



Hanahan Fire Station Selective Roof
Replacement/Repairs

Hanahan, South Carolina

Construction Documents

Prepared For

City of Hanahan
1255 Yeamans Hall Road
Hanahan, SC 29410

Owner Project Number: COH - 111515

ADC Project Number: 15311

November 27, 2015

1226 YEAMANS HALL ROAD
HANAHAN, SC 29410
843-566-0161
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ADCENGINEERING.COM



Hanahan Fire Station Selective Roof Replacement/Repairs

Hanahan, South Carolina

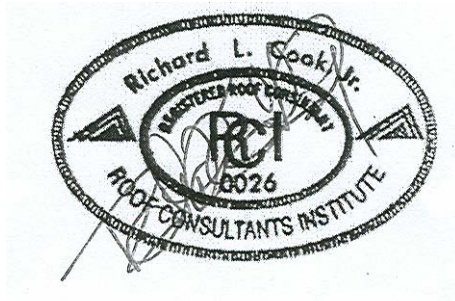
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Mr. Richard L. Cook, Jr., FRCI, RRC, RWC, REWC, RBEC, RRO, CCS, CSRP, & LEED® AP
ADC Engineering, Inc.

November 27, 2015

Certification of Document's Authenticity
AIA® Document D401™ - 2003

I, Mr. Richard L. Cook, Jr., 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 13:25:17 on November 27, 2015 under Order No. 4538450814_1 from AIA Contract Documents software and that in preparing the attached final documents I made no changes to the original text of AIA® Document A101™ – 2007 – Standard Form of Agreement Between Owner and Contractor where the basis of payment is STIPULATED SUM, as published by the AIA in its software, other than those additions and deletions shown in the associated Additions and Deletions Report.



(Signed)

Vice President
(Title)

November 27, 2015
(Dated)

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Owner Project Number: COH - 111515

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Hanahan Fire Station Selective Roof Replacement/Repairs

Owner Project Number: COH - 111515

Sheet Number	Title
R101	Cover Sheet
R102	General Notes
R103	Existing Roof Plan
R104	New Roof Plan
R105	Repair Plan
R201	Details/Sections
R202	Details/Sections
R203	Details/Sections
R204	Details/Sections

November 25, 2015

Page 1 of 1

To: Invited Bidders

subject: Invitation for Construction Bids
Hanahan Fire Station Selective Roof Replacement/Repairs
Owner Project Number: COH - 111515
ADC Project Number: 15311

You are requested to provide pricing for the above subject project. Please find below, a general summary of the Scope of Work.

Base Bid work includes total removal of existing roofing systems down to the roof deck for approximately 49 squares of roof. Roof replacement includes minor deck repairs, rough carpentry, roof insulation, including taper, and a modified bitumen roof system. All associated sheet metal components and accessories are included.

Alternate Number 1 includes removal of existing mortar joints in precast panels in the building envelope/exterior walls and replacement with sealant joints.

Alternate Number 2 includes the installation of gutters and downspouts on the standing seam metal roof system where none exist.

The Owner of the facility is City of Hanahan, 1255 Yeamans Hall Road, Hanahan, SC 29410. The Owner requests that the work be performed at the earliest possible date.

We have a **Mandatory Pre-Bid Meeting** scheduled for **2PM, December 1, 2015** at Hanahan Fire Station, 5826 Campbell Street, Hanahan, SC 29410. A Bid Opening is scheduled for December 8, 2015, 2PM at ADC Engineering, Inc., 1226 Yeamans Hall Road, Hanahan, SC 29410.

This will be a fast-track project and Owner requests that the contractor be ready to proceed immediately upon award of contract.

Construction Documents will be uploaded to our FTP site.

If you have any questions or comments, please do not hesitate to give us a call.

Sincerely,
ADC Engineering, Inc.



Joe Baker

Building Envelope Designer
Professional Engineer (PE)
Registered Roof Consultant (RRC), RCI, Inc.
Registered Roof Observer (RRO), RCI, Inc.
Registered Building Envelope Consultant (RBEC), RCI, Inc.
Registered Waterproofing Consultant (RWC), RCI, Inc.
Registered Exterior Wall Consultant (REWC), RCI, Inc.
CDT, The Construction Specifications Institute

ajm

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AIA[®]

Document A701™ – 1997

Instructions to Bidders

for the following PROJECT:

(Name and location or address)

Hanahan Fire Station Selective Roof Replacement/Repairs

Owner Project Number: COH - 111515

THE OWNER:

(Name, legal status and address)

City of Hanahan

1255 Yeamans Hall Road

Hanahan, SC 29410

THE ARCHITECT:

(Name, legal status and address)

ADC Engineering, Inc.

1226 Yeamans Hall Road

Hanahan, SC 29410

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.

TABLE OF ARTICLES

- 1 **DEFINITIONS**
- 2 **BIDDER'S REPRESENTATIONS**
- 3 **BIDDING DOCUMENTS**
- 4 **BIDDING PROCEDURES**
- 5 **CONSIDERATION OF BIDS**
- 6 **POST-BID INFORMATION**
- 7 **PERFORMANCE BOND AND PAYMENT BOND**
- 8 **FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR**

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 other sample bidding and contract forms. The proposed Contract Documents consist of the form of Agreement between the Owner and Contractor, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications and all Addenda issued prior to execution of the Contract.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other Contract Documents are applicable to the Bidding Documents.

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

§ 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 as the base, to which Work may be added or from which Work may be deleted for 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 the amount of 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 The Bidder by making a Bid represents that:

§ 2.1.1 The Bidder has read and understands the Bidding Documents or Contract Documents, to the extent that such documentation relates to the Work for which the Bid is submitted, and for other portions of the Project, if any, being bid concurrently or presently under construction.

§ 2.1.2 The Bid is made in compliance with the Bidding Documents.

§ 2.1.3 The Bidder has visited the site, become familiar with local conditions under which the Work is to be performed and has correlated the Bidder's personal observations with the requirements of the proposed Contract Documents.

§ 2.1.4 The Bid is based upon the materials, equipment and systems required by the Bidding Documents without exception.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 COPIES

§ 3.1.1 Bidders may obtain complete sets of the Bidding Documents from the issuing office designated in the Advertisement or Invitation to Bid in the number and for the deposit sum, if any, stated therein. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of missing or damaged documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the Bidding Documents and the Bidder's deposit will be refunded.

§ 3.1.2 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.

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

§ 3.1.4 The Owner and Architect may make copies of the Bidding Documents available on the above terms for the purpose of obtaining Bids on the Work. No license or grant of use is conferred by issuance of copies of the Bidding Documents.

§ 3.2 INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

§ 3.2.1 The Bidder shall carefully study and compare the Bidding Documents with each other, and with other work being bid concurrently or presently under construction to the extent that it relates to the Work for which the Bid is submitted, shall examine the site and local conditions, and shall at once report to the Architect errors, inconsistencies or ambiguities discovered.

§ 3.2.2 Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.

§ 3.2.3 Interpretations, corrections and changes of the Bidding Documents will be made by Addendum. Interpretations, corrections and changes of the Bidding Documents made in any other manner will 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 No substitution will be considered prior to receipt of Bids unless written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed substitution would require, shall be included. 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.

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

§ 3.3.4 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 all who are known by the issuing office to have received a complete set of Bidding Documents.

§ 3.4.2 Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.

§ 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 Each Bidder shall ascertain prior to submitting a Bid 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 the Bidding Documents.

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

§ 4.1.3 Sums shall be expressed in both words and figures. In case of discrepancy, the amount written in words shall govern.

§ 4.1.4 Interlineations, alterations and erasures 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."

§ 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 make no 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 of the Bidder and the nature of legal form of the Bidder. The Bidder shall provide evidence of legal authority to perform within the jurisdiction of the Work. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further give 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.

§ 4.2 BID SECURITY

§ 4.2.1 Each Bid shall be accompanied by a bid security in the form and amount required if so stipulated in the Instructions to Bidders. The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and will, 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. The amount of the bid security shall not be forfeited to the Owner in the event the Owner fails to comply with Section 6.2.

§ 4.2.2 If a surety bond is required, it shall be written on AIA Document A310, Bid Bond, unless otherwise provided in the Bidding Documents, and the attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of the power of attorney.

§ 4.2.3 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds, if required, have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn or (c) all Bids have been rejected.

§ 4.3 SUBMISSION OF BIDS

§ 4.3.1 All copies of the Bid, the bid security, if any, 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.

§ 4.3.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids. Bids received after the time and date for receipt of Bids will be returned unopened.

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

§ 4.3.4 Oral, telephonic, telegraphic, facsimile or other electronically transmitted bids will not be considered.

§ 4.4 MODIFICATION OR WITHDRAWAL OF BID

§ 4.4.1 A Bid may not be modified, withdrawn or canceled by the Bidder during the stipulated time period following the time and date designated for the receipt of Bids, and each Bidder so agrees in submitting a Bid.

§ 4.4.2 Prior to the time and date designated for receipt of Bids, a Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder. Written confirmation over the signature of the Bidder shall be received, and date- and time-stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be so worded as not to reveal the amount of the original Bid.

§ 4.4.3 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.

§ 4.4.4 Bid security, if required, shall be in an amount sufficient for the Bid as resubmitted.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 OPENING OF BIDS

At the discretion of the Owner, if stipulated in the Advertisement or Invitation to Bid, the properly identified Bids received on time will be publicly opened and will be read aloud. An abstract of the Bids may be made available to Bidders.

§ 5.2 REJECTION OF BIDS

The Owner shall have the right to reject any or all Bids. A Bid not accompanied by a required bid security or by other data required by the Bidding Documents, or a Bid which is in any way incomplete or irregular is subject to rejection.

§ 5.3 ACCEPTANCE OF BID (AWARD)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest qualified Bidder provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. 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 own best interests.

§ 5.3.2 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 low 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, a properly executed AIA Document A305, Contractor's Qualification Statement, unless such a Statement has been previously required and submitted as a prerequisite to the issuance of Bidding Documents.

§ 6.2 OWNER'S FINANCIAL CAPABILITY

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

§ 6.3 SUBMITTALS

§ 6.3.1 The Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, after notification of selection for the award of a Contract, furnish to the Owner through the Architect in writing:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the manufacturers, products, and the suppliers of principal items or systems of materials and equipment proposed for the Work; 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 in writing 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, (1) withdraw the Bid or (2) submit an acceptable substitute person or entity with an adjustment in the Base Bid or Alternate Bid to cover 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. Bonds may be secured through the Bidder's usual sources.

§ 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 If the Owner requires that bonds be secured from other than the Bidder's usual sources, changes in cost will be adjusted as provided in the Contract Documents.

§ 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 be commenced prior thereto 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. Both bonds shall be written in the amount of the Contract Sum.

§ 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 thereto a certified and current copy of the power of attorney.

ARTICLE 8 FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

Unless otherwise required in the Bidding Documents, the Agreement for the Work will be written on AIA Document A101, Standard Form of Agreement Between Owner and Contractor Where the Basis of Payment Is a Stipulated Sum.

**SUPPLEMENTARY CONDITIONS
INSTRUCTIONS TO BIDDERS
(AIA Document A701, 1997 Edition)**

1.1 GENERAL

- A. The following supplements modify the "Instructions to Bidders" AIA Documents A701, 1997 Edition. Where a portion of Instructions to Bidders is modified or deleted by the Supplementary Conditions, the unaltered portions of the Instructions to Bidders shall remain in effect.
- B. Wherever the word "Architect" appears herein, the intent is the Consultant/Engineer with whom the Owner has a contractual agreement. In the absence of a Consultant/Engineer, the "Owner" assumes the role of the "Architect."

1.2 ARTICLE 1; DEFINITIONS

- A. 1.1. Add the following to the end of the last sentence, "and Contractor's Performance and Labor and Material Payment Bonds."

1.3 ARTICLE 2; BIDDERS REPRESENTATIONS

- A. 2.2 ADD: IRAN DIVESTMENT ACT - CERTIFICATION (a) The Iran Divestment Act List is a list published by the Board pursuant to Section 11-57-310 that identifies persons engaged in investment activities in Iran. Currently, the list is available at the following URL: [http://procurement.sc.gov/PS/PS-iran-divestment.phtm\(.\)](http://procurement.sc.gov/PS/PS-iran-divestment.phtm(.)) Section 11-57-310 requires the government to provide a person ninety days written notice before he is included on the list. The following representation, which is required by Section 11-57-330(A), is a material inducement for the State to award a contract to you. (b) By signing your Offer, you certify that, as of the date you sign, you are not on the then-current version of the Iran Divestment Act List. (c) You must notify the Procurement Officer immediately if, at any time before posting of a final statement of award, you are added to the Iran Divestment Act List. [02-2A077-1]

1.4 ARTICLE 3; BIDDING DOCUMENTS

- A. 3.1.3. Add the following sentence, "Only complete sets of Bidding Documents shall be available, no partial sets will be issued".

1.5 ARTICLE 3; INTERPRETATION OR CORRECTION OF BIDDING DOCUMENTS

- A. 3.2.3. Add the following paragraph,

"Bidder shall promptly notify the Consultant/Engineer at (843) 566-0161, of any ambiguity, inconsistency, or error which may be discussed upon examination of the bidding documents, or site conditions."

1.6 ARTICLE 3; SUBSTITUTIONS

A. 3.3.1. Add the following sentence, "Only the General Contractor may submit request for substitutions. Submittal shall include bidding contractor's license number".

B. 3.3.2. Add the following sentences,

"Consultant/Engineer reserves the right to require delivery of one (1) sample of item for testing of its general suitability, operations and strength of material. Furnishing of sample will be at expense of bidder; Owner and Consultant/Engineer shall not be held liable for damage to sample due to any cause. All data and design calculations submitted and results of tests will be for Consultant's/Engineer's use only. Final determination as to suitability of product or equipment, under the Construction Documents, rests with Consultant/Engineer.

Bidder's Responsibility: Approval of materials and equipment will be based on manufacturer's published data considered in conjunction with referenced standards. Approval of materials or equipment shall not be construed as authorizing any deviations from Construction Documents unless attention of Consultant/Engineer has been directed in writing to the specific deviations. If departures from

Construction Documents are deemed necessary due to approval of materials considered equal, details of such departures, including changes in related portions of project and reasons therefore, shall be submitted with Bidder's request for approval".

1.7 ARTICLE 4; BIDDING PROCEDURES

A. 4.1.8. Add the following paragraph,

"Failure to submit a bid in the form requested or inclusion of any alternates, conditions, limitations or provisions not called for, will render the bid irregular; and shall be considered sufficient cause for rejection of bid. Failure to complete entries in all blanks in the Bid Form shall be considered sufficient cause for rejection of a bid".

B. 4.2.1. **Bid Security;** Delete the last sentence in its entirety. Add the following sentences, "Bid Security shall be in the amount of five (5%) of the base bid. Bid Bond shall only be accepted. On small projects (less than \$50,000), a certified check in the amount of 5% of the base bid may be offered in lieu of a bid bond unless otherwise adjusted by the Consultant/Engineer in his documents."

C. 4.3.3. **Submission of Bids;** Add the following at the end of the paragraph, "Bidders are cautioned that it is the responsibility of each individual bidder to ensure that his bid is in the possession of the responsible official or his designated alternate prior to the stated time and at the place of bid opening. Bids, amendments thereto, or withdrawal request received after the time advertised for bid opening will not be accepted."

SUPPLEMENTARY CONDITIONS
INSTRUCTIONS TO BIDDERS
(AIA Document A701, 1997 Edition)

D. 4.3.5. Add the following paragraph, "The Contractor shall furnish in writing as part of the bid form (on the form included) the names of persons or entities proposed for the portions of work identified. Failure to submit list of subcontractors may disqualify the bidder. All blanks must be filled out."

E 4.3.6. All required Bid information shall be submitted to the following:

As listed in the invitation for construction bids

F. 4.3.7. Required Bid information includes the following:

Completed Bid Form with all information included in accordance with instructions;
Bid Security and Power-of-Attorney One;(1) photocopy of all Bid information.

G. 4.4.1. Modification or Withdrawal of Bid; Add the following sentences at the end of the paragraph, "No bid shall be withdrawn for a period of sixty (60) days after time and date of opening".

Negligence or error on the part of any Bidder in preparing his bid confers no right of withdrawal or modification of his bid after time has been called. Sureties and principals are advised that Owner cannot give consideration to any plea of error in preparation of a bid.

1.8 ARTICLE 5; CONSIDERATIONS OF BIDS

A. 5.1. Opening of Bids, Add the following sentence, "A copy of the bid tabulation form shall be available to all bidders within ten (10) days of the bid opening".

B. 5.3.3. Add the following paragraph, "IN CASE OF TIE BIDS, the two bidders shall confirm their bids, and then if necessary will be allowed to resubmit bids to determine the low bidder.

1.9 ARTICLE 6; POST BID INFORMATION

A. 6.2. Delete in its entirety.

1.10 ARTICLE 7; PERFORMANCE BOND & PAYMENT BOND

A. 7.1.1. Bond Requirements, delete, "If stipulated in the Bidding Documents" and capitalize the 't' in the." Add the following to the end of the paragraph, "Bonds shall be in an amount equal to one hundred percent (100%) of the contract price".

B. 7.1.2. Delete, "If the furnishing of such bonds is stipulated in the Bidding Documents and capitalize the 't' in the". Delete the last sentence in its entirety.

SUPPLEMENTARY CONDITIONS
INSTRUCTIONS TO BIDDERS
(AIA Document A701, 1997 Edition)

- C. 7.1.4. Add this paragraph at the end, "Bonds shall be with company which is licensed to do business in the State of South Carolina, and have an 'A' rating according to the 'Best's Key Rating System'".
- D. 7.2.5. Add this paragraph, "The Bidder shall require a current phone number and contact person of number to be included on the bond".

1.11 ARTICLE 8; FORM OF AGREEMENT BETWEEN OWNER & CONTRACTOR

- A. 8.1.1. Add the following paragraph,

"Liquidated Damages for Failure to Enter Into a Contract: Successful bidder, upon his failure or refusal to execute and deliver the executed contract and bonds required within ten (10) days after he has received notice of acceptance of his bid, shall forfeit to Owners, as liquidated damages for such failure or refusal, any security or bond deposited with his bid".



AIA[®]

Document A310™ – 2010

Bid Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

City of Hanahan
1255 Yeamans Hall Road
Hanahan, SC 29410

PROJECT:

(Name, location or address, and Project number, if any)

Hanahan Fire Station Selective Roof Replacement/Repairs
Owner Project Number: COH - 111515

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.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such

Init.

statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this day of ,

		<i>(Principal)</i>	<i>(Seal)</i>
<i>(Witness)</i>		<i>(Title)</i>	
		<i>(Surety)</i>	<i>(Seal)</i>
<i>(Witness)</i>		<i>(Title)</i>	

Init.

Bid Form

BID SUBMITTED BY: _____

(Bidder's Name)

BID SUBMITTED TO: City of Hanahan

(Owner's Name)

FOR PROJECT: ADC 15311
(Number)

Hanahan Fire Station Selective Roof Replacement/Repairs
(Name)

OFFER

1. In response to the *Invitation for Construction Bids*, and in compliance with the *Instructions to Bidders* for the above-named Project, the undersigned **BIDDER** proposes and agrees, if this Bid is accepted, to enter into a Contract with the **OWNER** in the form included in the Bidding Documents, and to perform all Work as specified or indicated in the Bidding Documents, for the prices and within the time frames indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

2. **BIDDER** has submitted Bid Security as follows in the amount and form required by the Bidding Documents:

Bid Bond with Power of Attorney Electronic Bid Bond Cashier's Check

(**BIDDER check one**)

3. **BIDDER**, by submitting this Bid, affirms that it has carefully examined the Bidding Documents and the other related data identified in the Bidding Documents, has visited the actual location of the Work, has satisfied itself as to all conditions and understands that, in signing this Bid Form, it waives all rights to plead any misunderstanding regarding same and agrees to be bound by the provisions of said Bidding Documents and all statements made therein.

4. **BIDDER** acknowledges the receipt of the following Addenda to the Bidding Documents and has incorporated the effects of said Addenda into its Bid:

ADDENDUM No: _____

5. **BIDDER** accepts all terms and conditions of the *Invitation for Construction Bids*, including, without limitation, those dealing with the disposition of Bid Security. **BIDDER** agrees that this Bid, including all Bid Alternates, if any, may not be revoked or withdrawn after the opening of bids, and shall remain open for acceptance for a period of **60** days following the Bid Date, or for such longer period of time that **BIDDER** may agree to in writing upon request of the **OWNER**. **BIDDER** understands that Bid Alternates that are not accepted in an initial award shall remain open for acceptance for the entire period set above and for such longer period as requested by **OWNER** and agreed to by **BIDDER**.

6. **BIDDER** herewith submits its offer to provide all labor, materials, equipment, tools of trade and labor, accessories, appliances, warranties and guarantees, and to pay all royalties, fees, permits, licenses and applicable taxes necessary to complete the following items of construction work:

6.1 BASE BID WORK (as indicated in the Bidding Documents and generally describes as follows):

Base Bid work includes total removal of existing roofing systems down to the roof deck for approximately 49 squares of roof. Roof replacement includes minor deck repairs, rough carpentry, roof insulation, including taper, and a modified bitumen roof system. All associated sheet metal components and accessories are included.

_____, which sum is hereafter called the **BASE BID**.
(enter BASE BID in figures only)

Bid Form

6.2 ALTERNATE BID WORK (as indicated in the Bidding Documents and generally described as follows):
 (BIDDER shall **STRIKE THROUGH** "ADD" or "DEDUCT" so as to clearly indicate the price adjustment offered for each Alternate)

ALTERNATE NO. 1: Alternate Number 1 includes removal of existing mortar joints in precast panels in the building envelope/exterior walls and replacement with sealant joints. **ADD/DEDUCT** _____
 (to or from *BASE BID*)

ADD 5 Calendar Days

ALTERNATE NO. 2: Alternate Number 2 includes the installation of gutters and downspouts on the standing seam metal roof system where none exist. **ADD/DEDUCT** _____
 (to or from *BASE BID*)

ADD 7 Calendar Days

ALTERNATE NO. 3: N/A _____ **ADD/DEDUCT** _____
 (to or from *BASE BID*)

ALTERNATE NO. 4: N/A _____ **ADD/DEDUCT** _____
 (to or from *BASE BID*)

6.3 UNIT PRICE WORK

BIDDER offers for the Owner's consideration and use the following **UNIT PRICES**. The **UNIT PRICES** offered by **BIDDER** indicate the amount to be added to or deducted from the Contract Sum for each item-unit combination. **UNIT PRICES** include all costs to the Owner, including those for materials, labor, equipment, tools of trades and labor, fees, taxes, insurance, bonding, overhead, profit, etc. The Owner reserves the right to include or not include any of the following **UNIT PRICES** in the Contract and to negotiate the **UNIT PRICES** with **BIDDER**.

No.	Item	Base Bid Qty	Unit of Measure	ADD	DEDUCT
1.	Plywood Replacement (4' x 8')	6	EA	_____	_____
2.	2 x 6	200	LF	_____	_____
3.	2 x 4	150	LF	_____	_____

Bid Form

LISTING OF PROPOSED SUBCONTRACTORS

1. A **SUBCONTRACTOR** is an entity who will perform work or render service to the prime contractor to or about the construction site. Material suppliers, manufacturers and fabricators are not **SUBCONTRACTORS** and are not to be listed.
2. Any **BIDDER** responding to an *Invitation for Construction Bids* shall list in its bid the name of only those **SUBCONTRACTOR(S)** that will perform the work so identified in the *Invitation*.
3. If **BIDDER** determines to use its own employees to perform any portion of the work listed below, and if **BIDDER** is qualified to perform such work under the terms of the Bidding Documents, **BIDDER** shall list itself in the appropriate place in its bid and not subcontract any of the work except with the approval of the Owner for good cause shown.
4. **BIDDER** hereby acknowledges and agrees that any failure by **BIDDER** to list **SUBCONTRACTORS** in accordance with the requirements of the SC Code of Laws shall render the BID non-responsive.
5. A **SUBCONTRACTOR** listed for a **BID ALTERNATE** may be used for all work, including the Base Bid work, if the **BID ALTERNATE** is accepted.
6. **BIDDER** hereby states its commitment to use the below-listed **SUBCONTRACTORS** in the performance of the Subcontractor Specialty work listed:

SUBCONTRACTOR SPECIALTY (COMPLETED BY A/E)	SUBCONTRACTOR'S NAME or PRIME BIDDERS'S NAME (<i>MUST BE COMPLETED BY BIDDER</i>)	SUBCONTRACTOR'S SC LICENSE NUMBER (FOR INFORMATION)
<u>BASE BID WORK</u>		
<u>ALTERNATE BID WORK BID ALTERNATE NO. 1</u>		
<u>ALTERNATE BID WORK BID ALTERNATE NO. 2</u>		
N/A	<u>ALTERNATE BID WORK BID ALTERNATE NO. 3</u>	
N/A	<u>ALTERNATE BID WORK BID ALTERNATE NO. 4</u>	

Bid Form

TIME OF CONTRACT PERFORMANCE

BIDDER hereby agrees to complete the construction work in accordance with the following schedule:

1. The **DATE OF COMMENCEMENT** shall be established in the *Notice to Proceed*. The **BIDDER** shall not incur any expense chargeable to this Project until the Contract has been executed by both by the Owner and the Contractor, and a Notice to Proceed has been issued.
2. The **DATE OF SUBSTANTIAL COMPLETION**, to be documented on the *Certificate of Substantial Completion*, shall be **(30) CALENDAR DAYS** from the **DATE OF COMMENCEMENT** set forth in the *Notice to Proceed*, subject to adjustments as provided in the Construction Documents.
3. The **DATE OF FINAL COMPLETION**, to be documented on the *Certificate of Final Completion*, shall be **(30) CALENDAR DAYS** from the **DATE OF SUBSTANTIAL COMPLETION**, subject to adjustments as provided in the Construction Documents.

LIQUIDATED DAMAGES AND EARLY COMPLETION AWARD

1. The undersigned further agrees that from the compensation to be paid, the Owner shall retain as **Step One Liquidated Damages** the amount of **\$200.00** for each calendar day the actual construction time required to achieve **SUBSTANTIAL COMPLETION** exceeds the specified or adjusted Contract time for **SUBSTANTIAL COMPLETION**, as provided in the Construction Documents.
2. The undersigned further agrees that from the compensation to be paid, the Owner shall retain as **Step Two Liquidated Damages** the amount of **\$200.00** for each calendar day the actual construction time required to achieve **FINAL COMPLETION** exceeds the specified or adjusted Contract Time for **FINAL COMPLETION**, as provided in the Construction Documents.
3. The undersigned further agrees that in full and complete satisfaction for the best efforts of the undersigned to achieve **SUBSTANTIAL COMPLETION** before the date established above, the Owner shall pay the undersigned an **Early Completion Award** in the amount of **\$0.00** for each calendar day the actual construction time required to achieve **SUBSTANTIAL COMPLETION** is less than the originally specified Contract Time for **SUBSTANTIAL COMPLETION**, as provided in the Construction Documents.

AGREEMENTS

By submitting this Bid, **BIDDER** hereby agrees to the following terms and conditions:

1. An incomplete Bid, or information not requested that is written on or attached to this Bid Form that could be considered a qualification of the Bid, may be cause for rejection of the Bid.
2. The failure of the **BIDDER** to indicate a price for a **BID ALTERNATE** shall render the Bid non-responsive. A **BID ALTERNATE** shall be bid by indicating either a dollar amount or the words "No Change", "Zero", or "0.00". A typed or printed "No Bid", or works of similar meaning, shall render the Bid non-responsive. **BIDDER** must indicate whether the amount of the **BID ALTERNATE** is an "ADD" to or a "DEDUCT" from the amount of the Base Bid. The Bid may be determined non-responsive for failure of the **BIDDER** to indicate the appropriate "ADD" or "DEDUCT" for each **BID ALTERNATE**, unless the adjustment is obvious to the Owner.
3. If any **BID ALTERNATES** should be accepted by the **OWNER**, they shall be incorporated into the executed Contract. **BID ALTERNATES** may be accepted in any combination or order, at the sole discretion of the **OWNER**.
4. The **BIDDER** shall list only **SUBCONTRACTORS** (as defined in the Bidding Documents) who are qualified to perform items of work as specified in the Bidding Documents or as required by any material or equipment substitutions approved at the time of bidding. No **BIDDER** whose Bid is accepted shall substitute another entity as **SUBCONTRACTOR** in the place of the **SUBCONTRACTOR** listed in the original Bid, except for one or more of the reasons allowed by the SC Code of Laws.
5. The failure of the **BIDDER** to provide the name(s) of listed **SUBCONTRACTORS** in accordance with the SC Code of Laws shall render the Bid non-responsive.
6. Unless otherwise provided in the Bidding Documents, **BIDDER** will provide Performance and Labor and Material Payment Bonds, each in the amount equal to 100% of the Contract Award, as a condition of execution of the Contract. Failure to supply such bonds as required by the Construction Documents shall result in cancellation of the Notice of Intent to Award and forfeiture of the Bid Bond.

Bid Form

7. **BIDDER** agrees to provide all information requested by the **OWNER** to support the **OWNER'S** evaluation and determination of the **BIDDER'S** responsibility, including completion of the *Pre-Qualification Questionnaire*. The Questionnaire shall be completed fully and returned to the **OWNER** within SEVEN (7) DAYS from the date of receipt by the **BIDDER** by certified mail. The completed *Pre-Qualification Questionnaire* Form must be received by the Owner no later than the close of business on the seventh day. Failure by **BIDDER** to supply requested information with respect to responsibility may be grounds for a determination of non-responsibility.
8. The **BIDDER** certifies that it will provide a "Drug-Free Workplace".
9. At any time prior to the issuance of the Notice to Proceed for this Project, this Contract may be canceled for the convenience of the Owner.
10. Neither the Owner nor any of its representatives, employees or agents shall be responsible for any bid preparation costs, or any costs or charges of any type, should all bids be rejected or Project canceled for any reason prior to the issuance of the Notice to Proceed.

BIDDER'S TAXPAYER IDENTIFICATION

FEDERAL EMPLOYER'S IDENTIFICATION NUMBER: _____

OR

SOCIAL SECURITY NUMBER: _____

CONTRACTOR'S CLASSIFICATIONS AND SUBCLASSIFICATIONS WITH LIMITATIONS

(Classification)

(Subclassification)

(Limitations)

(Contractor's License Number)

SIGNATURE

(Legal Name of Person, Firm or Corporation Submitting Bid)

(Mailing Address for the above)

BY

(Signature)

(Date)

(Title)

(Phone)



AIA[®]

Document A101™ – 2007

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

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

BETWEEN the Owner:
(Name, legal status, address and other information)
City of Hanahan
1255 Yeamans Hall Road
Hanahan, SC 29410

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

for the following Project:
(Name, location and detailed description)
Hanahan Fire Station Selective Roof Replacement/Repairs
Owner Project Number: COH - 111515

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

ADC Engineering, Inc.
1226 Yeamans Hall Road
Hanahan, SC 29410

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

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

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

AIA Document A201™–2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

TABLE OF ARTICLES

1	THE CONTRACT DOCUMENTS
2	THE WORK OF THIS CONTRACT
3	DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION
4	CONTRACT SUM
5	PAYMENTS
6	DISPUTE RESOLUTION
7	TERMINATION OR SUSPENSION
8	MISCELLANEOUS PROVISIONS
9	ENUMERATION OF CONTRACT DOCUMENTS
10	INSURANCE AND BONDS

ARTICLE 1 THE CONTRACT DOCUMENTS

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

ARTICLE 2 THE WORK OF THIS CONTRACT

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

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

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

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than () days from the date of commencement, or as follows:

(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. If appropriate, insert requirements for earlier Substantial Completion of certain portions of the Work.)

Portion of Work

Substantial Completion Date

, subject to adjustments of this Contract Time as provided in the Contract Documents.
(Insert provisions, if any, for liquidated damages relating to failure to achieve Substantial Completion on time or for bonus payments for early completion of the Work.)

ARTICLE 4 CONTRACT SUM

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

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:
(State the numbers or other identification of accepted alternates. If the bidding or proposal documents permit the Owner to accept other alternates subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)

§ 4.3 Unit prices, if any:
(Identify and state the unit price; state quantity limitations, if any, to which the unit price will be applicable.)

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

§ 4.4 Allowances included in the Contract Sum, if any:
(Identify allowance and state exclusions, if any, from the allowance price.)

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

ARTICLE 5 PAYMENTS

§ 5.1 PROGRESS PAYMENTS

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

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

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

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported

by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

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

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

- .1 Take that portion of the Contract Sum properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Contract Sum allocated to that portion of the Work in the schedule of values, less retainage of percent (%). Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™–2007, General Conditions of the Contract for Construction;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing), less retainage of percent (%);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201–2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, retainage applicable to such work and unsettled claims; and
(Section 9.8.5 of AIA Document A201–2007 requires release of applicable retainage upon Substantial Completion of Work with consent of surety, if any.)
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201–2007.

§ 5.1.8 Reduction or limitation of retainage, if any, shall be as follows:

(If it is intended, prior to Substantial Completion of the entire Work, to reduce or limit the retainage resulting from the percentages inserted in Sections 5.1.6.1 and 5.1.6.2 above, and this is not explained elsewhere in the Contract Documents, insert here provisions for such reduction or limitation.)

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

§ 5.2 FINAL PAYMENT

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

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201–2007, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

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

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 INITIAL DECISION MAKER

The Architect will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201–2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker. *(If the parties mutually agree, insert the name, address and other contact information of the Initial Decision Maker, if other than the Architect.)*

§ 6.2 BINDING DISPUTE RESOLUTION

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201–2007, the method of binding dispute resolution shall be as follows: *(Check the appropriate box. If the Owner and Contractor do not select a method of binding dispute resolution below, or do not subsequently agree in writing to a binding dispute resolution method other than litigation, Claims will be resolved by litigation in a court of competent jurisdiction.)*

- Arbitration pursuant to Section 15.4 of AIA Document A201–2007
- Litigation in a court of competent jurisdiction
- Other *(Specify)*

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201–2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201–2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201–2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

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

%

§ 8.3 The Owner’s representative:
(Name, address and other information)

§ 8.4 The Contractor’s representative:
(Name, address and other information)

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

§ 8.6 Other provisions:

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101–2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201–2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
----------	-------	------	-------

§ 9.1.4 The Specifications:

(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Section	Title	Date	Pages
---------	-------	------	-------

§ 9.1.5 The Drawings:

(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

Number	Title	Date
--------	-------	------

§ 9.1.6 The Addenda, if any:

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

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

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

- .1 AIA Document E201™–2007, Digital Data Protocol Exhibit, if completed by the parties, or the following:

- .2 Other documents, if any, listed below:
(List here any additional documents that are intended to form part of the Contract Documents. AIA Document A201–2007 provides that bidding requirements such as advertisement or invitation to bid, Instructions to Bidders, sample forms and the Contractor’s bid are not part of the Contract Documents unless enumerated in this Agreement. They should be listed here only if intended to be part of the Contract Documents.)

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201–2007.

(State bonding requirements, if any, and limits of liability for insurance required in Article 11 of AIA Document A201–2007.)

Type of insurance or bond	Limit of liability or bond amount (\$0.00)
---------------------------	--

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

OWNER <i>(Signature)</i>	CONTRACTOR <i>(Signature)</i>
<i>(Printed name and title)</i>	<i>(Printed name and title)</i>



AIA[®] Document A201[™] – 2007

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

Hanahan Fire Station Selective Roof Replacement/Repairs

Owner Project Number: COH - 111515

THE OWNER:

(Name, legal status and address)

City of Hanahan
1255 Yeamans Hall Road
Hanahan, SC 29410

THE ARCHITECT:

(Name, legal status and address)

ADC Engineering, Inc.
1226 Yeamans Hall Road
Hanahan, SC 29410

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ADDITIONS AND DELETIONS:

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

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

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding 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 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

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§ 1.2.2 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 will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment 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 this 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 material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them 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 material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

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 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or

the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 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.

§ 2.2.3 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.

§ 2.2.4 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.

§ 2.2.5 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.

§ 2.3 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.

§ 2.4 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 written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the 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. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

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 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 2.2.3, 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 make 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 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, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and 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 written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required 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

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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 authorized by the Architect in accordance with Sections 3.12.8 or 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

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.

§ 3.6 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 21 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 an equitable adjustment 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 in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed 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 furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply 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 SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be 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, 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 maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be 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 the way by which 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 requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing 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 written 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. 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 cause such services or certifications to be provided by a properly 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, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, 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. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 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, and 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 and patching shall be restored to the condition existing prior to the cutting, fitting and 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 such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's 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 or 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 Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect 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 such 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 the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such 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 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.

§ 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.

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

§ 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, except as provided in Section 3.3.1.

§ 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 report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) 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 FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 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 13.5.2 and 13.5.3, whether or not such 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, material and equipment 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, unless otherwise specifically stated by the Architect, 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 authorize 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 duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 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 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 or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply 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 previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, 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, which the Contractor, by these 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 in writing; 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 such 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 Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 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 other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the 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, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor 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 report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report 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, except as to defects not then reasonably discoverable.

§ 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 the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors 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, and the Contractor shall proceed promptly, 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

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.4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 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.

§ 7.3.6 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.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and 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 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .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 related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 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 has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

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, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 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 an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order 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

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.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's 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. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material 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 material 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, material suppliers, or other persons or entities making a claim by reason of having 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 issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part 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 comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. 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. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. 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 material 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 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 the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 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 material or equipment suppliers 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 Architect will reflect such payment on the next Certificate 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 material and equipment 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 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, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment 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 and 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, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 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' written 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 shut-down, 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, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall 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 such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such 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 as required under Section 11.3.1.5 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 written 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 and, 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 terms and conditions of 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 and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial 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 and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, 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. If such lien 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 such lien, 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 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 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; or
- .3 terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material 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 or the Contractor's Subcontractors or Sub-subcontractors; 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 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 owners and users of adjacent sites and utilities.

§ 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, except damage or loss 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, written notice of such 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

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. 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 report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written 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 such material or substance or who are to perform the task of removal or safe containment of such 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 in the amount of the Contractor's reasonable additional costs of shut-down, 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 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 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 indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance 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 indemnify 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 LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the

Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PROPERTY INSURANCE

§ 11.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made as provided in Section 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 11.3 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and Sub-subcontractors in the Project.

§ 11.3.1.1 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, without limitation, insurance against the perils of fire (with extended coverage) and physical loss or damage including, without duplication of coverage, theft, vandalism, malicious mischief, collapse, earthquake, flood, windstorm, falsework, testing and startup, temporary buildings and debris removal including demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's and Contractor's services and expenses required as a result of such insured loss.

§ 11.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverages in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then effect insurance that will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order the cost thereof shall be charged to the Owner. If the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor in writing, then the Owner shall bear all reasonable costs properly attributable thereto.

§ 11.3.1.3 If the property insurance requires deductibles, the Owner shall pay costs not covered because of such deductibles.

§ 11.3.1.4 This property insurance shall cover portions of the Work stored off the site, and also portions of the Work in transit.

§ 11.3.1.5 Partial occupancy or use in accordance with Section 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual written consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

§ 11.3.2 BOILER AND MACHINERY INSURANCE

The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insureds.

§ 11.3.3 LOSS OF USE INSURANCE

The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives all rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.

§ 11.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or other special causes of loss be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the Contractor by appropriate Change Order.

§ 11.3.5 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, the Owner shall waive all rights in accordance with the terms of Section 11.3.7 for damages caused by fire or other causes of loss covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.

§ 11.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverages required by this Section 11.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

§ 11.3.7 WAIVERS OF SUBROGATION

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, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, 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 covered by property insurance obtained pursuant to this Section 11.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 11.3.8 A loss insured under the Owner's property insurance 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 11.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their Sub-subcontractors in similar manner.

§ 11.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds so received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach, or as determined in accordance with the method of binding dispute resolution selected in the Agreement between the Owner and Contractor. If after such loss no other special agreement is made and unless the Owner terminates the Contract for convenience, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 7.

§ 11.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection is made, the dispute shall be resolved in the manner selected by the Owner and Contractor as the method of binding dispute resolution in the Agreement. If the Owner and Contractor have selected arbitration as the method of binding dispute resolution, the Owner as fiduciary shall make settlement with insurers or, in the case of a dispute over distribution of insurance proceeds, in accordance with the directions of the arbitrators.

§ 11.4 PERFORMANCE BOND AND PAYMENT BOND

§ 11.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

§ 11.4.2 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.

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, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after 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 an 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 written 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 2.4.

§ 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, whether completed or partially completed, of the Owner or separate contractors 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 except that, 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 such 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 such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 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.

§ 13.4.2 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 there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 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 (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 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 13.5.1, 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 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 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.

§ 13.5.4 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.

§ 13.5.5 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.

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

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may 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.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time 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 13.7.

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 or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, 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 promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, 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' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor 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' written 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 for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, 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 as described in 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 written 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 Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 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, 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.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written 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 must 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 CONTINUING CONTRACT PERFORMANCE

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. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

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

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein 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.

§ 15.1.5.2 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.

§ 15.1.6 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 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, 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 arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no 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 such 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 an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, 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 15.1.6 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 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. 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 Either party, at its sole discretion, 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 Either party, at its sole discretion, 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 the Owner and Contractor under this Agreement.

**SUPPLEMENTARY CONDITIONS TO THE GENERAL CONDITIONS OF
THE CONTRACT FOR CONSTRUCTION
(AIA Document A201, 2007 Edition)**

ARTICLE 1 GENERAL PROVISIONS

- 1.1.1.2 The following supplements modify the "General Conditions to the Contract" AIA Document A201, 2007 Edition. Where a portion of the General Conditions is modified or deleted by the Supplementary Conditions, the unaltered portions of the General Conditions shall remain in effect.
- 1.1.1.3 Wherever the word "Architect" appears herein, the intent is the Consultant/Engineer with whom the Owner has a contractual agreement. In the absence of a Consultant/Engineer, the "Owner" assumes the role of the "Architect."
- 1.1.1.4 Wherever the words "Office of School Facilities," OSF, or similar references appear herein, the intent is that the consultant/engineer assumes this role.
- 1.1.1.5 The following shall replace 9.8.1: Substantial Completion is the stage in the progress of the project when all of the following conditions are met: all roofing/waterproofing systems are in place in accordance with the Contract Documents and are properly protected, Owner has complete use of the site and the facility without disruption or hindrance and no leaks or damages to the roofing/waterproofing or facility systems exist.

ARTICLE 3 CONTRACTOR

- 3.9.1 Delete the word "the" in the second line of the first sentence and substitute the word "any".
- 3.10.1 Delete the word "promptly" in the first sentence and substitute the words "within ten (10) days".
- 3.10.4 Add the following subparagraph.

"3.10.4 Should a conflict occur in or between the drawings or specifications, between divisions or sections of the specifications or between details on the drawings, the CONTRACTOR SHALL BE DEEMED TO HAVE ESTIMATED THE MORE EXPENSIVE PRODUCT OR METHOD INDICATED, unless he shall have asked for and obtained a decision in writing from the Consultant/Engineer for submission of proposals as to which product or method shall be required."
- 3.11.1 Add the following subparagraph.

"3.11.1 The contractor shall affix to the drawings and specifications (which are maintained at the site as record drawings) addendum items as follows: Cut apart addenda so that each separate addendum item may be affixed to the corresponding drawing or specification page as close to the referenced item as possible."

3.12.5 In the first sentence, delete "with reasonable promptness" and substitute "within 30 days of Notice to Proceed." Add "Such approval will be noted on the submittal data by the Contractor prior to the data being sent to the Architect."

3.19 Add Drug Free Work Place

"3.19 Drug Free Work Place. Contractor shall certify to Owner that they acknowledge and comply with the law (Drug Free Work Place)."

ARTICLE 4 ARCHITECT

4.2.2 Add the following sentences to the end of the paragraph, "The Consultant/Engineer shall inform the Owner by attachment to the Certificate & Application for Payment should the Contractor fall behind in the schedule by two weeks. At the next job meeting, the Contractor shall explain how the Contractor shall regain the schedule."

4.2.7 Add the following sentence at the end of the paragraph, "The Consultant/Engineer shall return submittals within fifteen (15) days or sooner."

ARTICLE 5 SUBCONTRACTORS

5.2.1 Delete the words, "as soon as practicable," and substitute the words, "within ten (10) days" in the second line of the first sentence.

5.2.1 Add to the end of the paragraph, "An additional purpose of this submission is to verify the list of subcontractors with the list submitted at the bid opening."

ARTICLE 7 CHANGES IN THE WORK

7.5 Add the following Subparagraph

"7.5. In Subparagraphs 7.2.1 and 7.3.1 the allowance for overhead and profit combined, included in the total cost to the Owner, shall be based on the following schedule:

1. For the Contractor, for any work performed by the Contractor's own forces, 15 percent of the cost.
2. For the Contractor, for work performed by his Subcontractor, 7 percent of the amount due the Subcontractor.
3. For each Subcontractor or Sub-contractor involved, for any work performed by that Contractor's own forces, 15 percent of the cost.
4. For each Subcontractor, for work performed by his sub-subcontractors 7 percent of the amount due the sub-subcontractor.

5. Cost shall be limited to the following: Cost of materials, including sales tax and cost of delivery, cost of labor, including Social Security, Old Age and Unemployment Insurance (labor cost may include a pro rata share of Foreman's time only in case an extension of Contract Time is granted on account of the change); Workmen's Compensation Insurance; Rental Value of power tools and equipment.
6. Overhead shall include the following: Bond premiums, supervision, superintendence, wages of timekeepers, watchmen and clerks, small tools, incidentals, general office expense and all other expenses not included in 'Cost'.
7. In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs including labor, materials and Subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are Subcontracts, they shall be itemized also."

ARTICLE 8 TIME

- 8.3.1 Delete the words "mediation and arbitration" in the fifth line of the first sentence and substitute the word, "litigation."

ARTICLE 9 PAYMENTS & COMPLETION

- 9.2 Delete the words, "before the first application for payment," and substitute the words, "within ten (10) days of the execution of the Contract," in the first line of the first sentence.
- 9.2 Add the following sentence at the end of the paragraph, "The Contractor shall provide a cash flow projection based on this and the progress schedule (3.10)."
- 9.3.1 Delete the words, "if required," in the third line of the second sentence. Add the following "The form of Application for Payment shall be AIA Document G702, 1997 Edition, supported by AIA Document G703, Continuation Sheet, 1997 Edition."
- 9.5.1. Add the following item to the end of the paragraph ".8 incorrectly filled out Application for Payment."
- 9.6.1 Delete the words, "and shall so notify the Consultant/Engineer."
- 9.7 Delete the words, "binding dispute resolution," in the sixth line of the first sentence.
- 9.8.1 Replace with: Substantial Completion is the stage in the progress of the project when all of the following conditions are met: all roofing/waterproofing systems are in place and are properly protected, Owner has complete use of the site and the facility without disruption or hindrance and no leaks or damages to the roofing/waterproofing or facility systems exist.
- 9.8.5 Add the following sentence at the end of the paragraph. "The Owner shall accompany the Consultant/Engineer on the Substantial Completion Inspection."

9.10.1 Add the following sentence at the end of the paragraph. "The Consultant/Engineer shall attach a statement to this fact as a cover letter to the final certificate for payment."

9.11 Add New Section 9.11 Liquidated Damages

Unless specifically noted otherwise, liquidated damages noted shall be modified based on below schedule.

<u>Project Cost</u>	<u>Damages Per Calendar Day</u>
Up to \$100,000	\$100.00
\$100,001 - \$500,000	\$200.00
<u>Project Cost</u>	<u>Damages Per Calendar Day</u>
\$500,001 - \$1,000,000	\$300.00
\$1,000,001 - \$2,000,000	\$400.00
\$2,000,001 - \$3,000,000	\$500.00
\$3,000,001 and Up	\$600.00

9.11.1 Add the following subparagraph.

“9.11.1 Original liquidated damages shall be reinstated for failure to reach Final Completion within (30) days after Substantial Completion.”

ARTICLE 11 INSURANCE & BONDS

11.1.1 Delete the word "jurisdiction," in the second line of the first sentence and substitute the word "state".

11.1.2.1 Add the following subparagraph.

“11.1.2.1 The insurance required shall be written on occurrence basis.”

11.1.3 Delete the words, "prior to commencement of the work," in the first line of the first sentence and substitute the words, " with signed Contract."

11.1.3 Add the following sentences to the end of the paragraph. "The form of certificate shall be ACORD 25S. Contractor shall furnish to the Owner copies of any endorsements that are subsequently issued amending coverage or limits."

- 11.3.1 Delete the first sentence and substitute the following: Unless otherwise provided in the Contract Documents, the Contractor shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis.
- 11.1.5 Add the following subparagraph
- "11.1.5 Contractor shall either (a) require each of his subcontractors to procure and maintain during the life of his sub-contract Sub-Contractor's Comprehensive General Liability, Automobile Liability, and Property Damage Liability Insurance of the type and in the same amounts as specified in this sub-paragraph, or (b) insure the activities of his sub-contractors in his own policy."
- 11.3.1.4 Delete in its entirety and substitute the following. "Unless otherwise provided in the Construction Documents, this property insurance shall not cover portions of the work stored off site. The Contractor shall be responsible for coverage.
- 11.3.1.6 As follows, "The Contractor and/or his subcontractor or sub-subcontractor must report any loss to the Owner as soon as the loss occurs in order that damage be assessed before job conditions are disturbed. Formal claims against this policy should be submitted within twenty-one (21) days after occurrence.
- 11.3.2 Delete in its entirety.
- 11.3.6 Delete the words, "Before an exposure to loss may occur", on the first line of the first sentence and substitute, "The Contractor may request that".
- 11.3.10 Delete all of the words after the semicolon and replace the semicolon with a period.
- 11.5 Add subparagraph 11.5.
- "11.5 The insurance required in section 11.1 shall be written for not less than the following, or greater if required by law:
1. Workers' Compensation:
 - a. State: Statutory
 - b. Employer's Liability: \$100,000
 2. Comprehensive General Liability (including Premises-Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage):

- a. Bodily Injury:
 - 1,000,000 Each Occurrence
 - 1,000,000 Annual Aggregate
 - b. Property Damage:
 - 1,000,000 Each Occurrence
 - 1,000,000 Annual Aggregate
 - c. Products and Completed Operations to be maintained for one (1) year after final payment.
 - d. Property Damage Liability Insurance will provide X, C or U coverage as applicable.
3. Contractual Liability:
- a. Bodily Injury:
 - \$1,000,000 Each Occurrence
4. Property Damage:
- \$1,000,000 Each Occurrence
 - \$1,000,000 Annual Aggregate
5. Personal Injury, with Employment Exclusion deleted:
- \$1,000,000 Annual Aggregate
6. Comprehensive Automobile Liability:
- a. Combined Single Limit: Each Accident
 - \$1,500,000
 - b. Bodily injury:
 - \$750,000 Each Person
 - \$750,000 Each Occurrence
 - c. Property Damage:
 - \$750,000

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

12.2.3 Add the words “within ten (10) days.”

ARTICLE 13 MISCELLANEOUS PROVISIONS

13.6 Delete in its entirety.

ARTICLE 15 CLAIMS AND DISPUTES

15.1.5.2 Add the following.

“For the purpose of this Contract, a total of five (5) days per calendar month (non-cumulative) shall be anticipated as "adverse weather" at the job site, and such time will not be considered justification for an extension of time. If, in any month, adverse weather develops beyond the five (5) days, the Contractor shall be allowed to claim additional days to compensate for the excess weather delays only to the extent of the impact on the approved construction schedule and days the contractor was already scheduled to work. The remedy for this condition is for an extension of time only and is exclusive of all other rights and remedies available under the Contract Documents or imposed or available by law.”

15.4. Delete in its entirety.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 **Balance of the Contract Price.** The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 **Construction Contract.** The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 **Contractor Default.** Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____
(Corporate Seal)

Signature: _____
Name and Title: _____
Address: _____

SURETY

Company: _____
(Corporate Seal)

Signature: _____
Name and Title: _____
Address: _____



AIA[®]

Document A312™ – 2010

Payment Bond

CONTRACTOR:

(Name, legal status and address)

SURETY:

(Name, legal status and principal place of business)

OWNER:

(Name, legal status and address)

City of Hanahan
1255 Yeamans Hall Road
Hanahan, SC 29410

CONSTRUCTION CONTRACT

Date:

Amount: \$

Description:

(Name and location)

Hanahan Fire Station Selective Roof Replacement/Repairs
Owner Project Number: COH - 111515

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond: None See Section 18

CONTRACTOR AS PRINCIPAL

Company: *(Corporate Seal)*

SURETY

Company: *(Corporate Seal)*

Signature: _____

Name and

Title:

Signature: _____

Name and

Title:

(Any additional signatures appear on the last page of this Payment Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

(Row deleted)

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)

ADC Engineering, Inc.
1226 Yeamans Hall Road
Hanahan, SC 29410

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.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 **Owner Default.** Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 **Contract Documents.** All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

CONTRACTOR AS PRINCIPAL

Company: _____
(Corporate Seal)

SURETY

Company: _____
(Corporate Seal)

Signature: _____
Name and Title: _____
Address: _____

Signature: _____
Name and Title: _____
Address: _____



AIA[®]

Document G701[™] – 2001

Change Order

PROJECT *(Name and address):*

Hanahan Fire Station
Selective Roof Replacement/Repairs
Owner Project Number: COH - 111515

CHANGE ORDER NUMBER:

DATE:

OWNER:

ARCHITECT:

CONTRACTOR:

FIELD:

OTHER:

TO CONTRACTOR *(Name and address):*

ARCHITECT'S PROJECT NUMBER: ADC 15311

CONTRACT DATE:

CONTRACT FOR:

THE CONTRACT IS CHANGED AS FOLLOWS:

(Include, where applicable, any undisputed amount attributable to previously executed Construction Change Directives)

The original Contract Sum was

\$ _____

The net change by previously authorized Change Orders

\$ _____

The Contract Sum prior to this Change Order was

\$ _____ 0.00

The Contract Sum will be increased by this Change Order in the amount of

\$ _____

The new Contract Sum including this Change Order will be

\$ _____ 0.00

The Contract Time will be increased by _____ (0) days.

The date of Substantial Completion as of the date of this Change Order therefore is

NOTE: This Change Order does not include changes in the Contract Sum, Contract Time or Guaranteed Maximum Price which have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.

ARCHITECT (Firm name)

CONTRACTOR (Firm name)

OWNER (Firm name)

ADDRESS

ADDRESS

ADDRESS

BY (Signature)

BY (Signature)

BY (Signature)

(Typed name)

(Typed name)

(Typed name)

DATE

DATE

DATE

SPECIFICATIONS

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY

- A. The building will remain completely functional and fully protected at all times during the construction work.
- B. Base Bid work includes total removal of existing roofing systems down to the roof deck for approximately 49 squares of roof. Roof replacement includes minor deck repairs, rough carpentry, roof insulation, including taper, and a modified bitumen roof system. All associated sheet metal components and accessories are included.
 - 1. Demolition of the existing roof system(s) down to the deck in accordance with Section 02 04 00, Cutting and Patching and Section 02 05 00, Demolition and Removal.
 - 2. Rough carpentry in accordance with Section 06 10 00, Rough Carpentry.
 - 3. Roof insulation in accordance Section 07 22 00, Thermal Roof Insulation.
 - 4. Roof membrane, membrane flashings, associated components and accessories in accordance with Section 07 53 06, Cold Applied Modified Bitumen Sheet Roofing.
 - 5. Sheet metal, components and accessories per Section 07 60 00, Sheet Metal.
 - 6. Repairs to sheet metal in accordance with Section 07 60 08, Sheet Metal Repairs.
 - 7. Replacement of sealant systems from the roofing and sheet metal in accordance with Section 07 92 00, Sealants for Roofing and Sheet Metal.
 - 8. Replacement of sealant systems from the building envelope in accordance with Section 07 92 10, Sealants for Building Envelope.
- C. Alternate Number 1 includes removal of existing mortar joints in precast panels in the building envelope/ exterior walls and replacement with sealant joints.
- D. Alternate Number 2 includes the installation of gutters and downspouts on the standing seam metal roof system where none exist.
- E. Unit Prices and Allowances are included in accordance with Section 01 21 10, Unit Prices and Allowances and are to be included in the Base Bid.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. The attention of the contractor of this Section is directed to the INSTRUCTIONS TO BIDDERS concerning substitution of materials and equipment.
 - 1. Submit proposed substitution of products or systems on the form provided in Section 01 60 01, Substitution Request Form.

1.03 CONTRACT METHOD

- A. Construct the Work under a single lump sum contract.
- B. All unit price items listed on the Bid Form and quantities noted in Section 01 21 10, Unit Prices and Allowances are to be included in the Base Bid.
- C. Alternates may be accepted in any order or combination and must determine the low Bidder based on the sum of the Base Bid and Alternates accepted.

1.04 WORK BY OTHERS

- A. Work of the Project executed prior to start of Work of this Contract, and which is specifically excluded from this Contract:
 - 1. Not applicable.

1.05 CONTRACTOR USE OF PREMISES

- A. Limit use of premises to specific work, storage, and access.
 - 1. All temporary protection, covered walkways, signage and monitoring safety is the Contractor's responsibility.
- B. Access to site/roof shall be from the exterior using Contractor's means and methods. No interior access is permitted unless directly related to the work.
- C. Contractor Layout Space:
 - 1. Limited and only at locations directed and approved by Owner.
 - 2. Only areas adjacent to the building may be used.
 - 3. Do not allow traffic or equipment storage outside of the approved areas.
 - 4. No access to inside of building is permitted without prior approval.

- D. SDS sheets are required for all products/materials used for this project. Any products with strong or distinct odors must be identified prior to use and submitted to Consultant/Engineer for review and approval.
- E. Maintain safe access to, from and around building for occupants, visitors and pedestrians.
- F. Coordinate use of premises under direction of Owner.
- G. Assume full responsibility for protection and safekeeping of materials, equipment and products under this Contract.
- H. Obtain and pay for use of additional storage of work areas needed for operations under this Contract.
 - 1. All materials and equipment on site will be stored in a trailer, and secured each night.
 - 2. Secure access to ladders and scaffolding at the end of each day.
- I. Daily clean-up and general safety are critical to building function and shall be primary contractor's priority.
- J. Secure motorized equipment and render inoperable during non-working hours.
- K. Adhere to Owner's security, badging and access requirements.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 11 00

SECTION 01 21 10

UNIT PRICES AND ALLOWANCES

PART 1 - GENERAL

1.01 SUMMARY

A. Unit Prices

1. Provide unit prices for the specific quantities as listed on the Bid Form. A lump sum cost for the quantity amount is to be included in the Base Bid unless otherwise noted.
 - a. A single unit price will be provided for each item, to be used as an “add” or “deduct,” based on actual field conditions as noted on the Bid Form.
2. The exact locations of these repairs are not defined in the Construction Documents. These areas will be identified during the demolition/construction process.
3. Maintain a daily log of all unit price quantities used based on contract requirements.
4. Notify Owner in writing when 80% of contract quantity is used for each unit price item.
5. Owner is not responsible for quantities which exceed 80% unless Owner is notified in writing, prior to exceeding these quantities, and contractor receives written approval to proceed.
6. Provide photographs or videotape documentation of actual quantities used.
7. Locate quantities, and show their locations on elevations or plan view drawings. Provide corresponding photographic or videotape documentation. This is required with each Application for Payment requesting payment for quantities unused.
8. Provide actual used quantities on each Application for Payment request.
9. Provide summary of unit prices “required” vs. “used” and above documentation when requested, and as part of Project Close-Out Requirements of Section 01 77 00, Contract Close-Out.

B. Allowances

1. In addition to the unit prices, an allowance of \$2,500 is included for undetermined or unforeseen items which may be discovered that are not currently included in the Contract Requirements.

Unit Prices and Allowances
01 21 10-1

2. Allowance shall cover the cost of prescribed items not specified in detail with the provision that variations between such amount and the finally determined cost of the prescribed items will be reflected in change orders appropriately adjusting the contract sum.
- C. The cost for a Unit Price or Allowance item shall include all equipment, material and labor, manufacturing, transportation, deliver, handling and installation including fees, taxes, insurance, bonding, overhead and profit.
- D. Base change order for unit prices and allowances solely on difference between actual quantity of work required and quantity of documented and approved work.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions and Supplementary Conditions of these specifications shall govern work under this Section.
- B. The attention of the Contractor and the Subcontractor of this Section is directed to the Instructions to Bidders concerning substitution of materials and equipment.
- C. Section 01 33 00: Submittals: Submission of Manufacturers' Instructions, Shop Drawings, Product Data, and Certificates.
- D. Section 01 77 00: Contract Close-Out.
- E. All technical specification sections.

1.03 COORDINATION

- A. Provide line item for each of these items on the Schedule of Values in accordance with Section 01 33 00, Submittals.
- B. Provide documentation of these items in accordance with Section 01 77 00, Contract Close-Out.
- C. Provide actual quantities used on each Application for Payment Request.

PART 2 - PRODUCTS

2.01 General Contract Unit Price Quantities

- A. As listed in the summary of each specification section and as indicated on the drawings, provide the Unit Prices as listed on the Bid Form.

2.02 General Contract Allowances

- A. As listed in this specification section, provide the Allowances within the Bid.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 21 10

Unit Prices and Allowances
01 21 10-2

15311

SECTION 01 23 00

ALTERNATES

PART 1 - GENERAL

1.01 SUMMARY

- A. Alternate Number 1 includes removal of existing mortar joints in precast panels in the building envelope/exterior walls and replacement with sealant joints.
- B. Alternate Number 2 includes the installation of gutters and downspouts on the standing seam metal roof system where none exist.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. The attention of the Contractor and the Subcontractor of this Section is directed to the Instructions to Bidders concerning substitution of materials and equipment.
- C. All sections of specifications and drawings required to accomplish the general work defined above.

1.03 PROCEDURES

- A. Alternates may be accepted in any order or combination and must determine the low Bidder based on the sum of the Base Bid and Alternates accepted.
- B. Coordinate related work and modify surrounding work as required to complete the Work, including changes under each Alternate, when acceptance is designated in Owner-Contractor Agreement.

1.04 ACCEPTANCE

- A. Alternates may be selected in any combination to be incorporated into the contract, as determined by the Owner. Agency can select any or all alternates, or reject any or all alternates solely at the decision of the agency.
- B. Alternate bids accepted by Owner will be written into Contract or incorporated by change order.

1.05 SUBCONTRACTORS

- A. Bid Form requires naming of various subcontractors whose proposals have been used under the Base Bid. If acceptance of an alternate will cause names of any subcontractor to be changed due to variances in Alternate Sub-Bids, prime bidder shall state such changes at bottom of Bid Form. These changes to Base Bid shall give substituted subcontractor's name, section of work involved, and Alternate Number, which make change necessary.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 23 00

SECTION 01 31 13

COORDINATION

PART 1 - GENERAL

1.01 SUMMARY

- A. Each week, provide an email summary of the progress schedule work for the previous seven days and the next 7 days no later than Friday by 8 AM.
- B. Provide coordination and notification with Owner and Third Party Inspection Services.
- C. Maintain safe, protected ingress/egress of all entrances at all times.
- D. Seven (7) days notice is required to Owner and Consultant/Engineer for any element or phase of work where Contractor's access equipment will be removed/relocated to ensure Owner and Consultant/Engineer have access to review and/or observe if requested.
 - 1. To be noted in Progress Schedule Summary.
- E. Seven (7) days notice to Owner and Consultant/Engineer and written approval is required for all items affecting function/use of building, including any shutdowns, interruptions in services, or disconnection of services.
 - 1. This includes any work at or around air intakes, louvers, vents or other mechanical equipment that can allow the odors/fumes/smells of work materials and/or equipment to enter the building.
 - 2. To be noted in Progress Schedule Summary.
- F. Coordinate scheduling, submittals, and Work of the various Sections of specifications to assure efficient and orderly sequence of installation of interdependent construction elements.
- G. Use only approved laydown and storage areas discussed in Pre-Construction Conference, unless otherwise discussed and specifically approved by Owner.
- H. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate Work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service such equipment.
- I. Coordinate space requirements and installation of mechanical and electrical work, which are indicated on Drawings. Coordinate routing for pipes and conduit as closely as possible with Owner. Place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

- J. Coordinate Owner furnished equipment, materials and labor. Provide written notice to Owner, seven (7) days prior to work needed in schedule.
- K. In finished areas contractor should anticipate and verify if concealed pipes, ducts, and wiring within the construction exist except as indicated otherwise. Coordinate locations of fixtures and outlets with finish elements.
- L. Coordinate completion and clean up of Work of separate Sections in preparation for Substantial Completion.
- M. Coordinate access to site for correction of defective Work, and Work not in accordance with Construction Documents to minimize disruption of Owner's activities.
- N. Coordinate each manufacturer's site visit/inspection with Owner personnel at least three (3) days prior to the visit. Provide a complete copy of the field report from the manufacturer within three (3) days.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. The attention of the Contractor and the Subcontractor of this Section is directed to the Instructions to Bidders concerning substitution of materials and equipment.
- C. Technical Specifications and Drawings.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 31 13

SECTION 01 31 19

PROGRESS SCHEDULE MEETINGS

PART 1 - GENERAL

1.01 SUMMARY

- A. Owner and Consultant/Engineer shall establish and schedule Pre-Construction Conference and all other meetings. The contractor shall coordinate and administer Pre-Construction Conference meeting, weekly progress schedule meetings, and specially called meetings throughout progress of the work. Weekly progress schedule meeting will include contractors, project manager, superintendent and applicable subcontractors.
 - 1. Prepare agenda for meetings.
 - 2. Distribute written notice of each meeting four (4) days in advance of meeting date.
 - 3. Make physical arrangements for meetings.
 - 4. Preside at meetings.
 - 5. Record minutes: Include all significant proceedings and decisions.
 - 6. Reproduce and distribute copies of minutes within three (3) days after each meeting.
- B. Representatives of contractors, subcontractors and suppliers attending meetings shall be qualified and authorized to act on behalf of the entity each represents.
- C. Consultant/Engineer may attend meetings to ascertain that work is expedited consistent with Construction Documents and construction schedules.
- D. Consultant/Engineer shall be notified of all such meetings, and be provided written summary of each.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. The attention of the contractor and the subcontractor of this section is directed to the Instructions to Bidders concerning substitution of materials and equipment.
- C. Section 01 31 13: Coordination
- D. Section 01 32 03: Project Schedule

- E. Section 01 33 00: Submittals, Construction Schedules and Submittals.
- F. Section 01 77 00: Contract Close-Out, Project Record Documents.
- G. Technical Specifications and Drawings.

1.03 PRE-CONSTRUCTION CONFERENCE MEETING

- A. Schedule after submittals have been provided and approved, before any construction begins.
- B. Location: At Project Site.
- C. Consultant/Engineer will administer Pre-Construction Conference for execution of Owner-Contractor Agreement and exchange of preliminary submittals.
- D. Attendance:
 - 1. Owner's Representative.
 - 2. Consultant/Engineer.
 - 3. Code Official (if applicable).
 - 4. Resident Project Representative.
 - 5. Contractor's Superintendent
 - 6. Major Subcontractors.
 - 7. Major Suppliers
 - 8. Others as Appropriate.
- E. Suggested Agenda:
 - 1. Distribution and discussion of:
 - a. List of major subcontractors and suppliers
 - b. Projected Construction Schedules.
 - 2. Review of project documentation of existing conditions submittal.
 - 3. Critical work sequencing and weekly progress schedule.
 - 4. Major deliveries and priorities
 - 5. Project Coordination
 - a. Designation of responsible personnel.

Progress Schedule Meetings
01 31 19-2

6. Procedures and processing of:
 - a. Field decisions.
 - b. Proposal requests.
 - c. Submittals.
 - d. Change Orders.
 - e. Applications for Payment.
 - f. Adequacy of distribution of Construction Documents.
 - g. Procedures for maintaining Record Documents.
 - h. Use of premises:
 - 1) Office work and storage lay down areas.
 - 2) Owner's requirements.
 - 3) Interior access.
 - i. Construction facilities, controls and construction aids.
 - j. Temporary utilities.
 - k. Safety and first-aid procedures.
 - l. Security procedures.
 - m. Schedule.

1.04 PROGRESS MEETINGS

- A. Schedule and administer Project meetings throughout progress of the work at weekly intervals, called meetings, and pre-installation conferences.
- B. Location of Meetings: At Project Site.
- C. Attendance:
 1. Consultant/Engineer as needed.
 2. Subcontractors as appropriate to agenda.
 3. Suppliers as appropriate to agenda.
 4. Others.

D. Suggested Agenda:

1. Email no later than 8 AM on Friday of each week.
2. Review, approval of minutes of previous meeting.
3. Review of work progress since previous meeting.
4. Field observation, problems, conflicts.
5. Problems, which impede Construction Progress Schedule.
6. Review of off-site fabrication, delivery schedules.
7. Corrective measures and procedures to regain projected schedule.
8. Revisions to Construction Schedule.
9. Plan progress schedule during succeeding work period.
10. Coordination of schedules.
11. Review submittal schedules; expedite as required.
12. Maintenance of quality standards.
13. Review proposed changes for:
 - a. Effect on construction schedule and on completion date.
 - b. Effect on other contracts of project.
14. Pending changes and substitutions.
15. Other business.

1.05 INSTALLATION MEETINGS

- A. When required in individual specification section, convene a pre-installation conference at work site prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.
- C. Notify Consultant/Engineer seven (7) days in advance of meeting date.
- D. Prepare agenda, preside at conference, record minutes, and distribute copies within three (3) days after the conference to participants, with two copies to Consultant/Engineer.

- E. Review conditions of installation, preparation and installation procedures, and coordination with related work.
- F. Required mock-up submittals shall be received at least 7 days prior to meeting and shall be completed for the pre-installation meeting.

1.06 MANUFACTURERS SITE VISITS

- A. Owner and Consultant/Engineer shall be notified at least three (3) days in advance of any manufacturers site visit.
- B. Owner and Consultant/Engineer shall be provided a complete copy of report/notes within three (3) days of visit.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 31 19

SECTION 01 32 03

PROJECT SCHEDULE

PART 1 - GENERAL

1.01 SUMMARY

- A. Prepare a critical path method (CPM) schedule that includes submittal review, any required engineering, procurement of materials, construction and agency required third party inspection testing activities or manufacturer milestone or other inspections. The CPM schedule shall cover the time from Contract Award/Date of Commencement Proceed to the Contract completion date. The CPM schedule shall incorporate labor, equipment and quantity resource data. The principles and definitions of the terms used herein shall be as set forth in Associated General Contractors of America Construction Planning and Scheduling Manual, Second Edition.
 - 1. Provide an updated overall project schedule every 2 weeks at the weekly progress meeting.
 - 2. Ensure schedule indicates shutdowns, obstructions or other events that affect Owner or requires Owner's approval.
- B. Each week, provide a written progress schedule of the previous 7 days and the planned work for the next 7 days no later than 8 AM on Friday. This is in addition to the coordination requirements of Section 01 31 19, Progress Schedule Meetings and Section 01 31 13, Coordination. Attach plan view of facility to email for clarification of work areas.
- C. Provide schedules in accordance with Section 01 33 00, Submittals.
- D. Contractor shall request, from the Owner, a calendar of all scheduled events which will/may affect the overall project schedule, weekly progress schedule and sequence of work.
- E. Inclement weather days will not be provided for days when no work was scheduled for that day.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. Section 01 31 13: Coordination
- C. Section 01 31 19: Progress Schedule Meetings
- D. Section 01 33 00: Submittals
- E. Technical Specifications and Drawings

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. ASSOCIATED GENERAL CONTRACTORS OF AMERICA (AGCA)
 - 1. Construction Planning and Scheduling Manual, Second Edition, June 2004.

1.04 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00, Submittals.
- B. Project schedule and format for weekly progress schedule
- C. Weekly progress schedule

1.05 NETWORK SYSTEM FORMAT

- A. The system shall adhere to Section 01 33 00, Submittals with time scaled diagrams and accompanying reports. Facilities with varying completion dates shall be identified by separate sub networks interconnected with the basic diagram and/or specifically coded.
- B. Schedule Diagrams
 - 1. Show activity number, description, early dates, float, and all relationships, i.e. logic ties, resources and cost. Show the sequence, order, and interdependence of activities in which the work is to be accomplished. The basic concept of a network analysis diagram will be followed to show how the start of a given activity is dependent on the physical completion of preceding activities and how its physical completion restricts or restrains the start of following activities. A minimum of 30 calendar days (22 work days) duration, or more if so specified, shall be allowed for Owner processing, approval and return of submittals, samples and shop drawings where Owner approval is required.
 - 2. In addition to construction activities, detailed network activities shall include the submittals, procurement, and Owner activities impacting progress.
 - 3. Submittal activities shall include review and approval of all submittals.
 - 4. Procurement activities shall include all materials and equipment, receipt of materials with estimated procurement costs of major items for which payment of materials will be requested in advance of installation, fabrication of special material and equipment, and their installation and testing.

5. Show activities of the Owner that affect progress and contract-required dates for completion of all or parts of the work. Show activities indicating Owner furnished materials and equipment utilizing delivery dates indicated in the clause titled "Owner Furnished Property" of the Contract Clauses.

1.06 SCHEDULE DIAGRAMS

- A. The schedule data shall conform to the following criteria:
 1. All activities shall use a standard calendar of 5 workdays per week, Monday through Friday. Show Contractor defined holidays and Federal holidays as non-workdays. Activities using any other calendar shall be highlighted for the Consultant/Engineer's approval.
 2. Each schedule activity shall be cost and resource loaded to include each type of trade or labor, e.g., carpenters, plumbers, electricians, etc. Activity duration shall be in workdays. All activities shall indicate the average number of workers per day planned during execution of the activity.
 3. At a minimum, each schedule activity shall contain codes by:
 - a. Responsibility; include but not be limited to Owner Furnished Materials, Contractor/Subcontractor, Supplier/Vendor, Consultant, etc.
 - b. Location; such as, building specific, phases of construction and/or areas within a building.
 - c. Mock-up and approval shall be included within schedule.
 - d. Request of the Consultant/Engineer; additional codes may be required such as phases, buildings, areas within a building.
 - e. Key milestones as identified by contract or furnished by the Consultant/Engineer; Proposed Change (PC) Numbers, Modification Numbers, Requests for Information (RFI's), and/or Bid Items as requested by the Consultant/Engineer.
 - f. All activities must be less than or equal to 7 work days and \$10,000, unless approved to be greater by the Consultant/Engineer.
 - g. Detailed description of each activity (i.e. asbestos removal, mobilization, roof demolition and installation sheet metal, sealants, etc.). In each activity, give quantity and unit of measure so that the amount of work the activity involves is clearly communicated.
 - h. Only two (2) open-ended activities are allowed; the first and last activities.

- i. Three phases of control (Preparatory, Initial, and Follow-up) must be included in the schedule for each activity identified as a Definable Feature of Work by the Consultant/Engineer (See Quality Control Plan).
- j. Out of sequence progress if applicable shall be handled through Retained Logic, not the Default Option of Progress Override.
- k. Progress shall be calculated based on remaining duration (RD), not percent complete.
- l. All changes to activities except jointly coordinated progress updates (i.e., duration changes, logic revisions, imposition of constraints, etc.) shall be recorded with a note in the activity log field. The log shall include, as a minimum, the date and reason for the change, as well as the Owner representative granting approval for the change.
- m. The use of resource leveling, either manual or automatic, is discouraged. Any resource leveling must be specifically highlighted for the Consultant/Engineer's approval.
- n. The use of start-to-start or finish-to-finish and lags is discouraged. Any relationships other than finish-to-start must be specifically highlighted for Consultant/Engineer approval and recorded with an explanatory note in the activity log field.

1.07 SUBMISSION AND APPROVAL

A. Preliminary Meeting

- 1. If requested by the Consultant/Engineer, participate in a preliminary meeting to discuss the proposed schedule and requirements of this section prior to submission of the network.

1.08 REVIEW AND EVALUATION

- A. The Contractor shall participate in a meeting to discuss review and evaluation of the proposed project schedule by the Consultant/Engineer. Revisions necessary as a result of this review shall be resubmitted for approval of the Consultant/Engineer within 15 calendar days after the conference. The approved schedule shall then be the schedule to be used by the Contractor for planning, organizing, and directing the work, reporting progress, and requesting payment for work accomplished. Approval of the project schedule is required prior to the start of construction.

1.09 CHANGES

- A. If changes in the Contractor's means and methods are necessary, apart from contract modifications (sequencing/logic, duration, further refining of schedule activities and logic, etc.), the Consultant/Engineer shall be notified in writing stating the reasons for the change.

1.10 APPROVED SCHEDULE

- A. Once the Consultant/Engineer has approved the completed schedule, the Contractor shall within 15 calendar days furnish the approved schedule.

1.11 PROGRESS SCHEDULE MEETINGS

- A. Progress schedule meeting to discuss progress and payment shall include a weekly onsite meeting or other regular intervals as required by the Owner. During the meeting the Contractor shall describe proposed revisions and adjustments required to reflect the current status of the project for the Consultant/Engineer's approval.

1.12 CONTRACT MODIFICATION

- A. When a contract modification to the work is required, submit the proposed revisions to the schedule.

1.13 TIME EXTENSIONS

- A. Time extensions will not be considered for contract modification proposals that do not include full documentation for the schedule change. Once the Consultant/Engineer has approved a change, the specific activities and the overall schedule must be updated.
- B. Inclement weather days will not be provided for days when no work was scheduled for that day.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 32 03

SECTION 01 33 00

SUBMITTALS

PART 1 - GENERAL

1.01 SUMMARY

- A. Procedures
- B. Construction Project Schedule and Weekly Progress Schedules
- C. Schedule of Values
- D. Project Documentation of Existing Conditions
- E. Shop Drawings
- F. Product Data
 - 1. Including sample warranties for all required warranties
- G. Manufacturer's Instructions/Certificates
- H. Samples
- I. Mock-Ups
- J. SDS Sheets

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. The attention of the Contractor and Subcontractors of this project is directed to the Instruction to Bidders concerning substitution of materials and equipment.
- C. Section 01 11 00: Summary of Work
- D. Section 01 33 02: Required Submittal List
- E. Section 01 77 00: Contract Close-Out: Close-Out Submittals
- F. Technical Specifications and Drawings

1.03 PROCEDURES

- A. Deliver submittals to Consultant/Engineer at address listed on cover of Project Manual. Use the Required Submittal List in Section 01 33 02, Required Submittal List as a Table of Contents for the Submittal Package.

- B. Provide all required submittals bound together as a single package in sequential order in accordance with the Required Submittal List. Any submittal packages not adhering to this requirement will be returned to the Contractor.
- C. Submit the number of copies, which Contractor requires, plus two copies, which will be retained by Consultant/Engineer.
- D. Transmit each item required under the attached submittal list. The Required Submittal List shall be used as the Table of Contents for the submission package. Identify Project, Contractor, subcontractor, major supplier and manufacturer; identify pertinent Drawing sheet and detail number, and Specification Section number, as appropriate.
 - 1. Clearly identify in writing any variations or deviations from Construction Documents. Submit required product or system simultaneously with request, to ensure no time is lost if deviation/variation is not approved.
 - 2. Indicate if submittal is a re-submittal.
 - 3. Submit initial progress schedules and schedule of values in duplicate within ten (10) days after date established in Notice to Proceed. Consultant/ Engineer will review and return schedules to Contractor within ten (10) days. If required, revise and resubmit within seven (7) days.
- E. Comply with progress schedule for submittals related to Work progress. Coordinate submittal of related items.
- F. Before submitting each Shop Drawing or Sample, CONTRACTOR shall have determined and verified: all field measurements, quantities, dimensions, specified performance criteria, installation requirements, materials, catalog numbers and similar information with respect thereto, all materials with respect to intended use, fabrication, shipping, handling, storage, assembly and installation pertaining to the performance of the Work, and all information relative to CONTRACTOR's sole responsibilities in respect of means, methods, techniques, sequences and procedures of construction and safety precautions and programs incident thereto.
- G. SUBMIT ALL SHOP DRAWINGS, PRODUCT DATA AND SAMPLES WITHIN FOURTEEN (14) DAYS OF THE DATE OF COMMENCEMENT. Consultant/Engineer will review and return submittals to Contractor within ten (10) days. Revise and resubmit as required, within seven (7) days, identifying changes made since previous submittal.
 - 1. Notify Consultant/Engineer in writing, at time of submission, of any deviations in submittals from requirements of the Construction Documents.
 - 2. Begin no fabrication or work, which requires submittals until return of submittals stamped "No Exceptions Taken" by Consultant/Engineer.

- H. Distribute copies of reviewed submittals stamped "No Exceptions Taken" by Consultant/Engineer to the Owner, job site file, subcontractors, and other concerned persons. Instruct recipients to promptly report any inability to comply with provisions.

1.04 CONSTRUCTION PROJECT SCHEDULE AND WEEKLY PROGRESS SCHEDULES

- A. Submit a schedule of intended construction sequence.
 - 1. Show complete sequence of construction by activity, identifying work of separate stages and other logically grouped activities. Show projected percentage of completion for each item of Work as of time of each Application for Progress Payment.
 - 2. Show submittal dates required for shop drawings, product data, and samples, and product delivery dates, including those furnished by Owner and those under Allowances.
 - 3. Show submittal dates required for shop drawings, product data, and samples, and product delivery dates, including those furnished by Owner.
 - 4. Incorporate any selected alternates by Owner as line items.
 - 5. Provide updated schedule for review on a weekly basis.
 - 6. Submit revised schedules with each Application for Payment, reflecting changes since previous submittal and include any inclement weather or lost days.
- B. Provide a format for email of progress schedule to be provided each week by 8 AM on Friday. Schedule to include summary of the previous 7 days and the planned work for the next 7 days.
- C. Adhere to Section 01 32 03, Project Schedule.

1.05 SCHEDULE OF VALUES

- A. Submit typed schedule on 8 ½ x 11-inch paper; Contractor's standard form, AIA G703 or media-driven printout will be considered on request.
 - 1. Identify schedule with:
 - a. Title of Project and Location.
 - b. Owner and Project Number.
 - c. Name and Address of Contractor.
 - d. Contract Designation.
 - e. Date of Submittal.

2. Format:
 - a. Table of Contents of this Project Manual.
 - b. Identify each line item with number and title of the major Specification Sections.
 - c. Include in each line item a directly proportional amount of Contractor's overhead and profit.
 - d. Revise schedule to list change orders, for each application for payment.
 - e. Include all alternates, allowances and unit price items as individual line items on the schedule of values.
 - f. Value of "Close-Out Documents" (to be no less than \$500.00).

1.06 PROJECT DOCUMENTATION OF EXISTING CONDITIONS

- A. Submit a CD or flash drive of photographs/videos documenting all existing conditions to this property and the adjoining/adjacent properties.
 1. Interior (leaks, stains, damaged ceiling tiles, paint, carpet, etc.).
 2. Exterior (landscaping, asphalt pavements, concrete surfaces, exterior wall conditions, lightning, security cameras, etc.).
- B. It is the Contractor's responsibility to document existing conditions prior to commencing work. The burden of proof on prior conditions shall be the Contractor's.

1.07 SHOP DRAWINGS

- A. All details will be in accordance with contract drawings.
- B. Submit any clarifications or requested deviations in triplicate.

1.08 PROJECT DATA

- A. Mark each copy to identify applicable products, models, options, and other data; supplement manufacturer's standard data to provide information unique to the Work.
- B. Ensure that the product data is current information from the manufacturer.
- C. Provide sample warranties for all required warranties.

1.09 MANUFACTURER'S INSTRUCTIONS/CERTIFICATES

- A. When required in individual Specification Section, submit manufacturer's printed instructions for delivery, storage, assembly, installation, adjusting, and finishing in quantities specified for product data.
- B. Manufacturer's instructions and requirements shall not take precedence of contract specifications and drawings unless specific approval is requested and approved prior to actual construction.

1.10 SAMPLES

- A. Submit full range of manufacturer's standard colors, textures, and patterns for Consultant/Engineer's selection and approval by the Owner.
- B. Submit samples to illustrate functional characteristics of the product, with integral parts and attachment devices.
- C. Coordinate submittal of different categories for interfacing work.
- D. Include identification on each sample, giving full information.
- E. Submit the number of samples specified in each respective Specification section; Consultant/ Engineer will retain one.
- F. Reviewed samples, which may be used in the Work, are indicated in the Specification Section.

1.11 MOCK-UPS

- A. Contractor shall complete a mock-up and/or an initial repair area for each major scope item for review and approval of Consultant/Engineer and Owner.
- B. Location shall be pre-selected and approved by Consultant/Engineer and Owner.
- C. Mock-up shall be of an actual condition(s) on the facility and shall indicate and show materials, methods and quality of application.
- D. Mock-up shall also be reviewed for acceptability of the aesthetic conditions of the work.

1.12 Safety Data Sheets (SDS):

- A. Submit Safety Data Sheets with each specification section and include with Safety Plan in accordance with Section 01 52 05, Safety Requirements.
- B. Provide Safety Data Sheets for all materials being installed or used.
- C. Keep SDS sheets at site at all times during project.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 33 00

Submittals
01 33 00-5

15311



AIA Document G702™ - 1992

Application and Certificate for Payment

TO OWNER: City of Hanahan
1255 Yeamans Hall Road
Hanahan, SC 29410

PROJECT: Hanahan Fire Station
Selective Roof Replacement/Repairs

APPLICATION NO: _____
PERIOD TO: _____
CONTRACT FOR: _____
CONTRACT DATE: _____
PROJECT NOS: Owner Project Number: COH - 111515
ADC 15311

Distribution to: _____
OWNER: _____
ARCHITECT: _____
CONTRACTOR: _____
FIELD: _____
OTHER: _____

FROM CONTRACTOR: VIA ADC Engineering, Inc.
1226 Yeamans Hall Road
Hanahan, SC 29410

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract. Continuation Sheet, AIA Document G703, is attached.

1. ORIGINAL CONTRACT SUM \$ _____
2. NET CHANGE BY CHANGE ORDERS \$ 0.00
3. CONTRACT SUM TO DATE (Line 1 ± 2) \$ 0.00
4. TOTAL COMPLETED & STORED TO DATE (Column G on G703) \$ _____

5. RETAINAGE:
 - a. 0 % of Completed Work (Column D + E on G703) \$ 0.00
 - b. 0 % of Stored Material (Column F on G703) \$ 0.00

Total Retainage (Lines 5a + 5b or Total in Column I of G703) \$ 0.00

6. TOTAL EARNED LESS RETAINAGE \$ 0.00
(Line 4 Less Line 5 Total)
7. LESS PREVIOUS CERTIFICATES FOR PAYMENT \$ _____
(Line 6 from prior Certificate)
8. CURRENT PAYMENT DUE \$ 0.00
9. BALANCE TO FINISH, INCLUDING RETAINAGE
(Line 3 less Line 6) \$ 0.00

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	\$ _____	\$ _____
Total approved this Month	\$ _____	\$ _____
TOTALS	\$ 0.00	\$ 0.00
NET CHANGES by Change Order	\$ _____	\$ 0.00

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR: _____
By: _____ Date: _____
State of: _____

County of: _____
Subscribed and sworn to before me this _____ day of _____

Notary Public: _____
My Commission expires: _____

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED \$ _____
(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT: _____
By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

required submittals list

Project Title: Hanahan Fire Station Selective Roof Replacement/Repairs
Owner Project No.: COH - 111515
ADC Project No.: 15311
Reviewer(s): _____ Date: _____
ADC Engineering, Inc.

Submittals are to be forwarded as a single package submission and in accordance with Section 01 33 00, Submittals, including:

- 01 32 03 **Project Schedules**
 - 1.04 B. Project Schedule
 - C. Weekly Progress Schedule

- 01 33 00 **Submittals**
 - 1.04 A. Construction Project Schedule and Weekly Progress Schedules
 - 1.05 A. Schedule of Values
 - 1.06 A. Project Documentation of Existing Conditions
 - 1.12 A. SDS

- 01 52 05 **Safety Requirements**
 - 1.05 B. Plans
 - B1. Accident Prevention Plan
 - B2. Health and Safety Plans
 - B2a. Safety Plans should include an SDS list of all products being used as part of a system, but also including substances being used to complete the work (i.e. fuels, solvents, cleaners, etc.). This data should be included within the submittal, and a copy kept on the site.
 - C. Reports


- 02 04 00 **Cutting and Patching**
 - 1.05 C. Proposals for Cutting and Patching

- 02 05 00 **Demolition and Removal**
 - 1.05 C. Demolition Plan

1226 YEAMANS HALL ROAD
HANAHAN, SC 29410
843-566-0161
fax 843-566-0162

ADCENGINEERING.COM




- 
- 06 10 00 Rough Carpentry**
 - 1.04 C1. Certificate of Pressure Treatment
 - C2. Certificate of Grade
 - C3. Certificate or Letter Defining Fastener Types
 - D. Layout Plan for Carpentry
 - E. SDS

 - 07 22 00 Thermal Roof Insulation**
 - 1.04 C. Manufacturer's Catalog Data
 - D. Drawings
 - E. Instructions
 - F. Statements
 - G. Test Reports
 - H. Data
 - I. Samples
 - J. SDS

 - 07 53 06 Cold Applied Modified Bitumen Sheet Roofing**
 - 1.04 E. Manufacturer's Catalog
 - F. Manufacturer's Instructions
 - G. Samples
 - H. Statements
 - I. Certificates of Compliance
 - J. Administrative or Close-Out Submittals
 - K. SDS

 - 07 60 00 Sheet Metal**
 - 1.04 C. Drawings
 - D. Samples
 - E. Color Samples
 - F. SDS

 - 07 60 08 Sheet Metal Repairs**
 - 1.04 C. Drawings
 - D. Samples
 - E. Color Samples
 - F. SDS

- 
- 07 92 00 **Sealants for Roofing and Sheet Metal**
 - 1.04 C. Manufacturer's Catalog Data
 - D. Manufacturer's Standard Color Chart
 - E. Manufacturer's Instructions
 - F. Samples
 - G. Sample Installations
 - H. Certificates of Compliance
 - I. SDS

- 07 92 10 **Sealants for Building Envelope**
 - 1.04 C. Manufacturer's Catalog Data
 - D. Manufacturer's Standard Color Chart
 - E. Manufacturer's Instructions
 - F. Samples
 - G. Sample Installations – Mock-Ups
 - H. Certificates of Compliance or SWRI Validation Program
 - I. SDS

End of Required Submittal List

SECTION 01 45 00

QUALITY CONTROL

PART 1 - GENERAL

1.01 SUMMARY

- A. Contractor has full and complete responsibility for the quality control of this project. Contractor shall coordinate and control their subcontractors, their work and the materials and equipment they use.
- B. Quality assurance services are provided by the Owner, his representatives and the Third Party Firms for the Owner's exclusive benefit. Within this Contract, the Contractor shall provide scheduling, coordination and written responses to all quality assurance and third party inspection services.
- C. The Contractor is required to provide complete and full access for the Owner and the Owner's Representative to complete Quality Assurance Services.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. The attention of the Contractor and the Subcontractor of this Section is directed to the Instructions to Bidders concerning substitution of materials and equipment.
- C. Section 01 33 00 - Submittals: Submission of Manufacturers' Instructions, Shop Drawings, Product Data, and Certificates.
- D. Technical Specifications and Drawings.

1.03 QUALITY CONTROL OF INSTALLATION

- A. Contractor to maintain daily log of ongoing punch list items based on daily quality control inspections.
- B. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
- C. Comply fully with manufacturers' instructions, including each step in sequence.
- D. Should manufacturers' instructions conflict with Construction Documents, request clarification from Consultant/Engineer before proceeding.
- E. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

- F. Perform work by persons qualified to produce workmanship of specified quality.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.04 REFERENCES

- A. The publications listed in each specification section form a part of this specification to the extent referenced, and to provide clarifications for any issues not covered within this specification or for contractor's benefit or clarification.
- B. Conform to reference standard by date of issue current on date of Construction Documents.
- C. Obtain copies of standards when required by Construction Documents.
- D. Should specified reference standards conflict with Construction Documents, request clarification for Consultant/Engineer before proceeding.
- E. The contractual relationship of the parties to the Contract shall not be altered from the Construction Documents by mention or inference otherwise in any reference document.

1.05 FIELD SAMPLES

- A. Install field samples at the site as required by individual specifications sections for review.
- B. Acceptable samples represent a quality level for the work.
- C. Where field sample is specified in individual sections to be removed, clear area after Consultant/Engineer has accepted field sample.

1.06 MOCK-UP

- A. Any required or specified tests will be performed under provisions identified in this section.
- B. Assemble and erect specified items, with specified attachment and anchorage devices, flashings, seals, and finishes.
- C. Where mock-up is specified in individual sections to be removed, clear area after Consultant/Engineer has accepted mock-up.

1.07 INSPECTION AND TESTING LABORATORY SERVICES

- A. Owner may appoint, employ, and pay for services of an independent firm to perform inspection and testing, unless otherwise required in Construction Documents.
- B. Reports will be submitted by the firm to the Consultant/Engineer, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Construction Documents.

- C. Contractor shall provide access and coordination with firm.
- D. Cooperate with Consultant/Engineer and/or independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 - 1. Notify Consultant/Engineer seven (7) days prior to expected time for operations requiring their coordination or review.
 - 2. Make arrangements with the firm and pay for additional samples and tests required for Contractor's use.
 - 3. Re-testing, re-inspections or additional inspections required because of non-conformance to specified requirements shall be performed by the Consultant/Engineer. Payment for these services will be charged to the Contractor by deducting inspection or testing charges from the Contract Sum/Price.

1.08 MANUFACTURERS' FIELD SERVICES AND REPORTS

- A. Submit qualifications of observer to Owner and Consultant/Engineer five (5) days in advance of required observations.
- B. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, warranty inspection as applicable, and to initiate instructions when necessary.
- C. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.
- D. Schedule site visit a minimum of three (3) days in advance, and submit report in duplicate within three (3) days of visit to Owner and Consultant/Engineer for review.

1.09 UNIT PRICED QUANTITIES

- A. In accordance with Section 01 21 10, Unit Prices and Allowances, the Contractor shall maintain a log of all repair unit priced quantities used based on contract requirements.
- B. The Contractor shall notify Owner in writing when 80% of quantity is used for each unit price item.
- C. Provide photograph or videotape documentation of repairs.
- D. Locate quantities and show their locations on the drawings.
- E. Provide actual used quantities on each Application for Payment request.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 45 00

SECTION 01 50 00

CONSTRUCTION FACILITIES AND TEMPORARY CONTROLS

PART 1 - GENERAL

1.01 SUMMARY

- A. Charcoal Filters at Air Intakes
- B. Landscape/Paving Protection of Adjacent Surfaces
- C. Building Envelope
- D. Coordination of Space
- E. Electricity and Lighting
- F. Telephone Service
- G. Water
- H. Sanitary Facilities
- I. Barriers
- J. Protection of Installed Work
- K. Cleaning During Construction
- L. Field Offices, Sheds and Trailers
- M. Demobilization
- N. General Safety
- O. Security
- P. Identification of Contractor Personnel

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this section.
- B. The attention of the contractor and the subcontractor of this section is directed to the Instructions to Bidders concerning substitution of materials and equipment.
- C. Section 01 11 00: Summary of Work: Contractor use of premises.

D. Section 01 77 00: Contract Close-Out: Final Cleaning

E. Technical Specifications and Drawings

1.03 CHARCOAL FILTERS AT AIR INTAKES

A. When working with solvents, cleaners or adhesives, provide a filter medium with activated charcoal at all air intakes and other roof and wall openings.

1. Place 2 layers of charcoal filter over all air intakes and other roof and wall openings and secure in place.
2. Monitor, remove and replace as need to maintain performance and ensure mechanical systems are unaffected.

B. “Sniff” Test

1. Prior to beginning of the roof application, contact Owner/Occupants to ensure odors are not entering the building (first day start-up).

C. Keep all adhesives away from intakes. When adhesives are being used at intakes, shield with ‘boxes’ and use fans. At VTRs/pipe penetrations, temporarily extend heights using PVC pipes or similar material.

1.04 LANDSCAPE/PAVING PROTECTION OF ADJACENT SURFACES

A. Carefully protect trees, shrubbery, grass, concrete, walkways and asphalt surfaces during the course of the project.

B. Damaged trees and shrubbery will require replacement with new, of equal size/age at no cost to the Owner.

C. Return grass to its original condition.

D. Ensure construction sequence protects the facility, grass, grounds, concrete, walkways and asphalt pavement surfaces.

E. Provide protection for concrete, asphalt and other finished surfaces adjacent to work areas.

1.05 BUILDING ENVELOPE

A. Provide protection to all building envelope surfaces (roofs, walls, fenestrations, landscaping, etc.).

B. Cover roof with plywood, or other approved material, in area of work (i.e. path of traffic, scaffolding, etc.).

- C. Clean work area and keep all horizontal surfaces (roof and grade) free of construction debris daily.
- D. Report damages immediately. Contractor is required to have proper repairs made within 7 days of occurrence. However, temporary repairs shall be immediate and maintained until proper, long-term repairs are made. Owner and Consultant/Engineer must approve of repair technique to be used.
- E. Minimize traffic over roof and completed work.

1.06 COORDINATION OF SPACE

- A. Owner and Consultant/Engineer shall determine actual laydown areas, storage areas, and extent of work site.
- B. No personally owned vehicles allowed at site.

1.07 ELECTRICITY AND LIGHTING

- A. Provide service required for construction operations through existing building service. Owner will provide electricity at the source. Contractor must provide access to that source. The method of access must be approved by Owner and conform to all applicable electrical and building codes. All temporary electrical wiring must be provided with proper conduit protection. The Owner must approve the path of the access.
- B. Permanent lighting may be used during construction. Maintain lighting and make routine repairs.
- C. Return all services to their original condition.

1.08 TELEPHONE SERVICE

- A. Emergency telephone numbers must be made available for the Owner, for the Project Manager, Superintendent and Foreman for the Contractor.

1.09 WATER

- A. Provide service required for construction operations from existing building systems. Extend branch piping with outlets located so that water is available by use of hoses.
- B. Return all services to their original condition.

1.10 SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Do not use existing building facilities.

1.11 BARRIERS

- A. Provide as required to prevent public entry to construction areas and to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide six (6) foot high fence around construction laydown area with locks, or provide secure trailer at site. (Construction: Commercial grade chain link fence.)
- C. Provide barriers around trees and plants designated to remain. Protect against vehicular traffic, stored materials, dumping, chemically injurious materials, and puddling or continuous running water.

1.12 PROTECTION OF INSTALLED WORK

- A. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.
- B. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings. Protect finished surface from traffic, movement of heavy objects, and storage.
- C. Prohibit traffic and storage on newly installed work surfaces, on sidewalks, roads and landscaped areas.

1.13 CLEANING DURING CONSTRUCTION

- A. Control accumulation of waste materials and rubbish; periodically dispose of off-site.
- B. Clean site daily.

1.14 FIELD OFFICES, SHEDS AND TRAILERS

- A. Office: Not required.
- B. Storage Sheds for Tools, Materials, and Equipment: Weather-tight, with adequate space for organized storage and access, and lighting for inspection of stored materials.

1.15 DEMOBILIZATION

- A. Remove temporary protection, materials, equipment, services, and construction prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary facilities. As a minimum, remove spills to a depth of 2 feet beyond the contaminant. Restore existing facilities used during construction to specify, or to original, condition.

1.16 GENERAL SAFETY

- A. Protection and safety of occupants, visitors, workmen, and building and grounds is of vital importance. Take precautions to ensure a safe work area.
- B. Conduct work in accordance with applicable federal, state, and local regulations governing safety and safe work practices.
- C. Ingress/Egress: Provide necessary protection for pedestrians, occupants and visitors related to this project.
- D. If a hurricane is projected for project site location, properly protect and secure all elements of the facility.

1.17 SECURITY

- A. Establish and maintain security program to ensure site is cleaned up of all materials and equipment at the end of each work day to ensure pedestrians, occupants and visitors related to this project have safe secure environment specific to the construction project.

1.18 IDENTIFICATION OF CONTRACTOR PERSONNEL

- A. While on site, wear uniforms with company name, or picture identification badges with name of person and company name.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 50 00

SECTION 01 52 05

SAFETY REQUIREMENTS

PART 1 - GENERAL

1.01 SUMMARY

- A. This facility will remain functional during construction. All necessary safety measures shall be provided to protect occupants, pedestrians and individuals in the surrounding areas potentially affected by this work. Necessary precautions shall take place to maintain free access of the bay doors where emergency vehicles are stored.
- B. This section includes all necessary procedures to accomplish the work within these Construction Documents to the extent applicable to accomplish the scope of this project.
- C. Contractor shall ensure his means and methods ensure the facilities components are stabilized, shored and protected during demolition and construction.
- D. Contractor shall establish and maintain security program to ensure site is cleaned up of all materials and equipment at the end of each work day to ensure occupants, pedestrians and individuals have safe secure environment specific to the construction project.
- E. Any applicable requirements for this section may be submitted with the "Demolition Plan" of Section 02 05 00, Demolition and Removal.
- F. Contractor shall adhere to local, state and federal requirements including SCDHEC and OSHA.
- G. Basis for several requirements in this section is COE EM-385-1-1.
- H. Safety Plans should include an SDS list of all products being used as part of a system, but also including substances being used to complete the work (i.e. fuels, solvents, cleaners, etc.). This data should be included within the submittal, and a copy kept on the site.
 - 1. SDS sheets are required for all products/materials used for this project. Any products with strong or distinct odors must be identified prior to use and submitted to Consultant/Engineer for review and approval.
- I. Charcoal Filters
 - 1. When working with solvents, cleaners or adhesives, provide a filter medium with activated charcoal at all air intakes and other roof and wall openings.

- a. Place 2 layers over all air intakes and other roof and wall openings and secure in place.
- b. Monitor, remove and replace as need to maintain performance.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions and Supplementary Conditions of these specifications shall govern work under this Section.
- B. The attention of the Contractor and the Subcontractor of this Section is directed to the Instructions to Bidders concerning substitution of materials and equipment.
- C. Section 02 04 00: Cutting and Patching
- D. Section 02 05 00: Demolition and Removal
- E. Technical Specifications and Drawings

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
 1. ANSI A10.14 (Latest Edition) Construction and Demolition Operations - Requirements for Safety Belts, Harnesses, Lanyards and Lifelines for Construction and Demolition Use
 2. ANSI Z359.1 (Latest Edition) Safety Requirements for Personal Fall Arrest Systems
- C. U.S. ARMY CORPS OF ENGINEERS (USACE):
 1. COE EM-385-1-1 (Latest Edition) Safety and Health Requirements Manual
- D. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA):
 1. NFPA 10 (Latest Edition) Portable Fire Extinguishers
 2. NFPA 70 (Latest Edition) National Electrical Code
 3. NFPA 241 (Latest Edition) Safeguarding Construction, Alteration, and Demolition Operations

- E. OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION:
 - 1. 29 CFR 1926 – Safety and Health Regulations for Construction
- F. SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL (SCDHEC):
 - 1. SCDHEC Regulation 61-107.11, Construction, Demolition and Land-Clearing Debris Landfills

1.04 DEFINITIONS

- A. **Competent Person.** A competent person is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
- B. **Confined Space.** A space which, by design, has limited openings for entry and exit, unfavorable natural ventilation which could contain or produce dangerous air contaminants, and which is not intended for continuous employee occupancy. Confined spaces include, but are not limited to storage tanks, process vessels, pits, silos, vats, degreasers, reaction vessels, boilers, ventilation and exhaust ducts, sewers, tunnels, underground utility vaults, and pipelines.
- C. **First Aid.** First aid is any one-time treatment, and any follow-up visit for the purpose of observation, of minor scratches, cuts, burns, splinters, and so forth, which do not ordinarily require medical care, even though provided by a physician or registered professional personnel.
- D. **Health and Safety Plan (HASP).** The HASP is the equivalent term of SHP or SSHP used in COE EM-385-1-1.
- E. **Lost Workdays.** The number of days (consecutive or not) after, but not including, the day of injury or illness during which the employee would have worked but could not do so; that is, could not perform all or part of his normal assignment during all or any part of the workday or shift; because of the occupational injury or illness.
- F. **Medical Treatment.** Medical treatment includes treatment administered by a physician or by registered professional personnel under the standing orders of a physician. Medical treatment does not include first aid treatment even though provided by a physician or registered personnel.
- G. **Multi-employer work site (MEWS).** A multi-employer work site, as defined by OSHA, is one in which many employers occupy the same site. The Owner considers the general contractor to be the "controlling authority" for all work site safety and health of the subcontractors.

- H. Qualified Person. One who, by possession of a recognized degree, certificate, or professional standing, or extensive knowledge, training, and experience, has successfully demonstrated his or her ability to solve or resolve problems related to the subject matter, the work or the project.
- I. Recordable Occupational Injuries or Illnesses. Any occupational injuries or illnesses which result in:
 - 1. Fatalities, regardless of the time between the injury and death, or the length of the illness; or
 - 2. Lost Workday Cases, other than fatalities, that result in lost workdays, or
 - 3. Non-Fatal Cases without lost workdays, which result in transfer to another job or termination of employment, or require medical treatment (other than first aid) or involve: loss of consciousness or restriction of work or motion. This category also includes any diagnosed occupational illnesses, which are reported to the employer but are not classified as fatalities or lost workday cases.
- J. Safety Specialist. The superintendent or other qualified or competent person who is responsible for the on-site safety required for the project. Serious Accidents. Any work-related incident, which results in, a fatality, in-patient hospitalization of three or more employees, or property damage in excess of \$200,000.
- K. Significant Accident. Any contractor accident which involves falls of (4 feet) or more, electrical accidents, confined space accidents, diving accidents, equipment accidents, or fire accidents, which, result in property damage of \$10,000 or more, but less than \$200,000; or when fire department or emergency medical treatment (EMT) assistance is required.
- L. Weight Handling Equipment (WHE) Accident. A WHE accident occurs when any one or more of the six elements in the operating envelope fails to perform correctly during operation, including operation during maintenance or testing resulting in personnel injury or death; material or equipment damage; dropped load; derailment; two-blocking; overload; and collision, including unplanned contact between the load, and/or other objects. A dropped load, derailment, two-blocking, overload and collision are considered accidents even though no material damage or injury occurs. A component failure (e.g., motor burnout, gear tooth failure, bearing failure) is not considered an accident solely due to material or equipment damage unless the component failure results in damage to other components (e.g., dropped boom, dropped load, roll over, etc.).

1.05 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00, Submittals.
- B. Plans

1. Accident Prevention Plan (APP) ; G
2. Health and Safety Plan (HASP) ; G
 - a. Safety Plans should include an SDS list of all products being used as part of a system, but also including substances being used to complete the work (i.e. fuels, solvents, cleaners, etc.). This data should be included within the submittal, and a copy kept on the site.

C. Reports

1. Submit reports as their incidence occurs, in accordance with the requirements of the paragraph entitled, "Reports."

1.06 QUALITY ASSURANCE

A. Safety Specialist

1. Qualifications

a. Qualifications of Safety Specialist:

- 1) Ability to manage the on-site contractor safety program through appropriate management controls.
- 2) Ability to identify hazards and have the capability to expend resources necessary to abate the hazards.
- 3) Must have worked on similar types of projects that are equal to or exceed the scope of the project assigned with the same responsibilities.
- 4) Shall, as a minimum, have attended an OSHA training qualification class including at least 10 hours of classroom instruction.

- b. Qualifications of Qualified Person, Confined Space Entry. The qualified person shall be capable (by education and specialized training) of anticipating, recognizing, and evaluating employee exposure to hazardous substances or other unsafe conditions in a confined space. This person shall be capable of specifying necessary control and protective action to ensure worker safety.

B. Meetings

1. Preconstruction Conference

- a. The Safety Specialist shall attend the preconstruction conference.

C. Meeting on Work Procedures

1. Meet with Owner to discuss work procedures and safety precautions required by the APP. Ensure the participation of the contractor's superintendent, the quality control, and the Safety Specialist.
2. Meet with Owner to discuss work procedures and safety precautions required by the HASP. Ensure the participation of the contractor's superintendent, the quality control, and the Safety Specialist.

D. Weekly Safety Meetings

1. Hold weekly meeting at the project site. Attach minutes showing contract title, signatures of attendees and a list of topics discussed to the QC Contractor Quality Control daily report.

E. Work Phase Meetings

1. The appropriate AHA shall be reviewed and attendance documented by the Contractor at the preparatory, initial, and follow-up phases of quality control inspection.

F. New Employee Indoctrination

1. New employees will be informed of specific site hazards before they begin work. Documentation of this orientation shall be kept on file at the project site.

G. Plans

1. Accident Prevention Plan (APP)
 - a. Submit the APP at least 15 calendar days prior to start of work at the job site, following Appendix A of COE EM-385-1-1. Make the APP site specific.

H. Health and Safety Plan (HASP)

1. Submit the HASP for projects involving the handling of hazardous materials with technical submittals in accordance with Section 01 33 00, Submittals.

1.07 ACCIDENT PREVENTION PLAN (APP)

- A. Prepare the APP in accordance with the required and advisory provisions of COE EM-385-1-1 including Appendix A, "Minimum Basic Outline for Preparation of Accident Prevention Plan," and as modified herein. Include the associated AHA and other specific plans, programs and procedures listed on Pages A-3 and A-4 of COE EM-385-1-1, some of which are listed below.

B. Contents of the Accident Prevention Plan

1. Name and safety related qualifications of safety specialist (including training and any certifications).
2. Qualifications of competent and of qualified persons.
3. Identity of the individual who will complete exposure data (hours worked); accident investigations, reports and logs; and immediate notification of accidents to include subcontractors.
4. Emergency response plan. Conform to COE EM-385-1-1, paragraph 01.E and include a map denoting the route to the nearest emergency care facility with emergency phone numbers. Contractor may be required to demonstrate emergency response.
5. Confined Space Entry Plan. Identify the qualified person's name and qualifications, training, and experience. Delineate the qualified person's authority to direct work stoppage in the event of hazardous conditions. Include procedure for rescue by contractor personnel and the coordination with emergency responders. (If there is no confined space work, include a statement that no confined space work exists and none will be created.)
6. Hazardous Material Use. Provisions to deal with hazardous materials, pursuant to the Contract shall include the following as applicable:
 - a. Inventory of hazardous materials to be introduced to the site with estimated quantities.
 - b. Plan for protecting personnel and property during the transport, storage and use of the materials.
 - c. Emergency procedures for spill response and disposal, including a site map with approximate quantities on site at any given time. The site map will be attached to the inventory, showing where the hazardous substances are stored.
 - d. Safety Data Sheets for inventoried materials not required in other section of this specification.
 - e. Labeling system to identify contents on all containers on-site.
 - f. Plan for communicating high health hazards to employees and adjacent occupants.
 - g. Hazardous Energy Control Plan. For hazardous energy sources, comply with COE EM-385-1-1, paragraph 12.A.07.
7. Alcohol and Drug Abuse Plan

8. Describe plan for random checks and testing with pre-employment screening in accordance with state requirements.
9. Description of the on-site prevention program
 - a. Fall Protection and Prevention (FP&P) Plan. The plan shall be site specific and address all fall hazards in the work place. It shall address how to protect and prevent workers from falling to lower levels when they are exposed to fall hazards above 6 feet. A qualified person shall prepare the plan. The plan shall include fall protection and prevention systems, equipment and methods employed, responsibilities, rescue and escape equipment and operations, training requirements, and monitoring methods. FP&P Plan shall be revised once every six months for lengthy projects, to reflect any new changes during the course of construction, due to changes of personnel, equipment, systems or work habits.
 - b. Silica Exposure Reduction. The plan shall include specific procedures to prevent employee silica inhalation exposures.
 - c. Section 02 04 00, Cutting and Patching.
 - d. Section 02 05 00, Demolition and Removal.
 - e. Training Records and Requirements. List of mandatory training and certifications which are applicable to this project (e.g. explosive actuated tools, confined space entry, fall protection, vehicle operator, forklift operators, personal protective equipment); list of requirements for periodic retraining/certification; outline requirements for supervisory and employee safety meetings.
 - f. Severe Weather Plan. Procedures of ceasing on-site operations during lightning or upon reaching maximum allowed wind velocities.
 - g. Barricades, signage and protective walkways.

1.08 ACTIVITY HAZARD ANALYSIS (AHA)

- A. Prepare for each phase of the work. As a minimum, define activity being performed, sequence of work, specific hazards anticipated, control measures to eliminate or reduce each hazard to acceptable levels, training requirements for all involved, and the competent person in charge of that phase of work. For work with fall hazards, including fall hazards associated with scaffold erection and removal, identify the appropriate fall arrest systems. For work with materials handling equipment, address safeguarding measures related to materials handling equipment. The appropriate AHA shall be reviewed and attendance documented by the Contractor at the preparatory, initial, and follow-up phases of quality control inspection.

1.09 HEALTH AND SAFETY PLAN (HASP)

A. Prepare as required by 29 CFR 1910.120 and COE EM-385-1-1.

B. Qualified Personnel

1. Use a person with sufficient training and experience to prepare the HASP, conduct activity hazard analyses, and prepare detailed plan for demolition, removal, and disposal of materials.

C. Contents

1. In addition to the requirements of COE EM-385-1-1, Table 28-1, the HASP must include:
2. Location, size, and details of control areas.
3. Location and details of decontamination systems.
4. Interface of trades involved in the construction.
5. Sequencing of work.
6. Disposal plan.
7. Sampling protocols.
8. Testing labs.
9. Protective equipment.
10. Pollution control.
11. Evidence of compliance with 29 CFR 1910.120 and 29 CFR 1926.65.
12. Training and certifications of CIH, CSP or other competent persons.

1.10 DRUG PREVENTION PROGRAM

A. Conduct a proactive drug and alcohol use prevention program for all workers, prime and subcontractor, on the site. Ensure that no employees either use illegal drugs or consume alcohol during work hours. Ensure there are no employees under the influence of drugs or alcohol during work hours. After accidents, collect blood, urine or saliva specimens and test injured employee's influence. A copy of the test shall be made available to the Owner upon request.

1.11 FALL HAZARD PROTECTION AND PREVENTION PROGRAM

A. Scaffolds

1. Delineate the fall protection requirements necessary during the erection and dismantling operation of scaffolds used on the project in the Fall Protection and Prevention (FP&P) plan and activity hazard analysis for the phase of work.

B. Training

1. Institute a fall protection-training program. As part of the Fall Hazard Protection and Prevention Program, Contractor shall provide training for each employee who might be exposed to fall hazards.

1.12 DUTIES OF THE SAFETY SPECIALIST

- A. Ensure construction hazards are identified and corrected.
- B. Maintain applicable safety reference material on the job site.
- C. Maintain a log of safety inspections performed.
- D. Attend the pre-construction conference as required.
- E. Identify hazardous conditions and take corrective action. Failure to do so will result in a dismissal from the site, with a work stoppage pending approval of suitable replacement personnel.

1.13 DISPLAY OF SAFETY INFORMATION

- A. Display the following information in clear view of the on-site construction personnel:
 1. Map denoting the route to the nearest emergency care facility with emergency phone numbers.
 2. AHA
 3. Confined space entry permit.
 4. A sign indicating the number of hours worked since last lost workday accident.

1.14 SITE SAFETY REFERENCE MATERIALS

- A. Maintain safety-related references applicable to the project, including those listed in the article "References." Maintain applicable equipment manufacturers' manuals.

1.15 EMERGENCY MEDICAL TREATMENT

- A. Contractors will arrange for their own emergency medical treatment. Owner has no responsibility to provide emergency medical treatment.

1.16 REPORTS

A. Accident Reports

1. For recordable occupational injuries and illnesses, the general contractor shall conduct an accident investigation to establish the root cause(s) of the accident and notify the owner.
2. For a weight handling equipment accident the General contractor shall conduct an accident investigation to establish the root cause(s) of the accident, complete an Accident Report and provide to the Owner within 30 calendar days of the accident.

B. Notification

1. Notify the Owner as soon as practical, but not later than four hours, of any accident meeting the definition of Recordable Occupational Injuries or Illnesses or Significant Accidents. Information shall include contractor name; contract title; type of contract; name of activity, installation or location where accident occurred; date and time of accident; names of personnel injured; extent of property damage, if any; and brief description of accident (to include type of construction equipment used, PPE used, etc.).

C. OSHA Citations and Violations

1. Provide the Owner with a copy of each OSHA citation, OSHA report and contractor response. Correct violations and citations promptly and provide written corrective actions to the Owner.

PART 2 - PRODUCTS

2.01 CONFINED SPACE SIGNAGE (if applicable)

- A. Provide permanent signs integral to or securely attached to access covers for new permit required confined spaces. Signs wording: "DANGER--PERMIT REQUIRED CONFINED SPACE - DO NOT ENTER -" on bold letters a minimum of one inch in height and constructed to be clearly legible with all paint removed. The signal word "DANGER" shall be red and readable from 5 feet.

PART 3 - EXECUTION

3.01 CONSTRUCTION

- A. Comply with COE EM-385-1-1, NFPA 241, the accident prevention plan, the activity hazard analysis and other related submittals and activity fire and safety regulations.

B. Hazardous Material Exclusions

1. Notwithstanding any other hazardous material used in this contract, radioactive materials or instruments capable of producing ionizing/non-ionizing radiation as well as materials which contain asbestos, mercury or polychlorinated biphenyls, di-isocyanates, lead-based paint are prohibited. Owner may consider exceptions to the use of any of the above excluded materials upon written request by Contractor.

C. Unforeseen Hazardous Material

1. The design should have identified materials such as PCB, lead paint, and friable and nonfriable asbestos. If additional material, not indicated, that may be hazardous to human health upon disturbance during construction operations is encountered, stop that portion of work and notify the Owner immediately.

3.02 PERSONNEL PROTECTION

A. Fall Protection

1. Enforce use of the fall protection device designated for each specific work activity in the FP&P plan and/or AHA all times when an employee is on a surface 6 feet or more above lower levels. Personal fall arrest systems are required when working from an articulating or extendible boom, scissor lifts, swing stages, or suspended platform. Fall protection must comply with ANSI A10.14.

B. Personal Fall Arrest Device

1. Personal fall arrest device equipment, systems, subsystems, and components shall meet ANSI Z359.1, "Safety Requirements for Personal Fall Arrest Systems". Only a full-body harness with a shock absorbing lanyard or self-retracting lanyard is an acceptable personal fall arrest device. Body belts may only be used as a positioning device system such as steel reinforcing assembly and in conjunction with another fall arrest system. Harnesses shall have a fall arrest attachment, which is a connector, affixed to the body support (usually a D-ring) and specifically designated for attachment to the rest of the system. Only double locking snap hooks and carabiners shall be used. Webbing, straps, and ropes shall be made of synthetic fiber.

C. Safety Nets

1. If safety nets are used as the selected fall protection system on the project, they shall be provided at unguarded workplaces, over water, machinery, dangerous operations and leading edge work.

D. Existing Anchorage

1. Existing anchorages, used for attachment of personal fall arrest equipment, if to be used by the Contractor, shall be re-certified by the contractor's fall protection engineer (QP).

3.03 BARRICADES, SIGNAGE AND PROTECTIVE WALKWAYS

- A. Upon completion of Contractor's staging, sequencing and means/methods decisions, Contractor shall outline proposed plan to Consultant/Owner for approval. Required barricades, signage and protective walkway shall be provided by the Contractor.

3.04 EQUIPMENT

A. Material Handling Equipment

1. Material handling equipment such as forklifts shall not be modified with work platform attachments for supporting employees unless specifically delineated in the manufacturer's printed operating instructions.
2. The use of hooks on equipment for lifting of material must be in accordance with manufacturers printed instructions.

3.05 ELECTRICAL

A. Conduct of Electrical Work

1. Cable intended to be cut must be positively identified and de-energized prior to performing each cut. Positive cable identification must be made prior to submitting any outage request for electrical systems. Arrangements are to be coordinated with the Owner and Station Utilities for identification. The Owner will not accept an outage request until the Contractor satisfactorily documents that the circuits have been clearly identified. Perform all high voltage cutting remotely. When racking in or live switching of circuit breakers, no additional person other than the switch operator will be allowed in the space during the actual operation. Plan so that work near energized parts is minimized to the fullest extent possible. Use of electrical outages clear of any energized electrical sources is the preferred method. When working in energized substations, only qualified electrical workers shall be permitted to enter. When work requires Contractor to work near energized circuits as defined by the NFPA 70, high voltage personnel must use personal protective equipment that includes, as a minimum, electrical hard hat, safety shoes, insulating gloves with leather protective sleeves, fire retarding shirts, coveralls, face shields, and safety glasses. Insulating blankets, hearing protection, and switching suits may be required, depending on the specific job and as delineated in the Contractor AHA.

B. Portable Extension Cords

1. Portable extension cords shall be sized in accordance with manufacturer ratings for the tool to be powered.

3.06 WORK IN CONFINED SPACES (if applicable)

A. Comply with the requirements in Section 06.I of COE EM-385-1-1. Any potential for a hazard in the confined space requires a permit system to be used.

1. Entry Procedures. Prohibit entry into a confined space by personnel for any purpose, including hot work, until the qualified person has conducted appropriate tests to ensure the confined or enclosed space is safe for the work intended and that all potential hazards are controlled or eliminated and documented. (See Section 06.I.05 of COE EM-385-1-1 for entry procedures.) All hazards pertaining to the space shall be reviewed with each employee during review of the AHA.
2. Forced air ventilation is required for all confined space entry operations and the minimum air exchange requirements must be maintained.
3. Ensure the use of rescue and retrieval devices in confined spaces greater than 5 feet in depth. Conform to Sections 06.I.09, 06.I.10 and 06.I.11 of COE EM-385-1-1.
4. Include training information for employees who will be involved as entrant attendants for the work. Conform to Section 06.I.06 of COE EM-385-1-1.

3.07 HOUSEKEEPING

A. Clean-up

1. All debris in work areas shall be cleaned up daily or more frequently as necessary. Construction debris may be temporarily located in an approved location, however garbage accumulation must be removed each day.

B. Dust Control

1. In addition to the dust control measures required elsewhere in the Construction Documents, dry cutting of brick or masonry shall be prohibited. Wet cutting must address control of water run off.

3.08 ACCIDENT SCENE PRESERVATION

- A. For serious accidents, and accidents involving weight handling equipment, ensure the accident site is secured and evidence is protected remaining undisturbed until released by the Owner.

3.9 FIELD QUALITY CONTROL

A. Inspections

1. Include safety inspection as a part of the daily Quality Control inspections required in Section 01 45 00, Quality Control.

3.10 FLAMMABLE AND COMBUSTIBLE LIQUID HANDLING AND STORAGE

A. Safety Gas Containers

1. Handling of flammable and combustible liquids shall be in safety containers with flame arresters, with not more than 5 gallons capacity, having a spring-closing lid and spout cover and designed to safely relieve internal pressures under fire exposures. Flammable and combustible Liquids shall be stored in separate NFPA approved storage cabinets 50 feet away from any sources of ignition with suitable NO SMOKING OR OPEN FLAME signs posted in all such areas.

END OF SECTION 01 52 05

SECTION 01 60 00

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.01 SUMMARY

- A. Products
- B. Transportation and Handling
- C. Storage and Protection
- D. Product Options (Prior to Bid)
- E. Variations (After Contract Award)
- F. Systems Demonstration

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. The attention of the Contractor and the subcontractor of this section is directed to the Instructions to Bidders concerning substitution of materials and equipment.
- C. Section 01 11 00: Summary of Work
- D. Section 01 33 00: Submittals
- E. Section 01 60 01: Substitution Request Form
- F. Section 01 77 00: Contract Close-Out
- G. Technical Specifications and Drawings

1.03 PRODUCTS

- A. Products include material, equipment, and systems.
- B. Comply with specifications and referenced standards as minimum requirements.
- C. Components required to be supplied in quantity within a specification section, shall be the same, and shall be interchangeable.

1.04 TRANSPORTATION AND HANDLING

- A. Transport products by methods to avoid product damage; deliver in undamaged condition in manufacturer's unopened containers or packaging, dry.

- B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.
- C. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.

1.05 STORAGE AND PROTECTION

- A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions. See applicable technical specification sections.
- B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering; provide ventilation to avoid condensation.
- C. Arrange storage to provide access for inspection. Periodically inspect to ensure products are undamaged, and are maintained under required conditions.
- D. Store all equipment and materials on site in a trailer and secure at end of each days construction.

1.06 PRODUCT OPTIONS (PRIOR TO BID)

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards.
- B. Products Specified by Naming One or More Manufacturers: Submit a request for substitution for any manufacturer not specifically named.
- C. Products Specified by Naming Only One Manufacturer: No options, no substitutions allowed.

1.07 VARIATIONS (AFTER CONTRACT AWARD)

- A. Variation Consideration: After Contract has been executed, Owner will consider a formal request for variation (or deviation) of minor products, systems or criteria as field conditions justify, only for the benefit of the owner under the following conditions:
 - 1. Extended delivery time would seriously delay completion of project, or specified item is no longer available, or for unforeseen reasons beyond control of Contractor.
 - 2. Request is accompanied by complete data on proposed variation substantiating compliance with Construction Documents including product identification and description, performance and test data, references and samples where applicable, and an itemized comparison of proposed variation with products

specified or named by Addenda, with data relating to Contract time schedule, design and artistic effect where applicable and its relationship to separate contracts.

3. Request is accompanied by accurate cost data on proposed variation in comparison with product specified, whether or not modification of Contract Sum is to be a consideration.
- B. Contractor Representations: Request for substitutions based on above, when forwarded by Contractor to Consultant/Engineer, are understood to mean that Contractor:
1. Represents that he has personally investigated proposed substitute product and determined that it is equal or superior in all respects to that specified.
 2. Will provide the same guarantee for substitution that he would for that specified.
 3. Certifies that cost data presented is complete and includes all related costs under this Contract, but excludes costs under separate contracts and Consultant/Engineer's re-design costs, and that he waives all claims for additional costs related to substitution which subsequently become apparent.
 4. Will coordinate installation of accepted substitute, making such changes as may be required for work to be complete in all respects.
- C. Non-Consideration of Requests: Substitutions will not be considered if:
1. They are indicated or implied on shop drawing submissions without formal request required above.
 2. For their implementation they require a substantial revision of Construction Documents in order to accommodate their use.
- D. Approval, by Consultant/Engineer, of substitute materials and equipment shall not relieve Contractor from his responsibility to supply and install any additional materials, equipment or labor required to make substitution properly function within intent of Construction Documents, as issued for Bid, whether or not such additional materials, equipment or labor are shown on data submitted with request for approval and whether or not recognized by Consultant/Engineer or Contractor. Contractor shall supply and install such required additional material, equipment or labor solely at his own expense and at no additional cost to Owner.

1.08 SYSTEMS DEMONSTRATION

- A. Prior to final inspection, demonstrate operation of each system to Consultant/Engineer and Owner.
- B. Instruct Owner's personnel in operation, adjustment, and maintenance of equipment and systems, using the operation and maintenance data as the basis of instruction.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 60 00

substitution request form

Project Title: Hanahan Fire Station Selective Roof Replacement/Repairs
Owner Project No.: COH - 111515
ADC Project No.: 15311
Project Manager: Mr. Joseph E. Baker Email: joeb@adcengineering.com
ADC Engineering, Inc.

Complete and submit a copy of this form for approval of each proposed substitute item.

We submit for your consideration the following product instead of the specified item for this project:

	Specified Item		Proposed Substitution
Section:			
Paragraph:			
Manufacturer:			
Product:			

Attached are complete technical data for proper installation of proposed substitution. Laboratory tests and complete information on changes to drawings and/or specifications are included if applicable.

A. What is the total cost difference considering the overall project requirements?

B. What effect does substitution have on the overall project and schedule?

C. Differences between proposed substitution. Substantiate that the product/system proposed is equal or better than the specified item/system and meets all other contract requirements.

D. Manufacturer's warranties/guarantees of proposed and specified items:

E. What is the advantage/benefit for the owner to select/approve the proposed substitution?

The undersigned states that the function, appearance and quality are equivalent to or superior to the specified item.

SUBMITTED BY: _____
Signature *Firm* *Date*

Notification of Accepted Substitutions prior to bid will be by Addendum

1226 YEAMANS HALL ROAD
HANAHAN, SC 29410
843-566-0161
fax 843-566-0162

ADCENGINEERING.COM

Substitution Request Form
01 60 01-1

15311





THIS PAGE IS FOR USE BY CONSULTANT/ ENGINEER

SUBSTITUTION REQUEST FORM REVIEW

Project Title: Hanahan Fire Station Selective Roof Replacement/Repairs
 Owner Project No.: COH - 111515
 ADC Project No.: 15311
 Project Manager: Mr. Joseph E. Baker Email: joeb@adcengineering.com

- Prior approval is not required.
- Accepted.
- Accepted as noted.
- Not accepted. Your request is being returned for the following reason(s). Resubmit if appropriate:
- Received after deadline.
- Not submitted by general contractor as required.
- Form incomplete.
- Insufficient information to review.
- Improperly submitted. (See Instructions to Bidders).
- Questions to be answered before approval as noted below.

REVIEWED BY: _____
Signature
Date

SECTION 01 77 00

CONTRACT CLOSE-OUT

PART 1 - GENERAL

1.01 SUMMARY

- A. Close-Out Procedures
- B. Unit Price Quantities and Allowances
- C. Re-inspection Fees
- D. Final Cleaning
- E. Project Record Documents
- F. Operation and Maintenance Data
- G. Warranties
- H. Contract Close-Out Binder

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this section.
- B. The attention of the Contractor and the subcontractor of this section is directed to the Instructions to Bidders concerning substitution of materials and equipment.
- C. Section 01 11 00: Summary of Work.
- D. Section 01 50 00: Construction Facilities and Temporary Controls: Cleaning during construction.
- E. Section 01 77 05: Three-Year Contractor Warranty
- F. Section 01 77 15: Certification of Asbestos-Free Materials
- G. Section 01 77 20: Certificate of Substantial Completion – AIA G704
- H. Section 01 77 25: Contract Close-Out Check List
- I. Technical Specifications and Drawings

**Contract Close-Out
01 77 00-1**

1.03 CLOSE-OUT PROCEDURES

- A. Provide all required Close-Out Documents, bound together as a single package and submit to ADC Engineering, Inc. in triplicate. Any Close-Out Document packages not adhering to this requirement will be returned to the Contractor.
- B. All work and punchlist items must be complete to provide all required Close-Out Documents.
- C. In accordance with Section 01 33 00, Submittals, the value for Close-Out Documents will be no less than \$500.00.
- D. Comply with procedures stated in General Conditions of the Contract for issuance of Certificate of Substantial Completion.
- E. Owner will occupy project for the purpose of conduct of business, under provision stated in Certificate of Substantial Completion.
- F. When Contractor considers work has reached final completion, submit required written certification that Construction Documents have been reviewed, work has been inspected, and that work is complete in accordance with Construction Documents and ready for Consultant/Engineer's inspection.
- G. In addition to submittals required by the Conditions of the Contract, provide submittals required by governing authorities. Submit a final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.
- H. Consultant/Engineer will issue final change order reflecting approved adjustments to Contract Sum not previously made by change order.

1.04 UNIT PRICED QUANTITIES AND ALLOWANCES

- A. In accordance with Section 01 21 10, Unit Prices and Allowances, the Contractor shall maintain a log of all repair unit priced quantities used based on contract requirements.
- B. Contractor shall notify Owner in writing when 80% of quantity is used for each unit price item.
- C. Provide photograph or videotape documentation of repairs.
- D. Locate quantities and show their locations on the applicable drawings.
- E. Provide actual used quantities on each Application for Payment request.

1.05 REINSPECTION FEES

- A. Should status of completion of work require re-inspection by Consultant/Engineer due to failure of work to comply with Contractor's claims on initial inspection, Owner will deduct the amount of Consultant/Engineer's compensation for re-inspection services from final payment to Contractor.
- B. Should the work exceed the contract substantial completion date, the Contractor will be responsible for Consultant/Engineer site visits/support for the Owner. Owner will deduct the amount of the Consultant/Engineer's services from the final payment.

1.06 FINAL CLEANING

- A. Execute prior to final inspection.
- B. Clean surfaces exposed to view, remove temporary labels, stains and foreign substances and polish transparent and glossy surfaces. Clean roofs, scuppers, roof drains, and drainage systems.
- C. Clean site; sweep paved areas, rake clean other surfaces.
- D. Remove waste and surplus materials, rubbish, and construction facilities from the project and from the site. Contractor will provide final cleaning after final acceptance.
- E. Site shall be in original or new condition upon completion.

1.07 PROJECT RECORD DOCUMENTS

- A. Record information on a set of drawings provided by Owner. Legibly mark each item to record actual construction, including:
 - 1. Field changes of dimension and detail.
 - 2. Changes made by modifications.
 - 3. Details not on original Contract Drawings.
 - 4. References to related shop drawings and modifications.
- B. Store documents separate from those used for construction.
- C. Keep documents current; do not permanently conceal any work until required information has been recorded.
- D. At Contract Close-Out, submit documents with transmittal letter containing date, Project title, Contractor's name and address, list documents, and signature of Contractor.

1.08 OPERATION AND MAINTENANCE DATA

- A. Prepare instructions and data in the form of an instruction manual by personnel experienced in maintenance and operation of described products.
- B. Submit the following:
 - 1. Part 1: Directory, listing names, addresses, email addresses and telephone numbers of Consultant/Engineer and Contractor.
 - 2. Part 2: Operation and maintenance instructions, arranged by specification division. For each specification division, give names, addresses, and telephone numbers of subcontractors and supplies. List:
 - a. Appropriate design criteria.
 - b. List of Materials.
 - c. Maintenance instructions.
 - d. Shop drawings and product data.
- C. If applicable, provide roof information card as required within roof system sections.

1.09 WARRANTIES

- A. Provide triplicate, notarized copies. Execute Contractor's submittals and assemble documents executed by subcontractors, suppliers, and manufacturers. Provide table of contents and assemble in binder with durable plastic cover.
- B. All warranties will be dated based on the established Substantial Completion date.
- C. Manufacturer's Warranties
 - 1. Provide manufacturer's warranties for each individual specification section meeting specification requirements.
 - a. Attach copy of manufacturer's inspection punch list, any required letters of clarification, and flashing endorsement.
- D. Contractor Warranties
 - 1. Provide the Three-Year Contractor Warranty as required in the Contract Documents.

1.10 CONTRACT CLOSE-OUT BINDER

- A. The Contract Close-Out Checklist included in the Contract Documents shall be provided as the "Table of Contents" for the required Contract Close-Out Binder.

- B. Provide, a minimum, three (3) sets of all listed documents bound in sturdy, three ring binders.
- C. Each binder shall include a *copy* of the Final Change Order and the Final Application for Payment.
 - 1. The *original* Request for Substantial Completion, Request for Final Completion, Final Change Order and Final Application for Payment should not be included in the Close-Out Binder.

PART 2 - PRODUCTS

Not Used.

PART 3 - EXECUTION

Not Used.

END OF SECTION 01 77 00

**THREE-YEAR CONTRACTOR WARRANTY
FOR HANAHAN FIRE STATION SELECTIVE ROOF REPLACEMENT/REPAIRS**

WHEREAS, _____ of
(Address) _____

Telephone: _____ herein called the "Prime Contractor", has performed the work for the
Hanahan Fire Station Selective Roof Replacement/Repairs project.

Owner: City of Hanahan
1255 Yeamans Hall Road
Hanahan, SC 29410

Type of Building: _____

Address: _____

Area of Work: _____

Date of Acceptance: _____

Warranty Period: **Three Years** Date of Expiration: _____

AND WHEREAS, the Prime Contractor has contracted to warrant said work against leaks and faulty or defective materials and workmanship for the designated Warranty Period; NOW, THEREFORE, the Prime Contractor hereby warrants, subject to the terms and conditions herein set forth, that during the Warranty Period Prime Contractor will at its own cost and expense, make or cause to be made such repairs to or replacements of said work thereof as are necessary to correct faulty and defective work to the satisfaction of the Owner, and as are necessary to maintain said work in a watertight condition. Prime Contractor warrants the said work as required, related and applicable to all Specification Sections and the drawings of the Contract Documents for the **Hanahan Fire Station Selective Roof Replacement/Repairs project (ADC Project Number: 15311).**

This Warranty is made subject to the following terms and conditions:

1. Warranty covers the work by the Contractor to said building envelope (roofing, waterproofing and exterior walls) components of the systems within the scope of work under this contract and does not cover work by others under other contracts or future defects not directly attributable to work performed.
2. Specifically excluded from this Warranty are damages to the work caused by: a) lightning, hurricane force winds, hailstorm, and other unusual phenomena of the elements; b) fire c) failure of the building envelope (roofing, waterproofing and exterior walls) system resulting from structural settlement, excessive deflection, deterioration, and decomposition not caused by this project; d) faulty construction of walls not included in Contract Work, other conditions such as terminations and penetrations not included in the project; and e) activity related damages of the building envelope (roofing, waterproofing and exterior walls) by others including construction contractors, maintenance personnel, other persons (including vandalism by non-building envelope (roofing, waterproofing and exterior walls), animals and change in building function which subjects said building envelope (roofing, waterproofing and exterior walls) elements to hazardous chemicals not present during or before Contractor's work whether authorized or unauthorized by Owner. When the work has been damaged by any of the foregoing causes, the Warranty may be null and void for the specific locations affected until such damage has been repaired by the Owner or by another responsible party as so authorized and designated.
3. Other portions or parts of this building not within the scope of this work are not covered under this Warranty.

4. The Prime Contractor is responsible for damages to the facility caused by the scope of work for this project covered by this Warranty.
5. During the Warranty Period, if the Owner allows alteration of the work by anyone other than the Prime Contractor without written consent of the Prime Contractor, including cutting, patching and maintenance in connection with penetrations, alteration of said flashings, attachment of other work, and positioning of anything on the building envelope (roofing, waterproofing and exterior walls) system, this Warranty may become null and void at the specific locations upon the date of said alterations, but only to extent said alterations affect work covered by this Warranty. If the Owner engages the Prime Contractor to perform said alterations, the Warranty shall not become null and void, unless the Prime Contractor, prior to proceeding with alteration work, shall have notified the Owner in writing, showing reasonable cause for claim that said alterations would likely damage or deteriorate the work as warranted, thereby reasonably justifying a termination of this Warranty in the area of the altered work.
6. During the Warranty Period, if the original use of the building envelope (roofing, waterproofing and exterior walls) is changed and it becomes used for use other or service more severe than originally specified, this Warranty may become null and void at the specific locations upon the date of the said change, but only to the extent said change affects work covered by this Warranty.
7. The Owner shall promptly notify the Prime Contractor of observed, known or suspected leaks, defects, failures or deterioration, and shall afford reasonable opportunity for Prime Contractor to inspect the work, and to examine the evidence of such leaks, defects or deterioration regardless of the direct cause or causes.
8. Contractor will promptly inspect reported issues/leaks and if found to be attributed to work performed as part of the scope of this project, make the required repairs within 72 hours of written notification.
 - a. If leaks are found to be from other sources beyond the scope of this warranty, Contractor shall so inform the Owner in writing. There will be no charge for this first service call.
 - b. Future service calls and leak repairs not attributed to contractors work will be for Owner's account. Cost of repairs will be at a fair and reasonable rate. Materials required will be at a maximum of cost plus 15%.
 - c. If the Prime Contractor fails to perform repairs in allotted time frame assigned herein this warranty, this warranty will not be voided by the Prime Contractor because of work performed by Others to repair deficient conditions regardless of whether repairs by Others are temporary or permanent in nature.
9. This Warranty is recognized to be the only warranty of the Prime Contractor on said work, and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to him in cases of building envelope (roofing, waterproofing and exterior walls) failure. This warranty shall not void, reduce, restrict or otherwise affect manufacturer warranties or performance bonds. Specifically, this Warranty shall not operate to relieve the Prime Contractor of his responsibility for performance of the original work, regardless of whether the Contract was a contract directly with Owner, or a subcontract with Owner's General Contractor.
10. If an extended warranty is required during the course of construction, the more stringent requirements shall take precedence.

IN WITNESS WHEREOF, this instrument has been duly executed this _____ day of _____ 20 _____

Prime Contractor's Signature: _____

Typed Name: _____

As Its (position): _____

Date: _____

certification of asbestos-free materials

Project Title: Hanahan Fire Station Selective Roof Replacement/Repairs
Owner Project No.: COH - 111515
ADC Project No.: 15311

1. I am authorized to bind _____
(Company's Name by which I am employed).
2. I certify that no materials on this project will contain asbestos. No asbestos-containing materials will be submitted or installed.
3. I recognize that my company's contract is subject to suspension of payments or termination or both, and that my company is responsible for total asbestos abatement of any materials installed by my company.

Company Name

Name and Title of Authorized Representative

Signature

Date

1226 YEAMANS HALL ROAD
HANAHAN, SC 29410
843-566-0161
fax 843-566-0162

ADCENGINEERING.COM

Certification of Asbestos-Free Materials
01 77 15 - 1

15311



Date

Via Email: rickc@adcengineering.com

Mr. Rick Cook
ADC Engineering, Inc.
1226 Yeamans Hall Road
Hanahan, SC 29410

subject: Request for Substantial Completion
Hanahan Fire Station Selective Roof Replacement/Repairs
Owner Project Number: COH - 111515
ADC Project Number: 15311

Dear Mr. Cook:

In accordance with the Contract requirements, please accept this letter as notification and request for Substantial Completion. A copy of our punchlist is attached. We understand that substantial completion was required on _____.

We herein request Substantial Completion for _____. We request your response to schedule a Substantial Completion Inspection.

Sincerely,

Contractor Signature



AIA[®] Document G704[™] – 2000

Certificate of Substantial Completion

PROJECT: <i>(Name and address)</i> Hanahan Fire Station Selective Roof Replacement/Repairs	PROJECT NUMBER: ADC 15311 CONTRACT FOR: CONTRACT DATE:	OWNER: <input type="checkbox"/> ARCHITECT: <input type="checkbox"/> CONTRACTOR: <input type="checkbox"/> FIELD: <input type="checkbox"/> OTHER: <input type="checkbox"/>
TO OWNER: <i>(Name and address)</i> City of Hanahan 1255 Yeamans Hall Road Hanahan, SC 29410	TO CONTRACTOR: <i>(Name and address)</i>	

PROJECT OR PORTION OF THE PROJECT DESIGNATED FOR PARTIAL OCCUPANCY OR USE SHALL INCLUDE:

The Work performed under this Contract has been reviewed and found, to the Architect's best knowledge, information and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion designated above is the date of issuance established by this Certificate, which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:

Warranty		Date of Commencement
_____	BY	_____
ARCHITECT		DATE OF ISSUANCE

A list of items to be completed or corrected is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Unless otherwise agreed to in writing, the date of commencement of warranties for items on the attached list will be the date of issuance of the final Certificate of Payment or the date of final payment.

Cost estimate of Work that is incomplete or defective: \$0.00

The Contractor will complete or correct the Work on the list of items attached hereto within Thirty (30) days from the above date of Substantial Completion.

_____	BY	_____
CONTRACTOR		DATE

The Owner accepts the Work or designated portion as substantially complete and will assume full possession at _____ (time) on _____ (date).

_____	BY	_____
OWNER		DATE

The responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance shall be as follows:

(Note: Owner's and Contractor's legal and insurance counsel should determine and review insurance requirements and coverage.)

Date

Via Email: rickc@adcengineering.com

Mr. Rick Cook
ADC Engineering, Inc.
1226 Yeamans Hall Road
Hanahan, SC 29410

subject: Request for Final Completion
Hanahan Fire Station Selective Roof Replacement/Repairs
Owner Project Number: COH - 111515
ADC Project Number: 15311

Dear Mr. Cook:

In accordance with the Contract requirements, please accept this letter as notification and request for Final Completion. A copy of your punchlist is attached with items initialed that all work is completed in accordance with the Contract Documents.

We understand that Substantial Completion was awarded for _____ and Final Completion is required within thirty (30) days.

We herein request Final Completion for _____. We request your response to schedule a Final Completion Inspection.

Sincerely,

Contractor Signature

Section 01 77 25 Contract Close-Out Checklist

Project: Hanahan Fire Station Selective Roof Replacement/Repairs

ADC Project Number: 15311

Substantial Completion Date Awarded:		Date Received by ADC Engineering
1.	*Certificate of Substantial Completion – AIA G704 (copy) with Contractor Punchlist <ul style="list-style-type: none"> • Correct Project Information • Correct Date • Signed and Dated 	
2.	*Contractor's Affidavit of Payment of Debts and Claims - AIA G706 (copy) <ul style="list-style-type: none"> • Correct Project Information • Signed and Dated • Notarized and Sealed 	
3.	*Contractor's Affidavit of Release of Liens Form – AIA G706A (copy) <ul style="list-style-type: none"> • Correct Project Information • Signed and Dated • Notarized and Sealed 	
4.	Consent of Surety to Final Payment - AIA G707 <ul style="list-style-type: none"> • Correct Project Information • Signed and Dated • Notarized and Sealed 	
5.	Roof Information Card <ul style="list-style-type: none"> • Provide hard copy of form for each system • Install exterior copy in designated location at facility 	
6.	Manufacturer's Warranties <ul style="list-style-type: none"> • Provide Manufacturer's Warranties as required by the Contract Documents • Ensure Insulation is included. • Dated on or after Substantial Completion date and signed 	
7.	Operation and Maintenance Data <ul style="list-style-type: none"> • Provide any required / necessary operation / maintenance data for systems 	
8.	Three-Year Contractor Warranty <ul style="list-style-type: none"> • Provide Three-Year Contractor Warranty as required by the Contract Documents • Dated on or after Substantial Completion date and signed 	
9.	ADC Substantial Completion Inspection Punch List <ul style="list-style-type: none"> • All items signed off by the Contractor as completed 	
10.	ADC Final Completion Inspection Punch List <ul style="list-style-type: none"> • All items signed off by the Contractor as completed 	
11.	List of Materials Used by Specifications Section <ul style="list-style-type: none"> • Provide list of materials / manufacturers 	
12.	Supplier – Address and Phone Numbers <ul style="list-style-type: none"> • Provide list of suppliers for systems 	
13.	Asbestos Close-Out Certifications / Receipts <ul style="list-style-type: none"> • Provide Certification of Asbestos-Free Materials, included in the Contract Documents, signed and dated. 	
14.	Record Drawings <ul style="list-style-type: none"> • Provide set of contract drawings with all field changes / modifications shown in red 	
15.	Summary of Unit Prices <ul style="list-style-type: none"> • Provide required documentation of required unit prices • Provide summary balance of all unit prices and remaining balance 	
16.	* Final Change Order (copy) <ul style="list-style-type: none"> • Provide Final Change Order with Unit Prices / Balances included 	
17.	*Final Application for Payment (copy) <ul style="list-style-type: none"> • Provide Final Invoice, including Final Change Order 	

* Note: Provide required original documents under separate correspondence to ADC with copy included within the Close-Out Documents.

SECTION 02 04 00

CUTTING AND PATCHING

PART 1 - GENERAL

1.01 SUMMARY

- A. This section establishes general requirements pertaining to cutting, fitting, and patching of the work.
1. Portions of this work require cutting and/or patching components of the existing facility. Plan and coordinate this demolition neatly and safely.
 2. Use proper shoring, bracing and protection at all times.
 3. Uncover work to provide for installation, inspection, or both, of ill-timed work.
 4. Coring and cutting required for installation of new overflow scuppers and modifying existing drain scupper sizes.
 5. Remove all low-sloped roofing, insulation, components and accessories to complete the identified modifications and replacements.
 6. Cut and completely remove existing mortar joints to provide all new sealant joints for Alternate Number 1.
 7. Remove all mechanical, electrical and plumbing equipment to complete work and reinstall with new sheet metal closures.
 8. Remove and replace work not conforming to requirements of the Construction Documents, defective or substandard work.
 9. Survey existing conditions, coordinate shutdowns, have qualified craftsmen disconnect necessary plumbing, mechanical and electrical components.
 10. Make the several parts fit properly, to accomplish the work within these Construction Documents.
- B. Protect building from inclement weather all times.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.

- B. In addition to other requirements specified, upon the Owners request, uncover work to provide for inspection of covered work by the Owner or Owner's representative, and remove samples of installed materials for testing.
- C. Section 02 05 00: Demolition and Removal
- D. Section 06 10 00: Rough Carpentry
- E. Section 07 22 00: Thermal Roof Insulation
- F. Section 07 53 06: Cold Applied Modified Bitumen Sheet Roofing
- G. Section 07 60 00: Sheet Metal
- H. Section 07 92 00: Sealants for Roofing and Sheet Metal
- I. Section 07 92 10: Sealants for Building Envelope

1.03 REFERENCES

- A. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
 - 1. ANSI/ASSE Z359.1 (2007) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
- B. INTERNATIONAL CODE COUNCIL (ICC):
 - 1. IBC (2012) International Building Code
 - 2. IEBC (2012) International Existing Building Code
- C. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA):
 - 1. NFPA 241 (2009) Safeguarding Construction, Alteration, and Demolition Operations
- D. OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION:
 - 1. 29 CFR 1926 – Safety and Health Regulations for Construction
- E. SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL (SCDHEC):
 - 1. SCDHEC Regulation 61-107.11, Construction, Demolition and Land-Clearing Debris Landfills
- F. U.S. ARMY CORPS OF ENGINEERS (USACE):
 - 1. EM 385-1-1 (2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011) Safety and Health Requirements Manual

1.04 QUALITY ASSURANCE

A. Requirements for building envelope and structural work.

1. General: Do not cut-and-patch structural work in a manner resulting in a reduction of load-carrying capacity or increase in the load/deflection ratio.
2. Prior to cutting-and-patching the following categories of work, obtain the Owner's approval to proceed with cutting- and-patching as proposed in the submittal by the Contractor:
 - a. Wood framing, wood framing of platform and nailers.
 - b. Mechanical, electrical and communication equipment.
 - c. Drain scuppers/overflow scuppers.
 - d. Plywood decking.
 - e. Raise structural framing, curbs and mechanical equipment 8 inches above finished roof.

B. Operational and Safety Limitations

1. General: Do not cut-and-patch operational elements and safety-related components in a manner resulting in a reduction of capacities to perform in the manner intended or resulting in decreased operational life, increased maintenance, or decreased safety.
2. Prior to cutting-and-patching the following categories of work, and similar categories where directed, obtain the Owner's approval to proceed with cutting-and-patching as proposed in the submittal by the Contractor:
 - a. Roofing, exterior walls, fenestrations, louvers and structural elements should include shoring and structural bracing during work as needed based on construction loads and phasing.
 - b. Primary operational systems and equipment. (Do not overload system with materials/equipment).
 - c. Water / moisture/vapor/air/smoke barriers, membranes and flashings.
 - d. Noise and vibration control elements and systems.
 - e. Temporarily disconnect, and then re-install immediately the control, communication, mechanical and electrical wiring systems.
 - f. Protection of building and contents during construction.

3. Contractor is required to maintain system to protect occupants on interior from falling debris, dust, etc. during construction. Contractor is also required to clean all areas where dust or debris exists as a result of construction.
4. Monitor and schedule construction noise to ensure function of facility is maintained during construction.

C. Appearance Requirements - General

1. Do not cut-and-patch work which is observable on the exterior or exposed in occupied spaces of the building, in a manner resulting in a reduction of visual qualities or resulting in substantial evidence of the cut-and-patch work, both as judged solely by the Owner.
2. Remove and replace work judged by the Owner to be cut-and-patched in a visually unsatisfactory manner.

1.05 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00, Submittals.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.
- C. Proposals for Cutting and Patching
 1. Submit proposed demolition and removal procedures with the cutting and patching procedures to the Owner for approval before work is started.
 - a. Include description of why cutting-and- patching cannot (reasonably) be avoided, how it will be performed, how structural elements (if any) will be reinforced, products to be used, firms and tradesmen to perform the work, approximate dates of the work, and anticipated results in terms of variations from the work as originally completed (structural, operational, visual and other qualities of significance).
 - b. Where applicable, include cost proposal, suggested alternatives to the cutting and patching procedure proposed, and a description of the circumstances that lead to the need for cutting-and-patching.
 2. Approval by Owner to proceed with proposed cutting-and-patching does not waive the right to later require complete removal and replacement of work found to be cut-and-patched in an unsatisfactory manner.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. For replacement of work removed, use materials, which comply with the pertinent sections of these specifications.

2.02 PAYMENT FOR COSTS

- A. Perform all cutting and patching needed to comply with the Construction Documents at no additional cost to the Owner.

PART 3 - EXECUTION

3.01 CONDITIONS

- A. Inspection
 - 1. Inspect existing conditions, including elements subject to movement or damage during sounding, selective demolition, cutting and patching.
 - 2. After uncovering the work, inspect conditions affecting installation of new work.
- B. Discrepancies
 - 1. If uncovered conditions are not as anticipated, immediately notify the Consultant/Engineer and secure needed directions.
 - 2. Do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.
- C. Protection
 - 1. Protect building from inclement weather at all times.

3.02 PREPARATION

- A. Temporary Support: Provide adequate temporary support for work to be cut, to prevent failure. Do not endanger other work.
- B. Protection: Provide adequate protection of other work during cutting-and-patching, to prevent damage; and provide protection of the work from adverse weather exposure.

3.03 CUTTING AND PATCHING

- A. General: Employ skilled tradesmen to perform cutting- and-patching. Except as otherwise indicated or approved by the Owner, proceed with cutting-and- patching at the earliest feasible time, in each instance, and perform the work promptly.
- B. Cut work by methods least likely to damage work to be retained and work adjoining. Review proposed procedure with original Installer where possible, and comply with his recommendations.

1. In general, where physical cutting action is required, cut work with sawing and grinding tools, not with hammering and chopping tools. Core drill openings through concrete work.
 2. Comply with the requirements of Section 02 05 00, Demolition and Removal.
- C. Patch with seams which are durable and as invisible as possible. Comply with specified tolerances for the work.
1. Where feasible, inspect and test patched areas to demonstrate integrity of work.
- D. Restore exposed finishes of patched areas and, where necessary, extend finish restoration onto retained work adjoining, in a manner which will eliminate evidence of patching.

3.04 UNIT PRICED QUANTITIES

- A. In accordance with Section 01 21 10, Unit Prices and Allowances, the Contractor shall maintain a log of all repair unit priced quantities used based on contract requirements.
- B. Contractor shall notify Owner in writing when 80% of quantity is used for each unit price item.
- C. Provide photograph or videotape documentation of repairs.
- D. Locate quantities and show their locations on the applicable drawings.
- E. Provide actual used quantities on each Application for Payment request.

END OF SECTION 02 04 00

SECTION 02 05 00

DEMOLITION AND REMOVAL

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes the demolition of the following products/accessories/systems to complete the work.
1. Function, access and usage of the facility shall be maintained during the demolition and construction process.
 2. Disconnect, relocate, remove and re-install any interior and exterior items required to complete the work.
 - a. This includes mechanical, electrical, plumbing or communications equipment.
 3. Demolition of rotted, deteriorated and/or damaged carpentry to permit replacement in accordance with Section 06 10 00, Rough Carpentry.
 4. Removal of the existing system(s) down to the deck to permit installation of insulation in accordance with Section 07 22 00, Thermal Roof Insulation.
 5. Complete removal of all roofing, insulation, and all associated components and accessories down to the existing deck in accordance with Section 07 53 06. Cold Applied Modified Bitumen Sheet Roofing.
 6. Removal of all other sheet metal components and accessories for replacement in accordance with Section 07 60 00, Sheet Metal.
 7. Removal of all sealants on the systems and adjacent wall surfaces for replacement in accordance with Section 07 92 00, Sealants for Roofing and Sheet Metal.
 8. Removal of all sealants/mortar joints on/in the precast panel systems and adjacent wall surfaces for replacement in accordance with Section 07 92 10, Sealants for Building Envelope.
- B. Contractor shall immediately notify the Consultant/Engineer and the Owner, in writing, when conditions are uncovered which will affect or deter completion of the work in accordance with the Contract Documents.
- C. All demolition shall adhere to ANSI, SCDHEC, and OSHA guidelines and as applicable to Section 01 52 05, Safety Requirements.

- D. Safety Plans should include an SDS list of all products being used as part of a system, but also including substances being used to complete the work (i.e. fuels, solvents, cleaners, etc.). This data should be included within the submittal, and a copy kept on the site.
 - 1. SDS sheets are required for all products/materials used for this project. Any products with strong or distinct odors must be identified prior to use and submitted to Consultant/Engineer for review and approval.
- E. Building must be protected from inclement weather at all times. Contractor shall have plan and materials (means and methods) to protect area areas during inclement weather.
- F. Unit prices and set quantities are included for various items in accordance with Section 01 21 10, Unit Prices and Allowances and documentation is required accordingly.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. Section 01 52 05: Safety Requirements
- C. Section 02 04 00: Cutting and Patching
- D. Section 02 05 00: Demolition and Removal
- E. Section 06 10 00: Rough Carpentry
- F. Section 07 22 00: Thermal Roof Insulation
- G. Section 07 53 06: Cold Applied Modified Bitumen Sheet Roofing
- H. Section 07 60 00: Sheet Metal
- I. Section 07 60 08: Sheet Metal Repairs
- J. Section 07 92 00: Sealants for Roofing and Sheet Metal
- K. Section 07 92 10: Sealants for Building Envelope

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.

- B. AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI):
 - 1. ANSI/ASSE A10.6 (2006) Safety Requirements for Demolition Operations
 - 2. ANSI/ASSE Z359.1 (2007) Safety Requirements for Personal Fall Arrest Systems, Subsystems and Components
- C. INTERNATIONAL CODE COUNCIL (ICC):
 - 1. IBC (2012) International Building Code
 - 2. IEBC (2012) International Existing Building Code
- D. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA):
 - 1. NFPA 241 (2009) Safeguarding Construction, Alteration, and Demolition Operations
- E. OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION
 - 1. 29 CFR 1926 – Safety and Health Regulations for Construction
- F. SOUTH CAROLINA DEPARTMENT OF HEALTH & ENVIRONMENTAL CONTROL (SCDHEC):
 - 1. SCDHEC Regulation 61-107.11, Construction, Demolition and Land-Clearing Debris Landfills
- G. U.S. ARMY CORPS OF ENGINEERS (USACE):
 - 1. EM 385-1-1 (2008; Errata 1-2010; Changes 1-3 2010; Changes 4-6 2011) Safety and Health Requirements Manual

1.04 GENERAL REQUIREMENTS

- A. Do not begin demolition until Demolition plan is approved and authorization is received from the Consultant/ Engineer.
- B. Remove rubbish and debris from the site daily; do not allow accumulation around the building or grounds.
- C. Coordinate sequencing and temporary shutdowns with occupants and owner.

1.05 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00, Submittals.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.

C. Demolition Plan:

1. Submit proposed demolition and removal procedures to the Consultant/Engineer for approval before work is started.
2. Include procedures for careful removal and disposition of materials while function of building is maintained, a disconnection schedule of effected utility services, and a detailed description of methods and equipment to be used for each operation and of the sequence of operations.
3. State safety precautions to be used during conduct of demolition work

1.06 REGULATORY AND SAFETY REQUIREMENTS

- A. Comply with federal, state, and local hauling and disposal regulations.
1. In addition to the requirements of the contract clauses, safety requirements shall conform to ANSI A10.6 and applicable OSHA requirements.
- B. Contractor shall assure compliance with applicable safety and fall protection requirements of federal, state and local regulations throughout performance of work.
- C. The Contractor shall make application to all necessary Building Officials/governing bodies and obtain the required permits for work.

1.07 DUST AND DEBRIS CONTROL

- A. Provide adequate protection of areas which will be subject to demolition debris and dust.
- B. Clean up all fasteners, drive pins, nails and sheet metal clippings from ground/horizontal surfaces.
- C. Contractor shall monitor interior and adjacent spaces during the demolition process.
- D. Prevent the spread of dust and debris to the interior portions of the building, to the surrounding grounds, and avoid the creation of a nuisance or hazard in the surrounding area.
- E. Removal of existing work shall be coordinated not to affect current building occupants, pedestrians or function/usage of building.
- F. Do not damage existing substrate or overload assembly with construction traffic, debris or equipment.
- G. Removal of existing work shall be limited to days where low winds (15 mph or less) and netting/wind shading shall be used to ensure roof debris is contained and disposed of properly.
- H. Do not damage existing exterior surfaces, conduits, security cameras, fire protection, etc. on underside of the existing roof deck and framing.

1.08 PROTECTION

- A. Provide protection system for roofing and adjacent wall surfaces.
- B. Traffic Control Signs:
 - 1. Where pedestrian safety is endangered in the area of removal work, use traffic barricades with flashing lights.
- C. Ingress/Egress Protection:
 - 1. During the construction period, exits from the building(s) shall not be blocked or impaired without expressed approval of the Agency Life, Safety/Fire Protection Officer
 - 2. Overhead protection and traffic control signs required at all ingress/egress points affected by this work including thoroughfares and adjacent facilities.
- D. Existing Work:
 - 1. Protect existing work, which is to remain in place or be reused.
 - 2. Protect grass, shrubbery and all horizontal (asphalt, concrete and landscaping) surfaces as well as adjacent roof and wall surfaces.
 - 3. Repair items, which are to remain and which are damaged during performance of the work to their original condition or replace with new.
 - 4. Do not overload existing structural system.
 - 5. Interior:
 - a. The interior of the building shall be protected at all times from dust, debris, materials and equipment associated with the roof construction.
 - b. Safety, the uninterrupted function of the building and the protection of the interior contents shall be maintained at all times.
 - c. Disconnect, relocate, remove and re-install any interior items required to complete the work.
- E. Weather Protection:
 - 1. Building must be protected from inclement weather at all times. Contractor shall have plan and materials (means and methods) to protect areas during inclement weather.
 - 2. For portions of the building to remain, protect building interior and materials and equipment from the weather at all times.

3. When removal of the existing roofing system is accomplished, have the materials and workmen ready to provide adequate and temporary covering of exposed areas during inclement weather and at the end of each day's construction.

F. Facilities:

1. It is the Contractor's responsibility to return the structure and any damaged items to their original condition.
2. Protect all mechanical and electrical services and accessories during the demolition process.
3. Temporary removal/disconnection of utilities during the demolition process; shall be accomplished by qualified craftsman.
4. All interruptions in service shall be coordinated with the Consultant/ Engineer and Owner.
5. All surfaces damaged or stained during the construction process shall be the Contractors responsibility to return to its original condition.

G. Adjacent Surfaces:

1. The Contractor shall return to its original state, any damaged shrubbery, grass, concrete, skylights, equipment or other adjacent surface.

1.09 RELOCATIONS

- A. Perform the removal and reinstallation of the relocated items as indicated with workmen skilled in the trades involved.
- B. Repair items to be relocated, which are damaged or replace damaged items with new undamaged items as approved by the Consultant/Engineer.

PART 2 - PRODUCTS

(Not Applicable)

PART 3 - EXECUTION

3.01 EXISTING FACILITIES

- A. Existing Facilities are to be removed as specified, noted or as necessary to accomplish work.

B. Roof Replacement:

1. Remove the entire roofing systems (including all underlayment systems) and all related components as required to complete the work.
2. Damaged substrates and moisture is noted to be trapped within these roof systems.
3. Remove roofing and associated accessories without damage to the adjacent surfaces and wood roof decks.

C. Substrates:

1. Repair any deteriorated substrates and replace to provide a smooth, level, surface and secure rough carpentry in accordance with Section 06 10 00, Rough Carpentry.

D. Sealants in Building Envelope

1. Remove mortar from area of work and complete work in accordance with Section 07 92 10, Sealants for Building Envelope.
2. Extents of work shall be limited to extents specified.

E. General M/E/P Work Specific to Roof Replacement

1. Disconnect and remove all rooftop mechanical and electrical equipment as necessary to affect roof work in the areas and reinstall upon completion of the work in the area to minimize down time. Provide for extension and modification of service. Utilities, interior components and all connections as necessary to accommodate new heights and locations. This includes disconnecting and raising gas line to allow for minimum 8 inch base flashing height of equipment support curb.
2. Any cables, wires, antennas and rooftop mechanical, electrical or electronic components shall be temporarily disconnected and reconnected by qualified craftsman. This includes roof areas, walls, flashings and adjacent wall areas.
3. Extend / raise all penetrations, curbs, mechanical, electrical and plumbing components to a minimum 8 inches above the finished roof surface. Provide for extension and modification of service, utilities, interior components and all connections as necessary to accommodate new heights and locations.
4. The underside of the deck and interior of walls has fixtures/conduits/cables and attachments. Contractor shall have qualified craftsman remove and reinstall all affected items related to the completion of the scope of this project.
5. Ensure any M/E/P systems which require a specific contractor to complete the work (i.e. Johnson Controls, Honeywell, Trane, Etc.) are included in the Bid.

3.02 DISPOSITION OF MATERIALS

A. Title of Materials:

1. Except where specified in other sections, all materials and equipment removed, and not reused, shall become the property of the Contractor and shall be removed from the job site.
2. Title to the materials resulting from demolition, and materials and equipment removed, is vested in the Contractor upon approval by the Consultant/Engineer of the Contractor's demolition and removal procedures, and authorization by the Consultant/Engineer to begin demolition.
3. The Owner will not be responsible for the condition or loss of, or damage to, such property after notice to proceed.

B. Reuse of Materials and Equipment:

1. Remove and store materials and equipment to be reused to prevent damage, and reinstall as the work progresses.

3.03 CLEANUP

- A. Remove and transport debris and rubbish in a manner that will prevent spillage on streets or adjacent areas.
- B. Buggies or trash carts are not permitted on the roof surface.

3.04 UNIT PRICED QUANTITIES

- A. In accordance with Section 01 21 10, Unit Prices and Allowances, the Contractor shall maintain a log of all repair unit priced quantities used based on contract requirements.
- B. Contractor shall notify Owner in writing when 80% of quantity is used for each unit price item.
- C. Provide photograph or videotape documentation of repairs.
- D. Locate quantities and show their locations on the drawings.
- E. Provide actual used quantities on each Application for Payment request.

END OF SECTION 02 05 00

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes all new carpentry, which is required at all perimeter locations, terminations and penetrations to complete the work unless specifically noted otherwise.
- B. All treated / waterproof carpentry shall have underlayment to provide separation with sheet metal.
- C. Repair deck where abandoned penetrations have been removed. Provide a full sheet of plywood where abandoned penetration was removed. This is to be included in the base bid.
- D. Removal of all loose nails / fasteners, replacement with new wood screws and the random addition of fasteners is included.
- E. A set quantity is required for rough carpentry. This quantity is to be included in the Base Bid as listed on the Bid Form. Any quantity above or below the set quantity amount shall result in an add or deduct to the Contract Sum based on the unit price provided.
 - 1. Unless specifically noted otherwise, contractor may assume existing nailers/carpentry can be reused. Any carpentry found to be damaged or deteriorated, shall be replaced based on the quantities listed on the Bid Form.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. Section 02 04 00: Cutting and Patching
- C. Section 02 05 00: Demolition and Removal
- D. Section 07 22 00: Thermal Roof Insulation
- E. Section 07 53 06: Cold Applied Modified Bitumen Sheet Roofing
- F. Section 07 60 00: Sheet Metal

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. AMERICAN FOREST & PAPER ASSOCIATION (AF&PA):
 - 1. AFPA T101 (2001) National Design Specification for Wood Construction
- C. AMERICAN SOCIETY OF CIVIL ENGINEERS (ASCE):
 - 1. ASCE 7 (2010) Minimum Design Loads for Buildings and Other Structures
- D. AMERICAN WOOD PRESERVERS BUREAU (AWPB):
 - 1. AWPB LP22-80 - Standard for Softwood Lumber, Timber, and Plywood Pressure Treated with Waterborne Preservatives for Ground Contact Use
- E. AMERICAN WOOD-PRESERVERS' ASSOCIATION (AWPA):
 - 1. AWPA U1 (2013) Use Category System: User Specification for Treated Wood
 - 2. AWPA M6 (2007) Brands Used on Forest Products
- F. APA – THE ENGINEERED WOOD ASSOCIATION (APA):
 - 1. APA E30 (2005) Engineered Wood Construction Guide
 - 2. APA PRP-108 (2002) Performance Standards and Policies
 - 3. APA PS 1 (1995) Voluntary Product Standard for Construction and Industrial Plywood
 - 4. APA PS 2 (2004) Voluntary Product Standard for Wood-Based Structural-Use Panels
- G. ASTM INTERNATIONAL (ASTM):
 - 1. ASTM C1396 / C1396M (2011) Standard Specification for Gypsum Board
 - 2. ASTM F 1667 (2003) Driven Fasteners: Nails, Spikes, and Staples
- H. FACTORY MUTUAL ENGINEERING AND RESEARCH (FM):
 - 1. FM DS 1-49 (2000) Perimeter Flashing

- I. INTERNATIONAL CODE COUNCIL (ICC):
 - 1. IBC (2012) International Building Code
 - 2. IEBC (2012) International Existing Building Code
- J. SOUTHERN PINE INSPECTION BUREAU (SPIB):
 - 1. SPIB 1003 (2002) Southern Pine Inspection Bureau Grading Rules
- K. U.S. DEPARTMENT OF COMMERCE (DOC):
 - 1. DOC/NIST PS1 (1995) Construction and Industrial Plywood with Typical APA Trademarks

1.04 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00, Submittals.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.
- C. A letter from the contractor may be provided that states the grade, size, fasteners and pressure treatment to be used.
 - 1. Certificate of Pressure Treatment
 - 2. Certificate of Grade
 - a. Drawing Requirements for rough carpentry indicate materials, details of constructions, methods of fastening, and erection details. Submit drawings for all proposed modifications of structural members. Do not proceed with modifications until the submittal has been approved.
 - 3. Certificate or letter defining fastener types for applications to CA, ACQ or MCQ wood treatment.
- D. Layout Plan for Carpentry
- E. Safety Data Sheets (SDS): Submit Safety Data Sheets with each specification section and include with Safety Plan in accordance with Section 01 52 05, Safety Requirements.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials to site in an undamaged condition.
- B. Storage: Carefully store materials in enclosed trailer providing proper ventilation, drainage, and protection against dampness.

- C. Handling: Remove defective and damaged materials and provide new materials.
- D. Ensure grade marks are present on all lumber.

1.06 MOISTURE CONTENT

A. General:

- 1. Air or kiln treated lumber after treatment.

B. Moisture Content:

- 1. Maximum moisture content of wood products shall be as follows at the time of delivery to the job site and stored properly to eliminate any further exposure.
 - a. All lumber and boards - 19% maximum.
 - b. Materials other than lumber or moisture content shall be in accordance with referenced standard.

1.07 PRESERVATIVE TREATMENT

- A. All lumber and timber shall be treated in accordance with AWPA U1 or approved equal. Treatment shall be a minimum .25 for above grade use. This includes nailers, edge strips, crickets, curbs, blocking, and cants for new roofing system.
- B. Equivalent treatment methods / products, such as Alkaline Copper Quaternary (ACQ), Micronized Copper Quaternary (MCQ) or Copper Azole (CA) will be considered under the substitution process. Substitution request must address the proposed fasteners / types that will be used.
- C. Any wood, nailers or other rough carpentry using Copper Azole (CA), Alkaline Copper Quaternary (ACQ) or Micronized Copper Quaternary (MCQ) treatment will require verification of the following:
 - 1. Separation of aluminum/galvalume sheet metal from the rough carpentry.
 - 2. Type of fasteners acceptable for attachment into these woods (such as stainless steel).
 - a. Fasteners for wood to wood connectors.
 - b. Fasteners thru metal into wood.
- D. All wood shall be air or kiln dried after treatment.
- E. Plywood Sheathing, AWPA, U1.

PART 2 - PRODUCTS

2.01 LUMBER

- A. Framing Lumber: Nailers, framing edge strips, crickets, curbs and cants.
 - 1. Wood cants are required to be provided at the expansion joint.
- B. Grade of Lumber shall be No. 2 or better.

2.02 PLYWOOD

- A. Plywood to repair existing plywood or used in combination with nailers shall match in thickness and shall be exterior grade and pressure treated material.
- B. Plywood used with nailers shall be sandwiched between nailers.
- C. Plywood for overlayment shall be a minimum 5/8 inch exterior grade and pressure treated.
- D. Plywood shall conform to DOC PS 1, APA PRP-108 or APA PS 2, Grade C-D or sheathing grade with exterior glue. Sheathing for roof and walls without corner bracing of framing shall have a span rating of 16/0 or greater for supports 16 inches on center and a span rating of 24/0 or greater for supports 24 inches on center.

2.03 FASTENERS

- A. Fasteners shall be compatible with the materials being fastened and shall provide for secure, firm attachment.
- B. Exposed fasteners shall have domed head with integral metal washer and rubber gasket.
- C. Fasteners shall be hot dipped galvanized steel, stainless steel, bronze or copper as a minimum. Wood treatment may require specific type of fasteners.
- D. Do not use impact-driven fasteners. Use pre-drilled, screw-type fasteners.
- E. Only stainless steel fasteners shall be used to connect dissimilar metals.

2.04 ROUGH HARDWARE

- A. Unless otherwise indicated or specified, rough hardware shall be of the type and size necessary for the project requirements. Sizes, types, and spacing of fastenings of manufactured building materials shall be as recommended by the product manufacturer unless otherwise indicated or specified. Rough hardware exposed to the weather or embedded in or in contact with preservative treated wood, exterior masonry, or concrete walls or slabs shall be zinc-coated.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Conform to NFP WCD1 unless otherwise indicated or specified.
- B. Fit framing lumber accurately to the required lines and levels to match existing nailers, which shall be removed.
- C. Set nailers with their crown edge up.

3.02 WOOD ROOF NAILERS, EDGE STRIPS, CURBS AND CANTS

A. General:

- 1. Provide sizes and configurations to match existing conditions at edge perimeters, curbs, and expansion joints.
- 2. Thicknesses to match insulation thicknesses and minimum 2 x 6, unless specifically noted otherwise.
- 3. If multiple layers, attach each layer independently and minimum 1 1/2 inch thickness at top, when applicable.

B. Raise all penetrations a minimum of 8 inches above the finished roof.

C. Wood Blocking Attachment

- 1. If other substrate/edge conditions exist, the Contractor shall provide attachment to resist 250 pounds per square linear foot in all directions and increased by 100% at corners.
 - a. The corner shall be defined as a minimum of 10 feet and increased based on ASCE 7 guidelines.
 - b. This may require attachment to structural framing.

D. Nailers/Fasteners

- 1. A 1/4 inch gap between nailers is required.
- 2. Pre-drilled holes for attachment.
- 3. Nails used to secure multiple nailers should be long enough to penetrate the base wood blocking 1 1/4 inch. A fastener shall be placed 3 inches from each end and double rows spaced 24 inches on center and staggered is required.
- 4. Joints in nailers shall be staggered in multiple layer applications and shall have interlocked corners.

5. Nails should be installed at angles.
6. Nailers used to raise curbs of mechanical units, skylights and other penetrations shall be installed level.

E. Nailer Configurations

1. Match nailer thicknesses with insulation thicknesses including tapered insulation.
2. Stack nailers with joints staggered and plywood sandwiched between nailers.
3. Contractor may elect to build a 'box' configuration or 'stud wall' assembly with voids filled with insulation in lieu of a 'stacked' configuration.

3.03 PLYWOOD DECK INSTALLATION

- A. Install with the grain of the outer piles or long dimension at right angles to supports. Stagger end joints and locate over the centerlines of supports. Allow 1/8 inch spacing at panel ends and 1/4 inch at panel edges. Screw panels securely spaced 6 inches on center at supported edges and 12 inches on center at intermediate bearings. Install H Clips 12 inch on center on all sides.

3.4 UNIT PRICED QUANTITIES

- A. In accordance with Section 01 21 10, Unit Prices and Allowances, the Contractor shall maintain a log of all repair unit priced quantities used based on contract requirements.
- B. Contractor shall notify Owner in writing when 80% of quantity is used for each unit price item.
- C. Provide photograph or videotape documentation of repairs.
- D. Locate quantities and show their locations on the applicable drawings.
- E. Provide actual used quantities on each Application for Payment request.

END OF SECTION 06 10 00

SECTION 07 22 00

THERMAL ROOF INSULATION

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes the installation of thermal and tapered insulation as required or necessary to complete specified work.
- B. Based on the deck type, the following is required: field, perimeter and corners will be defined in accordance with FM requirements.
 - 1. Plywood Decking – Mechanically fasten insulation system over a sheet of rosin paper. Attachment to adhere to FM-1A-120 requirements with required increases at perimeters and corners.
- C. A minimum R-value of 20 is required in accordance with ASHRAE 90.1, 2007.
 - 1. First layer of insulation shall be a 2.0 inch thick polyisocyanurate mechanically fastened to roof deck.
 - 2. Second layer of insulation shall be a 1.5 inch thick polyisocyanurate adhered with low rise foam.
 - 3. Coverboard insulation shall be a 0.5 inch modified gypsum roof board adhered in low rise foam.
- D. Secondary slope (crickets / sumps) shall be fabricated with perlite insulation, with a maximum 1/2 inch thick start thickness and tapered edge strips added and provide a minimum finished slope of 1/4 inch per foot.
- E. Positive drainage is required at all locations of the roof to prevent ponding of water.
- F. Insulation thickness shall match nailer thicknesses and adjacent boards within a 1/4 inch tolerance in all directions.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions and Supplementary Conditions of these specifications shall govern work under this Section.
- B. Section 02 04 00: Cutting and Patching
- C. Section 02 05 00: Demolition and Removal
- D. Section 06 10 00: Rough Carpentry

- E. Section 07 53 06: Cold Applied Modified Bitumen Sheet Roofing
- F. Section 07 60 00: Sheet Metal
- G. Section 07 92 00: Sealants for Roofing and Sheet Metal

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. AMERICAN SOCIETY FOR CIVIL ENGINEERS (ASCE):
 - 1. ASCE 7 (2005) Minimum Design Loads for Buildings and Other Structures
- C. ASTM INTERNATIONAL (ASTM):
 - 1. ASTM C 1177 / C 1177M (2008) Glass Mat Gypsum Substrate for Use as Sheathing
 - 2. ASTM C 1289 (2012) Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board
 - 3. ASTM C 1303 / 1303 M (2010) Test Method for Predicting Long-Term Thermal Resistance of Closed-Cell Foam Insulation
 - 4. ASTM C 728 (2010) Standard Specification for Perlite Thermal Insulation Board
 - 5. ASTM D 1970 / D 1970 M (2011) Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
 - 6. ASTM D 3273 (2005) Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - 7. ASTM D 41 / D 41 M (2011) Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
 - 8. ASTM D 4586 / D 4586 M (2012) Standard Specification for Asphalt Roof Cement, Asbestos-Free
 - 9. ASTM E 84 (2011) Standard Test Method for Surface Burning Characteristics of Building Materials
 - 10. ASTM E 136 (2011) Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C

- D. FACTORY MUTUAL ENGINEERING AND RESEARCH CORPORATION (FM):
 - 1. FM P9513 (Latest Edition) Loss Prevention Data for Roofing Contractors
 - 2. FM7825a (Latest Edition) Approval Guide Fire Protection
 - 3. FM P7825c (Latest Edition) Approval Guide Building Materials
- E. NATIONAL ROOFING CONTRACTOR'S ASSOCIATION (NRCA):
 - 1. NRCA Roofing and Waterproofing Manual, Fifth Edition.
 - 2. NRCA/ARMA/SPRI Repair Manual for Low Sloped Roof Systems.
- F. UNDERWRITERS LABORATORIES, INC. (UL):
 - 1. UL BMD (Latest Edition) - Building Materials Directory
- G. INTERNATIONAL CODE COUNCIL (IBC):
 - 1. IBC (2012) International Building Code
 - 2. IEBC (2012) International Existing Building Code

1.04 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00, Submittals.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.
- C. Manufacturer's Catalog Data
 - 1. Fasteners
 - 2. Roof Insulation: Include fastener pattern for insulation.
- D. Drawings
 - 1. Tapered Roof Insulation System
 - a. Show a complete description of the procedures for the installation of each phase of the system indicating the type of materials, thicknesses, identify codes, sequence of laying insulation, location of ridges and valleys, special methods for cutting and fitting of insulation and special precautions.
 - b. The drawings shall be based on field measurements provided by the Contractor.

- E. Instructions
 - 1. Nails and fasteners
 - 2. Roof insulation
 - 3. Unless otherwise indicated on the contract drawings, show the attachment patterns at field, perimeter and corners with roof plan showing areas.
- F. Statements
 - 1. Installer Qualifications
 - a. Requirement: Submit certificate from the insulation manufacturer attesting that the installer has the proper qualifications for installing tapered roof insulation systems.
- G. Test Reports
 - 1. Wind and Fire ratings/classifications.
- H. Data:
 - 1. Manufacturer's Certificate of Conformance and Catalog Data will be required for each type of insulation and other material proposed for use, cricket and tapered insulation layout from the insulation manufacturer, and shall include printed application instructions, detailed fastening instructions and other details, as appropriate.
- I. Samples:
 - 1. One sample of each type of insulation shall be approved before materials are delivered to the work site.
 - 2. Samples shall accompany other applicable documentation specified herein above.
- J. Safety Data Sheets (SDS): Submit Safety Data Sheets with each specification section and include with Safety Plan in accordance with Section 01 52 05, Safety Requirements.

1.05 FIRE AND WIND CLASSIFICATION

- A. Coordinate insulation and roof membrane to ensure the assembly / system meets the fire and wind requirements.
- B. Insulation shall have been tested as part of a roof construction assembly of the type used in this project, and the construction assembly listed as Fire Classified in UL Directory or Class I in FM Directory.

- C. Assembly shall meet the applicable rating/classifications requirements of the International Building Code.
- D. Coordinate with requirements of roof membrane specification.
- E. Fire Safety: All materials and systems shall meet the fire rating required by the International Building Code.

1.06 DELIVERY, STORAGE AND HANDLING

A. Delivery

1. Deliver materials to site in manufacturer's unopened and undamaged standard commercial containers bearing the following legible information:
 - a. Name of manufacturer;
 - b. Brand designation;
 - c. Specification number, type and class, as applicable, where materials are covered by a referenced specification; and
2. Deliver materials in sufficient quantity to allow continuity of the work.

B. Storage and Handling

1. Store and handle materials in a manner to protect from damage, exposure to open flame or other ignition sources and from wetting and moisture absorption. Any materials which are exposed to moisture shall be immediately removed from the site.
2. Adhere to manufacturer's requirements for removal of manufacturer's shipping wraps.
3. Materials which are permitted to be stored outside shall be on pallets covered with breathable tarps and secured from inclement weather.
4. As a minimum, perlite, fiberboard and all roll goods shall be stored in an enclosed building or trailer that provides a dry, adequately ventilated environment.
5. Store roll goods on ends on pallets and a maximum of two pallets high.
6. For the 24 hours immediately before application of membrane, store membrane in an area maintained at a temperature no lower than 50 degrees F.
7. Any material exposed to moisture or inclement weather and any damaged materials shall be removed from site immediately and replaced with new materials.

1.07 ENVIRONMENTAL CONDITIONS

- A. Do not install roof insulation during inclement weather or when air temperature is below 40 degrees F or when there is ice, frost, or moisture visible on the roof deck.

1.08 CONTROL OF ODOR / FUMES

- A. Minimize adhesive fumes during course of the work to the furthest extent possible based on building, setup, location, winds, etc.
- B. Air intake vents shall be shut off, closed, or blocked when roofing work occurs with twelve (12) feet of intake vent.
 - 1. Provide minimum seventy-two hours notice to owner personnel prior to shutting off, closing or closing intake vents.
 - 2. Damage to equipment from failure to shut off when air intake was inoperable, shall be repaired by the Contractor.
 - 3. Intakes shall be opened when work is complete in the area.
- C. Control of fumes/odors:
 - 1. Use of low VOC shall be utilized during construction when possible.
 - 2. Air intakes, vents, etc. shall be shut off, closed or blocked when fumes or odors are possible which may impact the owner/occupants. Coordinate work of their nature with owner/occupant and Consultant/Engineer prior to performing work.

1.09 WARRANTY

- A. Roof insulation shall be included in the roof system warranty.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Roof Insulation: The following materials meeting the respective requirements, used as specified or required:
 - 1. Polyisocyanurate:
 - a. ASTM C1289, Type II, Class I or II, grade II or III.
 - 1) Maximum size for adhered application is 4' x 4'.
 - 2) Maximum size for mechanically fastened application is 4' x 8'.
 - 3) Maximum thickness is 2.2 inches, unless approved otherwise.

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2. Tapered Roof Insulation:
 - a. Perlite Board: ASTM C 728, 2' x 4' in size.
 - b. Polyisocyanurate: ASTM C 1289, Type II, Class I or II, Grade II or III.
3. Coverboard:
 - a. Meets ASTM C 1177. Non-combustible moisture-resistant core with glass fiber mat embedded into the face and back. Flame spread 0, smoke developed 0, as per ASTM E 84, non-combustible per ASTM E 136, meets UL Class A, no mold or mildew growth per ASTM D 3273, compressive strength greater than 500 psi, suitable component for enhanced fire, wind, strength characteristics.

B. Other Materials

1. Cants, Crickets and Tapered Edge Strips:
 - a. Fabricated of the same material as the insulation or rigid perlite board, ASTM C 728.
 - b. Wood cants shall be used where indicated or noted on drawings.
2. Asphalt Primer:
 - a. ASTM D 41 / D 41 M.
3. Asphalt Roof Cement:
 - a. ASTM D 4586 / D 4586 M, Type I for horizontal surfaces and Type II for vertical and sloped surfaces.
4. Insulation Adhesive:
 - a. Rigid insulation adhesive shall be a 2-component or dual-extruded component, polyurethane as recommended by the roof membrane system manufacturer.
5. Products used for thermal barriers, coverboards, substrates and self-adhering membranes shall be specifically designed and approved by manufacturer for membrane application specified.
6. Waterproof Underlayment and Perimeter Air Barrier Transition:
 - a. Self-adhering, modified bitumen underlayment adhering to ASTM D 1970 / D 1970 M, or approved equivalent.

C. Fasteners

1. General:

- a. Flush-driven through flat round or hexagonal steel or plastic plates.
- b. Steel plates shall be zinc-coated, flat round not less than 3-inch diameter or hexagonal not less than 28 gage.
- c. Plastic plates shall be high-density, molded thermoplastic with smooth top surface, reinforcing ribs and not less than 3 inches in diameter.
- d. Fastener head shall recess fully into the plastic plate after it is driven.
- e. Plates shall be formed to prevent dishing.
- f. Do not use bell-or cup-shaped plates.

2. When equivalent treatment methods / products, such as Alkaline Copper Quaternary (ACQ), Micronized Copper Quaternary (MCQ) or Copper Azole (CA) are used for wood substrates, the proposed fasteners / types must be compatible with these treatments.

3. Roofing Nails for Wood Substrates

- a. Barbed 11-gage, zinc-coated nails with 7/16 to 5/8-inch diameter heads or annular ring shank, square head, one-piece composite nails.
- b. Nails shall be long enough to penetrate wood deck at least 5/8-inch but shall not protrude through underside of decking.

4. Fasteners for Plywood Substrates

- a. Annular ring shank, square head, one-piece composite nails long enough to penetrate into plywood decks approximately 1/2-inch, but not protrude through underside of decking.

PART 3 - EXECUTION

3.01 COORDINATION REQUIREMENTS

- A. Insulation and complete roofing membrane shall be finished in one operation up to the line of termination at the end of each day's work. Phased construction will not be permitted.

3.02 PREPARATION OF SURFACES

A. General

1. All surfaces on which insulation and/or rosin paper are to be applied shall be clean, smooth, dry, and free of projections.
2. The condition of the surfaces shall be inspected and approved immediately before the work is begun.

B. Surface Inspection

1. Surfaces shall be clean, smooth and dry.
2. Check roof deck surfaces, including surfaces sloped to drains scuppers and outlets, for defects before starting work.
 - a. Any variations greater than 1/4 inch shall be addressed per the applicable deck repair section or if not included, shall be brought to the attention of the Consultant/Engineer immediately.
3. The Contractor shall inspect and approve the surfaces immediately before starting installation.
4. Prior to insulation or rosin paper, perform the following:
 - a. Examine wood substrates to ascertain that deck has been properly nailed and that exposed nail heads have been set.
 - 1) See Section 06 10 00, Rough Carpentry.

C. Surface Preparation

1. Correct defects and inaccuracies in roof deck surface to eliminate poor drainage and hollow or low spots and perform the following:
 - a. Install wood nailers the same thickness as insulation at curbs, walls and roof openings.
2. Wood Decks/Substrates:
 - a. Fill or cover cracks or knot holes larger than 1/2-inch in diameter in wood decks as necessary to form a smooth surface.
 - b. Cover wood substrates with a layer of rosin-sized building paper.
 - c. Lap sides and ends not less than 3 inches.
 - d. Nail sufficiently to prevent tearing or buckling during installation.
 - e. Application of base sheet per NRCA and applicable FM criteria.

3. Primer for Other Substrates
 - a. Solidly apply asphalt primer to other substrates as applicable at the rate of one gallon per 100 square feet of roof substrate/surface, stopping approximately 4 inches from joints between surfaces.
 - b. Allow primer to dry thoroughly.
 - c. Place felt strips, 4 inches or more in width, over joints, 2 inches on each side, between gaps or joints in substrates in a heavy coating of cold-applied asphalt roof cement.
4. Waterproof Underlayment
 - a. Extend over all penetrations and terminations to provide continuous air/vapor/moisture barrier.
 - b. Provide waterproof underlayment as a barrier transition from roof system to perimeter edge conditions coordinated with Section 07 60 00, Sheet Metal.

3.03 HEATING OF ASPHALT

- A. Asphalt shall not be heated higher than 105 degrees F above the EVT or 50 degrees F below the flash point, or 525 degrees F, whichever is lower. EVT and flash point temperatures of asphalt in the kettle shall be conspicuously posted on the kettle. Kettle shall be provided with automatic thermostatic controls and an accurate thermometer. Kettle operators shall be in attendance at all times during heating and ensure that the maximum temperature is not exceeded. Asphalt shall be applied within a range of 25 degrees F below or above the EVT, or as specified by the manufacturer. Application temperature shall be measured at the mop bucket or mechanical applicator. Asphalt at a temperature below this range shall be returned to the kettle. Flame-heated equipment shall not be placed on the roof.
- B. A fume recovery kettle system shall be used.

3.04 INSTALLATION

- A. Roof Deck Surfaces
 1. The application of roof insulation will not be permitted on roof decks when the temperature is below 40 degrees F or when there is ice, frost, or dampness visible on the roof deck.
 2. All roof deck surfaces, including surfaces sloped to drain scuppers and outlets, shall be as required and approved by the manufacturer before the installation of any insulation; all defects and inaccuracies in the roof deck surface shall be corrected in a satisfactory manner so as to eliminate poor drainage, hollows, and low spots.

B. Insulation

1. All roof insulating materials shall be kept dry before, during and after installation.
2. Apply insulation in layers required with staggered joints when total required thickness of insulation exceeds 2 inches.
3. Lay insulation so that continuous longitudinal joints are perpendicular to direction of roofing, as specified in the roof membrane section and end joints of each course are staggered with those of adjoining courses.
4. When using multiple layers of insulation, joints of each succeeding layer shall be parallel and offset in both directions with respect to layer below.
5. Keep insulation ½-inch clear of vertical surfaces penetrating and projecting from roof surface.
6. For adhered applications, firmly embed each layer of insulation in low rise foam. Weight boards in for a minimum of 6 minutes to ensure full embedment. Fill all voids in excess of 1/4-inch with insulation.
7. For mechanically fastened applications, ensure boards are fit, edges supported on the bearing surface and mechanically fastened in accordance with the Factory Mutual criteria.

C. Cant Strips

1. Provide cant strips at all intersections of roof with walls, parapets and curbs extending above roof.
2. Wood cant strips shall bear on and be anchored to wood blocking, where possible, nail wood cant strips to adjoining surfaces.
3. Fit cant strips flush against vertical surfaces and have a minimum 4 inch vertical height.
4. Where cant strips are installed against non-nailable materials, install a heavy coating of mastic, or an approved adhesive.
5. Contractor shall take precautions required to prevent adhesive/mastics from dripping or odors seeping into the interior of the building.

D. Tapered Roof Insulation

1. A factory tapered system shall be provided to attain slopes as shown on taper drawings.

2. Provide starter and filler blocks as required to provide the total thickness of insulation necessary to meet the specified slope and thermal conductance.
3. Mitered joints shall be factory fabricated and shall consist of two diagonally cut boards or one board shaped to provide the required slopes.
4. Identify each piece of tapered insulation board by color or other identity coding system, allowing the identification of different sizes of tapered insulation board required to complete the roof insulation system.
5. Four feet (4') x four feet (4') tapered insulation sumps required at all roof drain locations.
6. At the drainage locations, ensure insulation tapers up from the roof drain to a minimum 1/4"/1' and a maximum 1"/12". Provide tapered filler to match field insulation thicknesses. Do not provide tapered sump at overflow drains/outlets.
7. Where drainage occurs at scuppers, the start thickness of the tapered insulation system will be dictated by the back edge of the sump, but not less than 1/2 inch minimum.
8. At crickets, saddles and sumps including tapered cricket on the high side of all non-round penetrations which are 24 inches or greater. Finished slope shall be equal to the primary roof slope.

E. Tapered Edge Strips

1. Where indicated, provide edge strips in the right angle formed by junction of roof and wood nailing strips that extend above level of roof.
2. Install edge strips flush against vertical surfaces of wood nailing strips.
3. Where possible, nail edge strips to adjoining surfaces.
4. Where tapered edge strips are installed against non-nailable materials, install in heavy mopping of asphalt or set in a heavy coating of asphalt roof cement, or an approved adhesive.
5. Provide tapered edge strips at start of crickets where start thicknesses is greater than 1/4".

3.05 PROTECTION

A. Protection of Applied Insulation

1. Completely cover each day's installation of insulation with the finished roofing specified in the applicable roof membrane section on same day.

2. Do not permit phased construction.
3. Protect open ends of each day's work with temporary water cut-offs and remove when work is resumed. Ensure insulation joints are staggered at these locations. Tie off area/water cut offs shall be entirely sealed, checked and made watertight at the end of each day's work.
4. Protect open spaces between insulation and parapets or other walls and spaces at curbs, scuttles and expansion joints, until permanent roofing and flashing are applied.
5. Do not permit storing, walking, wheeling or trucking directly on insulation or on roofed surfaces.
6. Provide smooth, clean board or plank walkways, runways and platforms near supports, as necessary, to distribute weight to conform to indicated live load limits of roof construction.

B. Damaged Work and Materials

1. Restore work and materials that become damaged during construction to original condition or replace with new materials.

END OF SECTION 07 22 00

SECTION 07 53 06

COLD APPLIED MODIFIED BITUMEN SHEET ROOFING

PART 1 - GENERAL

1.01 SUMMARY

- A. Work of this section includes a two-ply, modified bitumen roof membrane system, two-ply membrane flashings, associated components and accessories.
- B. The modified bitumen roof system shall be composed of modified bitumen base sheet, and a granule-surfaced modified bitumen cap sheet installed in cold applied adhesive and/or torch applied method.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions shall govern work under this Section.
- B. Section 02 04 00: Cutting and Patching
- C. Section 02 05 00: Demolition and Removal
- D. Section 06 10 00: Rough Carpentry
- E. Section 07 22 00: Thermal Roof Insulation
- F. Section 07 60 00: Sheet Metal

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. ASTM INTERNATIONAL (ASTM):
 1. ASTM D 2170 / D 2170 M (2010) Standard Test Method for Kinematic Viscosity of Asphalts (Bitumens)
 2. ASTM D 3019 (2000) Lap Cement Used with Asphalt Roll Roofing, Asbestos-Free
 3. ASTM D 41 / D 41 M (2011) Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
 4. ASTM D 4402 / D 4402 M (2012) Standard Test Method for Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer
 5. ASTM D 4479 (2006) Asphalt Roof Coatings, Asbestos-Free

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6. ASTM D 4586 / D 4586 M (2012) Standard Specification for Asphalt Roof Cement, Asbestos-Free
7. ASTM D 5147 / D 5147 M (2011) Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material
8. ASTM D 6162 (2000a) SBS Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.
9. ASTM D 6163 (2000) SBS Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.
10. ASTM D 6164 (2005) SBS Modified Bituminous Sheet Materials Using Polyester Reinforcements.

C. FACTORY MUTUAL ENGINEERING AND RESEARCH CORPORATION (FM):

1. FM AS 4470 (Latest Edition) Roof Standard, Approval Sheet
2. FM D/S1-29 (Latest Edition) Adhered or Mechanically Attached Single Ply Membrane Roof Systems, Loss Prevention Data Sheet.

D. INTERNATIONAL CODE COUNCIL (ICC):

1. IBC (2012) International Building Code
2. IEBC (2012) International Existing Building Code

E. NATIONAL ROOFING CONTRACTOR'S ASSOCIATION (NRCA)

1. NRCA Roofing and Waterproofing Manual, Fifth Edition.

F. UNDERWRITERS' LABORATORIES, INC. (UL):

1. UL 790 (Latest Edition) Tests for Fire Resistance of Roof Materials, Fifth Edition.
2. UL BMD (Latest Edition) Building Materials Directory

1.04 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00, Submittals.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.
- C. The Pre-Construction Conference will not be scheduled until submittals have been submitted and approved.
- D. Any deviation/variation requested due to manufacturers requirements must be submitted in writing for approval.

- E. Manufacturer's Catalog: Include applicable materials descriptions and technical data sheets or catalog cuts.
1. Modified bitumen membrane system
 2. Asphalt Based modified adhesive
 3. Primer
 4. Asphalt roof cement compatible with modified bitumen system, or manufacturer's modified bitumen roof cement.
 5. Fasteners
 6. Applicable Safety Data Sheets (SDS)
- F. Manufacturer's Instructions: Include detailed application instructions and standard drawings altered as required by these specifications. Explicitly identify in writing, differences between manufacturer's instructions and the requirements specified herein.
1. Modified Bitumen Membrane System: Contractor shall provide a UL Class A Fire Rated System.
 2. Roof Insulation: Insulation shall be installed to meet FM-1A-120 and in accordance with Section 07 22 00, Thermal Roof Insulation.
 3. Asphalt Based modified adhesive
 4. Primer
 5. Asphalt roof cement compatible with modified bitumen system, or manufacturer's modified bitumen roof cement.
 6. Fasteners
- G. Samples:
1. Modified Bitumen Membrane System
 2. Roof Insulations
 3. Mechanical Fasteners
 4. Asphalt Based Modified Adhesive
 5. Manufacturers proposed warranty and copy of contractor's application to manufacturer for warranty.

- H. Statements:
1. Manufacturer Qualifications: Certify that the manufacturer of the modified bitumen membrane meets requirements specified under paragraph entitled "Qualification of Manufacturer". Show evidence that all products used within this specification are also manufactured in the United States.
 2. Applicator Qualifications: Certify that the applicator meets requirements specified under paragraph entitled "Qualifications of Applicator".
 3. Membrane Adhesive: Manufacturer's adhesive system criteria, properties and guidelines.
 4. Each crew member torching shall be approved by Manufacturer to torch membrane products. Documentation shall be provided for each man by Manufacturer.
- I. Certificates of Compliance: Certify that materials are physically and chemically compatible with each other; that materials are in conformance with requirements of this specification and that each material is suitable for the intended purpose.
1. Modified bitumen sheet
 2. Asphalt Based modified adhesive
 3. Primer
 4. Asphalt, asbestos-free roof cement or asphalt modified bitumen cement
 5. Fasteners
- J. Administrative or Close-Out Submittals:
1. Information Card(s)
 - a. For each assembly, submit a photocopy or typewritten information card containing the information as listed at the end of this section.
 2. Contractor Warranty:
 - a. Provide warranty per this section's requirements.
 3. Manufacturer's Warranty:
 - a. Provide manufacturer's warranty per this section's requirements.
- K. Safety Data Sheets (SDS): Submit Safety Data Sheets with each specification section and include with Safety Plan in accordance with Section 01 52 05, Safety Requirements.

1.05 QUALITY ASSURANCE

A. Qualification of Manufacturer:

1. The modified bitumen sheet roofing system manufacturer shall have a minimum of five (5) years experience in manufacturing modified bitumen roofing products in the United States.
2. Show evidence that specified products and materials are manufactured in the United States.
3. The modified bitumen membrane manufacturer meets the specified requirements.

B. Qualifications of Applicator

1. Applicator shall be approved in writing by the system manufacturer and shall have a minimum of 5 years experience as an approved applicator with the manufacturer.
2. Contractor shall be certified/approved to provide the required warranty.
3. Applicator shall also have applied 5 installations of similar size and scope as this project, within the previous 3 years.

C. Fire Safety:

1. When the modified bitumen membrane is used in a roofing system installed over a metal deck, the system must have either a UL 1256 Roof Deck Construction Classification or a FM Class 1 listing in addition to a UL 790. List the requirements for these roof deck constructions in the contract specification.
2. The complete roof covering assembly shall have a UL 790, Class A Classification, be listed as "fire classified" in UL BMD and bear the UL Label or be listed as a Class I Roof Deck Construction in FM P7825.

D. Wind Resistance

1. The system shall adhere to all requirements of the applicable Factory Mutual criteria.
2. The complete roof covering assembly shall meet FM-1A-120.

E. Pre-Construction Conference:

1. Before roofing work, including associated work, is performed, the Consultant/Engineer will hold a Pre-Construction Conference to review the following:
 - a. The drawings and specifications.

- b. Procedure for onsite inspection and acceptance of the roofing substrate and pertinent structural details relating to the roofing system.
 - c. Contractor's plan for coordination of the work of the various trades involved in providing the roofing system and other components secured to the roofing.
 - d. Safety requirements.
2. The Pre-Construction Conference shall be attended by the Contractor and personnel directly responsible for the installation of roofing, flashing and sheet metal work, representative of the roofing materials manufacturer and all related sub-contractors. Conflicts among those attending the Pre-Construction Conference shall be resolved and confirmed in writing before roofing work, including associated work, is begun.

1.06 DELIVERY, STORAGE AND HANDLING

A. Delivery:

1. Deliver materials in manufacturers' original, unopened containers and rolls with labels intact and legible.
2. Mark and remove wet materials from the site.
3. Where materials are covered by a referenced specification, the container shall bear the specification number, type and class, as applicable.
4. Adhesive criteria for property storage and handling.
5. Deliver materials in sufficient quantity to allow work to proceed without interruption.

B. Storage:

1. Protect materials against moisture absorption.
2. Store roll materials on end on clean raised platforms or pallets one level high in dry locations with adequate ventilation, such as an enclosed building or closed trailer.
3. Do not store roll materials in buildings under construction until concrete, mortar and plaster work is finished and dry.
4. Maintain roll materials at temperatures above 50 degrees F for 24 hours immediately before application.
5. Do not store materials outdoors unless approved by the Consultant/Engineer.

6. Completely cover membrane stored outdoors, on and off roof, with waterproof canvas protective covering. Do not use polyethylene sheet as a covering. Tie covering securely to the pallets to make completely weatherproof and yet provide sufficient ventilation to prevent condensation.
 7. Do not store more materials on roof than can be installed the same day and remove unused materials at end of each days work. Distribute materials temporarily stored on roof to stay within live load limits of the roof construction.
- C. Handling: Select and operate material handling equipment so as not to damage applied roofing. Prevent damage to edges and ends of roll materials.

1.07 ENVIRONMENTAL CONDITIONS

- A. Do not install roofing system when air temperature is below 50 degrees F, during any form of precipitation -- including fog -- or where there is ice, frost, moisture or any other visible dampness on the roof deck.

1.08 PROTECTION OF PROPERTY

- A. Install protective coverings at paving and building walls adjacent to hoist and kettles prior to starting the work.
1. Lap protective coverings not less than six (6) inches, secure against the wind and vent to prevent collection of moisture on covered surfaces.
 2. Keep protective coverings in place for the duration of the roofing work.
- B. Flame-Heated Equipment:
1. Do not place flame-heated equipment on roof.
 2. Provide and maintain a fire extinguisher adjacent to flame-heated equipment and on the roof.
- C. Electric-Heated Equipment: Provide adequate electrical service as required by manufacturer of electrical equipment to insure against damage to equipment and property and to insure proper application of roofing materials.

1.09 WARRANTY

- A. Contractor and manufacturer warranties shall be exclusive and independent of each other. Each warranty shall be issued directly to the Owner and dated as noted below.
- B. Furnish the Three-Year Contractor Warranty as provided in Section 01 77 05, Three-Year Contractor Warranty. The warranty period shall be not less than 3 years from the date of substantial completion.
1. If the Contractor fails to perform repairs within 72 hours of written notification, the warranty will not be voided because of work being performed by others to repair deficiencies/failures regardless of manufacturer's warranty to the contrary.

C. Manufacturer's Warranty

1. Furnish manufacturer's no monetary limitation (no-dollar-limit) materials and workmanship warranty for the system. The warranty period shall be not less than 20 years from the date of substantial completion. The warranty shall be issued directly to the Owner. The warranty shall provide that if within the warranty period the system becomes non-watertight or shows evidence of failure, rupture or excess weathering due to deterioration of the system resulting from defective materials or installed workmanship the repair or replacement of the defective materials and correction of the defective workmanship shall be the responsibility of the manufacturer. Repairs that become necessary because of defective materials and workmanship while the system is under warranty shall be performed within 7 days after notification, unless additional time is approved by the Owner. Failure to perform repairs within the specified period of time will constitute grounds for having the repairs performed by others and the cost billed to the manufacturer.

PART 2 - PRODUCTS

2.01 DESCRIPTION OF ROOFING SYSTEM

- A. Cold Applied SBS Modified Bitumen Two-Ply System
- B. Substrate: Insulation per Section 07 22 00, Thermal Roof Insulation.

<u>Components</u>	<u>Quantity</u>
Adhesive	1.5 – 2.0 gallons/100 s.f.
SBS Modified Bitumen Base Sheet (MB)	1 ply
Adhesive	1.5 – 2.0 gallons/100 s.f.
SBS Modified Bitumen Cap Sheet (RSS)	1 ply Sheet (MB)

- C. Roof insulation shall conform to requirements of Section 07 22 00, Thermal Roof Insulation.
- D. Two-ply, "woven" base flashing system.

2.02 MATERIALS

- A. Adhesive Properties: Shall be modified bitumen membrane manufacturer's approved adhesive for this specific application.
 1. Flash Point: ASTM D 93, 100 degrees F.
 2. Weight per Gallon: ASTM D 1475, 7.7 pounds/gallon.

3. Asphalt Content: ASTM D 4479, 40 percent.
4. Solids by Weight: ASTM D 4479, 50 percent.
5. Color: Black.
6. VOC: ASTM D 3960, 1.9 pounds/gallon.
7. Field grade for horizontal applications, ASTM D 3019, Type III. Trowel grade for vertical applications, ASTM D 4586 / D 4586 M, I.

B. Base Sheet, Roofing and Flashing

Designation	Use	Felt	Impregnate	Coating	Specification
RSB	SBS Modified Bitumen Base Sheet	Fiberglass and/or Polyester	SBS Modified Bitumen	SBS Bitumen Base	See Note 1
RSC	SBS Modified Membrane Sheet	Fiberglass and/or Polyester	Fiberglass and/or Polyester	SBS Bitumen Granules	See Note 2

1. Note 1: Modified bitumen base (RSB) shall be a pre-fabricated Styrene Butadiene Styrene (SBS) modified bitumen sheet, 120 mils thick minimum, with a layer of fiberglass and/or polyester sheet reinforcement.
2. Note 2: Modified bitumen cap sheet (RSC) shall be a mineral surfaced pre-fabricated Styrene Butadiene Styrene (SBS) modified bitumen sheet, 130 mils thick minimum, meeting ASTM D6162, D6163, or D6164, Type II, and fire rated.
3. Flashing system shall be a 2-ply system using the modified bitumen base sheet and cap sheet.

C. Modified Bitumen Properties: In addition to the above requirements, the membrane shall be tested in accordance with ASTM D 5147 / D 5147 M to meet specified properties.

1. Thickness: As noted.
2. Load Strain: 125
3. Tear Strength: 120
4. Moisture Content: less than .5%

5. Water Absorption: less than .3%
 6. Dimensional Stability: less than .1%
 7. Granular Embedment: less than .07
 8. Compound Stability: greater than 225
- D. Top Surfacing: Protect modified bitumen roofing system from direct exposure to the weather with mineral roofing granules, factory applied.
- E. Primer: ASTM D 41 / D 41 M, unless a different type is required by manufacturer.
- F. Asphalt Roof Cement: ASTM D 4586 / D 4586 M, Type II for vertical surfaces; Type I for horizontal surfaces and compatible with membrane system.
- G. Fasteners: Provide non-corrosive fasteners as recommended by the Modified Bitumen Sheet manufacturer's printed instructions and meeting the requirements of FM A/S4470.
1. For felts, use fasteners driven through metal discs or one-piece composite fasteners with heads not less than one inch in diameter or one inch square with rounded or 45-degree tapered corners.
 2. Masonry Walls and Vertical Surfaces:
 - a. Fasteners for Securing Felts, Modified Bitumen Sheets and Metal Items to Masonry Walls and Vertical Surfaces:
 - 1) Hardened steel nails with flat heads, diamond shaped points and mechanically deformed shanks not less than one inch long.
 - 2) Use power-driven fasteners only when approved in writing.
- H. Metal Discs (Tin Caps):
1. Flat noncorrosive fasteners as recommended by the modified bitumen manufacturer's printed instructions and meeting the requirements of FM A/S4470; not less than 3 inches in diameter, when using screw type fasteners.
 2. Discs shall be formed to prevent dishing or cupping.
- I. Roof Insulation Below Modified Bitumen Membrane System:
1. Insulation shall be compatible with the membrane and its application as recommended in the modified bitumen manufacturer's printed instructions.

PART 3 - EXECUTION

3.01 VERIFICATION OF CONDITIONS

- A. Ensure that the following conditions exist prior to application of the roofing materials:
1. Drains, curbs, cants, perimeter walls, roof penetrating components and equipment supports are in place.
 2. Surfaces are rigid, dry, smooth and free from cracks, holes and sharp changes in elevation. Joints in the substrate are sealed to prevent dripping of bitumen into building or down exterior walls.
 3. The plane of the substrate does not vary more than 1/4 inch within an area 10 feet by 10 feet when checked with a 10-foot straight edge placed anywhere on the substrate.
 4. Substrate is sloped as indicated to provide positive drainage.
 5. Walls and vertical surfaces are constructed to receive counter flashing and will permit nailing of the base flashing materials.
 6. Treated wood nailers are fastened in place at openings and intersections with vertical surfaces for securing of membrane and roof fixtures. Surface-applied nailers are the same thickness as the roof insulation.
 - a. NOTE: Use wood cant in non-supported flashing and wood blocking details (expansion joints).
 7. Cants:
 - a. Cants are securely fastened in place in the angles formed by walls and other vertical surfaces.
 - b. The angle of the cant is 45 degrees and the height of the vertical leg is not less than nominal 4 inches.
 - c. Cants are constructed of treated wood or wood fiberboard roof insulation, as shown on drawings.
 8. Insulation boards are installed smoothly and evenly, and are not broken, cracked or curled. Insulation is being roofed over on the same day the insulation is installed.

3.02 PREPARATION

- A. Coordinate the work with other trades to assure that components which are to be secured to or stripped into the roofing system are available and that flashing and counter flashing are installed as the work progresses.

- B. Priming of Surfaces: Prime surfaces at the rate of 0.75 gallon per 100 square feet or as recommended by the modified bitumen sheet manufacturer's printed instructions and allow to dry. This includes all plywood prior to base flashing installation.
 - 1. Priming of Metal Surfaces:
 - a. Prime flanges of metal edging strips, prior to stripping into the roofing system in accordance with the modified bitumen manufacturer's printed instructions and allow to dry.
- C. Adhesive:
 - 1. Storage of adhesive must be adhered to strictly.
 - 2. Adhesive will be installed using the notched, trowel method.
 - 3. If temperatures exceed minimum or maximum specified, remove adhesive from the site.
 - 4. Do not permit cutting back, adulterating or modifying the adhesive.

3.03 APPLICATION

- A. Apply roofing materials as specified herein, unless specified or recommended otherwise by the manufacturer's printed application instructions.
 - 1. Keep roofing materials dry before and during application.
 - 2. Do not permit phased construction of membrane system.
 - 3. Sheets shall be laid out to relax a minimum 2 hours and cut in ½ sheets.
 - 4. Complete application of roofing in a continuous operation. Begin and apply only as much roofing in one day as can be completed that same day.
 - 5. Strictly adhere to application criteria for adhesive and membrane system.
 - 6. Provide temporary roofing and flashing as specified herein prior to the application of the permanent roofing system.
 - 7. Do not apply system if below 50 degrees F.
- B. Temporary Roofing and Flashing:
 - 1. Provide temporary roofing and flashing where considerable work by other trades, such as installing antennas, pipes, ducts, is to be performed on the roof or where construction scheduling or weather conditions require protection of the building's interior before the permanent roofing system can be installed. Completely remove all temporary applications.

2. Do not install temporary roofing over permanently installed insulation.
3. Provide rigid pads for traffic over the temporary roofing.

C. Modified Bitumen Sheets:

1. Sheets shall be watertight and visually free of pinholes, particles of foreign matter, undispersed raw material or other manufacturing defects that might affect serviceability.
2. Edges of the seams shall be straight and flat so that they may be seamed to one another without forming fish mouths or wrinkles.
3. Relax sheets a minimum of 2 hours prior to setting.

D. Adhesive Application:

1. A notched trowel or notched squeegee with 1/4 inch (6 mm) grooves, specifically listed and approved by modified bitumen membrane manufacturer.
2. The adhesive shall be installed uniformly and neatly to create a small, consistent flow out at side and end laps.
3. All membrane shall be rolled with roller to insure proper setting, adherence and no voids.
4. Strictly follow specific manufacturer guidelines for side and end lap applications.
5. A "lap" squeegee shall be used, if recommended or suggested in the manufacturer's printed literature.

E. Torch Application

1. Rolls of modified bitumen shall be evenly torched across entire length of roll. A torch sheet in accordance with the manufacturer's printed instructions.
2. Proper bleedout shall occur at all side and end laps of each layer of modified bitumen sheets.
3. Broadcast granules into cap sheet bleedout immediately after installation.

F. Base Sheet of Roof Membrane:

1. Apply base sheets in shingle fashion.
2. Apply sheets in a continuous operation.
3. Apply sheets with side laps at a minimum of 4 inches.
4. Provide end laps of not less than 6 inches and staggered a minimum of 36 inches.

5. Apply sheets at right angles to the roof slope that the direction of flow of the water is over and not against the laps, parallel to the roof slope so that prevailing winds are over and not against the laps.
6. Apply sheets on the other side in the same manner, resulting in twice the normal amount of roofing sheets and asphalt at the crown.
7. Extend sheets to top of cant or approximately two (2) inches above the top of cant strips at vertical surfaces and to the top of cant strips elsewhere.
8. Trim membrane to a neat fit around vent pipes, roof drains and other projections through the roof.

G. SBS Modified Bitumen Cap Sheets:

1. Unroll and relax membrane prior to installing. Back roll and roll into bitumen/adhesive. Do not flop.
2. Offset side laps approximately 17 inches from side laps of base sheet.
3. Solidly adhere the cap sheet with cold applied adhesive at the required rate and embed one layer of roofing membrane into cold applied adhesive.
4. Modified bitumen roofing membrane shall be rolled into place with a flow of adhesive out of side and end laps.
 - a. Side laps shall be 4 inches and end laps shall be 6 inches.
 - b. End laps shall be staggered a minimum of 36 inches.
 - c. Heat weld end laps where required by manufacturer.
5. Modified bitumen roofing shall be applied in a continuous application.
 - a. Installation shall start at the low point of the roof and progress to the high point.
 - b. No phase application of the roofing system.

H. Flashing:

1. Apply modified bitumen sheet flashing in the angles formed where the roof deck abuts walls, curbs, ventilators, pipes and other vertical surfaces, in accordance with the membrane manufacturer's printed application instructions and where necessary to make the work watertight.
2. Use the specific adhesive required for vertical surfaces.
3. First ply of base flashing shall be installed over the base ply of membrane system. Top (cap) ply of base flashing to be installed over the cap sheet of the membrane system. Joints of the base flashing system are to be staggered.

- I. Clean Up: Remove debris, scraps, containers and other rubbish and trash resulting from installation of the roofing system from job site each day.
- J. Protection of Applied Roofing Against Moisture Absorption: At the end of the days work and whenever is imminent, protect applied modified bitumen roofing system as follows.
 - 1. Water Cut-offs:
 - a. The insulation line shall be straightened using loose-laid cut insulation sheets and the terminated edge of the modified bitumen roofing system shall be sealed with two full width strips of roofing membrane set in and coated with adhesive or roof cement.
 - b. One-half width of the strips shall extend up and over the finished roofing and onto the existing roof system unless recommended otherwise in the membrane manufacturer's printed application instructions.
 - c. Membrane shall be pulled free or cut to expose the insulation when resuming work and the insulation sheets used for fill-in shall be removed.
 - 2. Temporary Flashing for Permanent Roofing:
 - a. Provide temporary flashing at scuppers, walls and other penetrations and terminations of roofing membrane until the roofing membrane is complete and the permanent flashings are applied.
 - b. Temporary flashings shall consist of one ply of membrane applied in a trowel coat of asphalt roof cement applied to a primed surface and finished with a surface coat of asphalt roof cement.
 - c. Remove temporary flashing before applying permanent flashing.
 - 3. Temporary Walkways, Runways and Platforms:
 - a. Do not permit storing, walking, wheeling and trucking directly on applied roofing materials.
 - b. Provide temporary walkways, runways and platforms of smooth clean boards or planks as necessary to avoid damage to applied roofing materials and to distribute weight to conform to indicated live load limits of roof construction.
 - c. Use clean rubber-tired equipment for roofing work.

3.04 FIELD QUALITY CONTROL

- A. Perform field test in the presence of the Owner's representative. Notify the Consultant/ Engineer five (5) days before performing tests.

- B. Base Ply Assembly Test Cut: Perform a minimum of 2 test cuts in base ply assembly if torch method is used. Test cut shall be minimum 1 inch wide by 6 inches long. Test cut shall be performed and results provided in close-out documents. All test cuts shall be patched with a minimum of two plies of base ply material. If at any time test results indicate two plies are not adhered; base ply assembly shall be removed until pull adhesion reaches acceptable results. Notify Engineer/Consultant and Owner immediately of negative results. Cuts will then be taken at locations determined by Engineer/Consultant and Owner.
- C. Protect roof system from moisture intrusion and other forms of damage during course of construction project. Replacement of moisture/damage to new is required.
- D. Repair deficiencies/voids (air pockets, wrinkles, fishmouths, tears, cuts, abrasions, contamination, standing/ponding water areas, etc.) daily.
- E. Project shall be free of moisture/damage and deficiencies/voids.

3.05 INFORMATION CARD(S)

- A. Install a photoengraved or etched aluminum information card (for exterior display) at location to be determined by Consultant/Engineer. Information listed on the Information Card is located at the end of this section
- B. A card shall be provided for each differing assembly and be a minimum size of 8-1/2 by 11 inches.
- C. Secure with removable stainless steel screws at approved location.
- D. A hard copy of each card is required in the Close-Out Documents.

3.06 INSTRUCTIONS TO OWNER PERSONNEL

- A. Furnish written and verbal instructions on proper maintenance procedures to Owner personnel.
- B. Instructions shall be provided by a competent representative of the modified bitumen membrane manufacturer and shall include a minimum of 4 hours on maintenance and repair of the membrane.
- C. Include a demonstration of membrane repair and give sources of required special tools.
- D. Furnish information on safety requirements during maintenance and repair operations and supply additional copies of Safety Data Sheets on all maintenance / repair materials.

END OF SECTION 07 53 06

COLD APPLIED MODIFIED BITUMEN SHEET ROOFING SYSTEM INFORMATION CARD

- 1. Contract Number: _____
 - 2. Building Number and Location: _____
 - 3. Project Specification Number: _____
 - 4. Deck:
 - a. Type: _____ b. Slope: _____
 - 5. Insulation:
 - a. Type: _____ b. Thickness: _____
 - c. Manufacturer: _____
 - 6. Vapor Retarder: Yes No Type: _____
 - 7. Membrane System:
 - a. Type Cap: _____ b. Type Base: _____
 - c. Method: (cold applied)
 - d. Manufacturer (Name / Address / Phone No.): _____

 - 8. Adhesive:
 - a. Type: _____ b. Quantity/Square: _____
 - c. Manufacturer: _____
 - 9. Flashing:
 - a. Type: _____ b. Two-ply Woven: _____
 - c. Manufacturer: _____
 - 10. Statement of Compliance or Exceptions: _____

 - 11. Date Roof Completed: _____ 12. Warranty Period: _____
 - 13. Roofing Contractor (Name / Address / Phone No.): _____

 - 14. Prime Contractor (Name / Address / Phone No.): _____

- Contractor's Signature: _____ Date: _____

SECTION 07 60 00

SHEET METAL

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes all sheet metal items and accessories specified or as required to complete the work. Applicable edge metal systems shall adhere to the general requirements of ANSI/SPRI ES-1.
- B. All treated / waterproof carpentry shall have waterproof underlayment to provide separation with sheet metal.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions shall govern work under this Section.
- B. Section 02 04 00: Cutting and Patching
- C. Section 02 05 00: Demolition and Removal
- D. Section 06 10 00: Rough Carpentry
- E. Section 07 22 00: Thermal Roof Insulation
- F. Section 07 53 06: Cold Applied Modified Bitumen Sheet Roofing
- G. Section 07 92 00: Sealants for Roofing and Sheet Metal

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. ALUMINUM ASSOCIATION, INC. (AA):
 - 1. AA DAF-45 (2003) Designation System for Aluminum Finishes.
 - 2. AA SAA-46 (1979) Standards for Anodized Architectural Aluminum.
- C. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
 - 1. ANSI/SPRI ES-1 (2003) Wind Design Standard for Edge Systems Used with Low Slope Roof Systems
 - 2. ANSI/ASME A112.6.4 (2008) Roof, Deck and Balcony Drains

D. AMERICAN WELDING SOCIETY (AWS):

1. AWS D1.1/D1.1M (2006) Structural Welding Code – Steel
2. AWS D1.2/D1.2M (2004) Structural Welding Code – Aluminum

E. ASTM INTERNATIONAL (ASTM):

1. ASTM A 167 (2004) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
2. ASTM A 48 / A 48M (2003) Gray Iron Castings
3. ASTM A 653/A 653M (2010) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
4. ASTM A 792 / A 792M (2010) Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot Dip Process
5. ASTM A 924 / A 924M (2006) Steel Sheet, Metallic-Coated by the Hot-Dip Process
6. ASTM B 209 (2010) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
7. ASTM B 32 (2004) Solder Metal
8. ASTM B 370 (2003) Copper Sheet and Strip for Building Construction
9. ASTM B 69 (2005) Rolled Zinc
10. ASTM D 1970 / D 1970 M (2011) Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection
11. ASTM D 41 / D 41 M (2011) Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing
12. ASTM D 4586 / D 4586 M (2012) Standard Specification for Asphalt Roof Cement, Asbestos-Free

F. FACTORY MUTUAL (FM):

1. FM DS 1-49 (Latest Edition) Perimeter Flashing

G. INTERNATIONAL CODE COUNCIL (ICC):

1. IBC (2012) International Building Code
2. IEBC (2012) International Existing Building Code

- H. NATIONAL ROOFING CONTRACTOR'S ASSOCIATION (NRCA):
 - 1. NRCA Roofing and Waterproofing Manual, Fifth Edition.
 - 2. The NRCA Architectural Sheet Metal and Metal Roofing Manual, 2006 Edition.
- I. SHEET METAL & AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA):
 - 1. SMACNA - Architectural Sheet Metal Manual, Seventh Edition

1.04 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00, Submittals.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.
- C. Drawings:
 - 1. Details shall be in strict accordance with the drawings provided.
 - 2. All details are based on the guidelines of the NRCA Construction Details, Fifth Edition, and SMACNA Architectural Sheet Metal Manual, Seventh Edition.
 - 3. Contractor shall provide shop drawings with the following information for all new sheet metal flashings and components:
 - a. Type and gage of metal, configuration, dimensions, fastening and anchoring methods to include type fastener and frequency of attachment, provisions for expansion and contraction flashing closures and trim.
 - b. Any deviation/variation requested due to manufacturers requirements must be submitted in writing for approval.
 - c. Any items of concern should be brought up at the Pre-Construction Conference.
- D. Samples:
 - 1. One sample of each type of material/sheet metal configuration to be used on this project shall be provided at the Pre-Construction Conference.
- E. Color Samples of Kynar 500 (Hylar 5000) finishes from manufacturer standard color selections. A minimum of twelve (12) color selections shall be provided. Color samples shall reasonably match existing materials to be replaced.
- F. Safety Data Sheets (SDS): Submit Safety Data Sheets with each specification section and include with Safety Plan in accordance with Section 01 52 05, Safety Requirements.

1.05 CONFORMANCE AND COMPATIBILITY

- A. The contractor shall ensure all materials provided are compatible with the other components of the system, are acceptable for the specified use, and meet the requirements of the specifications.
- B. Coordinate sheet metal and attachment with wood treatment of rough carpentry in accordance with Section 06 10 00, Rough Carpentry.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Delivery:
 - 1. Package and protect materials during shipment.
 - 2. Materials shall be delivered to the site in an undamaged condition, and in a timely order for incorporation in the work.
- B. Storage:
 - 1. Do not store more materials on the roof than can be installed the same day and remove unused materials at the end of each day.
 - 2. Materials shall be stored, handled, and installed in a manner to protect them from all damage during the entire construction period.
 - 3. Immediately remove damaged materials from the job site and replace with new material.
- C. Handling:
 - 1. Materials shall not be laid on newly installed roof or in areas prone to blow or fall off the roof.

1.07 DIFFERING SITE CONDITIONS

- A. The contractor will notify the Consultant/Engineer immediately of any unforeseen site condition.
- B. The contractor will be required to secure the areas and dry-in the roofing system at no cost to the Owner until the problem is resolved.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Shall conform to the respective reference specifications and other requirements specified herein.

- B. Edge metal systems shall adhere to the general requirements of the latest edition of ANSI/SPRI ES-1.
- C. Sheet Metal:
 - 1. Furnish sheet metal items in 8 to 10 foot lengths.
 - 2. Vertical face of sheet metal components shall be a minimum of 4 inches unless otherwise indicated or approved.
 - 3. Single pieces less than 8 feet may be used to connect shop fabricated inside and outside corners and at end runs.
 - 4. Provide accessories and other items essential to complete the sheet metal installation.
 - a. These accessories shall be made of the same material as the items to which they are applied.
 - 5. Fabricate sheet metal items of the materials specified and to the gage, thickness, or weight as specified, unless required by SMACNA to be heavier gage or size.
 - 6. Finish:
 - a. Provide Kynar 500 (Hylar 5000) finish for all exposed sheet metal items unless otherwise indicated. Color shall be as selected by Owner.
 - b. Concealed items may be mill finish, except as noted below.
 - 7. Exterior vertical face of sheet metal components shall extend a minimum of 1 1/2-inch below blocking.

2.02 TYPES AND GAGES OF METALS

- A. Steel Sheet, Galvalume AZ50, gage as specified for specific components below:
 - 1. 24 gage (counterflashings, edge metals, and wall panels)
 - 2. 22 gage (copings for parapet walls)
- B. Aluminum Sheet ASTM B 209, thickness as specified for specific components below:
 - 1. 0.040 inches (counterflashings, edge metals, and walls panels)
 - 2. 0.050 inches (copings for parapet walls)

- C. Lead (for boots):
 - 1. Grade B, minimum weight 4 lbs per square foot.
- D. Stainless Steel (for pitchpans / penetrations):
 - 1. ASTM A 167, Series 302 or 304, 22 gage and soldered.
- E. Cleats:
 - 1. 1 gage/thickness heavier than metal attached; 22 gage maximum for galvalume cleats, 0.050 inches maximum for aluminum cleats.
- F. Use the same metal or a metal compatible with the item fastened when connecting to existing metal.
- G. Gutter Material Gage / Thickness:
 - 1. The sheet metal gage/ thickness for gutter metal shall be as described below in direct relation to each gutter's girth/ width of unformed metal stock.
 - a. 24 gage galvanized (Galvalume) or 0.040-inch Aluminum

2.03 OTHER MATERIALS

- A. Asphalt Roof Cement: ASTM D 4586 / D 4586 M, Type II.
- B. Asphalt Primer: ASTM D 41 / D 41 M.
- C. Fasteners:
 - 1. Fasteners shall be compatible with the materials being fastened and shall provide for secure, firm attachment.
 - 2. Exposed fasteners shall have domed head with integral metal washer and rubber gasket.
 - 3. Fasteners shall be hot dipped galvanized steel, stainless steel, bronze or copper as a minimum.
 - 4. Do not use impact-driven or expansion fasteners. Use pre-drilled, screw-type fasteners.
 - 5. Only stainless steel fasteners shall be used to connect dissimilar metals.
- D. Membrane Liner and Waterproof Underlayment:
 - 1. Smooth surfaced modified bitumen meeting ASTM D 1970 / D 1970 M for waterproof underlayment is required.
 - 2. Ensure product is compatible with roof membrane and membrane adhesives.

- E. Breathable Underlayment:
 - 1. A # 30 felt or approved equal.
- F. Butyl Tape:
 - 1. Double-sided butyl tape of width as required.
- G. Aluminum Termination Bar:
 - 1. One (1) inch x 1/8 inch thick with slotted holes a minimum of 6 inches on center.
- H. Gutter Brackets (clad with prefinished sheet metal)
 - 1. 1" x 1/8" galvanized bar.
 - 2. 1" x 3/16" aluminum bar.
- I. Metal Wall Liner Panels:
 - 1. Pre-finished, corrugated metal wall panels, minimum 24 gage, meeting metal criteria of this section.
- J. Downspout Bracket
 - 1. Tri-fold, prefinished sheet metal on 1/8" by 1' aluminum clad with prefinished sheet metal.

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Requirements:
 - 1. Provide new metal for all work unless otherwise indicated.
 - 2. Make surfaces to receive sheet metal plumb and true, clean, even, smooth, dry and free of defects and projections, which might affect application.
 - 3. For installation of items or criteria not provided, refer to NRCA Construction Details, Fifth Edition and SMACNA Architectural Sheet Metal Manual, Seventh Edition.
 - 4. Provide sheet metal flashing in angles formed where roof decks abut walls, curbs, ventilators, pipes, or other vertical surfaces and wherever indicated and necessary to make the work watertight.
 - 5. Join sheet metal together as indicated.

6. Increase attachment of all components by 100% at corner locations as defined by ASCE-7.
7. All materials indicated to be reused shall be removed without damage and stored for protection until required.
8. Where existing components to be reused do not provide for minimum 4 inch vertical flashing face, install flashing skirt of compatible materials and attach securely in a watertight and water shedding manner.
9. Provide pre-fabricated inside and outside corners at all sheet metal intersection pieces.
10. Sheet metal shall be fabricated to conform to the contours of surfaces to which applied.
11. All sheet metal to have waterproof membrane underlayment installed behind or below the metal components. Waterproof underlayment shall have minimum 4 inch laps and sealed at all terminations and penetrations.
12. Provide conforming sheet metal closures at all flashing termination conditions.
13. Provide accessories and fastenings as required to provide a securely attached, watertight construction.
14. Where sheet metal components are to be embedded in the roofing system, prime both sides of all metal flanges prior to installation.

B. Workmanship:

1. Make lines, arises and angles sharp and true.
2. Free exposed surfaces from visible wave, warp and buckle and tool marks.
3. Fold back exposed edges neatly to form a 1/2-inch hem on concealed side.
4. Make sheet metal exposed to the weather watertight with provisions for expansion and contraction.

C. Nailing:

1. Confine nailing of sheet metal generally to sheet metal only where noted or specified.
2. Confine nailing of flashing to one edge only.
3. Space nails 4 inches on center and staggered or as otherwise indicated.
4. Face nailing will not be permitted.
5. Nailers are specified in Section 06 10 00, Rough Carpentry.

D. Continuous Cleats:

1. Provide continuous cleats where indicated or specified.
2. Cleats shall be of the same material as material being attached and one gage/increment thicker.
3. Form with integral drip to engage sheet metal to be attached.
4. Attach securely at maximum 6 inches on center, increased to 3 inches on center at corners as defined by ASCE-7.
5. Kick out shall receive 3/4 inch wide lock.

E. Attachment Clips (Wind Cleats)

1. Space clips for counterflashing and raised metal edges evenly not over 24 inches on center and 12 inches on center at corners.
2. Clips shall be not less than 2 inches wide and 6 inches long and of the same metal and 1 gage thicker as the sheet metal being installed.
3. Secure one end of the clip with two fasteners and the cleat folded back over the heads.
4. Lock the bottom end onto the newly installed counterflashing a minimum of 1/2 inch.

F. Rivets and Screws:

1. Install where indicated or required.
2. Provide compatible fasteners and washers where required to protect surface of sheet metal and to provide a watertight connection.
3. Rivets shall be one inch on center unless noted otherwise. Rivets shall be sealed with compatible sealant and match sheet metal finish.

G. Seams:

1. Lap Seams:
 - a. Overlap seams of flashing not less than 4 inches, or as otherwise indicated.
 - b. Completely and neatly fill the joints with two strips of 1/8 inch by 1/2-inch partially cured butyl tape or butyl sealant in an approved manner.

2. Standing Seams:
 - a. Not less than 1 inch high, single-lock with sealant.
 - b. Coped side lap with two beads of butyl sealant for coping and cap flashing sheet metal.
 - c. Coping: As indicated on the drawings.

H. Protection from Dissimilar Metals:

1. Paint with heavy-bodied bituminous paint or apply butyl tape, surfaces in contact with dissimilar metal, or separate the surfaces by means of waterproof underlayment as approved by Consultant/Engineer.
2. Any wood, nailers or other rough carpentry using Copper Azole (CA), Alkaline Copper Quaternary (ACQ) or Micronized Copper Quaternary (MCQ) treatment will require verification of the following:
 - a. Separation of metal roof, metal wall and sheet metal from the roof carpentry is required using waterproof underlayment as a minimum.
 - b. Type of fasteners acceptable for attachment into these woods (such as stainless steel).
 - 1) Fasteners for wood to wood connectors.
 - 2) Fasteners thru metal into wood.

I. Expansion and Contraction:

1. Provide expansion and contraction joints at not more than 40 foot intervals for metal.
2. Where the distance between the last expansion joint and the end of the continuous run is more than half the required interval, an additional joint shall be required.
3. Space joints evenly.

3.02 SPECIFIC COMPONENTS

A. Counterflashing and Skirts:

1. Form the flashing to the required shapes before installation. Provide 4 inch vertical face, minimum, unless otherwise indicated.
2. Metal work shall adhere to details shown.
3. All inside and outside corners and termination pieces shall be shop fabricated.
4. Cleats and locking clips to be one gage/increment thicker than metal being attached.

B. Copings:

1. Provide sheet metal coping as indicated and with termination closure flashing.
2. Edge metals/closures/copings shall have waterproof underlayment installed under coping and turned down minimum 3 inches each side of wall, and extend over wall assembly a minimum of 1 1/2 inches.
3. Coping shall have continuous firm support using non hygroscopic materials sloped to promote positive drainage.
4. Continuous cleats, one gage/increment thicker than metal coping, shall be installed on interior and exterior sides.
5. Sheet metal coping shall be attached with continuous cleats on outer face and screw fastening at maximum 12 inches on center on inner face, unless otherwise indicated or approved.
6. Joints methods shall be as indicated on drawings.
7. All inside and outside corners shall be pre-fabricated with 12-inch legs in each direction measured from inside corner.

C. Flashing at Roof Penetrations and Equipment Supports

1. Provide metal flashing for all pipes, ducts and conduits projecting through the roof surface and any equipment supports.
2. No pitch pans/pockets are to be used unless specifically detailed and indicated including a sheet metal umbrella.
3. Single Pipe Vents
 - a. Set primed flange of sleeve in a full bed of mastic/sealant and nail 4 inches on centers.
 - b. Bend the top of the sleeve down into the vent pipe a minimum of 1 inch.
 - c. Provide strip flashing of metal flange as specified and indicated.

D. Metal Wall Liner Panels:

1. Provide a minimum breathable weather resistant barrier / underlayment in watershedding fashion behind panels.
2. Provide treated wood or metal furring as indicated or necessary to accomplish specified work. Fasten furring to wall with appropriate fasteners.

3. Provide and install wall panels.
 - a. Provide a bottom panel flashing shall be fabricated in a 2-piece condition to receive sheet metal counterflashing and shall be attached to wall with fasteners 12-inches on center.
 - b. Weather resistant barrier/ underlayment and the metal panels are to extend over the vertical leg of the bottom panel flashing a minimum of 3-inches.
 - c. Terminate the metal wall panels approximately 1-inch above the bottom panel flashing/ counterflashing receiver.
 - d. Provide and install wall panels using rubber gasket type stainless steel fasteners at top and bottom a maximum of 12-inches on center in between. Intermediate rows of fasteners should be spaced no more than 2 feet on center.
 - e. Metal coping/edge metal/counterflashing system to extend over top of metal wall panels a minimum 4-inches.

E. Roof Expansion Joint:

1. Consists of curb with wood nailing members on each side of joint, with solid slope in one direction.
2. Provide as indicated in drawings.
3. A flexible vapor retarder and batt insulation shall fill the joint/gap.
4. Prior to installing sheet metal cap, install membrane liner over top of expansion curb and turned down minimum 3 inches.
5. Expansion joint cap flashing shall be attached as indicated.

F. Pitch Pans/Pitch Pockets

1. Pitch pans shall only be used in work where indicated on the drawings or approved by the Consultant/Engineer.
2. Existing pitch pan/pitch pockets shall be removed.
3. Mechanical/electrical/roof penetrations shall be disconnected and raised as required to provide proper flashing.
4. Pitch pan shall be fabricated from 22-gage Series 302/304 stainless steel with all joints soldered or welded. A minimum 4-inch flange and 4 inch vertical height is required with one inch hemmed edge around top of entire pitch pan.

5. Bottom of pitch pan at deck shall be lined to permit pitch pan base to be filled with non-shrink grout. Prime inside of pitch pan before filling. The remaining portions of the pan shall be filled with pourable sealer adhered to walls of pan and penetration. Sealer shall be tapered to promote drainage.
6. A sheet metal umbrella or collar shall be fabricated to fit over the pitch pan and be sealed at penetration connection.

G. Mechanical Curbs

1. Provide new wood curb and prefabricated metal gravity vent base sized to receive throat of vent hood to be reused.
2. Rivet seams a minimum of one inch on center.
3. Solder all seams watertight.
4. Fasten to new wood curb using compatible fasteners at a maximum of 8-inches on center and a minimum of two fasteners per side.
5. All curbs shall provide a minimum base flashing height of 8 inches above finished roof membrane.

H. Self-Flashing Curbs/Bases

1. Where self-flashing curbs or penetration base is to be installed, provide new to match existing configuration and sized to fit component and allow for proper counterflashing installation.
2. Prime flanges prior to setting.
3. Anchor securely to decking.
4. Provide watertight membrane flashing.

I. Existing Vents, Hoods, and other Exposed Sheet Metal Components to Remain

1. Remove dirt and rust.
2. Prepare surface, prime and provide two (2) coats galvanized or aluminized paint compatible with material.

J. Scupper/Overflow Scupper:

1. Prefabricate scupper sleeve from minimum 24 gage series 302/304 stainless steel.
2. Fabricate to ensure any seams in pan are positioned in top of scupper pan.
3. Solder all seams watertight.

4. Prime both sides of flanges prior to installation.
5. Set flanges in bed of roof cement.
6. Fasten and strip flash.
7. Provide sheet metal 'flaps', with Kynar finish to match exterior wall color.
8. Exterior Flashing/Collar
 - a. Fabricate collar from same metal as coping.
 - b. Provide 1/2-inch hemmed edge on all 4 sides.
 - c. Set collar in 2 strips of adhesive or butyl tape on all sides.
 - d. Secure in place with stainless steel fasteners.
 - e. Provide counterflashing above.

K. Gutters:

1. Type, shape and size shall be as indicated on drawings.
2. Gutters shall be hung type of shape indicated and supported on underside by brackets.
3. Provide gutters in sizes indicated complete with mitered corners, end caps, outlets, brackets, spacers, and other accessories necessary for installation.
4. Outer rim of gutter shall be a minimum 1-inch lower than the back wall of gutter. Any fastening through the back wall of gutter shall cover a minimum of 1/2-inch higher than the outside face of the gutter system.
5. Bead or reinforce the outer edge of gutter with a stiffening bar not less than 3/4 inch by 3/16-inch of material compatible with gutter.
6. Fabricate gutters in sections not less than 8 feet.
7. Gutters shall have a minimum 4-inch lap with two strips of partially cured butyl tape or butyl sealant within the lap seams and riveted one inch on center between the tapes. Joints shall be fabricated to remain watertight.
8. Install gutter expansion joint between downspouts at maximum 50 feet between expansion joints. Provide for positive drainage of gutter.
9. Join the gutters by riveted and sealed/soldered joints, soldered if possible. Provide expansion-type joints midway between outlets.
10. Install gutters below slope line of the roof so that snow and ice can slide clear.

11. Hang gutters on adjustable support brackets, spaced not more than 30 inches on center and spacers 30 inches on center, staggered between supports. Brackets shall be pre-finished or wrapped in sheet metal to match the gutter metal. Brackets shall also be a minimum 1 inch by 3/16-inch aluminum or 1 inch by 1/8-inch galvanized bar stock. Brackets of the same material shall have extension over top of the gutter (every fourth bracket) and secured thru edge metal, similar to FM 1-49 requirement.
12. Adjust gutters to slope uniformly to outlets, with high points occurring midway between outlets.
13. Fabricate hangers and fastenings from metals compatible with the gutter material. See Tables in SMACNA manual, if not noted otherwise.
14. Install stainless steel bee-hive strainers above downspout openings.
15. Install continuous gutter guards on gutters, arranged as hinged units to swing open for cleaning gutters. See Details for clarification. Install "beehive"-type strainer-guard at conductor heads, removable for cleaning downspouts.

L. Downspouts:

1. Type, shape and size shall be as indicated on drawings.
2. Provide complete offsets and elbows.
3. Provide downspouts in approximate 10-foot lengths.
4. Provide end joints to telescope not less than 1/2-inch and lock longitudinal joints with fasteners two inches on center.
5. Fasteners shall not extend into downspout more than one inch.
6. Keep downspouts not less than 1 inch from walls.
7. Fasten to walls at top, bottom, and at 5 feet on center intervals with double-folded, hemmed sheet metal.
8. Form straps and fasteners of metal compatible with the downspout materials and of same color finish.
9. Provide elbows at wall projection/step out.
10. Termination into splash blocks/pans.
 - a. Provide concrete splash block at grade.

- b. Provide metal splash pan with flow deflectors where downspout discharges on rooftop.
- c. For connections to storm drain, provide transition conductors to allow for overflow drainage and neatly fit downspouts into sub-grade drainage connections.

11. Provide terminating downspouts with elbow type fittings as indicated on the drawings.

M. Conductor Heads:

- 1. Prefabricate conductor heads from specified metals.
- 2. Provide new conductor heads in the shape, size and locations shown on drawings. Size conductor head in accordance with SMACNA guidelines.
- 3. Cut overflow in the conductor head below drain pipe and in accordance with SMACNA.
- 4. Provide stainless steel or aluminum debris screen/hardware cloth over conductor head opening.

N. Closure Conditions:

- 1. Provide prefabricated sheet metal closures at all flashing terminations to ensure a watertight condition.
- 2. A minimum three inches of coverage between/over the components shall be provided.
- 3. Metal copings shall have waterproof underlayment installed under coping and turned down minimum 3 inches each side of wall, and extend over wall assembly a minimum of 1 1/2-inch.
- 4. Metal counterflashings shall provide a minimum of 3" coverage over component being flashed.

END OF SECTION 07 60 00

SECTION 07 60 08
SHEET METAL REPAIRS
(Alternate Number 2)

PART 1 - GENERAL

1.01 SUMMARY

- A. This section includes the installation of gutters and downspouts on the standing seam metal roof system for Alternate Number 2.
- B. These repairs and modifications shall be completed in accordance with the Contract Documents and any clarifications shall adhere to the below standards.
 - 1. SMACNA Architectural Sheet Metal Manual, Seventh Edition.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Bidding Requirements, Contracting Requirements and General Requirements of this Project Manual shall govern work under this section.
- B. Section 02 04 00: Cutting and Patching
- C. Section 02 05 00: Demolition and Removal
- D. Section 07 92 00: Sealants for Roofing and Sheet Metal

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. ALUMINUM ASSOCIATION, INC. (AA):
 - 1. AA DAF-45 (2003) Designation System for Aluminum Finishes.
 - 2. AA SAA-46 (1979) Standards for Anodized Architectural Aluminum.
- C. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):
 - 1. ANSI/SPRI ES-1 (2003) Wind Design Standard for Edge Systems Used with Low Slope Roof Systems
 - 2. ANSI/ASME A112.6.4 (2008) Roof, Deck and Balcony Drains

D. AMERICAN WELDING SOCIETY (AWS):

1. AWS D1.1/D1.1M (2006) Structural Welding Code – Steel
2. AWS D1.2/D1.2M (2004) Structural Welding Code – Aluminum

E. ASTM INTERNATIONAL (ASTM):

1. ASTM A 167 (2004) Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip
2. ASTM A 48 / A 48M (2003) Gray Iron Castings
3. ASTM A 653/A 653M (2010) Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
4. ASTM A 792 / A 792M (2010) Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot Dip Process
5. ASTM A 924 / A 924M (2006) Steel Sheet, Metallic-Coated by the Hot-Dip Process
6. ASTM B 209 (2010) Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
7. ASTM D 1970 / D 1970 M (2011) Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection

F. FACTORY MUTUAL (FM):

1. FM DS 1-49 (Latest Edition) Perimeter Flashing

G. INTERNATIONAL CODE COUNCIL (ICC):

1. IBC (2012) International Building Code
2. IEBC (2012) International Existing Building Code

H. NATIONAL ROOFING CONTRACTOR'S ASSOCIATION (NRCA):

1. NRCA Roofing and Waterproofing Manual, Fifth Edition.
2. The NRCA Architectural Sheet Metal and Metal Roofing Manual, 2006 Edition.

I. SHEET METAL & AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION (SMACNA):

1. SMACNA - Architectural Sheet Metal Manual, Seventh Edition

Sheet Metal Repairs

1.04 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00, Submittals.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.
- C. Drawings:
 - 1. Details shall be in strict accordance with the drawings provided.
 - 2. All details are based on the guidelines of the NRCA Construction Details, Fifth Edition and SMACNA Architectural Sheet Metal Manual, Seventh Edition.
 - 3. Contractor shall provide shop drawings with the following information for all new sheet metal flashings and components:
 - a. Type and gage of metal, configuration, dimensions, fastening and anchoring methods to include type fastener and frequency of attachment, provisions for expansion and contraction flashing closures and trim.
 - b. Any deviation/variation requested due to manufacturers requirements must be submitted in writing for approval.
 - c. Any items of concern should be brought up at the Pre-Construction Conference.
- D. Samples:
 - 1. One sample of each type of material/sheet metal configuration to be used on this project shall be provided at the Pre-Construction Conference.
- E. Color Samples of Kynar 500 (Hylar 5000) finishes from manufacturer standard color selections. A minimum of twelve (12) color selections shall be provided. Color samples shall reasonably match existing materials to be replaced.
- F. Safety Data Sheets (SDS): Submit Safety Data Sheets with each specification section and include with Safety Plan in accordance with Section 01 52 05, Safety Requirements.

1.05 CONFORMANCE AND COMPATIBILITY

- A. The contractor shall ensure all materials provided are compatible with the other components of the system, are acceptable for the specified use, and meet the requirements of the specifications.

1.06 DELIVERY, HANDLING AND STORAGE

A. Delivery:

1. Package and protect materials during shipment.
2. Materials shall be delivered to the site in an undamaged condition, and in a timely order for incorporation in the work.

B. Storage:

1. Do not store more materials on the roof than can be installed the same day and remove unused materials at the end of each day.
2. Materials shall be stored, handled, and installed in a manner to protect them from all damage during the entire construction period.
3. Immediately remove damaged materials from the job site and replace with new material.

C. Handling:

1. Materials shall not be laid on newly installed roof or in areas prone to blow or fall off the roof.

1.07 DIFFERING SITE CONDITIONS

- A. The contractor will notify the Consultant/Engineer immediately of any unforeseen site condition.
- B. The contractor will be required to secure the areas and dry-in the roofing system at no cost to the Owner until the problem is resolved.

1.08 WARRANTY

- A. Contractor and manufacturer warranties shall be exclusive and independent of each other. Each warranty shall be issued directly to the Owner and dated as noted below.
- B. Furnish the Three-Year Contractor Warranty as provided in Section 01 77 05, Three-Year Contractor Warranty. The warranty period shall be not less than 3 years from the date of substantial completion.
 1. If the Contractor fails to perform repairs within 72 hours of written notification, the warranty will not be voided because of work being performed by others to repair deficiencies/failures regardless of manufacturer's warranty to the contrary.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. General: Shall conform to the respective reference specifications and other requirements specified herein.
- B. Sheet Metal:
 - 1. Furnish sheet metal items in 8 to 10 foot lengths.
 - 2. Vertical face of sheet metal components shall be a minimum of 4 inches unless otherwise indicated or approved.
 - 3. Single pieces less than 8 feet may be used to connect shop fabricated inside and outside corners and at end runs.
 - 4. Increase attachment of all components by 100% at corner locations.
 - 5. Provide accessories and other items essential to complete the sheet metal installation.
 - a. These accessories shall be made of the same material as the items to which they are applied.
 - 6. Fabricate sheet metal items of the materials specified and to the gage, thickness, or weight as specified, unless required by SMACNA to be heavier gage or size.
 - 7. Finish:
 - a. Provide Kynar 500 (Hylar 5000) finish for all exposed sheet metal items unless otherwise indicated.
 - 8. Exterior vertical face of sheet metal components shall extend a minimum of 1 1/2-inch below blocking.

2.02 TYPES AND GAGES OF METALS

- A. Steel Sheet, Galvalume (gutters, downspouts, and sill pan):
 - 1. ASTM A 653 or ASTM A 792, G90 galvanized or AZ50 galvalume, 24 gage
- B. Aluminum Sheet (gutters, downspouts, and sill pan):
 - 1. ASTM B 209, .04 inches
- C. Use the same metal or a metal compatible with the item fastened when connecting to existing metal.

2.03 OTHER MATERIALS

A. Fasteners:

1. Fasteners shall be compatible with the materials being fastened and shall provide for secure, firm attachment.
2. Exposed fasteners shall have domed head with integral metal washer and rubber gasket.
3. Fasteners shall be hot dipped galvanized steel, stainless steel, bronze or copper as a minimum.
4. Only stainless steel fasteners shall be used to connect dissimilar metals.

B. Butyl Tape:

1. Double-sided butyl tape of width as required.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Requirements:

1. Provide new metal for all work unless otherwise indicated.
2. Make surfaces to receive sheet metal plumb and true, clean, even, smooth, dry and free of defects and projections, which might affect application.
3. For installation of items or criteria not provided refer to NRCA Construction Details, Fifth Edition and SMACNA Architectural Sheet Metal Manual, Seventh Edition.
4. Join sheet metal together as indicated.
5. All materials indicated to be reused shall be removed without damage and stored for protection until required.
6. Provide pre-fabricated inside and outside corners at all sheet metal intersection pieces.
7. Sheet metal shall be fabricated to conform to the contours of surfaces to which applied.
8. Provide conforming sheet metal closures at all flashing termination conditions.

9. Provide accessories and fastenings as required to provide a securely attached, watertight construction.
 10. Where sheet metal components are to be embedded in the roofing system, prime both sides of all metal flanges prior to installation.
- B. Workmanship:
1. Make lines, arises and angles sharp and true.
 2. Free exposed surfaces from visible wave, warp and buckle and tool marks.
 3. Fold back exposed edges neatly to form a 1/2-inch hem on concealed side.
 4. Make sheet metal exposed to the weather watertight with provisions for expansion and contraction.
- C. Rivets and Screws:
1. Install were indicated or required.
 2. Provide compatible fasteners and washers where required to protect surface of sheet metal and to provide a watertight connection.
 3. Rivets shall be one inch on center unless noted otherwise.
- D. Seams:
1. Lap Seams:
 - a. Overlap seams of flashing not less than 4 inches, or as otherwise indicated.
 - b. Completely and neatly fill the joints with two strips of 1/8 inch by 1/2 inch partially cured butyl tape or butyl sealant in an approved manner.
- E. Protection from Dissimilar Metals:
1. Apply butyl tape to surfaces in contact with dissimilar metal, or separate the surfaces by means of waterproof underlayment as approved by Consultant/Engineer.
- F. Expansion and Contraction:
1. Provide expansion and contraction joints at not more than 50 foot intervals for metal.

2. Where the distance between the last expansion joint and the end of the continuous run is more than half the required interval, an additional joint shall be required.
3. Space joints evenly.

3.02 SPECIFIC COMPONENTS

A. Gutters:

1. Type, shape and size shall be as indicated on drawings.
2. Gutters shall be hung type of shape indicated and supported on underside by brackets.
3. Provide gutters in sizes indicated complete with mitered corners, end caps, outlets, brackets, spacers, and other accessories necessary for installation.
4. Outer rim of gutter shall be a minimum 1-inch lower than the back wall of gutter. Any fastening through the back wall of gutter shall cover a minimum of 1/2-inch higher than the outside face of the gutter system.
5. Bead or reinforce the outer edge of gutter with a stiffening bar not less than 3/4 inch by 3/16-inch of material compatible with gutter.
6. Fabricate gutters in sections not less than 8 feet.
7. Gutters shall have a minimum 4-inch lap with two strips of partially cured butyl tape or butyl sealant within the lap seams and riveted one inch on center between the tapes. Joints shall be fabricated to remain watertight.
8. Install gutter expansion joint between downspouts at maximum 50 feet between expansion joints. Provide for positive drainage of gutter.
9. Join the gutters by riveted and sealed/soldered joints, soldered if possible. Provide expansion-type joints midway between outlets.
10. Install gutters below slope line of the roof so that snow and ice can slide clear.
11. Hang gutters on adjustable support brackets, spaced not more than 30 inches on center and spacers 30 inches on center, staggered between supports. Brackets shall be pre-finished or wrapped in sheet metal to match the gutter metal. Brackets shall also be a minimum 1 inch by 3/16-inch aluminum or 1 inch by 1/8-inch galvanized bar stock. Brackets of the same material shall have extension over top of the gutter (every fourth bracket) and secured thru edge metal, similar to FM 1-49 requirement.

12. Adjust gutters to slope uniformly to outlets, with high points occurring midway between outlets.
13. Fabricate hangers and fastenings from metals compatible with the gutter material. See Tables in SMACNA manual, if not noted otherwise.
14. Install stainless steel bee-hive strainers above downspout openings.
15. Install continuous gutter guards on gutters, arranged as hinged units to swing open for cleaning gutters. See Details for clarification. Install "beehive"-type strainer-guard at conductor heads, removable for cleaning downspouts.

B. Downspouts:

1. Type, shape and size shall be as indicated on drawings.
2. Provide complete offsets and elbows.
3. Provide downspouts in approximate 10-foot lengths.
4. Provide end joints to telescope not less than 1/2-inch and lock longitudinal joints with fasteners two inches on center.
5. Fasteners shall not extend into downspout more than one inch.
6. Keep downspouts not less than 1 inch from walls.
7. Fasten to walls at top, bottom, and at 5 feet on center intervals with double-folded, hemmed sheet metal.
8. Form straps and fasteners of metal compatible with the downspout materials and of same color finish.
9. Provide elbows at wall projection/step out.
10. Termination into splash blocks/pans.
 - a. Provide concrete splash block at grade.
 - b. Provide metal splash pan with flow deflectors where downspout discharges on rooftop.
 - c. For connections to storm drain, provide transition conductors to allow for overflow drainage and neatly fit downspouts into sub-grade drainage connections.
11. Provide terminating downspouts with elbow type fittings as indicated on the drawings.

END OF SECTION 07 60 08

SECTION 07 92 00

SEALANTS FOR ROOFING AND SHEET METAL

PART 1 - GENERAL

1.01 SUMMARY

- A. Work in this section includes all sealant work required for this project specific to the roofing, sheet metal and adjoining surfaces.

- 1. Roofing and Sheet Metal

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. Section 02 04 00: Cutting and Patching
- C. Section 02 05 00: Demolition and Removal
- D. Section 07 60 00: Sheet Metal

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. ASTM INTERNATIONAL (ASTM):
 - 1. ASTM C 1193 (2005) Standard Guide for Use of Joint Sealants
 - 2. ASTM C1472 (2006) Standard Guide for Calculating Movement and Other Effects When Establishing Sealant Joint Width
 - 3. ASTM C 717 (2007) Standard Terminology of Building Seals and Sealants
 - 4. ASTM C 920 (2011) Elastomeric Joint Sealants
- C. SEALANT WATERPROOFING RESTORATION INSTITUTE (SWRI):
 - 1. Sealants: The Professional's Guide, 2013.

1.04 SUBMITTALS

- A. Submit the following in accordance with Section 01 33 00, Submittals.
- B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.

C. Manufacturer's Catalog Data

1. Sealants/Tapes
2. Primers
3. Backstop materials
4. Data for the sealants shall include shelf life, recommended cleaning solvents, modulus and type cure.

D. Manufacturer's Standard Color Chart

1. Sealants:
 - a. Color to match sheet metal and adjoining surface.

E. Manufacturer's Instructions

1. Sealants/Tapes: Submit application instructions, precautions and mixing instructions for multi-component sealants.

F. Samples

1. Sealants: Submit one tube of each color for each sealant type to be used.

G. Sample Installations:

1. Finished Joint:
 - a. Before sealant work is started, submit a sample of each type of finished joint where directed.
 - b. Sample shall show the workmanship, bond and color of sealant.
 - c. The workmanship, bond and color of sealant throughout the project shall match the approved sample joints.

H. Certificates of Compliance

1. Sealants/Tapes
2. Primers
3. Bond breakers
4. Backstops
5. Submit certificates from the manufacturers attesting that materials meet the specified requirements and compatible for specified use.

- I. Safety Data Sheets (SDS): Submit Safety Data Sheets with each specification section and include with Safety Plan in accordance with Section 01 52 05, Safety Requirements.

1.05 ENVIRONMENTAL CONDITIONS

- A. The ambient temperature shall be within the limits of 40 and 100 degrees F when sealant is applied.

1.06 DELIVERY AND STORAGE

A. Delivery:

1. Deliver materials to the job site in unopened in manufacturers' external shipping containers, with brand names, date of manufacture, color, and material designation clearly marked thereon.
2. Elastomeric sealant containers shall be labeled to identify type, class, grade and use.
3. Carefully handle and store materials to prevent inclusion of foreign materials or subsection to sustained temperatures exceeding 100 F degrees or less than 40 degrees F.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Provide sealant that has been tested and found suitable for the substrates to which it will be applied.
- B. Exterior Sealant:
 1. Provide a low to medium modulus silicone based or polyurethane based with a neutral cure.
 2. ASTM C 920, grade NS. "Use" based on adjoining materials.
 3. Type – A type S, single component, or type M, multi-component may be used.
 4. Locations and Colors for Sealants
 - a. Colors will be selected from standard color charts after mock-ups for each condition field of at least 3 choices is provided.
 5. Class
 - a. A Class 50 shall be provided unless specifically approved or noted otherwise.

6. Use
 - a. Sealant use for each condition or application shall adhere to use classification of ASTM C 920.

7. Locations

- a. Tie-in of sheet metal to various wall types at terminations.
- b. Metal to metal joints where sealant is indicated or specified.

- C. Sealant Tapes for Sheet Metal Laps:

1. Provide a partially cured butyl tape, thickness 1/8 inch by a minimum of 1/2 inch wide.
2. Locations shall be as follows:
 - a. Lap joints of all metals.
 - b. Beneath cover plates of cap and counterflashings.
 - c. Where noted or specified elsewhere.

2.02 PRIMER FOR SEALANT

- A. Provide a non-staining, quick drying type and consistency recommended by the sealant manufacturer for the particular application.

2.03 BOND BREAKERS

- A. Provide the type and consistency recommended by the sealant manufacturer for the particular application.

2.04 BACKSTOPS

- A. Provide glass fiber roving or neoprene, butyl, polyurethane or polyethylene foams free from oil or other staining elements as recommended by sealant manufacturer.
- B. Backstop material shall be compatible with sealant.
- C. Do not use absorptive materials.

2.05 CLEANING SOLVENTS

- A. Provide type recommended by the sealant manufacturer.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. Surfaces shall be clean, dry to the touch, and free from dirt, frost, moisture, grease, oil, wax, lacquer, paint, or other foreign matter that would tend to destroy or impair adhesion.
- B. When resealing an existing joint remove existing caulking/sealant prior to apply new sealant.
- C. Prepare surface in strict accordance with manufacturers printed instructions.

3.02 APPLICATION OF SEALANTS

- A. Bond Breaker:
 - 1. Provide bond breakers to the back or bottom of joint cavities, as recommended by the sealant manufacturer for the type joint and sealant specified.
 - 2. Carefully apply the bond breaker to avoid contamination of adjoining surfaces or breaking bond with surfaces other than those covered by the bond breaker.
- B. Sealants:
 - 1. Provide a sealant compatible with the materials to which it is applied.
 - 2. Do not use a sealant that has exceeded its shelf life or has jelled and cannot be discharged in a continuous flow from the gun.
 - 3. Apply the sealant in accordance with the manufacturer's instructions with a gun having a nozzle that fits the joint width.
 - 4. Force sealant into joints to fill the joints solidly without air pockets.
 - 5. Tool sealant after application to ensure adhesion.
 - 6. Sealant shall be uniformly smooth and free of wrinkles.
 - 7. Upon completion of sealant application, roughen partially filled or unfilled joints, apply sealant and tool smooth as specified.

3.03 APPLICATION OF BUTYL TAPES

- A. Surfaces shall be cleaned and prepared as noted below.
- B. No exposed applications of butyl tapes/sealants are permitted.
- C. At each lap, provide 2 continuous applications of tape approximately 1 inch apart within the lap.
- D. Directly after tapes are installed, set and secure metal.

3.04 PROTECTION AND CLEANING

A. Protection:

1. Protect areas adjacent to joints from sealant smears.
2. Masking tapes may be used for this purpose, if removed 5 to 10 minutes after joint is filled.

B. Final Cleaning:

1. Masonry and Other Porous Surfaces:
 - a. Immediately scrape off fresh sealant that has been smeared on masonry and rub clean with a solvent as recommended by the sealant manufacturer.
 - b. Allow excess sealant to cure for 24 hours then remove by wire brushing or sanding.
2. Metal or Non-Porous Surfaces:
 - a. Remove excess sealant with a solvent-moistened cloth.

END OF SECTION 07 92 00

SECTION 07 92 10
SEALANTS FOR BUILDING ENVELOPE
(Alternate Number 1)

PART 1 - GENERAL

1.01 SUMMARY

- A. Work in this section includes removal and replacement of mortar joints in the precast panels with a sealant joint systems of building envelope for this project including:
 - 1. Precast joints (as noted on repair plan)
 - 2. Louver perimeter sealant
- B. General Guidelines:
 - 1. Joints shall not be less than 1/4-inch in width and not greater than 1 1/4-inch in width.
 - 2. Joint width shall be 4 times greater than anticipated movement.

1.02 RELATED REQUIREMENTS

- A. The provisions of the Instructions to Bidders, General Conditions, and Supplementary Conditions of these specifications shall govern work under this Section.
- B. Section 02 04 00: Cutting and Patching
- C. Section 02 05 00: Demolition and Removal

1.03 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced, and to provide any clarifications for issues not covered within this specification.
- B. ASTM INTERNATIONAL (ASTM):
 - 1. ASTM C 1193 (2005) Standard Guide for Use of Joint Sealants
 - 2. ASTM C1472 (2006) Standard Guide for Calculating Movement and Other Effects When Establishing Sealant Joint Width
 - 3. ASTM C 717 (2007) Standard Terminology of Building Seals and Sealants
 - 4. ASTM C 920 (2011) Standard Specification for Elastomeric Joint Sealants
 - 5. ASTM E 2099 (2007) Standard Practice for the Specification and Evaluation of Pre-Construction Laboratory Mockups of Exterior Wall Systems

C. SEALANT WATERPROOFING RESTORATION INSTITUTE (SWRI):

1. Sealants: The Professional's Guide, 2013.
2. Validation Program

1.04 SUBMITTALS

A. Submit the following in accordance with Section 01 33 00, Submittals.

B. No work will begin until all submittals have been received and approved and Pre-Construction Conference has been completed.

C. Manufacturer's Catalog Data

1. Sealants
2. Tapes
 - a. Butyl
3. Primers
4. Backstop materials
5. Data for the sealants shall include shelf life, recommended cleaning solvents, modulus and type cure.

D. Manufacturer's Standard Color Chart

1. Sealants:
 - a. Submit color for each varying surface color.

E. Manufacturer's Instructions

1. Sealants/Tapes: Submit application instructions, precautions and mixing instructions for multi-component sealants.

F. Samples

1. Sealants: Submit one tube of each color for each sealant type to be used.

G. Sample Installations – Mock-Up:

1. Finished Joint:
 - a. Before sealant work is started, submit a sample of each type of finished joint where directed.

- b. Sample shall show the workmanship, bond and color of sealant.
- c. The workmanship, bond and color of sealant throughout the project shall match the approved sample joints.

H. Certificates of Compliance or SWRI Validation Program

- 1. Sealants – Liquid Sealants
- 2. Tapes – Butyl
- 3. Primers
- 4. Bond breakers
- 5. Backstops
- 6. Submit certificates from the manufacturers attesting that materials meet the specified requirements and compatible for specified use. For liquid sealants and pre-cured sealants, SWRI Validation will be accepted.

- I. Safety Data Sheets (SDS): Submit Safety Data Sheets with each specification section and include with Safety Plan in accordance with Section 01 52 05, Safety Requirements.

1.05 ENVIRONMENTAL CONDITIONS

- A. The ambient temperature shall be within the limits of 40 and 100 degrees F when sealant is applied.
- B. Joint application should consider the expansion/contraction state of the joint at the time of application and during curing cycle.

1.06 DELIVERY AND STORAGE

- A. Delivery:
 - 1. Deliver materials to the job site in unopened in manufacturers' external shipping containers, with brand names, date of manufacture, color, and material designation clearly marked thereon.
 - 2. Elastomeric sealant containers shall be labeled to identify type, class, grade and use.
- B. Carefully handle and store materials to prevent inclusion of foreign materials or subsection to sustained temperatures exceeding 100 F degrees or less than 40 degrees F.
 - 1. Adhere to more stringent temperature restrictions of the Manufacturer as required for specific products.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Provide sealant that has been tested and suitable for each specific substrates to which it will be applied.
- B. Exterior Sealant – A polyurethane based or silicone based product adhering to the below requirements shall be used.
 - 1. Modulus
 - a. Medium Modulus
 - 1) To be used for majority of building envelope joints.
 - 2. Grade – NS, a non-sag sealant shall be used.
 - 3. Type – A type S, single component, or type M, multi-component may be used.
 - 4. Locations and Colors
 - a. Colors will be selected from standard color charts after mock-ups for each condition field of at least 3 choices is provided.
 - 5. Class
 - a. A Class 50 shall be provided unless specifically approved or noted otherwise.
 - 6. Use
 - a. Sealant use for each condition or application shall adhere to use classification of ASTM C 920.
- C. Sealant Tapes:
 - 1. Butyl (for sheet metal laps)
 - a. Provide a partially cured butyl tape, thickness 1/8 inch by a minimum of 1/2 inch wide.
 - b. Locations shall be as follows:
 - 1) Lap joints of all metals.
 - 2) Where noted or specified elsewhere.

2.02 PRIMER FOR SEALANT

- A. Provide a non-staining, quick drying type and consistency recommended by the sealant manufacturer for the particular application.

2.03 BOND BREAKERS

- A. Provide the type and consistency recommended by the sealant manufacturer for the particular application.
- B. Liquid applied bond breakers are not permitted.

2.04 BACKSTOPS

- A. Provide glass fiber roving or neoprene, butyl, polyurethane or polyethylene foams free from oil or other staining elements as recommended by sealant manufacturer.
- B. Backstop material shall be compatible with sealant.
- C. Do not use absorptive materials.

2.05 CLEANING SOLVENTS

- A. Provide type recommended by the sealant manufacturer.

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. Existing mortar joints (as noted on repair plan) shall be routed out and sealant preparation of precast surface shall take place prior to backer rod and sealant installation.
- B. Surfaces shall be clean, dry to the touch, and free from dirt, frost, moisture, grease, oil, wax, lacquer, paint, or other foreign matter that would tend to destroy or impair adhesion.
- C. When resealing an existing joint, completely remove the existing caulking/sealant and any foreign matter, dirt, dust or debris, prior to application of new sealant.
- D. Use compatible materials when existing silicone sealants exist.

3.02 SEALANT PREPARATION

- A. Prepare surfaces in strict accordance with the Contract Documents and any Manufacturers printed instructions.

3.03 APPLICATION OF SEALANTS

- A. Backstops:
 - 1. Install backstops dry and free of tears or holes.
 - 2. Tightly pack the back or bottom of joint cavities with backstop material to provide a joint of the depth specified.

3. Install backstops in the following locations:
 - a. Where indicated.
 - b. Where backstop is not indicated but joint cavities exceed the acceptable maximum depths specified in paragraph entitled, "Joint Width to Depth Ratios".

B. Primer:

1. Immediately prior to application of the sealant, clean out dust/dirt/loose particles from joints.
2. Where recommended by sealant manufacturer, apply primer to joints in concrete, masonry and metal surfaces in accordance with sealant manufacturer's instructions.
3. Do not apply primer to exposed finish surfaces.

C. Bond Breaker:

1. Provide bond breakers to the back or bottom of joint cavities, as recommended by the sealant manufacturer for the type joint and sealant specified.
2. Carefully apply the bond breaker to avoid contamination of adjoining surfaces or breaking bond with surfaces other than those covered by the bond breaker.

D. Sealants:

1. Provide a sealant compatible with the materials to which it is applied.
2. Do not use a sealant that has exceeded its shelf life or has jelled and cannot be discharged in a continuous flow from the gun.
3. Apply the sealant in accordance with the manufacturer's instructions with a gun having a nozzle that fits the joint width.
4. Force sealant into joints to fill the joints solidly without air pockets.
5. Tool sealant after application to ensure adhesion.
6. Sealant shall be uniformly smooth and free of wrinkles.
7. Upon completion of sealant application, roughen partially filled or unfilled joints, apply sealant and tool smooth as specified.

3.04 APPLICATION OF BUTYL TAPES

- A. Surfaces shall be cleaned and prepared as noted below.
- B. No exposed applications of butyl tapes/sealants are permitted.

- C. At each lap, provide 2 continuous applications of tape approximately 1 inch apart within the lap.
- D. Directly after tapes are installed, set and secure metal.

3.05 PROTECTION AND CLEANING

A. Protection:

- 1. Protect areas adjacent to joints from sealant smears.
- 2. Masking tapes may be used for this purpose, if removed 5 to 10 minutes after joint is filled.

B. Final Cleaning:

- 1. Masonry and Other Porous Surfaces:
 - a. Immediately scrape off fresh sealant that has been smeared on masonry and rub clean with a solvent as recommended by the sealant manufacturer.
 - b. Allow excess sealant to cure for 24 hours then remove by wire brushing or sanding.
- 2. Metal or Non-Porous Surfaces:
 - a. Remove excess sealant with a solvent-moistened cloth.

END OF SECTION 07 92 10

DRAWINGS

