Describe in detail the work that is proposed.
2. Coordinate cutting and patching with the applicable discipline (mechanical, electrical, architectural, structural).
3. Perform cutting and patching with skilled professionals experienced in their respective trades and specializing in the type of roof system being penetrated or disturbed.
4. Use the same materials produced by the roof system manufacturer.
5. Do not use materials that will void or diminish the Owner’s existing roof warranty.
6. Frame openings 12 inches and longer in either direction with galvanized steel angle and channel. Refer to Division 05 Section “Metal Fabrications”.
7. Ensure that the roof system is in a watertight condition at the close of each day, when wet conditions are imminent, and if areas where cutting and patching occur will be unattended for longer than one hour.
8. Arrange for a representative of the existing roof system to examine completed cutting and patching. This representative shall issue a report of the findings, that the cutting and patching comply with the manufacturer’s requirements, and that the existing roof warranty shall include the cutting and patching and disturbed areas.

3.4 CLEANING

A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

END OF SECTION 01 73 29

SECTION 01 74 19 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

B. Related Sections include the following:

1. Division 01 Section "Environmental Requirements" for environmental protection measures during construction.
2. Division 01 Section "Execution" for progress cleaning requirements.
3. Division 02 Section "Selective Demolition" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements, and for disposition of hazardous waste.
4. Division 04 Sections "Unit Masonry" for disposal requirements for masonry waste

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of minimum 75 percent by weight of total waste generated by the Work.

B. Salvage/Recycle Requirements: Owner's goal is to salvage and recycle as much nonhazardous demolition and construction waste as possible including the following materials:

1. Demolition Waste:

a. Asphaltic concrete paving.
b. Concrete and reinforcing steel.
c. Brick and concrete masonry units.
d. Wood studs and joists, paneling and trim
e. Plywood and oriented strand board.
f. Structural and miscellaneous steel.
g. Rough hardware.
h. Roofing.
i. Insulation.
j. Doors, frames and hardware.
k. Windows and glazing.
l. Metal studs.
m. Gypsum board.
n. Acoustical tile and panels.
o. Carpet and pad.
p. Demountable partitions.
q. Equipment.
r. Cabinets.
s. Plumbing fixtures, piping, valves, sprinklers, supports and hangers.
t. Mechanical equipment, refrigerants.
u. Electrical conduit and copper wiring.
v. Lighting fixtures, lamps and ballasts.
w. Transformers, electrical devices, switchgear and panelboards.

2. Construction Waste:

a. Site-clearing waste.
b. Masonry and CMU.
c. Lumber, wood sheet materials and trim.
d. Metals.
e. Roofing.
f. Insulation.
g. Carpet and pad.
h. Gypsum board.
i. Piping.
j. Electrical conduit and wiring
k. Paper, cardboard and boxes.
l. Plastic sheet and film.
m. Polystyrene packaging.
n. Wood crates.
o. Plastic pails.

1.5 SUBMITTALS

A. Waste Management Plan: Submit plan within 7 days of date established for the Notice to Proceed.

B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Provide separate reports for demolition and construction waste. Include the following information:

1. Material category
2. Total quantity of waste in tons.
3. Quantity of waste salvaged in tons.
4. Quantity of waste recycled in tons.
5. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.

C. Waste Reduction Calculations: Before request for Substantial Completion, submit 3 copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

G. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

H. LEED Submittal: Complete LEED credit template for MR credit 2, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements for the credit have been met.

I. Qualification Data: For Waste Management Coordinator and refrigerant recovery technician.

J. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that refrigerant was recovered compliant with EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 QUALITY ASSURANCE

A. Waste Management Coordinator Qualifications: LEED Accredited Professional. Waste management coordinator may also serve as Contractor’s LEED coordinator.

B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.

C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

D. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management & Coordination." Review methods and procedures related to waste management including, but not limited to, the following:

1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
2. Review requirements for documenting quantities of each type of waste and its disposition.
3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
5. Review waste management requirements for each trade.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Include separate sections in plan for demolition and construction waste. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of demolition site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.

D. Forms: Use form to match that required in LEED credit template.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement waste management plan approved by Architect. Provide handling, containers, storage, signage, transportation, and other items required to implement waste management plan during the entire duration of the Contract.

1. Comply with Division 01 Section "Temporary Facilities and Controls" for operation, termination, and removal requirements.

B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.

C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures appropriate for the Work occurring at Project site.

1. Distribute waste management plan to everyone concerned within 3 days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
2. Comply with Division 01 Section "Environmental Requirements" for controlling dust and dirt, environmental protection, and noise control.

3.2 SALVAGING DEMOLITION WASTE

A. Salvaged Items for Reuse in the Work:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until installation.
4. Protect items from damage during transport and storage.
5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.

B. Salvaged Items for Sale and Donation: Not permitted on Project site.

C. Salvaged Items for Owner's Use:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's designated storage area.

5. Protect items from damage during transport and storage.

D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle beverage containers used by on-site workers.

B. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

C. Asphaltic Concrete Paving: Grind asphalt to maximum 1-1/2-inch size.

1. Crush asphaltic concrete paving and screen to comply with requirements in Division 31 Section "Earth Moving" for use as general fill.

D. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.

E. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 1-1/2-inch size.
2. Crush concrete and screen to comply with requirements in Division 31 Section "Earth Moving" for use as satisfactory soil for fill or subbase if approved by project Civil Engineer and Geotechnical Consultant.

F. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.

1. Pulverize masonry to maximum 1-1/2-inch size.

a. Crush masonry and screen to comply with requirements in Division 31 Section "Earth Moving" for use as general fill or subbase if approved by project Civil Engineer and Geotechnical Consultant.

2. Clean and stack undamaged, whole masonry units on wood pallets.

G. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.

H. Metals: Separate metals by type on site if practical.

I. Gypsum Board: Separate for recycling if practical

J. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.

1. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.

K. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.

1. Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency or carpet recycler.

L. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment from exposure to weather.

M. Plumbing Fixtures: Separate by type and size for possible re-use.

N. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.

O. Lighting Fixtures: Separate lamps by type and protect from breakage.

P. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.

Q. Conduit: Reduce conduit to straight lengths and store by type and size.

R. Electrical Wiring: Document weight of copper or aluminum wiring that is take to recycling facilities.

S. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
3. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

T. Site-Clearing Wastes: Chip brush, branches, and trees on-site.

1. Comply with requirements in Division 32 Section "Plants" for use of chipped organic waste as organic mulch.

3.4 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in an EPA approved landfill acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Collect waste from construction areas and elsewhere daily.
3. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
4. Comply with requirements of authorities having jurisdiction and NFPA 241 for removal of combustible waste material and debris.
5. 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.
6. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 01 74 19

SECTION 01 77 00 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection procedures.
2. Operations and Maintenance Data: Operation and maintenance documentation directory, Operation manuals for systems, subsystems, and equipment, Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.
3. Project record documents: Record Drawings, Record Specifications, and Record product data.
4. Demonstration and Training: of operation of systems, subsystems, and equipment.
5. Final cleaning.

B. Related Sections include the following:

1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
2. Division 01 Section "Project Management and Coordination" for submitting Final Completion construction photographs and negatives.
3. Division 01 Section "Execution" for progress cleaning of Project site.
4. Division 01 Section “Warranties” for warranty requirements.
5. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 DEFINITIONS

A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.

B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 MAINTENANCE MANUALS

A. Initial Submittal: Submit 3 draft copies of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect will return 1 of draft and mark whether general scope and content of manual are acceptable.

B. Final Submittal: Submit 1 of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.

1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

C. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

1.5 RECORD DOCUMENTS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit 1 set of marked-up Record Drawings.
   a. Electronic Media: CD-R.

B. Record Specifications: Submit 1 of Project's Specifications, including addenda and contract modifications.

C. Record product data: Submit 1 of each product data submittal.

D. Where Record product data is required as part of operation and maintenance manuals, submit marked-up product data as an insert in manual instead of submittal as Record product data.

1.6 DEMONSTRATION AND TRAINING

A. Instruction Program: Submit 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 outline for each training module.

1. At completion of training, submit 1 complete training manual(s) for Owner's use.

B. Attendance Record: For each training module, submit list of participants and length of instruction time.

C. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

D. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." 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.

1.7 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs and image files, damage or settlement surveys, property surveys, and similar final record information.
6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
8. Complete startup testing of systems.
9. Submit test/adjust/balance records.
10. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
11. Advise Owner of changeover in heat and other utilities.
12. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
13. Complete final cleaning requirements, including touchup painting.
14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, which must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.8 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures." Documents include but are not limited to the following:
   a. AIA G706 - Contractor’s affidavit of Payments of Debts and Claims.
   b. AIA G706A - Contractor’s affidavit of Release of Liens.
   c. AIA G707 - Consent of Surety to Final Payment.
   d. Final statement accounting for the changes to the Contract Sum.

e. The final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
f. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, endorsed and dated by the Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Architect.
g. A final liquidated damages settlement statement.

2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit pest-control final inspection report and warranty.
5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training notes**.**

B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.9 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Preparation: Submit 3 copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

a. Project name.
b. Date.
c. Page number.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

A. Organization: Include a section in the directory for each of the following:

1. Table of contents.
2. List of documents.
3. List of systems.

4. List of equipment.

B. Tables of Contents: Include a table of contents for each operation and maintenance manual.

C. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

D. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.

E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 MANUALS, GENERAL

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
c. Avoid placing loose, oversize drawings in binder pockets. Use reduced drawings or place folded drawings in labeled envelopes bound in manual.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:

1. System, subsystem, and equipment descriptions.
2. Performance and design criteria if Contractor is delegated design responsibility.
3. Operating standards.
4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:

1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:

1. Standard printed maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:

1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training videotape, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

2.6 RECORD DRAWINGS

A. Record Prints: Maintain one set of black-line white prints of the Contract Drawings and shop drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an understandable drawing technique.
c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Depths of foundations below first floor.
d. Locations and depths of underground utilities.
e. Revisions to routing of piping and conduits.
f. Revisions to electrical circuitry.
g. Actual equipment locations.
h. Duct size and routing.
i. Locations of concealed internal utilities.
j. Changes made by Change Order or Construction Change Directive.
k. Changes made following Architect's written orders.
l. Details not on the original Contract Drawings.
m. Field records for variable and concealed conditions.
n. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings or shop drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If shop drawings are marked, show cross-reference on the Contract Drawings.
4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Organize Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Identification: As follows:

a. Project name.
b. Date.
c. Designation "PROJECT RECORD DRAWINGS."
d. Name of Architect.

e. Name of Contractor.

2.7 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether Record product data has been submitted in operation and maintenance manuals instead of submitted as Record product data.
5. Note related Change Orders, Record product data, and Record Drawings where applicable.

2.8 RECORD PRODUCT DATA

A. Preparation: Mark product data to indicate the actual product installation where installation varies substantially from that indicated in product data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.9 MISCELLANEOUS RECORD SUBMITTALS

A. Examples of miscellaneous Record Submittals in this Article include documentation of foundation depths, special measurements, tests and inspections, surveys, mix records, and inspections by authorities having jurisdiction. If necessary, add a list of specific submittals.

B. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference

C. Submit an executed copies of the Asbestos-Free Certification from the General Contractor and all subcontractors, vendors, and suppliers.

D. Submit the Original executed Moisture Control Certification.

E. Submit copies of all roof inspection reports conducted by the roof manufacturer inspector or the third party inspector or both as applicable.

F. Submit legible and clear color copies of all photographs an videos made during all phases of construction, whether required by the contract documents or not. Submit photos in an album or binder neatly arranged with proper labels/captions by phase, area, and in chronological

order. Blurred, fuzzy, out-of-focus, or black and white copies are not acceptable. Photographs and videos may be submitted on CD's or DVD's with proper labels/captions by phase, area, and in chronological order may be submitted instead of a binder or album.

2.10 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. Equipment, laboratory equipment
2. Fire-protection systems.
3. Intrusion detection systems.
4. Conveying systems.
5. Medical equipment, including medical gas equipment and piping.
6. Heat generation, refrigeration and HVAC systems, instrumentation and controls.
7. Electrical service and distribution, packaged engine generators, transfer switches.
8. Lighting equipment and controls.
9. Communication systems and equipment.

B. Training Modules: Develop a teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, 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.

2.11 CLEANING MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or might damage finished surfaces.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

C. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.

D. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.

3.2 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

3.3 DEMONSTRATION AND TRAINING

A. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.

1. Owner will furnish Contractor with names and positions of participants.

B. 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 Architect, with at least 7 days' advance notice.

C. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of a demonstration performance-based test.

D. Cleanup: Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

3.4 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Remove snow and ice to provide safe access to building.
f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
h. Sweep concrete floors broom clean in unoccupied spaces.
i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
k. Remove non-permanent labels.
l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or already show evidence of repair or restoration.

1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

m. Wipe surfaces of mechanical and electrical**,** elevator and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
n. Replace parts subject to unusual operating conditions.
o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
q. Clean ducts, blowers, and coils if units were operated without filters during construction.
r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
s. Leave Project clean and ready for occupancy.

C. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests. Submit report.

END OF SECTION 01 77 00

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for preparing operation and maintenance manuals, including:

1. Emergency manuals.
2. Operation manuals for systems, subsystems, and equipment.
3. Maintenance manuals for the care and maintenance of products, materials, finishes, systems and equipment.

1.2 SUBMITTALS

A. Manual: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.

1. Correct or modify each manual to comply with Architect's comments. Submit 2 copies of each corrected manual within 10 days of receipt of Architect's comments.

PART 2 - PRODUCTS

2.1 MANUALS, GENERAL

A. Coordinate maintenance and operation training materials with Owner.

B. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.

C. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name, address, and telephone number of Contractor.
6. Name and address of Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

D. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

E. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

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

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 EMERGENCY MANUALS

A. Content: Organize manual into a separate section for type of emergency, emergency instructions, and emergency procedures.

B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component for fire flood gas leak water leak power failure water outage equipment failure and chemical release or spill.

C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.

D. Emergency Procedures: Include instructions on stopping, shutdown instructions for each type of emergency, operating instructions for conditions outside normal operating limits, and required sequences for electric or electronic systems.

2.3 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.

B. Descriptions: Include the following:

1. Product name and model number.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include start-up, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.4 PRODUCT MAINTENANCE MANUAL

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and inspection procedures, types of cleaning agents, methods of cleaning, schedule for cleaning and maintenance, and repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including maintenance instructions, drawings and diagrams for maintenance, nomenclature of parts and components, and recommended spare parts for each component part or piece of equipment:

D. Maintenance Procedures: Include test and inspection instructions, troubleshooting guide, disassembly instructions, and adjusting instructions that detail essential maintenance procedures:

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.

1. Do not use original Project Record Documents as part of operation and maintenance manuals.

F. Comply with Section 01 77 00 - Closeout Procedures for schedule for submitting operation and maintenance documentation.

END OF SECTION 01 78 23

SECTION 01 78 36 - WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on products and special warranties:

1. Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

B. Related Sections include the following:

1. Division 01 Section "Submittal Procedures" for procedures for submitting warranties.
2. Division 01 Section "Closeout Procedures" for Project closeout.
3. Divisions 02 through 33 for Sections for specific content requirements for warranties and special warranties on products and installations specified to be warranted.

C. 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. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1. Warranties shall begin on the date of substantial completion. If the manufacturer’s or provider’s warranty begins on the date of shipment or delivery or some other date that precedes the Date of Substantial Completion, provide a gap warranty to extend the warranty period by such a time to ensure that the Owner receives the full warranty period specified in the Contract Document beginning with the Date of Substantial Completion.
2. Warranties shall be written to cover the Owner and shall name the Project location. Warranties written for the benefit of only the original purchaser are not acceptable.
3. Warranties that require the Owner’s signature to become affective are not acceptable and will be rejected.

1.3 DEFINITIONS

A. Standard warranties: Preprinted written warranties published by individual manufacturers for particular products and specifically endorsed by the manufacturer to the Owner.

B. Special warranties: 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 failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.

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 comply with requirements of the 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.

1. Warranties shall have provisions to cover the costs for labor, materials, fees, taxes, shipping, handling, equipment and other incidental costs associate with restoring Work to an acceptable condition.

D. Warranties and their provisions for material, equipment, components, systems, subsystems, or other entities that are covered by a Warranty or that require a Warranty, shall pass directly to and apply directly to the Party whose name appears as the Owner in Contract Documents.

E. Owner's Recourse: Expressed 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. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies. Written or expressed warranties shall not be in lieu of or void or dilute the Owner’s rights provided under the Uniform Commercial Code (UCC).

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

F. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

A. Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. 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 15 days of completion of that designated portion of the Work.

D. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, 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.

E. Form of Submittal: At Final Completion, compile 2 copies of each required warranty 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.

1. Provide additional copies of each warranty to include in operation and maintenance manuals

F. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.

1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness to accommodate contents, and sized to receive 8-1/2-by-11-inch paper
2. Provide heavy paper dividers with celluloid covered tabs for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project title or name, and name of the Contractor
4. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty for inclusion in each required manual.

G. Cutting and Patching: For areas involving cutting and patching, issue a certification, from the manufacturer of the materials and systems being cut and patched stating that all conditions and provisions of existing warranties and insurance will remain in effect. Where cutting and patching materials are by manufacturers other than those of the original manufacturer, provide a certification that the materials will not affect the conditions and provisions of existing warranties and insurance.

PART 2 - PRODUCTS not used

PART 3 - EXECUTION not used

END OF SECTION 01 78 36

SECTION 01 78 39 PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Administrative and procedural requirements for Project Record Documents, including:

1. Record Drawings.
2. Record Specifications.

1.2 SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set(s) of marked-up Record Prints.
2. Number of Copies: Submit copies of Record Drawings as follows:

a. Initial Submittal: Submit one set of marked-up Record Prints. Architect will mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return prints for organizing into sets, and final submittal.
b. Final Submittal: Submit one set(s) of marked-up Record Prints.

B. Record Specifications: Submit two copies of Project's Specifications, including addenda and contract modifications.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.

1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.

3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Transparencies: Immediately before inspection for Certificate of Final Completion, review marked-up Record Prints with Architect. When authorized, prepare a full set of corrected transparencies of the Contract Drawings and Shop Drawings.

1. Incorporate changes and additional information previously marked on Record Prints. Erase, redraw, and add details and notations where applicable.
2. Refer instances of uncertainty to Architect for resolution.
3. Architect will furnish Contractor one set of transparencies of the Contract Drawings for use in recording information.
4. Print the Contract Drawings and Shop Drawings for use as Record Transparencies. Architect will make the Contract Drawings available to Contractor's print shop.
   a.

C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.

2. Identification: As follows:

   a. Project name.
   b. Date.
   c. Designation "PROJECT RECORD DRAWINGS."
   d. Name of Architect.
   e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Provide two hard copies and copy on CD of complete sets of Designer approved shop drawings and operation and maintenance manuals shall be furnished to the Owner no later than fourteen (14) calendar days prior to final acceptance of the project by the Owner.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

C. Final payment will not be made until “As-Built Drawings” are turned over to the Designer and approved in writing by the Designer.

END OF SECTION 01 78 39

SECTION 01 81 16 - ENVIRONMENTAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes guidelines pertaining to protection of the environment. Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Environmental protections include:
   1. Avoiding air pollution.
   2. Avoiding water pollution.
   3. Avoiding noise pollution.
   4. General housekeeping.

B. DHEC (South Carolina Department of Health and Environmental Control), Architect, Owner, and authority having jurisdiction may inspect periodically during construction.

1.3 DEFINITIONS

A. Sediment Basin: Basin designed to collect and detain sediment-laden storm water runoff and release, at a slower rate, a much cleaner, better quality water.

1.4 CONTRACTOR RESPONSIBILITY

A. 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.

B. In addition to the responsibilities and duties described elsewhere in these documents, Contractor shall also be responsible to:

   1. DHEC site environmental permits not already obtained by the Owner,
   2. Arrange and coordinate a DHEC pre-construction meeting,
   3. Comply with provisions in the most current DHEC regulations,
   4. Maintain the site as stipulated in the approved DHEC permit,
   5. Fines and penalties levied by DHEC applicable to site control, water management, dust and noise control, and other applicable pollution issues,
   6. Site inspections and reporting,

1.5 COORDINATION

A. Schedule Work to expose areas subject to erosion for the shortest possible time.

B. Preserve natural vegetation beyond construction limits.

C. Locate temporary storage and construction buildings and route construction traffic to minimize soil disturbance and erosion.

PART 2 - PRODUCTS

PART 3 - EXECUTION

3.1 AIR POLLUTION

A. Open Burning: On-Site burning is not permitted.

B. Dust Control. Control dust throughout the Contract period within the Project area and other areas affected by the construction. This includes, but is not specifically limited to, paved and unpaved roads, haul roads, access roads, disposal sites, borrow pits, and material and equipment storage sites.

1. Dust control measures may include, but are not limited to, wetting down disturbed earth surfaces or eliminating traffic across them, removing accumulations of dirt from paved areas by hand or mechanical means, and washing streets at the end of the work day.
2. Perform dust control measures when required by the controlling agency for streets and roadways or the Architect.

3.2 WATER POLLUTION

A. Exercise every reasonable precaution throughout the construction period to prevent pollution of rivers, streams, and water impoundments.

1. Do not discharge pollutants such as chemicals, fuels, lubricants, asphalt, bitumen, concrete, grout, raw sewage, pesticides, herbicides, or other harmful waste into or alongside a watercourse, impoundment, or channel.

3.3 NOISE POLLUTION

A. Avoid use of tools and equipment that produce noise above 85 dB at a distance of 25 feet. Restrict use of noise-making tools and equipment to hours that will minimize complaints from persons or firms near the site.

B. If noise levels are above acceptable levels, erect sound barriers to control noise or conduct demolition during times that are less disturbing to the Owner or a combination of both.

C. Work that creates noise above 85 decibels must be performed between 3 P.M. and 8 A.M.

3.4 GENERAL HOUSEKEEPING

A. Ensure that vehicles and equipment have functional and operable mufflers and noise control apparatus.

B. Water down grading and excavation areas, drives and roads, parking areas, and disturbed areas that can produce dust.

1. Where demolition is a part of the Contract, the same dust and erosion controls apply to structures being demolished. Perform as much demolition on calm days as possible without interfering with or compromising schedules.

C. Hose down trucks including cargo box, wheels, axels, and chassis to remove dust and debris that may drop during transportation.

D. Keep vehicle windows clean for visibility.

E. Cover transport trucks with heavy-duty tarps that completely enclose the cargo box; tie down to prevent flapping, fluttering, or blowing debris. Tarps with holes or rips or that do not fit the cargo box are not acceptable.

1. Ensure that no debris is exposed or extends past the cargo box during transportation.

F. Clean up trash and debris droppings on public and private property resulting from this Work.

G. Repair damage to public and private property including buildings, structures, landscaping, roads, and highways that results from this Work.

END OF SECTION 01 81 16

SECTION 075216 - ROOF MEMBRANE REPAIRS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the contract, including the General and Special Conditions, as well as other Division 01 Specification Sections, apply to this section.

1.2 SUMMARY

A. Section Includes:

1. Scope of work includes roof repairs in locations where new roof top equipment is being incorporated.

    a. Existing roof system consist of a multi-ply modified bitumen Siplast Roof System installed over lightweight insulating concrete over a gypsum roof deck with structural framing.
    b. Base flashing system at new roof curbs and kitchen hood shall be Siplast Veral Aluminum / Foil-Surfaced flashing system.

2. Sheet metal flashings and associated components as shown in the contract drawing details shall be provided. Sheet metal shall be compatible with the material of that in which it is being applied to. If dissimilar conditions exist, separation is required.

    a. See sheet metal flashing notes on roof drawings.

3. All repairs will be completed per the required detail in coordination with Manufacturer written literature, NRCA standard practice and repair methods, and industry roof repair standards.

4. All repairs will be completed per roof repair specification and roof repair drawing sheets.

1.3 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D 1079 and glossary of NRCA's "The NRCA Roofing and Waterproofing Manual" apply to work of this Section.

1.4 PREINSTALLATION MEETINGS

A. Pre-installation Roofing Conference: Conduct conference at Project Site. attendance for roofing contractor, material manufacturer’s technical representative, all subcontractors, project manager, and project foreman.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For roofing system. Include plans, sections, details, and attachments to other work, including:

1.6 INFORMATIONAL SUBMITTALS

A. Research/Evaluation Reports: For components of membrane roofing system, from ICC-ES.

B. Contractor’s Three-year workmanship warranty.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

1.8 QUALITY ASSURANCE

A. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and as required to ensure that the manufacturer’s warranty is not voided by the work.

B. A copy of the latest manufacturer’s product data and installation guide shall be kept on the roof at all times during installation.

1.9 MATERIAL STORAGE

A. All materials shall be properly stored in accordance with industry standards and the manufacturer’s guidelines.
   1. Use good tarps, free of holes and tears. Secure properly.
   2. Store roll goods on end on pallets. Salvage edge shall be up.
   3. Cover insulation with tarps. Do NOT rely on the manufacturer’s plastic wrapping.
   4. Store all materials in a manner to prevent condensation.
   5. Do not overload the roof. Limit the amount of materials stored on the roof to the next day’s operation at a maximum.

1.10 WARRANTY

A. Contractor’s warranty period: Three years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Obtain components including: roof insulation, fasteners, base sheet, interply membrane, cap sheet, adhesives, flashing plies, temporary waterproofing membrane, and sealants all repair materials that shall be approved for use by the Consultant.

Mechanically Attached Venting Base Sheet -

1. Siplast Parabase FS

Torch Applied Base Sheets (Vapor Retarder)

1. Siplast Paradiene 20 TG

Torch Applied Base Sheets

1. Siplast Paradiene 20 HV TG Base Sheet

Cold Applied Base Sheets

2. Siplast Paradiene 20

Torch Applied Cap Sheet

3. Siplast Pardiene 30 FR TG Cap Sheet.

Cold Applied Cap Sheet

1. Siplast Paradiene 30 FR Cap Sheet.

B. Source Limitations: Obtain components including: roof insulation, cover board, fasteners, base sheet, cap sheet, adhesives, flashing plies, temporary waterproofing membrane, and sealants from the specified manufacturer in order to obtain a one source warranty.

2.2 PERFORMANCE REQUIREMENTS

A. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.

B. FM Global Listing: Roofing, base flashings, and component materials shall comply with requirements in FM Global 4450 or FM Global 4470 as part of a roofing system, and shall be listed in FM Global's "RoofNav" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.

C. Exterior Fire-Test Exposure: ASTM E 108 or UL 790, Class “A” for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

D. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

E. Wind Resistance Design: Installed roof repair shall meet or exceed the project location wind uplift pressures.

2.3 ROOFING SHEET MATERIALS

A. Base Sheet torched to the primed concrete roof deck: ASTM D 6163, Grade S, Type I, SBS-modified asphalt sheet (reinforced with glass fibers) smooth surfaced; suitable for application method specified.

B. Mechanically Fastened Base Sheet: ASTM D4601, with top and bottom side with mineral aggregate surfacing.

C. Roofing Membrane Base Sheet: ASTM D 6163, Grade S, Type I, SBS-modified asphalt sheet (reinforced with glass fibers) smooth surfaced; minimum 118 mils, suitable for application method specified.

D. Granule-Surfaced Roofing Cap Sheet: ASTM D 6162 or ASTM D 6164, Grade G, Type I, SBS-modified asphalt sheet (reinforced with glass fibers/polyester and reinforced with polyester); granule surfaced; minimum 150 mils, suitable for application method specified.

2.4 BASE FLASHING SHEET MATERIALS

A. Same materials as installed in roof system unless Roof Manufacturer’s requirements require differing sheets to be provided for the base flashing (ie. Polyester base flashing cap sheet ply).

B. Flashing system at new roof curbs and kitchen hood shall be Siplast Veral Aluminum / Foil-Surfaced flashing system.

2.5 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.

1. Liquid-type auxiliary materials shall comply with VOC limits of authorities having jurisdiction.

2. Liquid-type auxiliary materials shall only be installed as approved by the Consultants.

B. Asphalt Primer: ASTM D 41/D 41M.

C. Cold-Applied Adhesive: Roofing system manufacturer's standard asphalt-based, one- or two-part, asbestos-free, cold-applied adhesive specially formulated for compatibility and use with roofing membrane and base flashings.

D. Asphalt Roofing Cement: ASTM D 4586, asbestos free, of consistency required by roofing system manufacturer for application.

E. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Global 4470, designed for fastening roofing components to substrate; tested by manufacturer for required pullout strength, and acceptable to roofing system manufacturer.

F. Roofing Granules: Ceramic-coated roofing granules, No. 11 screen size with 100 percent passing No. 8 sieve and 98 percent of mass retained on No. 40 sieve, color to match roofing.

2.6 ROOF INSULATION

A. Roof insulation system shall match that of existing in thickness where new units / penetrations are installed.

a. The existing roof assembly consist of a gypsum roof deck with light weight insulating concrete installed that tapers to roof drain locations that ranges in thickness.

b. In locations where new units / penetrations are installed the existing light weight insulating concrete will be removed a minimum of twelve inches (12”) from opening to allow for the flange of the new unit to rest of the gypsum roof deck. All new insulation installed will be adhered in dual component adhesive.

c. New roof insulation will include base sheet, vapor retarder, tapered polyisocyanurate insulation, and Dens-Deck Prime gypsum coverboard.

d. Tapered crickets shall be installed at high side of new units/ penetrations along with insulation cant strips.

e. Base flashing height at new units / penetrations shall be a minimum of eight inches (8”).

B. Polyisocyanurate Board Insulation: ASTM C 1289, Type II, Class 1, Grade 2 felt or glass-fiber mat facer on both major surfaces.

C. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4 inch per 12 inches at the crickets.

D. Perlite Board Insulation: ASTM C 728, Type I.

E. High Density Fiberboard: ASTM C208, Type II, Grade 2.

F. Gypsum Cover Board: ASTM C 1177/C 1177M, glass-mat, water-resistant gypsum substrate, 1/4 inch, factory primed.

G. If any other conditions exist, adhere to the requirements of the manufacturer.

2.8 INSULATION ACCESSORIES

H. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer.

I. Insulation Cant Strips: ASTM C 728, perlite insulation board.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Comply with roofing system manufacturer's written instructions.

B. If any clarifications are needed, please refer to NRCA Low Slope Roof Repair Manual.

3.2 ROOFING INSTALLATION

A. Install roofing system according to roofing manufacturer's written instructions and applicable recommendations in ARMA/NRCA's "Quality Control Guidelines for the Application of Polymer Modified Bitumen Roofing".

3.3 BASE FLASHING REPLACEMENT/REPAIR

A. Base Flashing Replacement:
1. Remove existing counterflashing or coping as necessary to access the top of the base flashing.
2. Cut out flashing materials that are unadhered until reaching adhered material.
3. Inspect the flashing for possible moisture infiltration.
4. If moisture infiltration is suspected, cut open the flashing and inspect the underlaying interplies and substrate. Replace any wet or damaged materials. Notify WM immediately if moisture is discovered in any location where not indicated on plans.
5. To promote thorough adhesion of a patch, it is essential to begin by preparing the surface. Remove debris, contaminants, surfacing from the surface of the membrane flashing ot be repaired. The area to be prepared should extend beyond the perimeter of the patch to provide an ample clean work area on which to install the patch.
6. Clean the surface of the membrane.
7. Prime the surface of the membrane asphalt primer and allow to dry. Primer contains solvents and is used to enhance adhesion; however, overuse of primer can harm the membrane.
8. Cut a patch of like material 8 inches larger in all dimension than the location to be prepared. Round the corners of the patch to prevent peeling of square corners. If corners of the base flashing are included, flash the corners in accordance with Manufactures printed instructions.
9. Install the patch in cold adhesive or by torch extending approximately 8 inches beyond in all directions. When torching, work gradually, applying heat only sufficient to achieve adhesion without damaging the membrane reinforcement or scorching surrounding membrane.
10. Apply moderate pressure to the patch to assure adhesion to the existing membrane.
11. Attach the new base flashing at the top minimum 8” O.C. 3 course the top lap of the base flashing over the fasteners.
12. Reinstall the counterflashing or coping with new fasteners.

B. Base Flashing Repair:
1. Remove existing counterflashing or coping as necessary to access the top of the base flashing.

2. Cut out flashing materials that are unadhered until reaching adhered material.
3. Inspect the flashing for possible moisture infiltration.
4. If moisture infiltration is suspected, cut open the flashing and inspect the underlaying interplies and substrate. Replace any wet or damaged materials. Notify WM immediately if moisture is discovered in any location where not indicated on plans.
5. To promote thorough adhesion of a patch, it is essential to begin by preparing the surface. Remove debris, contaminants, surfacing from the surface of the membrane flashing ot be repaired. The area to be prepared should extend beyond the perimeter of the patch to provide an ample clean work area on which to install the patch.
6. Clean the surface of the membrane.
7. Prime the surface of the membrane asphalt primer and allow to dry. Primer contains solvents and is used to enhance adhesion; however, overuse of primer can harm the membrane.
8. Cut a patch of like material 8 inches larger in all dimension than the location to be prepared. Round the corners of the patch to prevent peeling of square corners. If corners of the base flashing are included, flash the corners in accordance with Manufactures printed instructions.
9. Install the patch (cap sheet) in cold adhesive or by torch extending approximately 8 inches beyond in all directions. When torching, work gradually, applying heat only sufficient to achieve adhesion without damaging the membrane reinforcement or scorching surrounding membrane.
10. Apply moderate pressure to the patch to assure adhesion to the existing membrane.
11. Reinstall the counterflashing or coping with new fasteners.

3.4 ROOF MEMBRANE REPAIR

A. Repair:
1. Carefully cut back the membrane until good adhesion is reached.
2. Inspect the membrane for possible moisture infiltration.
3. If moisture infiltration is suspected, cut open the flashing and inspect the underlaying interplies and substrate. Replace any wet or damaged materials. Notify WM immediately if moisture is discovered in any location where not indicated on plans.
4. To promote thorough adhesion of a patch, it is essential to begin by preparing the surface. Remove debris, contaminants, surfacing from the surface of the membrane flashing ot be repaired. The area to be prepared should extend beyond the perimeter of the patch to provide an ample clean work area on which to install the patch.
5. Clean the surface of the membrane.
6. Prime the surface of the membrane asphalt primer and allow to dry. Primer contains solvents and is used to enhance adhesion; however, overuse of primer can harm the membrane.
7. Cut a patch of like material 8 inches larger in all dimension than the location to be prepared. Round the corners of the patch to prevent peeling of square corners. If corners of the base flashing are included, flash the corners in accordance with Manufactures printed instructions.
8. Install the patch (cap sheet) in cold adhesive or by torch extending approximately 8 inches beyond in all directions. When torching, work gradually, applying heat only sufficient to achieve adhesion without damaging the membrane reinforcement or scorching surrounding membrane.
9. Apply moderate pressure to the patch to assure adhesion to the existing membrane.

3.5 ROOF MEMBRANE REPLACEMENT

A. After the roof insulation has been properly installed, remove any dust and debris from surface.

B. Install all roof membrane repairs using the materials below in accordance with the NRCA Low Sloped Roof Repair Manual or as recommended by the roof system manufacturer.

C. Modified Bitumen Base Sheet Installation:
1. Roll out sheet and allow to relax as per manufacturer's instuctions.
2. Starting at low points and working upward, embed in manufacturer's recommended adhesive at the rate of 1.5 gallons per 100 square feet. Use notched squeeges and ensure a solid bed of adhesive free of lumps and excess.
3. Roll membrane into adhesive free of voids, fishmouths, mole runs, etc. Ensure solid embedment of membrane.
4. Run modified bitumen base sheet up and over the top of cant. Seal to penetrations.
5. Lap side laps a minimum of 3" an end laps a minimum of 6". Stagger end laps at least 24". Install modified bitumen base sheet so that the laps do not line up with joints in insulation.
6. Seal all laps and verify solid lap adhesion at the end of each working day. Make repairs as necessary to ensure a watertight assembly.

D. Modified Bitumen Cap Sheet Installation:
1. Clean base sheet of any dust, moisture, and debris.
2. Roll out the modified bitumen cap sheet and allow to relax as per manufacturer's instructions.
3. Starting at low points and working upward, embed modified bitumen cap sheet in manufacturer's recommended adhesive at the rate of 1.5 gallons per 100 square feet. Use notched squeeges and ensure a solid bed of adhesive free of lumps and excess.
4. Roll membrane into adhesive free of voids, fishmouths, mole runs, etc. Ensure solid embedment of membrane.
5. Lap side laps a minimum of 3" an end laps a minimum of 6". Stagger end laps at ½ of roll length where available but no more than 30" together. Install modified bitumen cap sheet so that the laps do not line up with the laps of the modified bitumen base sheet.
6. Stagger laps in drain/valley areas to prevent "backwards" laps.
7. Seal all laps and verify solid lap adhesion at the end of each working day. Make repairs as necessary to ensure a watertight assembly.
8. Check lap integrity each day and repair any loose areas. Embed granules where necessary to dress up finished roof assembly.

3.6 FLASHING REPAIRS

A. Extend flashing a minimum of 8 inches above roofing membrane and 6 inches onto field of roofing membrane.

B. Mechanically fasten top of flashing system securely at terminations and perimeter of roofing a minimum of 8" on center using appropriate fasteners for substrate material. Use washers where necessary.

3.7 Warranty:

A. Provide three year contractor's workmanship warranty.

3.8 Closeout:

A. Clean finished roof of all materials, equipment, debris, markings, etc.

END OF SECTION 075216

Section 23 00 01 – HEATING, VENTILATING, AND AIR CONDITIONING
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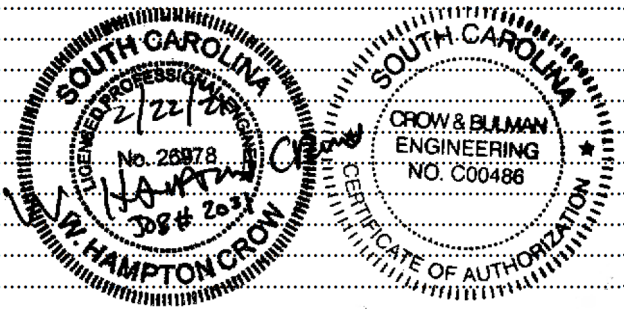

Section 23 00 01 – HEATING, VENTILATING, AND AIR CONDITIONING

CONTRACTOR QUALIFICATIONS:

All Mechanical Contractors shall meet the following minimum criteria. This criteria shall be part of the contract bid documents.

1. Contractors shall have been in business a minimum of five (5) years from the duration of the project consecutively under their current name and current registration with the SC Secretary of State.

2. Contractors shall have experience in the construction of school projects in the State of SC. A list of at least five (5) years completed SC schools projects of similar scope and size which shall be submitted before issuance of a purchase order.

3. Contractors shall be individually bondable in the state of South Carolina by a surety in accordance with AIA-201.

4. Contractors, its principal operators, license holders, or corporate shareholders shall not have never been involved in bankruptcy proceedings in the contracting business within the last ten (10) years or be involved in pending actions concerning bankruptcy in the contracting business.

GENERAL PROVISIONS:
The Instructions to Bidders, General Requirements, General Conditions of the Contract and the Supplementary General Conditions shall form a part of the specifications for this work insofar as they apply to these Heating, Ventilating, and Air Conditioning Specifications.

A. The scope of work to be provided under these specifications includes the furnishing, delivering, unloading, handling, erection, adjusting, and testing of all materials, equipment and apparatus which are required for the completion and correct operation in all respects of the Heating, Ventilating, and Air Conditioning system as indicated on the drawings and specified herein.

B. Certified vendor shop drawings shall be utilized for dimensions, connections, etc., of all equipment. Contractor shall refer to Architectural drawings for exact building dimensions, construction details, etc.

C. The Contractor shall be responsible for coordination with all disciplines at the job to insure proper installation of the system with no interferences and with proper clearance. The progress of the work shall conform with and not delay the work of other trades. The entire installation shall be completed as soon as the condition of the building will permit.

D. All equipment shall be installed in strict accordance with manufacturer's recommendations and instructions. These instructions shall be considered as a part of these specifications.

E. Full opportunity shall be given to the Architect/Engineer or third party inspectors, to make any inspections as desired, of all phases of construction and equipment. Any work which is being improperly installed may be rejected as specified in the General Conditions.

F. All mechanical equipment and materials delivered and accepted for subject job, shall become the responsibility of the contractor. Contractor shall be liable in the event of theft, loss, destruction, etc. All materials shall be properly protected from weather, moisture, or damage in any way. Water saturated fiberglass duct & pipe insulation shall be removed and replaced.

G. Pipe and duct routing shall conform as close as possible to locations as indicated on the contract drawings. Additional offsets, fittings, etc., required due to conflicts with trades and/or to meet field conditions shall be furnished and installed as necessary.

H. All bidders shall visit the job site and familiarize themselves with existing job conditions, as no extra cost will be allowed because of additional work necessitated or required by job conditions, unless same is brought to the attention of the Architect/Engineer prior to receipt of bids.

SHOP DRAWINGS:
After award of the contract, the successful contractor shall submit shop drawings of all items of equipment so noted in the respective sections of these specifications. Shop drawings shall be submitted as noted under the General Requirements of these specifications. Except under special permission, orders shall not be placed until shop drawings have been reviewed by the Engineer. Submittals shall be project specific; generic submittals will not be accepted.

An electronic PDF will be acceptable, but must also have at least one paper copy submitted to the engineer. Electronic copy alone is unacceptable. Paper copy must be prepared and printed by the submitting vendor.

Where required by local code officials, provide manufacturer's equipment installation literature.

OPERATION OF HVAC EQUIPMENT DURING CONSTRUCTION:
Indoor air quality, management and cleaning shall be in conformance with SMACNA IAQ "Guidelines for Occupied Buildings under Construction", 1995, Chapter 3. When the Owner's HVAC equipment is operated during construction, the General Contractor shall make every precaution to protect the HVAC system during operation, such as keeping all filters clean, not operating the system with windows or doors open, and not operating the system when sanding, sweeping, and painting, etc., is being done. The General Contractor shall also be responsible for extended warranties as required to meet the minimum specified after Substantial Completion.

Equipment must be cleaned throughout to original factory conditions, prior to owner's acceptance.

Equipment filters must be minimum MERV 7-8 rated efficiency during construction, and shall be replaced with MERV 7-8 at date of occupancy. Any return air ductwork, openings, and/or air devices shall be protected with MERV 7-8 filter media.

Refer to Specifications section 01 50 00 of the General Requirements for additional clarification of the General Contractors responsibilities.

AS-BUILT DRAWINGS:
Mark any changes in pipe or duct routing, equipment, or deviations from Contract Drawings on clean set of prints; deliver to architect for transmittal to owner at completion of contract.

SUBSTITUTE EQUIPMENT:
A. In the event the Contractor substitutes any equipment or materials in lieu of that indicated on the drawings and specified; any change in service connections (electrical, structural, piping, controls, drains, etc.) or fire rating or any related items, shall require the contractor

to make all necessary coordination changes. The contractor shall assure that the changes do not alter the system functions as intended with original equipment.

B. All materials and equipment shall be new and shall conform to the grade, quality and standards of those specified.

C. Design of the system is based on installation of specified materials and equipment. Other materials and equipment may be used subject to prior approval by the Architect. Approvals granted will be issued by addenda to the specifications. Request for prior approval shall be made in writing ten (10) days prior to the bid date.

D. The substitute manufacturers listed in these specifications shall be acceptable substitutes if they meet the specifications in all respects.

ACCEPTANCE AND COMPLETION OF JOB:

A. Upon completion of the job, the contractor shall furnish to the owner three complete sets, in ring binders, of all equipment instructions, including: guarantees, operation, maintenance, and installation data. Contractor shall also provide the information listed above in electronic PDF format, on a portable flash drive.

B. The contractor shall furnish the Engineer with a signed statement from the owner's representative to the extent that operation of the system is thoroughly understood for making minor adjustments in the operation and in maintaining the equipment. Provide owner training for the entire system operation. Where indicated in the "Equipment" section of these specifications, equipment training shall be provided by the equipment manufacturer's representatives.

C. After work has been completed, tested, and adjusted, the systems shall operate for five 8-hour days under normal operating conditions to demonstrate that they fulfill requirements of the plans and specifications and that they operate satisfactorily.

D. All equipment and materials shall be thoroughly cleaned and spot painted as required.

E. Furnish record drawings from HVAC and controls contractor.

F. Furnish Test & Balance Report.

G. Furnish the Engineer with a signed statement from the owner's representative acknowledging receipt of extra air filters, where required by these equipment specifications.

H. Furnish a letter certifying testing of the gas pipe. See "Gas Pipe" in these specifications.

I. Furnish a letter certifying installation of Code required Seismic restraints.

J. Clean all cooling and heating coils and ductwork loaded with dust/dirt during the construction phase of the work, i.e. any air handling terminals used to condition the building during the construction phase.

GUARANTEE:
The Heating, Ventilating, and Air Conditioning contractor shall guarantee the entire system for one (1) full year from date of substantial completion. This guarantee shall include all materials and labor as required to correct any deficiencies in the equipment. The cost of said guarantee shall be a part of the original contract bid and shall not bear any additional expense to Owner. Any adjustments or corrections made within the guarantee period shall be equal to the quality of materials and workmanship originally called for and shall be subject to inspection and acceptance by the Architect/Engineer.

Where indicated in these specifications, some materials or equipment may require (or offer) an extended warranty (See individual Specification paragraphs)
Variable Speed Drives – 2 years
Gas fired heat exchanger – 10 years (non pro-rated)

Equipment warranties shall commence at date of Substantial Completion.

PERMITS:
The Contractor shall obtain and pay for all permits, utility connections, and all fees otherwise required for the work.

CODE:
All work shall be installed in accordance with the SC Office of School Facilities Planning and Construction Guide, International Mechanical Code, International Fuel Gas Code, and other applicable local codes. Where specified materials and methods exceed minimum Code requirements, the drawings and specifications shall supersede the Code.

Coordinate site visits and inspections with code officials or third party inspectors.

CUTTING AND PATCHING:
Execute all necessary cutting of walls, floors, partitions, roof**,** etc., to properly install the work. Care shall be exercised in cutting to avoid unnecessary damage where openings are required.

Some cutting to support the mechanical work may be accomplished by the General Contractor, refer to Architectural drawings for the extent of this work.

Cutting of building surfaces shall be accomplished with sawing and drilling, not chisels and hammer action.

Any work that compromises the existing building's fire proofing shall be patched and repaired to its original condition.

WELDING:
All welding shall be accomplished by certified welders, in accordance with ASME Section 9.

PAINTING:
Any exposed metal installed by this contractor and all pipe which is not insulated, galvanized or previously painted shall be properly prepared and cleaned and given a zinc rich prime coat and a final coat of black protective enamel, (except where concealed above the ceiling or located in a mechanical mezzanine).

All gas pipe (regardless of location) shall be painted as indicated above except the color shall be yellow.

WIND AND SEISMIC RESTRAINTS:

1. Equipment, piping, and ductwork shall be restrained to resist wind and seismic forces. Restraints shall maintain equipment, piping, and duct work in a captive position. Restraint devices shall be designed and selected to meet the wind and seismic requirements as defined in the latest edition of the IBC (International Building Code).

   Seismic Restraint:
   All restraints shall be designed for an "Importance Factor", Ip= 1.0, except all fossil fueled equipment shall have Ip=1.5. Seismic design category shall be "D".

   Wind Restraint:
   All restraints shall be designed for a wind speed at 110 mph (3 second gust).

2. Manufacturer of seismic and wind control products shall have the following responsibilities:
   A. Determine and submit seismic and wind restraint sizes, locations, and catalogue cut sheets.

   B. Provide piping, ductwork and equipment seismic restraints as required by code.

   C. Submit calculations to determine restraint loads resulting from seismic and wind forces presented in IBC, International Building Code. Seismic and wind calculations shall be certified by a licensed engineer.

   D. Submit anchor bolt calculations, signed by a qualified engineer licensed in the State of South Carolina, showing adequacy of bolt sizing and type. Calculations shall be furnished for anchors on restraint devices, cables, isolators and rigidly mounted equipment. Calculations shall specify anchor bolt type, embedment, concrete compressive strength, minimum spacing between anchors and minimum distances of anchors from concrete edges. Concrete anchor locations shall not be near edges, stress joints, or an existing fracture. All bolts shall be ASTM A307 or better.

   E. Roof Curb submittals shall be stamped by a qualified engineer licensed in the state of S.C.

      Seismic Category D:
      1) Seismic rated roof curbs for gas fired equipment.
      2) Kitchen hoods

      Wind:
      1) All rooftop equipment

Specified: Seismic Control and Specialties
Substitute: Mason, Amber-Booth, Kinetics Noise Control, VMC, Vibro-Acoustics.

DEMOLITION:
All materials and equipment removed shall become the property of the contractor and shall be disposed of by the contractor.

Any materials and equipment which the Owner wishes to salvage shall be removed by the Owner prior to the start of the Contractor's works. Coordinate with Owner.

Asbestos removal shall be by the Owner. If the Contractor suspects an area contains asbestos, the Owner/Architect should be contacted immediately.

No demolition with cutting torches shall be allowed in finished areas of the building.

See notes on drawings for extent of demolition.

PIPING:

A. Shop Drawings: Submit shop drawings for all valves, accessories, and insulation.

Quality of the Work:
With the installation of all piping and all accessories, the fit and finish shall be in accordance with a high standard of skillet craftsmanship, and with established standards of the trades and shall be neatly mounted square and plumb to the building surfaces and structures.

B. Sleeves and Inserts: Piping passing through walls, ceilings, floors, in or under concrete slabs, beams, or any portion of the building structure, shall be free to expand and contract and shall not be embedded in plaster, concrete or masonry. Such piping shall be provided with steel sleeves or thimbles when passing through concrete or masonry walls, ceilings, floors, and such sleeves or thimbles shall be at least three-eighths (3/8) inch larger than the outside diameter of the pipe plus the insulation. Annular spaces between sleeves and pipes in the floor slab shall be filled or caulked with a non-hardening mastic. Sleeves for insulated pipe shall be of sufficient size to allow the insulation to continue through the partition.

For pipe penetrations of fire walls refer to details on drawings.

C. Testing:
1. General
   a. The contractor shall provide all caps, plugs, fluid flanges, temporary connections, etc., as required to meet the testing procedures. Also provide all necessary testing equipment, i.e., gauges, pumps, leak detectors, etc.

   b. The code officials and/or the owner's third party inspectors shall be contacted prior to the test and shall observe the test procedure.

   c. ***Do not*** test any existing piping with new piping.

   d. The contractor shall make all necessary preliminary steps to insure that the piping system is completely tight.

   e. All terminal equipment not rated for the test pressure shall be valved off or otherwise isolated from the system.

2. Hydrostatic Testing:
   Fill the system with clean water and ensure all valves are open and all high points vented and with no air binding. Contractor shall then maintain the desired hydrostatic

test pressure as noted in the piping specification for a period of two full hours with no drop in pressure.

3. Pneumatic Test:
   Insure that all valves are open (except stop valve at terminal equipment shall be closed). Pressurize the system with air or inert gas to the pressure noted in the pipe specifi-cations. Maintain the test pressure for a period of twenty four (24) hours with no drop in pressure. Also apply soap solution to all joints and visually inspect for bubbles.

D. Natural Gas Piping:
   1. Piping and Valves

   Aboveground:
   Pipe:
   Schedule 40, wrought iron or steel pipe complying with ANSI Standard B36.10-1970, ASTM A-53 or A106

   Inside Building Envelope:
   2" and smaller: socket welded joints
   2 ½" and larger: welded and/or flanged joints

   Outside the Building:
   2" and smaller: threaded and screwed joints
   2 1/2" and above: welded and/or flanged joints

   Fittings:
   Screwed:
   150 pound class, black malleable iron

   Welded:
   150 pound class, Schedule 40, steel, ends beveled for welding or socket fitting

   Unions:
   150 pound class, black malleable iron, screwed, ground joints, bronze to iron seat

   Flanges:
   150 pound class, forged steel, weld neck or slip on, flat faced and drilled, with gasket

   Flexible Connectors:
   300 series stainless steel corrugated hose with 304 stainless steel braided cover. UL listed and CSA/AGA certified. 175 working pressure at 70^0F. Maximum 18" length. By Flex-Hose, Metraflex, Mason

   Thread Sealant:
   Teflon tape, ½" wide x 3 mil thickness, scotch brand or equal

   Cocks:
   400 pound WOG, full port, bronze body, screwed end, rated for natural gas service, U.S. made: Crane, Hammond, Grinnell, Nibco, Stockham, Milwaukee, Apollo

Pressure Reducing Valves (or valve assemblies):
Shall comply with ANSI Z21.18 (appliance Reducing regulators) or ANSI Z21.80 (line regulators). Provide overpressure protection device (OPD) as required by ANSI Z21.18 Valves or ANSI A21.80. Where vents are required, pipe to the outside.
Pressure Reducing valves shall be sized for 1 psi inlet pressure for 2 psi meter systems or 1.5 psi inlet pressure for 5 psi meter systems.

2. Testing:
   Test per paragraph D.3 Pneumatic Test at 60 psig for 2 hours.

   Provide a letter to the engineer certifying that all gas pipe has been tested in accordance with the International Gas Code. The letter shall include date tested, pressure, duration, and witnesses.

3. Appliance Connections: At each appliance provide a 6" dirt leg, flexible connectors, strainer, service valve, pressure regulator (where required) and test port downstream of regulator (where regulator required).

4. Painting: Paint all exposed gas piping per "PAINTING" section of these specifications.

E. Hanger and Supports:
All pipe shall be substantially supported to the building steel and/or structure. Provide hangers and insulation saddles as specified. Hangers for multiple pipes 3" and larger and run parallel shall be staggered on alternating joist and not suspended from the same joist.

Pipes racked against a wall or concrete pad shall be secured with 12 gauge, hot dipped, galvanized (outside) or plated (inside) superstrut and slide-in pipe clamps. Copper pipe shall have a rubber insert for isolation.

Piping on a roof shall have adjustable height, screw clamp, and supports with a roof pad base. See detail on drawings.

1. Steel Pipe:
   Maximum distance between supports for steel pipe shall be as follows:
   Bar joist and I beam construction:

pipe size	¾"	1"	1-½"	2"	2-1/2"	3"	4"-6"	8"-12"
max. spacing	7'	7'	9'	10'	11'	12'	12'	12'

   Light weight joist and purlin construction:

pipe size	¾"	1"	1-½"	2"	2-1/2"	3"	4"-6"	8"	
max.spacing	7'	7'	9'	10'	10'	10'	10'	10'	Parallel to Purlins
	5'	5'	5'	10'	10'	10'	5'	5'	Perpendicular to Purlins

   NOTE: 4" Pipe and larger and run parallel to purlins shall have the threaded rod attached to a unistrut support secured to a minimum of 3 purlins (8" or 6" pipe) or 2 purlins (for 4" pipe). See detail on drawings.

Steel pipe shall be suspended with Grinnell Fig. 260 clevis hangers, with sheet metal insulation saddles (where insulated). All insulated steel pipe shall have a section of rigid insulation at hangers as noted in the general section of "Hangers and Supports", regardless of size.

All vertical runs of piping shall be supported at each floor penetration with Fig. 241 riser clamps welded to pipe.

F. Pipe Installation:

1. Weld-o-lets shall be acceptable in lieu of tees where branch is two sizes smaller than main.

2. All underground pipe shall have a minimum bury depth of 3 feet (top of pipe to grade) unless indicated otherwise on the plans.

3. Install water piping with a constant elevation gradient so that it shall drain to low points. Install at each low point a drain valve with hose connection.

4. Provide all sensing wells and tappings necessary to accommodate the control system, and water treatment system. Coordinate with subcontractors.

5. Locate pipe with a minimum elevation above the floor at 7'0". Where space will not allow 7' minimum, coordinate elevation with the Engineer. Mount inline pumps no higher than 8'0" above the floor, for service access.

6. All pipe mounted indicating thermometers and gages shall be installed and adjusted to be read from floor level, without need for a ladder.

7. Earthquake Restraints: Refer to Seismic Restraint section of these specifications.

8. Unless indicated otherwise on the plans, all pipe trim (strainers, valves, unions, flow balancing devices, etc.) shall be the same size as the indicated pipe size.

DUCTWORK:

A. Shop Drawings: Submit shop drawings for all sheetmetal, accessories, and insulation.

Quality of the Work:
With the installation of all ductwork and all accessories, the fit and finish shall be in accordance with a high standard of skillet craftsmanship, and with established standards of the trades and shall be neatly mounted square and plumb to the building surfaces and structures.

Unless indicated otherwise on the plans, all ductwork and accessories shall be installed concealed in the walls or above ceilings.

B. Fabrication and Materials:

1. Sheet Metal Ductwork: All rigid ductwork shall be galvanized sheet metal of sizes as indicated on the drawings. Fabricate and install all ducts in accordance with "SMACNA Standards for Low Pressure Ductwork" 2" pressure class (unless noted otherwise), including type joints, gauge thickness, hanger supports and spacing, etc.

2. All branch duct connections to a trunk duct shall be made with prefabricated flared connections and as indicated on the drawings.

3. All rectangular duct 19” wide or larger and 2” pressure class or less shall be cross-broken or beaded for rigidity.

4. Fabricate fittings as shown on the drawings.

5. All duct dimensions given are net inside free area, ducts which require insulation liner shall be increased in size appropriately.

6. Install flexible connections at all air handling equipment and roof top units: including but not limited to, air handling units, blower coils, fan coil units, roof or in-line exhaust fan**,** (supply and return). Connectors shall be metaledge VentGlas as manufactured by Ventfabrics, Inc. Connectors shall not contain asbestos.

7. All elbows, supply, return, exhaust and outside air shall be constructed with either radius turns (throat and heel, centerline radius = 1.5 x duct width) or square with single thickness turning vanes. Vanes shall be constructed in accordance with ASHRAE design with 2” radius and 1.5” center-to-center dimension

8. For round low pressure duct work (1" or 2" pressure class), 12" diameter or less, 90 degree elbows shall be minimum 4 gore and minimum 1.0 centerline radius to duct diameter.

9. Field measure clearances and location for all duct pieces prior to fabrication.

10. Access doors shall be double thickness metal with internal 1” insulation, hinged doors with thumb latch. Minimum size shall be 14”x 14” unless duct size dictates smaller. Provide access doors for visual inspection at all inaccessible fire dampers and motorized dampers, whether or not indicated on the drawings.

11. Seal all duct joints with high bonding strength duct sealant. Duct sealant shall be rated per UL-181B-M. United McGill, Air Seal#33, Ductmate (water or solvent based), or Carlisle “Versa-Grip” #102.

12. “Ductmate” or similar bolted flange joining system shall be used (except duct located outside and fume exhaust) for all duct work with either duct dimension greater than 20”. At the contractor’s option, duct smaller than 20” shall be either SMACNA or “Ductmate”.

13. Exhaust duct serving the kitchen range exhaust hood shall be 16 gauge black steel with all welded joints, sloped 1/4” per 1 ft. minimum, to the hood. Provide an NFPA type access door at each change in direction, sealed with high temperature sealant. Grease ductwork access doors shall be a Ductmate “ULTIMATE” UL listed door. At contractor’s option, kitchen range exhaust hood ductwork may be UL listed, factory prefabricated grease duct system.

14. Ductwork exposed to the weather shall be 16 gauge, all welded construction and oversized 4” each dimension to accommodate 2” insulation liner. All welds shall be

coated with a galvanized finish. Flexible connections (where required) shall be located inside the building.

15. All dampers in ductwork with external insulation wrap shall have a stand-off bracket at the operating lever to match insulation thickness.

16. Flag all balancing dampers with tag of fluorescent tape for easy identification by the Test & Balance contractor.

17. Earthquake Restraints: Refer to Seismic Restraint Section of these specifications.

18. Sheet Metal Change Orders:
Additional sheet metal required to accommodate change orders accepted by the owner shall be billed at the following rates (including labor and materials):
Lined Sheet Metal: $7.00 per lb.
Unlined Sheet Metal with insulation wrap: $6.00 per lb.
Unlined Bare Sheet Metal: $5.00 per lb.

Fire Dampers (includes sleeve, access door & caulk):
6 sq. ft. or less: $300.00 each
6 sq. ft. – 12 sq ft: $400.00 each

22. Flexible Ductwork: Where flexible duct connectors are indicated on the plans, the maximum length of flexible duct shall not exceed 5' in length. Provide a pre-manufactured radius forming durable elbow support (Titus FlexRight) where flexible ductwork is used as an elbow,

C. Duct Construction Standards:

1. Low Pressure (2" Pressure Class): All ductwork; supply, return, exhaust, and outdoor air.

D. Kitchen Hood Exhaust Duct (Round):
At contractor's option, provide factory built grease duct that is tested and listed by the Underwriters' Laboratories, Inc. (UL 1978) for use with commercial cooking equipment, as described in NFPA-96. The U.L. listed insulated grease duct shall be certified for zero clearance to combustible material per UL 2221 with a 2 hour fire rating and have a 1 hour fire rating per ASTM-E2336. Hourly ratings are met with use of factory fire stop at necessary floor/wall penetrations.

Construction:
The double wall exhaust system shall have a 304 stainless steel inner liner (20 ga minimum) and an aluminized steel outer jacket (24 ga minimum). The materials and construction of the modular sections and accessories shall be as specified by the terms of the product's U.L. listing.

Insulation shall be 10 pound ceramic fiber between the inner liner and outer jacket (three inches thick.

Aluminized steel surfaces exposed to the elements shall be protected by a minimum of one base coat of primer and one finish coat of corrosion resistant paint suitable for outer

jacket skin temperatures of the given application. All primer and paint to be supplied by the installing contractor and shall be equivalent to series V2100 as manufactured by Rust-Oleum.

This exhaust system shall be designed and installed to be liquid tight and thus prevent leakage of grease and/or grease laden vapors into a building.

Inner pipe joints shall be securely connected and sealed with factory supplied over-lapping V-bands and appropriate sealant as specified in the manufacturer's installation instructions.

Each system shall be designed to provide access for inspection and cleaning of each change of duct direction, permit drainage of grease residue through a duct section, enable the system to allow for the thermal expansion.

Installation:
Inner pipe joints shall be sealed by use of factory supplied overlapping V bands and sealant as specified in the manufacturer's installation instructions.

Roof penetrations shall be suitable for a noncombustible roof and shall be according to the manufacturer's detail drawings and installation instructions.

When installed according to the manufacturer's installation instructions, the exhaust piping and its supporting system shall resist side loads at least 1.5 times greater than the weight per foot of the piping for both horizontal and vertical portions of the system.

The exhaust system shall be installed according to the manufacturer's installation instructions and shall conform to all applicable state and local codes.

Provide all supports, guides, expansion joints, guy sections, guy tensioners, roof thimbles, roof flashings, storm collars and flip top terminations as required to provide a complete system per the manufacturer's installation instructions.

The entire exhaust system from hood to the termination point, including all accessories, except as noted, shall be from one manufacturer.

Warranty:
The exhaust system shall have a limited lifetime warranty against functional failure due to defects in material and manufacturer's workmanship from the date of installation.

The manufacturer shall provide "to scale" drawings depicting the actual layout. The exhaust system shall be installed as designed by the manufacturer and in accordance with the terms of the manufacturer's warranty and in conjunction with sound engineering practices.

The factory built modular exhaust system shall be furnished by a vendor organization that assures design, installation and services coordination. As well as, providing "in-warranty" and "post-warranty" unified responsibility for owner, architect, consulting engineer and contractor.

Specified: Selkirk Commercial/Industrial Model IPS ZeroClear,

Substitute: By prior approval

G. Insulation:

1. Install insulation per manufacturer's recommendation. Insulation liner shall be installed by the HVAC Contractor. Any exterior wrap and rigid board insulation shall be installed by an independent insulation contractor.

   All ductwork and accessories handling air below 65^0F or located in an area exposed to outdoor temperatures shall be sufficiently insulated to prevent sweating and/or meet energy codes.

2. Ductwork Liner (elastomeric foam):
   Insulation shall be 1" thick, 3 PCF density, flexible acoustical and thermal duct liner. Liner shall have a smooth, scuff and abrasion resistant air-side surface, suitable for duct velocities to 8000 FPM. The liner shall have an antimicrobial treatment so that it will not support the growth of fungus or bacteria (in accordance with ASTM C1338/G21, G22, and UL181). Insulation liner and accessories shall meet all NFPA 90A requirements for duct liner and shall meet the requirements of UL 181 Erosion Test. Liner shall have a minimum "R" value = 4.0 for 1" thickness per ASTM C177 or C518. Burn characteristics shall meet 25/50 (flame/smoke) ratings per ASTM-E84. NRC rating shall equal .55 @ 1" thickness, per ASTM C 423-81 & E795. Minimum temperature rating shall be 180^0F, per ASTM-C411.

   Liner shall be secured with spotter pins or impact pins (GripNail) and 100% adhesive coverage. Adhesive shall be approved by manufacturer and applied per manufacturer instructions. Where welding pins are used, adjust amperage according to the manufacturer's specifications to prevent burning/melting of the liner and to reduce smoke generation while maintaining acceptable weld integrity.

   Specified: Armacell AP "Coilflex" Duct Liner or Armacell AP "Armaflex" Duct Liner
   Substitute: K-Flex, or by prior approved equal

4. Exterior Duct Wrap:
   Ductwork shall be insulated with R=5.0 (installed), 2" thick, ¾ pcf, flexible, ASTM C1290 fiberglass duct wrap with a factory laminated reinforced scrim kraft foil vapor barrier facing. Insulation shall be secured with seams stapled with flare door type staples (6" o.c.) and sealed with two coats of Childers CP-30/34 mastic (or equal by Design Polymerics or by prior approved) and with an intermediate layer of open weave glass fabric. On ducts over 24 inches wide, additionally secure the insulation on the duct bottom with welding pins and push-on washers, 16 o.c. Duct wrap shall be UL listed and not exceed flame spread (25) and smoke developed (50) per ASTM E84. Duct shall have "Out of Package" R valve equal to 6.1. Insulation shall be manufactured by Owens Corning, Certainteed, Knauf, or Manville.

10. Application (Duct):
    a. No liner: Rectangular and round ductwork located inside building shall have exterior flexible wrap.
    b. HVAC ductwork located outside the building shall be insulated with elastomeric liner, thickness shall be 2".

MOTORS:
Unless otherwise noted, all motors shall be 40 degrees C rise, dripproof, minimum 1.15 service factor. All motors shall have overload protection.

All motors served by a variable speed drive shall be rated for variable speed service. Motors shall have motor shaft grounding protection.

MOTOR STARTERS:

A. Standard:
All starters shall be complete with overload protection for each line. Each starter shall be equipped with a selector switch marked “ON”-“OFF”-“AUTO”. Each motor starter shall have a control circuit transformer and holding coil. Coordinate the control voltage with controls contractor. Auxiliary contacts shall be furnished as required to fulfill the control sequence. Control transformers shall be rated at 100VA (minimum) to power the holding coil and controls.

Indoor mounted starters shall have NEMA I enclosures, outdoor mounted starters shall be NEMA 3R.

Each motor starter shall have a nameplate indicating its associated equipment and equipment no. (i.e., hot and chilled water pump). Each tag shall be black laminated phenolic plastic with engraved letters and shall be secured with screws (not glue).

Specified: Square D
Substitute: GE, Siemens, Cutler Hammer, Sprecher/Schuh

B. Variable Speed Drives:
Provide pulse width modulated, adjustable frequency drive which generates a sine-coded, adjustable voltage/frequency, three phase output for speed control of any conventional squirrel cage induction motor. The drive shall maintain a power factor of not less than .95 throughout its speed range.

1. Design Features shall include:
   a. Sine-coded, pulse width modulated output
   b. 16-bit microprocessor control logic
   c. Overload capability of 110% for 60 seconds
   d. Coast or ramp to stop
   e. Adjustable acceleration and deceleration
   f. Run and fault LEDS
   g. Run and fault contacts for customer use
   h. Controlled speed range of 10:1
   i. Process follower input: 4-20MA or 10VDC
   j. Touch pad operator controls with five digit digital frequency/speed meter
   k. Critical frequency rejection circuit
   l. Slip compensation
   m. Torque limiting circuit
   n. NEMA 1 enclosure (indoor) or NEMA 3R/FVFF (forced ventilated, fan filtered), outdoor.
   o. 5% Input A/C line reactors

p. Speed pot for manual speed adjustments
q. Output carrier frequency programmable @ 0.5,1,2,4, or 8 KHZ and randomly modulated about the selected frequency
r. Power factor not less than .98 lagging @ any load

2. Protective Features shall include:
   a. Current limited stall prevention during acceleration, deceleration and run conditions
   b. Automatic restart after momentary power loss
   c. Start into a rotating motor with speed search
   d. Diagnostic circuit display
   e. DC bus CHARGE readout
   f. Isolated operators controls
   g. Phase to phase short circuit protection
   h. Ground fault protection
   i. Electronic thermal motor overload
   j. Anti-windmill protection with DC injection before start
   k. Heat sink over temperature protection

3. Adjustment shall include:
   a. Acceleration: 0.1 to 1800 seconds
   b. Deceleration: 0.1 to 1800 seconds
   c. Maximum frequency of up to 60 HZ +/- 10% via touch pad
   d. Critical frequency rejection
   e. Minimum frequency
   f. Maximum frequency
   g. Carrier frequency
   h. Torque limit
   i. Slip compensation
   j. DC injection braking time
   k. DC injection braking amplitude
   l. Multi-step speed settings, 5 maximum

4. Environmental and Service Conditions shall be suitable for:
   a. Ambient service temperature: 10 degrees to 40 degrees C
   b. Humidity to 90%
   c. Service factor of 1.0

5. Starter shall be:
   a. ETL or UL listed

6. Starter Options shall include:
   a. H-O-A Switch
   b. Ammeter

8. Drives shall have the following points addressable from the Building Control System: Motor Frequency
   a. Motor Frequency Read
   b. Motor Current
   c. Acceleration time
   d. Deceleration time
   e. Motor Rated Voltage

f. Motor Rated Amperag
g. Motor KW
h. Drive Run
i. Drive Status
j. Alarms
k. Alarm-Faults: Clear All
l. Alarm-Faults: Notification

The drive shall carry a two (2) year “on site” warranty.

The starter shall be tested with fully loaded induction motors. The combined test data shall be analyzed to insure adherence to quality assurance specifications.

The adjustable frequency drive shall be sized for the motor horsepower and voltage as scheduled on the drawings.

Provide factory assisted start-up and check-out services. Set drives for a minimum speed of 25%.

Provide output line reactors when the distance between the drive and the motor exceeds 150 ft.

Outdoor starters shall not be mounted in direct sunlight. Provide stainless steel sun shield as required.

Specified: ABB
Substitute: Danfoss/Graham, Square “D”, Reliance, Toshiba, AC Tech, Siemens, Cutler-Hammer, Emerson, Yaskawa

ANCHOR BOLTS:
Provide anchor bolts for all concrete slab mounted equipment. Bolts shall be of suitable type for load and purpose and shall be accurately spaced. See "Wind and Seismic Restraints" section of these specifications for equipment requiring seismic restraints.

EQUIPMENT:
A. General
1. Submit shop drawings on all equipment listed in this section of the specifications.

2. Air Handling System Fan Drive Modification:
Provide all necessary fan sheave changes and/or pulley adjustments as required to comply with the Test and Balance section of these specifications.

3. Equipment and Access Tags: Provide an engraved phenolic nametag with 1” high letters for each piece of equipment scheduled on the HVAC plans (excluding air devices). The tag shall be labeled to match the equipment schedule tag i.e. AC-1, AHU-1, EF-1, etc. The tag shall be secured to the equipment with screws or chains and at an easily visible location. For equipment exposed in finished areas, install tag inside unit cabinet.

A. Kitchen Exhaust Hoods:
1. General:

Provide the vapor capture hood as indicated on the floor plans. Each hood shall be constructed with all exposed surfaces of 18 gauge #430 stainless steel; all welded joints, with welds ground and polished to the original #3 finish of the metal. Concealed surfaces shall be constructed of 18 gauge galvanized steel. Provide stainless steel filler panels as required to enclose the top of the hoods to the ceilings.

2. Range Exhaust Hood:
   a. Hood:
      Grease filters shall be UL listed, non-clogging, baffle type, aluminum grease extractors and shall be removable without the use of tools. All exhaust plenum surfaces shall drain into a concealed, recessed, removable grease drawer.

      Hood lights shall be UL approved, vapor proof, incandescent, with glass globes and wire guards, mounted at 36" intervals. Lights shall be prewired to a flush mounted switch on the hood face. An exhaust fan "control" switch panel shall also be mounted on the hood face. Hood controls shall include a temperature sensing element and variable volume controls for interlock with the exhaust/make-up air unit.

      Hood shall have insulated make-up air supply plenums with perforated discharge for low velocity air distribution. Insulation shall be elastomeric rubber, minimum ½" thickness, meeting ASTM 84 fire and smoke ratings.

      The hood shall be constructed to NFPA 96 & 17 standards, the International Mechanical Code, and DHEC requirements, and shall bear the NSF seal and shall be UL classified and UL 710 listed.

      Provide heat activated auto fan start controls meeting IBC mechanical code and UL standard. Hood shall be provided with a factory pre-wired energy management controller including variable frequency drives to modulate the exhaust fan speed based on hood exhaust temperatures. Hood controller shall be provided with a UL listed contact for electric interlock with relay and/or a gas shut-off valve serving all electric and/or gas cooking appliances to disable cooking appliances when the hood controller loses power.

   b. Hood Testing:
      Hood shall be tested in accordance with IMC Section 507.16.1, in the presence of S.C. Office of School Facilities' representative. Provide manufacturer's installation instructions at the time of the test.

   c. Fire Extinguisher: The hood shall have wet type fixed nozzle piping system for fire protection. Controls shall include a manual and automatic trip and a UL listed contact for electric interlock with relay and/or a gas shut-off valve serving all electric and/or gas cooking appliances. The complete extinguisher system shall conform to UL and NFPA standards and shall be installed by a fire protection company licensed by the state of South Carolina. All exposed pipe shall be either stainless steel, chromed, or with chrome sleeves. All conduit and wiring from the hood to pull station shall be concealed.

      Fire Extinguisher Testing:
      The completed system shall be tested by trained personnel as required by the manufacturer's listed installation and maintenance manual. Activation of the system

shall be tested by cutting/melting a fusible line and by pulling the manual activation switch.

The approval tests shall include a discharge of liquid to verify that the system is properly installed and functional. The liquid used may be chemical agent, water, or another substitute liquid that is acceptable to the system manufacturer (NFPA 17A 6-4.3). After this test, the system must be thoroughly dried/cleaned to eliminate the potential of corrosion due to this test.

The installer shall certify that the system has been installed in accordance with acceptable shop drawings (to be provided during the inspection) and the manufacturer's listed installation and maintenance manual (NFPA 17A 6-4.2). Shop drawings shall include details of the system including the size, length, and arrangement of connected piping and the description and location of nozzles. The location and function of detection devices, operating devices, auxiliary equipment, and electrical circuitry shall also be included on the shop drawings (NFPA 17A 6-3).

The owner shall be provided with a copy of the manufacturer's listed installation and maintenance manual or listed owner's manual (NFPA 17A 6-4.4). In addition, shop drawings should also be provided to the owner.

The hood suppression system activation is required to also activate the fire alarm signaling system that serves the occupancy where the extinguishing system is located (NFPA 96 (2002) 10.6.2).

Specified: Kitchen Range Hood: Captive-Aire ND-2 (with external supply plenum)
Substitute: Aerolator, Greenheck/Accurex, Greasemaster

E. Kitchen Exhaust/Make-up Package (Direct Fired)
Provide a pre-engineered combination exhaust, direct gas fired heater, and supply package in size as shown on plans. The fan package assembly shall be a complete system containing exhaust fan, gas furnace, supply fan with intake section and separate roof curbs.

The exhaust fan shall be of the belt drive, up-blast, vertical discharge type. The fan wheel shall be aluminum of the centrifugal blower type featuring backward inclined blades and a tapered inlet shroud. Wheels shall be statically and dynamically balanced. Motor and drives shall be enclosed in a weatherproof compartment, separate from the exhaust air stream. Air for cooling the motor shall be supplied to the motor compartment by way of an air tube from an area free of contaminated exhaust fumes. Motors shall be heavy duty permanently lubricated, sealed ball bearing type, and VFD rated. Provide variable speed drives to set air flows to match make-up air. Exhaust fans shall be licensed to bear the AMCA ratings seal for air and sound performance. Fans shall be listed by Underwriters Laboratories.

The supply make-up air package shall contain supply fan of the belt-driven, double width, double inlet, forward curved centrifugal type and VFD rated motor. The blower assembly shall be mounted on vibration isolators. Drives shall be sized for a minimum of 165% of driven horsepower. All exterior housing components of the make-up air supply unit shall be constructed of 18 gauge galvannealed steel with weatherproof polyurethane coating or G90 galvanized steel. Heavy gauge adjustable support legs and roof equipment rail shall

be furnished as required. The inlet of the unit shall contain birdscreen and a bank of permanent, washable, removable two-inch U.L. Classified air filters. The total fan package shall be furnished with a pre-wired Master Control Panel which shall include, but not be limited to, a master fused disconnect for main power connection, variable speed starters with thermal overloads and manual reset, fused 24-volt control transformer and distribution terminal strip for control wiring connection. All electrical components shall be U.L. Listed, Approved, or Classified and all wiring shall be in compliance with the National Electric Code. Wiring shall be complete, requiring only one point field connection for power service, with all disconnects and starters.

Provide a pre-fabricated wind and seismic rated roof curbs to house exhaust fan and supply unit. Curb shall be constructed of 18 gauge galvanized steel with integral wood nailer, run-off cant and 1 ½" rigid insulation. Provide curb extension as required for exhaust fan to meet NFPA requirements for discharge height.

The direct fired gas heater shall be completely factory assembled, piped, wired, and test fired. All units must contain an A.G.A. certified duct furnace(s) which conforms to the latest ANSI standards for safe and efficient performance. The unit shall be suitable for operation on: natural gas. Furnace section shall consist of a single furnace. The fan section shall contain supply fan(s) fan motor, and one-inch permanent type filters and utilize 100 per cent outside air. An outside rain hood with a wire mesh inlet shall be provided. The supply plenum shall provide downflow discharge. The unit shall be mounted on metal rails and be suitable for curb mounting.

Heater construction shall be die-formed, 20 gauge galvanized steel and finished with enamel. Service access panel shall be provided through easily removable side access panels with captive fasteners. Fan sections and supply plenums shall be insulated with fire resistant, mat faced one-inch glass fiber material.

Refer to control section of these specifications:
Direct fired gas system shall include Maxon cast iron burners with stainless steel mixing plates and Maxitrol controls with discharge air temperature sensing and 25 to 1 turn down ratio. Flame safeguard shall be Honeywell 7800 series with digital indication of fault safety. Controls shall include a wall mounted summer/winter switch and unit mounted adjustable discharge air temperature set point dial.

Supply fan(s) shall be statically and dynamically balanced for quiet operation and shall contain belt driven centrifugal fan(s) with adjustable pitch motor sheaves. Fan bearings shall be pillow block ball bearing sized for 100,000 hr. (L10) life. Optional outside air damper shall be provided. The damper shall have two position spring return damper motor and controls. Motor shall power the outside air damper full open when unit is on, and to full closed when unit is shut down. A factory installed control panel shall be provided for all power connections. Unit shall be provided with gas valves suitable for Class 2, maximum inlet pressure to match available gas pressure.

Specified: Captive-Aire
Substitute: Aerolator, Greasemaster, Greenheck/Accurex

CONTROLS:
A. General:

1. It is the intent of these specifications to provide for the installation of a complete system of automatic temperature and humidity control. The system shall be designed for continuous automatic operation with a minimum of maintenance and equipment.

6. All control components shall communicate via hard wired conductors (copper or fiber). This includes all communication within the HVAC building control components and communication between the HVAC controls and the building owner's local area network.

7. Provide power for all control panels, controllers, and actuators from nearest electrical panel. See electrical drawings or existing panels for locations. Where applicable, control power may be provided with the terminal equipment's motor starter or factory controls, refer to the individual equipment specs (blower coils, VAV terminals, fan coil units, heat pumps, motor starters).

8. Provide necessary assistance to Test & Balance Contractor to allow set-up and confirmation of air and water quantities; or at no cost, make available any necessary hardware and software required to set-up and/or measure maximum or minimum flow rates and temperature differentials.

9. Provide a minimum of two hours instruction on the system operation to the owner.

C. Sequence of Operation:

1. Kitchen Exhaust/Make-Up Unit: (EXF)
   Make-up Air Unit (EXF)
   The indirect gas fired make-up air unit shall have an integral discharge air controller which shall modulate and cycle the gas burner as required to maintain set point of 65^0F.

   Unit shall have a wall switch with summer-winter position. In the summer position the heat shall be disabled. The make-up air unit shall operate any time the range hood exhaust fan is "on". Make-up air unit fan shall be variable speed and shall be interlocked with its associated exhaust fan speed.

   The supply fan shall be interlocked with the fire extinguisher system and shall be de-energized if the extinguisher is activated.

   Kitchen Range Hood:
   Provide necessary field wiring to interlock the fire extinguisher system with the cooking equipment. Upon activation of the fire extinguisher system, the cooking equipment shall be shut down and the gas valve shall close. Provide necessary field wiring to interlock the hood controller loss-of-power contact to the cooking equipment. Upon loss of power to the kitchen hood controller, the cooking equipment shall be shut down and the gas valve shall close. Provide necessary field wiring to interlock hood controls to exhaust fan and make-up unit controls.

   Exhaust Fan (K-1):
   The range hood fan shall have a temperature sensor and variable speed controller mounted on the hood and interlocked with the fan variable speed motor. Interlock speed of the exhaust fan with its associated make-up air unit supply fan. The fan shall not shut down upon activation of the fire extinguisher system.

The exhaust fan shall be interlocked with the utility chase power contactors, and shall not allow the cooking appliances to operate unless the fan is on.

TESTING, ADJUSTING, AND BALANCING:
HVAC system testing, adjusting and balancing shall be performed by an independent contractor which specializes in this work. The services required shall include:

1. verification of the performance of all equipment and automatic controls;

2. adjusting and balancing to design quantities of all air and water systems;

3. electrical power readings;

4. recording and reporting all results;

5. Field inspection during the construction phase to insure that balancing valves and dampers are installed where indicated.

6. Provide copies of all T & B site visit Deficiency Reports to the Engineer of Record at the time the report is generated.

Before final acceptance of the building, the balancing contractor shall submit to the Architect/Engineer a bound report of the balancing work containing at least the following items:

1. Schematic diagrams of the A/C systems with the balancing data keyed to the Equipment Data Sheets.

2. Equipment Data Sheets: These records shall be typewritten and submitted on AABC, or SMACNA standard forms. Recorded data shall include at least the following:
   a. Air Systems:
      1. Fan designation, manufacturer, size
      2. Actual and full load nameplate amps (at each terminal for 3 phase units)
      3. Actual and specified fan RPM (or fan speed for variable speed motors.)
      4. Actual and specified total system static pressure
      5. Actual air differential pressure across filters, heating coils, and cooling coils
      6. Actual and specified total system air quantities for supply, return, exhaust, and outside air
      7. Actual and specified air quantities at each terminal: supply, exhaust, and return
      8. Nominal motor H.P., voltage, amp rating, motor overloads size
      9. Fan and drive sheave model no. and make
      10. VFD set point for design air flow
      11. Actual and specified air conditions entering and leaving the heat exchanger coils and heat recovery wheels, for heating and cooling, dehumidification, and hot gas reheat modes
      12. Unit discharge db/wb air temperature in cooling, heating, and dehumdification mode.

All air balance at air terminals shall be accomplished by setting branch duct dampers. Diffuser dampers shall be left in the full open position.

Mechanical Contractor shall make available plans and equipment submittals as indicated in the Equipment, General Requirements section of these specifications.

Certification:
The contractor shall submit a written certification signed by a principal of the balancing contractor's firm stating that the environmental systems have been tested, adjusted and balanced to within 10 percent of the design air flow rates.

T & B Balance Contractor shall be any AABC or NEBB certified company.

END OF SECTION