PROJECT SPECIFICATIONS

SPS THREE SCHOOL RE-ROOFS
SUFFOLK PUBLIC SCHOOLS
RRMM PROJECT NO. 21222.01 - 21222.03

Oakland Elementary School
5505 Godwin, Boulevard, Suffolk VA

Mack Benn Jr. Elementary School
1253 Nansemond Parkway, Suffolk VA

Northern Shores Elementary School
6701 Respass Beach Road, Suffolk, VA

PREPARED FOR

SUFFOLK PUBLIC SCHOOLS
100 North Main Street
Suffolk, Virginia 23434

PREPARED BY

RRMM ARCHITECTS
ARCHITECTURE & PLANNING & INTERIORS
ROANOKE, VIRGINIA

ROOF CONSULTING SERVICES, INC
ROOF CONSULTANTS
GLEN ALLEN, VIRGINIA

DATED

JANUARY 14, 2022

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VOLUME 1

INVITATION TO BID # 1779

Date: February 8th, 2022

Owner: Suffolk City School Board
User: Suffolk Public Schools
Architect: RRMM Architects
Consultant: Roof Consulting Services, Inc.

Project: Suffolk Public Schools Bid # 1779
SPS Three School RE-Roofs
Oakland Elementary School - 68,357 +/- SF
Mack Benn Jr. Elementary School - 90,445 +/- SF
Northern Shores Elementary School - 80,232 +/- SF

Suffolk Public Schools is soliciting lump sum, sealed bids for the roof system removal and replacement of three (3) schools. The projects include but is not limited to the complete removal of existing asphalt shingle roof systems with replacement with new standing seam metal roof systems, installation of single ply 60 Mil TPO roof systems on low slope roof areas, replacement or repair of deteriorated areas of roof decking, cleaning and resealing of all gutters joints and downspout outlets and new sheet metal flashing and trim metals.

All bids must be submitted in a sealed envelope or package clearly marked "BID-1779, SPS Three School Re-Roofs, Oakland Elementary School, Mack Benn Jr. Elementary School, Northern Shores Elementary School, Suffolk Public Schools", including the due date and time. All bids shall be received in the Purchasing Office, on or before 2:00 PM., March 1st, 2022 and delivered to:

Mr. Anthony W. Hinds, MBA
Department of Purchasing
Suffolk Public Schools
100 North Main Street (entrance @ rear of building)
Suffolk, Virginia 23434

Bids shall be publicly opened and read aloud at the above stated date, time and location. Any bid received after the time designated above will be returned unopened.

The Owner has the right to award each individual school project based on the lowest responsible Base Bid received or any combination thereof and, that the Owner determines to be in the best interest of the Owner.

Any award resulting from this solicitation will be issued to the successful offeror(s) in writing and will be posted on the Suffolk Public School Bid Board located at 100 North Main Street, Suffolk, Virginia 23434 and the Suffolk Public Schools website.

Federal funds, including all Covid-19 fund allocations from all funding sources, may be used to satisfy the resulting contract(s).

A non-mandatory Pre-Bid Conference will be held on February 15th, 2022 starting at 10:00 am. at Oakland Elementary School located at 5505 Godwin Boulevard, Suffolk, Virginia. Bidders are encouraged to attend the pre-bid meeting.

A bid bond is required. Procedures for submitting a bid, claiming an error, withdrawal of bids, and other pertinent information are contained in the contract documents. The procedure for withdrawal of bids shall be in accordance with the Instructions to Bidders and Section 2.2-4330, Code of Virginia. Bidders shall be required to comply with the provisions of Section 2.2-4311, Code of Virginia, in regard to nondiscrimination in employment. The owner reserves the right to reject any or all bids.

The latest date for receipt by the Architect of bidders' questions to be answered prior to receipt of bids will be seven (7) calendar days prior to the date bids are due or Close of Business on February 22nd, 2022.

Questions, in writing, may be directed to: Mr. Jeff Harris of RRMM Architects at 1317 Executive Boulevard, Suite 200, Chesapeake, Virginia 23320, Phone (757) 622-2828, Fax (757) 622-2430, Email: jharris@rrmm.com

Construction Documents, including Project Specifications and Drawings, will be available electronically for download beginning February 8th, 2022 from: eVA - Virginia's eProcurement Marketplace

Bidder's attention is directed to the requirements of Title 54, Chapter 7, of the Code of Virginia pertaining to registration of Contractors. Suffolk Public Schools is an Equal Opportunity Employer

Any questions regarding this invitation to bid should be directed in writing to Anthony W. Hinds, Purchasing Manager at the above address or emailed to anthonyhinds@spsk12.net and Jeff Harris at jharris@rrmm.com

END OF INVITATION TO BID

SECTION 000213 - INSTRUCTIONS TO BIDDERS

1. DRAWINGS AND SPECIFICATIONS:

   Construction Documents, including Project Specifications and Drawings, will be available electronically for download beginning February 8th, 2022 from: eVA - Virginia's eProcurement Marketplace

2. BIDS:

   Before submitting a bid, each bidder shall carefully examine the drawings, specifications and other Contract Documents; read and understand the bidding documents and his bid; shall visit the site of the work; shall fully inform himself as to all existing conditions and limitations; and shall include in the bid the cost of all labor, supervision, items, materials, systems, and equipment described and included in the Contract Documents without exceptions.

3. CONTRACT AND BONDS

   Each bid shall be accompanied by a bid security in the form of a Bid Bond, a cashier's check, or a certified check in the amount of five percent (5%) of the total bid, made payable to the Suffolk City School Board. This Bid Bond, cashier's check, or certified check pledges that the bidder will enter into a Contract with the Owner on the terms stated in the Bid and will furnish bonds covering faithful performance of the Contract and payment of all obligations arising there under. Should the bidder refuse to enter into such a Contract or fail to furnish such bonds, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.

   Surety Bonds shall be written on AIA Document A310, Bid Bond, 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.

   All bonds shall be written by sureties or insurance companies licensed to do business in the Commonwealth of Virginia. Other bid bond forms will be acceptable if in the same format as AIA Document A310, Bid Bond.

   The Contract agreement will be on a form similar to that which is bound in the specifications. The completion date of construction shall be as indicated in the bid document. The successful bidder, simultaneously with the execution of the Contract agreement, shall be required to furnish a performance bond and a payment bond in an amount equal to one hundred percent (100%) of the Contract price, said bonds shall be secured from a surety company licensed to do business in the Commonwealth of Virginia and acceptable to the Suffolk City School Board.

4. QUALIFICATION OF CONTRACTORS

   Each bidder shall submit with the bid a completed Contractors Qualification Statement using AIA Document A305, 1986 Edition (a copy is included after the Supplementary General Conditions).

   Bidders are required to submit with the bid evidence of proper and current certificates of contractors' registration in Virginia.

5. LISTING OF SUBCONTRACTORS

The experience and responsibility of subcontractors may have bearing on the choice of a contractor by the Owner.

If required by the Owner, the apparent two low bidders for each project, shall deliver to the Owner within seventy-two (72) hours (not including Saturday, Sunday or State Holidays) for review the following information:

a. Provide a list of the work to be performed by the bidder with his own forces.
b. Provide the proprietary names and the suppliers of the principle parts (items, systems, materials, and equipment) proposed for the work.
c. Provide a list of the names of the subcontractors to be employed for each of the principal parts of the work, copies of their agreements, and their corresponding dollar amounts.
d. Provide a list of references and/or past projects for individual subcontractors performing a principal part of the work. This requirement applies to subcontractors at any tier.

Principal part shall mean a subcontract dollar value in excess of $10,000.00.

The bidder will be required to establish the reliability and responsibility of the proposed subcontractors, manufactures, and suppliers who shall furnish and perform the work described in the specifications to the satisfaction of the Architect and the Owner.

These lists shall be binding upon the Contractor; however, the Owner has the right to reject any or all subcontractors which the Architect and the Owner determines to be unqualified to do the work. Owner may withhold awarding a contract to any particular bidder if the Owner considers one or more of the proposed contractors to be unqualified.

6. INTERPRETATIONS OF PLANS AND SPECIFICATIONS

If any person contemplating the submission of a bid for the proposed Contract is in doubt as to the true meaning of any part of the drawings, specifications or other proposed contract documents, he/she may submit a written request to RRMM Architects, Attention: Jeff Harris, 1317 Executive Blvd, Suite 200, Chesapeake, VA, 23320; telephone number (757) 622-2828. **The request must be submitted on the project Pre-Bid question form and e-mailed to all of the addresses indicated on the form.** The Pre-Bid Question Form is included after the Supplementary General Conditions for use by bidders when submitting questions. **Questions submitted in any other format will not receive a response.** Requests must be in writing and received no later than seven (7) days prior to the date of the bid opening, for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the proposed documents will be made only by addendum. The Owner and the Architect will not be responsible for any other explanations or interpretations of the proposed documents.

7. ADDENDA OR BULLETINS

Addenda or bulletins will be issued on the eVA - Virginia's eProcurement Marketplace. Any addendum or bulletin issued during the time of bidding shall become part of the documents provided to the bidders for the preparation of the bid, shall be covered in the bid, and shall be made a part of the Contract. No addenda will be issued later than four (4) days prior to the date

for receipt of bids except an addendum, if necessary, postponing the date for receipt of bids or withdrawing the request for bids.

8. RIGHT TO NEGOTIATE

The Owner reserves the right to negotiate with the lowest responsive and responsible Bidder(s) to obtain a Contract price with funds available to the Owner whenever such low bid exceeds the Owner's availability of funds for the work.

9. AWARD OF CONTRACT

The Owner intends to award this contract in writing to the lowest responsive and responsible bidder(s) provided the bids have been submitted in accordance with the requirements of the bid and contract documents, Virginia procurement regulations, is judged to be reasonable, and does not exceed the funds available. The Notice of Award(s) will be posted on the Suffolk Public Schools Bid Board, located on the second floor of the School Board office, 100 North Main Street, Suffolk, VA 23434 and on the Suffolk Public Schools website.

The Owner reserves the right to award each individual school project based on the lowest responsible Base Bid received or any combination thereof and, that the Owner determines to be in the best interest of the Owner.

The Owner reserves the right to waive any informality in any bid or in the bidding. The accepted bidder(s) shall assist and cooperate with the Owner in preparing a formal Contract Agreement and within five (5) days following its presentation shall sign and deliver four (4) complete sets of Contract Agreement documents to the Owner, including but not limited to: the Agreement, the Performance Bond, Payment Bond, Hold Harmless Agreement, and all necessary Certificates of Insurance.

The successful bidder(s), upon failure or refusal to enter in the Contract and/or to furnish the required Performance Bond, Payment Bond, and other required documents within the time specified, shall pay to the Owner as liquidated damages, an amount equal to the bid guarantee deposited with the bid or a portion thereof equal to the difference between the bid security and the next highest acceptable bid.

10. TIME IS OF THE ESSENCE

Time is of the essence for this Contract.

11. RESPONSIBLE BIDDER

The Owner reserves the right to award each individual school project based on the lowest responsible Base Bid received or any combination thereof and, that the Owner determines to be in the best interest of the Owner. In determining the "lowest responsible bidder(s)" Suffolk Public Schools may consider the following:

a. Past performances of the contractor and subcontractors that indicate their ability to complete this project (includes organization, equipment available and any other indicators)
b. Whether the bidder can perform the contract or provide the service promptly, or within the time specified, without delay.
c. Quality of products used and adherence to bid specifications

d. The sufficiency of financial resources and the ability of bidder to perform the contract
e. The previous and existing compliance by the bidder with laws and ordinances
f. The quality of performance of previous contracts or services

In addition, the Owner reserves the right to reject any or all bids or to negotiate with the low bidder(s) in the case of insufficient funds.

12. COST BREAKDOWN

The Contractor shall, before starting his work, submit to the Owner and Architect the cost of various segments of the work according to construction activity, the total amount equaling the Contract price. This breakdown shall be used as the basis for the payment of estimates as stated in the Contract Documents.

13. RIGHT TO REJECT BIDS

The Owner reserves the right to reject any or all bids, in whole or in part; to waive informalities; and/or to delete items prior to making an award; whenever it may be deemed by the Owner to be in their best interest.

14. BID BOND OR CHECKS OF SUCCESSFUL BIDDERS

Bid Bond or Checks submitted by the successful bidder will be returned upon acceptance of the 100% performance bond and separate 100% payment bond. Checks from other bidders, not previously forfeited, will be returned as soon as it is determined that the bids represented by the checks will receive no further consideration by the Owner.

15. REVSIONS TO BID

Handwritten or typed notes on the envelope containing the bid will not be accepted as authorized modifications to the Bid Form included herein. The bid amount indicated on the Bid Form will be the only data considered.

16. WITHDRAWAL OF BIDS

Bids may be withdrawn by written or telegraphic request received from bidders prior to the time fixed for the bid opening. Telegraphic requests must be received by the Owner in written form before the bid opening. Negligence on the part of the bidder in preparing the bid confers no right for the withdrawal of the bid after it has been opened except as permitted in Section 2.2-4330 of the Code of Virginia as outlined below.

A bidder may withdraw his bid from consideration if the price bid was substantially lower than the other bids due solely to a mistake in the bid, provided the bid was submitted in good faith, and the mistake was a clerical mistake as opposed to a judgment mistake, and was actually due to an unintentional arithmetic error or an unintentional omission of a quantity of work, labor or material made directly in the compilation of a bid, whereby the unintentional arithmetic error or unintentional omission can be clearly shown by objective evidence drawn from inspection of original work papers, documents and materials used in the preparation of the bid sought to be withdrawn.

The bidder must give notice in writing of his claim of right to withdraw his bid within two (2) business days after the conclusion of the bid opening procedure. This notice to the Owner must be accompanied with his original work papers, documents, and materials used in the preparation of the bid. Such work papers shall be delivered to the Owner by the bidder in person or by registered mail.

Such mistake shall be proved only from the original work papers, documents, and materials delivered to the Owner as required herein.

Failure of bidder to submit his original work papers, documents, and materials used in the preparations of this bid at the time, date and place required, shall constitute a waiver of bidders' right to claim a mistake in his bid.

No bid shall be withdrawn under this section when the result would be the awarding of the Contract on another bid of the same bidder.
No bidder who is permitted to withdraw a bid shall for compensation, supply any material or labor to or perform any subcontract or other work agreement for the person or firm to whom the Contract is awarded or otherwise benefit directly or indirectly from the performance of the Project for which the withdrawn bid was submitted.

If the bid is withdrawn under authority of this section, the next lowest responsive and responsible bidder shall be deemed to be the low bidder on the Project.

When the procedure set forth in the paragraphs above is utilized, original work papers, documents, and materials used in the preparation of the bid must be submitted in an envelope or package separate and apart from the envelope containing the bid marked clearly as to the contents.

END OF INSTRUCTIONS TO BIDDERS

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IFB-1779, SPS Three School Re-Roofs for Suffolk Public Schools

BID FORM

This bid is for the SPS Three School Re-Roofs for Suffolk Pubic Schools, Suffolk, VA

Each bidder shall submit their bid on this form. Submit two (2) copies of this form completed and with original signatures.

To: **Anthony W. Hinds, MBA**
Department of Purchasing
Suffolk Public Schools
100 North Main Street
Suffolk, Virginia 23434

From: _____
(Name)

_____
(Address)

_____

Having carefully examined the bid documents including the Invitation to Bid, Instructions to Bidders, Specifications, Drawings, Terms of Agreement and Addenda (if any) prepared by the architect, entitled:

SPS Three School RE-Roofs for Suffolk Public Schools, Suffolk, VA

as well as the premises and conditions affecting the work, the undersigned proposes to furnish all labor, supervision, materials, equipment, and services necessary to perform all the work in accordance with the contract documents for the following lump sum amount.

PLEASE NOTE, YOUR SUBMITTED BID MUST INCLUDE DAVIS-BACON WAGES AS PER THE FEDERAL CERTIFICATIONS ADDENDUM FOR AGREEMENT FUNDED BY U.S. FEDERAL GRANTS, AND CERTIFIED PAYROLLS MUST BE PROVIDED WITH EVERY PAYMENT APPLICATION.

The Owner will consider any request made by the Contractor to extend the Contractor's time for performance of the work and may grant reasonable time extensions when delays in the Contractor's work performance are directly caused by supply chain delays, if the Contractor has provided the Owner with (i) reasonable notice in advance that its work is being impacted by supply chain delays; (ii) adequate verification to support the Contractor's claim; and (iii) written certification that any delay in its performance of this Contract is beyond the Contractor's control and not the result of actions or any failure to act by the Contractor.

1. BASE BID ONE: Oakland Elementary School - 72,210 +/- SF

The Lump Sum Base Bid price for the entire work in this package, including any allowances, completed within the time limits and in accordance with the contract documents is:

_____ Dollars
(Words)

($ _____) .
(Figures)

2. BASE BID TWO: Mack Benn Jr. Elementary School - 87,818 +/- SF

The Lump Sum Base Bid price for the entire work in this package, including any allowances, completed within the time limits and in accordance with the contract documents is:

_____ Dollars
(Words)

($ _____) .
(Figures)

3. BASE BID THREE: Northern Shores Elementary School - 83,612 +/- SF

The Lump Sum Base Bid price for the entire work in this package, including any allowances, completed within the time limits and in accordance with the contract documents is:

_____ Dollars
(Words)

($ _____) .
(Figures)

4. BASE BID FOUR: Oakland Elementary School - 72,210 +/- SF, Mack Benn Jr. Elementary School - 87,818 +/- SF and Northern Shores Elementary School - 83,612 +/- SF:

Base Bid Four is being requested as an effort for the bidding contractors who wish to be awarded all three (3) schools under a single contract. This requested Total Lump Sum Price does not need to equal the prices provided above for Base Bid One, Base Bid Two and Base Bid Three combined, but is being requested to provide the bidding contractors the opportunity to offer a discounted price for award of all projects under a single contract.

The Total Lump Sum Base Bid price for the entire work in this package, including any allowances, completed within the time limits and in accordance with the contract documents is:

_____ Dollars
(Words)

($ _____) .
(Figures)

5. ALTERNATRE ONE: Oakwood Elementary School - 72,210 +/- SF

In lieu of leaving the existing Gutters and Downspouts in place, remove and replace all gutters and downspouts matching existing size and profile fabricated from the same material and finish as new roof panels. The Alternate One proposed price completed within the time limits and in accordance with the contract documents is:

_____ Dollars
(Words)

($ _____) .

6. ALTERNATRE TWO: Mack Benn Jr. Elementary School - 87,818 +/- SF

In lieu of leaving the existing Gutters and Downspouts in place, remove and replace all gutters and downspouts matching existing size and profile fabricated from the same material and finish as new roof panels. The Alternate Two proposed price completed within the time limits and in accordance with the contract documents is:

_____ Dollars
(Words)

($ _____) .

7. ALTERNATRE THREE: Oakwood Elementary School - 72,210 +/- SF

In lieu of leaving the existing Gutters and Downspouts in place, remove and replace all gutters and downspouts matching existing size and profile fabricated from the same material and finish as new roof panels. The Alternate Three proposed price completed within the time limits and in accordance with the contract documents is:

_____ Dollars
(Words)

($ _____) .

8. ALTERNATRE FOUR: Oakland Elementary School - 72,210 +/- SF, Mack Benn Jr. Elementary School - 87,818 +/- SF and Northern Shores Elementary School - 83,612 +/- SF:

Base Bid Four is being requested as an effort for the bidding contractors who wish to be awarded all three (3) schools under a single contract. This requested Total Lump Sum Price does not need to equal the prices provided above for Base Bid One, Base Bid Two and Base Bid Three combined, but is being requested to provide the bidding contractors the opportunity to offer a discounted price for award of all projects under a single contract.

In lieu of leaving the existing Gutters and Downspouts in place, remove and replace all gutters and downspouts matching existing size and profile fabricated from the same material and finish as new

roof panels. The Alternate Four proposed Total Lump Sum Price completed within the time limits and in accordance with the contract documents is:

_____ Dollars
(Words)

($ _____) .

9. UNIT PRICES:

Unit prices as outlined in Section 010260 shall be used in determining additions to or deductions from the lump sum bid contract amount in the event of changes due to unforeseen conditions in the work, proposals by the Contractor, or directives of the Owner.

Unit Price 9.1. Plywood decking Replacement: Additional amount to remove wet or damaged plywood decking to match existing thicknesses (5/8-inch) as indicated in the specifications.

($_____/square foot)
(Figures)

Unit Price 9.2. Wet / Damaged Insulation Removal and Replacement: Additional amount to remove wet or damaged roof insulation over steel roof deck areas and infill with new polyisocyanurate insulation to match existing thicknesses (4-inch) as indicated in the specifications.

$_____/square foot
(Figures)

Unit Price 9.3. Metal Deck Clean, Prime and Painting: Additional amount to clean, prime and paint deteriorated areas of the existing metal decking as indicated in the specifications and based on quantity of material specified.

$_____/square foot
(Figures)

Unit Price 9.4. Metal Deck Replacement: Additional amount to replace the existing metal decking to match/nest into existing as indicated in the specifications and based on quantity of material specified.

$_____/square foot
(Figures)

Unit Price 9.5. Treated Wood Nailers - 2" X 4": Additional amount to replace existing deteriorated lumber with new treated lumber as specified in Division 6, Section 06100 for directly related Work as indicated on the drawings and based on quantity of material specified.

$_____/linear foot
(Figures)

Unit Price 9.6. Treated Wood Nailers - 2" X 6": Additional amount to replace existing deteriorated lumber with new treated lumber as specified in Division 6, Section 06100 for directly related Work as indicated on the drawings and based on quantity of material specified.

$_____/linear foot
(Figures)

Unit Price 9.7. Treated Wood Nailers - 2" X 8": Additional amount to replace existing deteriorated lumber with new treated lumber as specified in Division 6, Section 06100 for directly related Work as indicated on the drawings and based on quantity of material specified.

$_____/linear foot
(Figures)

Unit Price 9.8. Treated Wood Nailers - 2" X 10": Additional amount to replace existing deteriorated lumber with new treated lumber as specified in Division 6, Section 06100 for directly related Work as indicated on the drawings and based on quantity of material specified.

$_____/linear foot
(Figures)

Unit Price 9.9. Treated Wood Nailers - 2" X 12": Additional amount to replace existing deteriorated lumber with new treated lumber as specified in Division 6, Section 06100 for directly related Work as indicated on the drawings and based on quantity of material specified.

$_____/linear foot
(Figures)

ADDENDA:

The above stated bid is based on the Contract Documents and the following additional addenda issued subsequent to the release of the drawings and specifications for bids. (List all addenda with dates, if issued. If no addenda are issued, write the word "none".)

Addenda # _____ Date _____ Addenda # _____ Date _____

Addenda # _____ Date _____ Addenda # _____ Date _____

TIME OF COMPLETION:

Work at the site(s) shall commence within ten (10) working days following the execution of the contract or the Notice-To-Proceed. The Owner anticipates the Award of these contract(s) or the issuance of the Notice-Of-Award on or before March 11, 2022. All work shall be substantially complete no later than August 16, 2022 and 100% Final Completion shall be achieved no later than August 30, 2022

The Owner will consider any request made by the Contractor to extend the Contractor's time for performance of the work and may grant time reasonable time extensions when delays in the Contractor's work performance are directly caused by supply chain delays, if the Contractor has provided the Owner with (i) reasonable notice in advance that its work is being impacted by supply chain delays; (ii) adequate verification to support the Contractor's claim; and (iii) written certification that any delay in its performance of this Contract is beyond the Contractor's control and not the result of actions or any failure to act by the Contractor.

PROFIT AND OVERHEAD FOR CHANGE ORDERS:

Change Orders initiated per Article 9 of the General Conditions shall be executed on the basis of the cost of the work, plus a percentage of the work, according to the percentages indicated in Articles 9.3.4.2.1 and 9.3.4.2.2 of the General Conditions.

OTHER:

If notified of the acceptance of this bid(s) within (60) calendar days after the date fixed for the opening of the bids, the undersigned agrees to execute and deliver to the owner the Contract and Contractor's Bonds within ten (10) calendar days from the date of notification and, to faithfully and properly complete the work with the best interest of the Owner, the safety of the public, and in accordance with first class workmanship.

The undersigned agrees that the Owner may retain five percent (5%) of the Contract amount as specified in the **Sample Agreement/Agreement**.

BID SECURITY:

Attached hereto is a cashiers check, certified check, or Bid Bond (AIA Document A310 or from a Surety Company authorized to do business in the Commonwealth of Virginia and acceptable to the Owner), none of which shall be less than five percent (5%) of the principle bid amount, and made payable to Suffolk City School Board.

The undersigned agrees, if awarded the Contract, to comply with all provisions regarding commencement, performance, completion, and acceptance of the work described in the above-mentioned specifications and drawings, construction contract, and as stipulated in this proposal. The undersigned further agrees, if awarded this contract, to execute and deliver Performance and Labor and Material Payment bonds each in an amount equal to one hundred percent (100%) of the Contract Price. In case of bidders failure to execute the Contract, provide a performance bond, or to commence the work, the check or bid bond shall be paid as liquidated damages for such failure; otherwise the check or bid bond accompanying the proposal will be returned to the Undersigned.

LIQUIDATED DAMAGES:

The Bidder acknowledges and agrees to the liquidated damages specified in the **Sample Agreement/Agreement**. Bidder also acknowledges that time is of the essence and that work to be performed by others and/or use of the school is restrained by the timely completion of the work within this contract.

The Owner will consider any request made by the Contractor to extend the Contractor's time for performance of the work and may grant time reasonable time extensions when delays in the Contractor's work performance are directly caused by supply chain delays, if the Contractor has provided the Owner with (i) reasonable notice in advance that its work is being impacted by supply chain delays; (ii) adequate verification to support the Contractor's claim; and (iii) written certification that any delay in its performance of this Contract is beyond the Contractor's control and not the result of actions or any failure to act by the Contractor.

BID FORM SIGNATURE(S):

The Undersigned declares that this firm is (check one):

- ❑ A Corporation organized and existing under the laws of _____.
- ❑ A Partnership consisting of _____.
- ❑ A sole Proprietorship.
- ❑ Other _____.

Virginia State Corporation Commission ID #_____

It is agreed, that the Undersigned has complied with and/or will comply with all requirements concerning licensing and with all other Local, State, and National laws and that no legal requirement has been, or will be, violated in making or accepting this proposal, in awarding the contract to him, and/or in the prosecution of the work required therein.

The Undersigned declares that the person, or persons, signing this proposal is/are fully authorized to sign the proposal on behalf of the firm listed and to fully bind their firm listed to all the conditions and provisions thereof. It is agreed that no person, persons, or company other that the firm listed below or as otherwise indicated hereinafter has any interest whatsoever in this proposal of the Contract that may be entered into as a result thereof and that in all respects the proposal is legal, fair, and submitted in good faith without collusion or fraud.

Respectfully submitted this _____ day of _____, 2022.

_____
(Name of Firm)

_____
(Address)

_____ *Affix Seal*

Telephone (____)_____ Fax (____)_____

Email address _____

Registered Virginia Contractor #: _____ (Please attach a copy of the registration)

By: _____
(Signature)

Name: _____
(Printed)

Title: _____ *Affix Seal*
(Printed)

END OF BID FORM

PREBID QUESTION FORM

(Use separate Form for each question submitted.)

Date:_____

Project: **INVITATION TO BID #1779**
SSP Three School Re-Roofs
Suffolk, Virginia

The following question concerns Drawing Sheet (number)_____:

_____

_____

_____

_____

The following question concerns Specifications Section (number) _____,
page_____, paragraph _____,

_____

_____

_____

_____

All responses to questions will be made by Addendum.

Question submitted by:_____
Name Organization

Mail Form To: Jeff Harris, Project Manager
RRMM Architects
28 Church Avenue SW
Roanoke, VA 24011

Email to: jharris@rrmm.com

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Sample Agreement

Suffolk City School Board
IFB # -1779

THIS AGREEMENT, made and entered into this _____ day of _____, 2022 by and between the Suffolk City School Board, (hereinafter called the Owner), whose address is 100 N Main Street, Suffolk, VA 23434 and _____ (hereinafter called the Contractor), whose address is _____.

WITNESSETH: WHEREAS, the Owner intends to contract the construction of SPS Three School Re-Roofs. The project is located at the following locations

Oakland Elementary School
5505 Godwin, Boulevard, Suffolk VA

Mack Benn Jr. Elementary School
1253 Nansemond Parkway, Suffolk VA

Northern Shores Elementary School
6701 Respass Beach Road, Suffolk, VA

The Owner has the right to award each individual school project based on the lowest responsible Base Bid received or any combination thereof and, that the Owner determines to be in the best interest of the Owner.

WHEREAS, the Contractor agrees to perform the work for the sum herein stated.

NOW THEREFORE, the Owner and the Contractor agree as set forth below.

ARTICLE 1. SCOPE OF WORK

The work to be performed shall be in accordance with IFB-1779 and all related Contract Documents prepared by RRMM Architects dated January 14, 2022 and entitled **"SPS Three School Re-Roofs for Suffolk Public Schools"**. The Contractor agrees to furnish all labor, materials, equipment and supervision to complete the work as required in the Contract Documents, which are hereby made a part of this contract by reference. It is understood and agreed by the parties hereto that all work shall be performed as required in IFB-1779 and related Contract Documents and shall be subject to inspection and approval by the Owner or its authorized representative. The relationship of the Contractor to the Owner hereunder is that of an independent Contractor. The Contract Documents are defined in the General Conditions and are incorporated herein by reference.

ARTICLE 2. TIME OF COMPLETION

The Contractor shall commence the work promptly upon the date established in the Notice of Award or Notice to Proceed. The Contractor shall achieve all the times and dates shown on the bid form, which are incorporated herein by reference and made a part of this Contract as though fully set forth

herein. All work shall be Substantially Complete no later than August 16, 2022, and 100% Final Completion shall be achieved no later than August 30, 2022.

ARTICLE 3. CONTRACT SUM

The Owner agrees to pay, and the Contractor agrees to accept in full performance of this Contract, the sum of _____, ($_____) which sum also includes:

A) The cost of a 100% Performance Bond and a 100% Payment Bond, said bonds having been posted by the Contractor pursuant to laws of the Commonwealth of Virginia;
B) All work included in bid Addenda Number(s) _____.

ARTICLE 4. PAYMENT

The Owner agrees to pay the Contractor as the work progresses, but not more frequently than once each month after the date of the Notice of Award or Notice to Proceed, and only after fully complying with the General Conditions and completion of an acceptable Certificate of Payment for the work performed during the preceding calendar month, ninety-five percent (95%) of the value of the labor performed and, subject to the requirements of the General Conditions, ninety-five percent (95%) of the value of materials furnished in place or on-site.

The Contractor shall supply such evidence of labor performed and materials furnished, as the Owner may desire, at time of request for the Certificate of Payment of account. Materials for which payment has been made cannot be removed from job site.

Retainage Reduction – Five percent (5%) of the earned amount shall be retained from each monthly payment until fifty percent (50%) of the dollar amount of the Contract has been earned. During the last fifty percent (50%) of the Contract, retainage may be reduced pursuant to applicable provisions of the General Conditions.

THE OWNER WITH ALL PAYMENT APPLICATIONS WILL RECEIVE CERTIFIED PAYROLLS TO ENSURE COMPLIANCE WITH THE DAVIS-BACON ACT.

ARTICLE 5. INDEBTEDNESS

Before final payment is made, the Contractor must submit evidence in the form of a final waiver of lien or claim to the Owner that all payrolls, materials bills, subcontracts and outstanding indebtedness in connection with the work have been paid or what arrangements have been made for their payment.

Payment will be made without unnecessary delay and after receipt of such evidence as mentioned above and final acceptance of the work by the Owner.

ARTICLE 6. ADDITIONAL WORK

It is understood and agreed by the parties hereto that no money will be paid to the Contractor for any additional labor or materials furnished unless a new contract in writing or a modification hereto for such additional materials or labor has been executed by the Owner and Contractor. The Owner specifically reserves the right to modify or amend this Contract and the total sum due hereunder either by enlarging or restricting the scope of work.

ARTICLE 7. ACCEPTANCE

The work shall be inspected for acceptance by the Program Manager and Architect promptly upon receipt of notice from the Contractor that the work is complete and ready for inspection.

ARTICLE 8. DISPUTES PERTAINING TO PAYMENT FOR WORK

Should disputes arise regarding the value of any work done, or any work omitted, or of any extra work which said Contractor may be required to perform, or respecting any other elements involved in this Contract, said dispute shall be brought to the attention of the Program Manager who will endeavor to settle matters. If he/she is unsuccessful, the dispute will be brought to the attention of the Suffolk City School Board and their decision shall be final and conclusive.

ARTICLE 9. TERMINATION FOR BREACH, ETC.

If the Contractor shall be adjudged bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he or any of his subcontractors violate any of the provisions of this Contract, the Owner may serve written notice upon him of its intention to terminate said Contract; and unless, within ten (10) days after the serving of such notice, such violation shall cease, the Owner then may take over the work and prosecute same to completion by contract or by any other method it may deem advisable for the account and at the expense of the Contractor. The Owner may take possession of and utilize in completing the work, such materials, equipment, and any other property belonging to the Contractor as may be on the site of the work and necessary therefore. The Owner may, at any time upon ten (10) days written notice to the Contractor, terminate (without prejudice to any right or remedy of the Owner) the whole or any portion of the work for the convenience of the Owner.

ARTICLE 10. OWNER'S RIGHT TO WITHHOLD CERTAIN AMOUNT AND MAKE APPLICATION THEREOF

The Owner may withhold from payment to the Contractor such an amount or amounts as, in the Owner's sole judgment, may be necessary to pay just claims against the Contractor or any subcontractor for labor and services rendered and materials furnished in and about the work. The Owner may apply such withheld amounts on the payment of such claims in its sole discretion. In so doing, the Owner shall be deemed the agent of the Contractor and payments so made by the Owner shall be made by the Owner under the terms of the Contract and in good faith and no liability whatsoever shall attach to the Owner for having made such payments. Such payments may be made without prior determination by the Owner of the validity of any claim or claims.

ARTICLE 11. LIABILITY AND INDEMNIFICATION

The Contractor agrees that it shall at all times protect and indemnify and save harmless, the Suffolk City School Board and all institutions, agencies, departments, authorities and instrumentalities of the

School Board and any member of the School Board or of their boards or commissions or any of the elected or appointed officers or any of their employees or authorized volunteers as described in the General Conditions of the project specifications which are included herein by reference, from any and all claims, damages of every kind and nature made, rendered or incurred by or in behalf of any person or corporation whatsoever, including the parties hereto and their employees that may arise, that occur or grow out of any acts, actions, work or other activity done by the said Contractor in the performance and execution of this Contract.

ARTICILE 12. SUBCONTRACTOR

No part of this Contract shall be sublet by the Contractor without prior written approval of the Owner.

ARTICLE 13. LIQUIDATED DAMAGES

Should the Contractor fail to Finally Complete the work on or before the Contract Completion Date, referred to in Article 2 hereof, the Contractor shall pay to the Owner the sum of $500.00 for each consecutive calendar day that terms of the Contract remain unfulfilled as defined in Article 9, Section 9.11 of the Supplementary General Conditions of the Construction Contract.

The Owner understands the supply chain issues the roofing industry and other industries are currently dealing with and if delays are a direct result of materials not being available for delivery, the contractor shall not be held liable.

The Owner will consider any request made by the Contractor to extend the Contractor's time for performance of the work and may grant time reasonable time extensions when delays in the Contractor's work performance are directly caused by supply chain delays, if the Contractor has provided the Owner with (i) reasonable notice in advance that its work is being impacted by supply chain delays; (ii) adequate verification to support the Contractor's claim; and (iii) written certification that any delay in its performance of this Contract is beyond the Contractor's control and not the result of actions or any failure to act by the Contractor.

ARTICLE 14, NONDISCRIMINATION

During the performance of this contract, the contractor agrees as follows:

a. The contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

b. The contractor, in all solicitations or advertisements for employees placed by or on behalf of the contractor, will state that such contractor is an equal opportunity employer.

c. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this section.

The contractor will include the provisions of the foregoing paragraphs a, b and c in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

Suffolk Public Schools does not discriminate against faith based organizations.

ARTICLE 15, DRUG FREE WORKPLACE

During the performance of this contract, the contractor agrees to:

a. Provide a drug-free work place for the contractor's employees,
b. Post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession or use of a controlled substance or marijuana is prohibited in the contractor's work place and specifying the actions that will be taken against employees for violations of such prohibition,
c. State in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free work place,

d. Include the provisions of the foregoing clauses in every subcontract or purchase order of over $10, 000 so that the provisions will be binding upon each subcontractor or vendor.

ARTICLE 16, CONTRACTOR/EMPLOYEE BACKGROUND CERTIFICATION

Upon award, the contractor and any employee who will have direct contact with students shall provide certification that (i) he has not been convicted of a felony or any offense involving the sexual molestation or physical or sexual abuse or rape of a child; and (ii) whether he has been convicted of a crime of moral turpitude.

Any person making a materially false statement regarding such offense shall be guilty of a Class 1 misdemeanor and, upon conviction, the fact of such conviction shall be grounds for the revocation of the contract to provide such services and, when relevant, the revocation of any license required to provide such services. **(Included)**

ARTICLE 17, STATE CORPORATION COMMISSION ID NUMBER

In accordance with new registration requirements effective July 1, 2010, the Contractor shall include the identification number issued by the State Corporation Commission as proof of registration or justification for non-registration per the requirements in Section 13.1 or Title 50 of the Code of Virginia.

SCC ID #_____

ARTICLE 18, COMPLIANCE WITH FEDERAL IMMIGRATION LAW

The Contractor shall not, during the performance of a contract knowingly employ an unauthorized alien as defined in the Federal Immigration Reform and Control Act of 1986.

SIGNATURE PAGES

IN WITNESS WHEREOF, the parties have caused the Agreement to be executed by the following duly authorized officials.

SUFFOLK CITY SCHOOL BOARD,
A Body Corporation

By: _____
Chair
Suffolk City School Board

By: _____
Superintendent
Suffolk City Public Schools

NOTARY CLAUSE

Commonwealth of Virginia

City/County_____, to wit: The following instrument was

Acknowledged before me this _____day of _____, 2018 by _____
Name

_____, _____, and
Name Title

_____, _____.
Name Title

My commission expires:_____

Notary Number:_____

_____
Notary Public

Contractor

By: _____
Signature

_____
Print Name

_____
Title

NOTARY CLAUSE

Commonwealth of Virginia

City/County_____, to wit: The following instrument was

Acknowledged before me this _____day of _____, 2018 by _____
Name

_____, _____, and
Name Title

_____, _____.
Name Title

My commission expires:_____

Notary Number:_____

_____
Notary Public

APPROVED AS TO FORM AND CONTENT:

_____
School Board Attorney

FEDERAL CERTIFICATIONS ADDENDUM FOR AGREEMENT FUNDED BY U.S. FEDERAL GRANTS

TO WHOM IT MAY CONCERN:

Suffolk Public Schools may elect to use federal funds to purchase under this Agreement. This form should be completed and returned with proposal. The following certifications and provisions may be required and apply when Suffolk Public Schools expends federal funds for any purchase resulting from this procurement process. Pursuant to 2 C.F.R. § 200.326, all contracts, small purchases, and cooperative contracts awarded by the Suffolk Public Schools by way of contract, purchase order, purchasing card or other purchasing methods and the Suffolk Public Schools' subcontractors shall contain the procurement provisions of Appendix II to Part 200, as applicable.

APPENDIX II TO 2 CFR PART 200

(A) Contracts for more than the simplified acquisition threshold currently set at $150,000, which is the inflation adjusted amount determined by the Civilian Agency Acquisition Council and the Defense Acquisition Regulations Council (Councils) as authorized by 41 U.S.C. 1908, must address administrative, contractual, or legal remedies in instances where contractors violate or breach contract terms, and provide for such sanctions and penalties as appropriate.

Pursuant to Federal Rule (A) above, when Suffolk Public Schools expends federal funds, the Suffolk Public Schools reserves all rights and privileges under the applicable laws and regulations with respect to this procurement in the event of breach of contract by either party.

Does offeror agree? YES _____Initials of Authorized Representative of offeror

(B) Termination for cause and for convenience by the grantee or subgrantee including the manner by which it will be affected and the basis for settlement. (All contracts in excess of $10,000)

Pursuant to Federal Rule (B) above, when Suffolk Public Schools expends federal funds, Suffolk Public Schools reserves the right to immediately terminate any agreement in excess of $10,000 resulting from this procurement process in the event of a breach or default of the agreement by Offeror in the event Offeror fails to: (1) meet schedules, deadlines, and/or delivery dates within the time specified in the procurement solicitation, contract, and/or a purchase order; (2) make any payments owed; or (3) otherwise perform in accordance with the contract and/or the procurement solicitation. Suffolk Public Schools also reserves the right to terminate the contract immediately, with written notice to offeror, for convenience, if Suffolk Public Schools believes, in its sole discretion that it is in the best interest of Suffolk Public Schools to do so. Offeror will be compensated for work performed and accepted and goods accepted by Suffolk Public Schools as of the termination date if the contract is terminated for convenience of Suffolk Public Schools. Any award under this procurement process is not exclusive and Suffolk Public Schools reserves the right to purchase goods and services from other offerors when it is in Suffolk Public Schools' best interest.

Does offeror agree? YES _____Initials of Authorized Representative of offeror

(C) Equal Employment Opportunity. Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 must

include the equal opportunity clause provided under 41 CFR 60-1.4(b), in accordance with Executive Order 11246, "Equal Employment Opportunity" (30 CFR 12319, 12935, 3 CFR Part, 1964-1965 Comp., p. 339), as amended by Executive Order 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and implementing regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."

Pursuant to Federal Rule (C) above, when Suffolk Public Schools expends federal funds on any federally assisted construction contract, the equal opportunity clause is incorporated by reference herein.

Does offeror agree to abide by the above? YES _____Initials of Authorized Representative of offeror

(D) Davis-Bacon Act, as amended (40 U.S.C. 3141-3148). When required by Federal program legislation, all prime construction contracts in excess of $2,000 awarded by Non-Federal entities must include a provision for compliance with the Davis-Bacon Act (40 U.S.C. 3141-3144, and 3146-3148) as supplemented by Department of Labor regulations (29 CFR Part 5, "Labor Standards Provisions Applicable to Contracts Covering Federally Financed and Assisted Construction"). In accordance with the statute, contractors must be required to pay wages to laborers and mechanics at a rate not less than the prevailing wages specified in a wage determination made by the Secretary of Labor. In addition, contractors must be required to pay wages not less than once a week. The non-Federal entity must place a copy of the current prevailing wage determination issued by the Department of Labor in each solicitation. The decision to award a contract or subcontract must be conditioned upon the acceptance of the wage determination. The non - Federal entity must report all suspected or reported violations to the Federal awarding agency. The contracts must also include a provision for compliance with the Copeland "Anti-Kickback" Act (40 U.S.C. 3145), as supplemented by Department of Labor regulations (29 CFR Part 3, "Contractors and Subcontractors on Public Building or Public Work Financed in Whole or in Part by Loans or Grants from the United States"). The Act provides that each contractor or subrecipient must be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The non -Federal entity must report all suspected or reported violations to the Federal awarding agency.

Pursuant to Federal Rule (D) above, when Suffolk Public Schools expends federal funds during the term of an award for all contracts and subgrants for construction or repair, offeror will be in compliance with all applicable Davis-Bacon Act provisions.

Does offeror agree? YES _____Initials of Authorized Representative of offeror

(E) Contract Work Hours and Safety Standards Act (40 U.S.C. 3701-3708). Where applicable, all contracts awarded by the non-Federal entity in excess of $100,000 that involve the employment of mechanics or laborers must include a provision for compliance with 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations (29 CFR Part 5). Under 40 U.S.C. 3702 of the Act, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. The requirements of 40 U.S.C. 3704 are applicable to construction work and provide that no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous. These

requirements do not apply to the purchases of supplies or materials or articles ordinarily available on the open market, or contracts for transportation or transmission of intelligence.
Pursuant to Federal Rule (E) above, when Suffolk Public Schools expends federal funds, offeror certifies that offeror will be in compliance with all applicable provisions of the Contract Work Hours and Safety Standards Act during the term of an award for all contracts by Suffolk Public Schools resulting from this procurement process.

Does offeror agree? YES_____ Initials of Authorized Representative of offeror

(F) Rights to Inventions Made Under a Contract or Agreement. If the Federal award meets the definition of "funding agreement" under 37 CFR §401.2 (a) and the recipient or subrecipient wishes to enter into a contract with a small business firm or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that "funding agreement," the recipient or subrecipient must comply with the requirements of 37 CFR Part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.

Pursuant to Federal Rule (F) above, when federal funds are expended by Suffolk Public Schools, the offeror certifies that during the term of an award for all contracts by Suffolk Public Schools resulting from this procurement process, the offeror agrees to comply with all applicable requirements as referenced in Federal Rule (F) above.

Does offeror agree? YES _____Initials of Authorized Representative of offeror

(G) Clean Air Act (42 U.S.C. 7401-7671q.) and the Federal Water Pollution Control Act (33 U.S.C. 1251-1387), as amended—Contracts and subgrants of amounts in excess of $150,000 must contain a provision that requires the non - Federal award to agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401-7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251- 1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

Pursuant to Federal Rule (G) above, when federal funds are expended by Suffolk Public Schools, the offeror certifies that during the term of an award for all contracts by Suffolk Public Schools resulting from this procurement process, the offeror agrees to comply with all applicable requirements as referenced in Federal Rule (G) above.

Does offeror agree? YES _____Initials of Authorized Representative of offeror

(H) Debarment and Suspension (Executive Orders 12549 and 12689)—A contract award (see 2 CFR 180.220) must not be made to parties listed on the government wide exclusions in the System for Award Management (SAM), in accordance with the OMB guidelines at 2 CFR 180 that implement Executive Orders 12549 (3 CFR part 1986 Comp., p. 189) and 12689 (3 CFR part 1989 Comp., p. 235), "Debarment and Suspension." SAM Exclusions contains the names of parties debarred, suspended, or otherwise excluded by agencies, as well as parties declared ineligible under statutory or regulatory authority other than Executive Order 12549.

Pursuant to Federal Rule (H) above, when federal funds are expended by Suffolk Public Schools, the offeror certifies that during the term of an award for all contracts by Suffolk Public Schools resulting from this procurement process, the offeror certifies that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation by any federal department or agency.

Does offeror agree? YES_____ Initials of Authorized Representative of offeror

(I) Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Contractors that apply or bid for an award exceeding $100,000 must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the Non-Federal award.

Pursuant to Federal Rule (I) above, when federal funds are expended by Suffolk Public Schools, the offeror certifies that during the term and after the awarded term of an award for all contracts by Suffolk Public Schools resulting from this procurement process, the offeror certifies that it is in compliance with all applicable provisions of the Byrd Anti-Lobbying Amendment (31 U.S.C. 1352). The undersigned further certifies that: (1) No Federal appropriated funds have been paid or will be paid for on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of Congress in connection with the awarding of a Federal contract, the making of a Federal grant, the making of a Federal loan, the entering into a cooperative agreement, and the extension, continuation, renewal, amendment, or modification of a Federal contract, grant, loan, or cooperative agreement. (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of congress, or an employee of a Member of Congress in connection with this Federal grant or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, “Disclosure Form to Report Lobbying”, in accordance with its instructions. (3) The undersigned shall require that the language of this certification be included in the award documents for all covered subawards exceeding $100,000 in Federal funds at all appropriate tiers and that all subrecipients shall certify and disclose accordingly.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

RECORD RETENTION REQUIREMENTS FOR CONTRACTS INVOLVING FEDERAL FUNDS

When federal funds are expended by Suffolk Public Schools for any contract resulting from this procurement process, offeror certifies that it will comply with the record retention requirements detailed in 2 CFR § 200.333. The offeror further certifies that offeror will retain all records as required by 2 CFR § 200.333 for a period of three years after grantees or subgrantees submit final expenditure reports or quarterly or annual financial reports, as applicable, and all other pending matters are closed.

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

CERTIFICATION OF COMPLIANCE WITH THE ENERGY POLICY AND CONSERVATION ACT

When Suffolk Public Schools expends federal funds for any contract resulting from this procurement process, offeror certifies that it will comply with the mandatory standards and policies relating to energy efficiency which are contained in the state energy conservation plan issued in compliance with the Energy Policy and Conservation Act (42 U.S.C. 6321 et seq.; 49 C.F.R. Part 18).

Does offeror agree? YES _____ Initials of Authorized Representative of offeror

CERTIFICATION OF COMPLIANCE WITH BUY AMERICA PROVISIONS

To the extent purchases are made with Federal Highway Administration, Federal Railroad Administration, or Federal Transit Administration funds, offeror certifies that its products comply with all applicable provisions of the Buy America Act and agrees to provide such certification or applicable waiver with respect to specific products to Suffolk Public Schools upon request. Purchases made in accordance with the Buy America Act must still follow the applicable procurement rules calling for free and open competition.

Does offeror agree? YES _____Initials of Authorized Representative of offeror

PROCUREMENT OF RECOVERED MATERIALS REQUIREMENTS FOR – 2 C.F.R. §200.322

Suffolk Public Schools and its contractors must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired during the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

Does Vendor agree? YES_____ Initials of Authorized Representative of Vendor

CERTIFICATION OF ACCESS TO RECORDS – 2 C.F.R. § 200.336

Offeror agrees that the Inspector General of the Agency or any of their duly authorized representatives shall have access to any books, documents, papers and records of offeror that are directly pertinent to offeror's discharge of its obligations under the Contract for the purpose of making audits, examinations, excerpts, and transcriptions. The right also includes timely and reasonable access to offeror's personnel for the purpose of interview and discussion relating to such documents.

Does offeror agree? YES _____Initials of Authorized Representative of offeror

CERTIFICATION OF AFFORDABLE CARE ACT

Offeror understands and agrees that it shall be solely responsible for compliance with the Patient Protection and Affordable Care Act, Public Law 111-148 and the Health Care and Education Reconciliation Act 111-152 (collectively the Affordable Care Act "ACA"). The Offeror shall bear sole responsibility for providing health care benefits for its employees who provide services as required by Federal law.

Does offeror agree? YES_____ Initials of Authorized Representative of offeror

CERTIFICATION OF APPLICABILITY TO SUBCONTRACTORS

Offeror agrees that all contracts it awards pursuant to the Contract shall be bound by the foregoing terms and conditions.

Does offeror agree? YES _____Initials of Authorized Representative of offeror

INTELLECTUAL PROPERTY

The parties agree that no intellectual property will be created in performance of this grant/federal dollars or cooperative agreements and the requirements of 2 CFR SS 200.315.

Does offeror agree? YES _____Initials of Authorized Representative of offeror

Offeror agrees to comply with all federal, state, and local laws, rules, regulations and ordinances, as applicable. It is further acknowledged that offeror certifies compliance with all provisions, laws, acts, regulations, etc. as specifically noted above.

Offeror's Name:

_____

Address: _____

Phone Number: _____

Fax Number: _____

Printed Name and Title of Authorized Representative:

_____

Email Address:

_____

Signature of Authorized Representative: _____

Date: _____

Department of Purchasing

100 N. Main Street, 2nd Floor
Suffolk, VA 23434
(757) 925-6762 Fax (757) 942-4333

CONTRACTOR/EMPLOYEE BACKGROUND CERTIFICATION

Pursuant to Virginia Code Section 22.1-296.1.C, prior to the award of a contract for the provision of services that require the contractor or any of its employees to have direct contact with students, the school board is required to have the contractor, and when relevant, any employee who will have direct contact with students, provide certification that (i) he has not been convicted of any violent felony as set forth in the definition of a barrier violent crime in Virginia Code 19.2-392.02, or any offense involving the sexual molestation or physical or sexual abuse or rape of a child.

The School Board may award a contract for the provision of services that require the contractor or employees of the contractor to have direct contact with students on school property during regular school hours or during school-sponsored activities when any individual who provides such services has been convicted of any felony or violent crime of moral turpitude that is not set forth in the definition of barrier violent crime in subsection A of Virginia Code 19.2-392.02 and does not involve sexual molestation, physical or sexual abuse, or rape of a child, provided that in the case of a felony conviction, the Governor has restored the individual's civil rights.

So as not to place an undue burden or hardship on the day to day operation of the school division and remain in compliance with the aforementioned Code provision, any contractor providing services for Suffolk Public Schools, whose employees will have direct contact with students, is required to provide the certification listed below:

As a contractor providing services for Suffolk Public Schools, whose employees will have direct contact with students, I certify that neither the contractor nor any of its employees, whether current employees or those who will be employed in the future, have been (i) convicted of a felony as set forth in the definition of a barrier violent crime **or any offense involving the sexual molestation or physical or sexual abuse or rape of a child and/or meet the terms as outlined above:**

CONTRACTOR NAME _____

BUSINESS ADDRESS _____

_____

PHONE NUMBER _____

CERTIFIED BY _____

PRINTED NAME _____

TITLE _____

DATE _____

Any person making a materially false statement regarding any such offense shall be guilty of a Class 1 misdemeanor and, upon conviction, the fact of such conviction shall be grounds for the revocation of the contract to provide such services and, when relevant, the revocation of any license required to provide such services. School boards shall not be liable for materially false statements regarding the certifications required by this subsection. For the purposes of this subsection, "direct contact with students" means being in the presence of students during regular school hours or during school-sponsored activities

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SECTION 010100 - SUMMARY OF THE WORK

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. The name of the Project is the SPS Three School Re-Roofs, Suffolk Public Schools, RRMM Project No: 21222.01 - 21222.03 located in Suffolk, Virginia.

B. The project consists of the removal and replacement of all steep slope shingle roofing with new standing seam metal roofing, removal and replacement of Roof Area A at Oakland Elementary School and single ply recovery of Roof Areas A & B at Northern Shores Elementary School.

1. The work of this project includes the following:
   a. Removal and replacement of all existing asphalt shingle roofing with a new 24-gauge pre-painted galvalume aluminum-zinc alloy-coated carbon steel panel system including but not limited to all trim metals, flashing and trim and new snow guards as specified.
   b. Existing gutters and downspouts on the shingle roof areas shall remain in place with all debris being removed and all gutter joints, end caps and downspout outlets being cleaned and resealed.
   c. At Oakland Elementary School, total removal and replacement of Roof Area A with a new 60 Mil fully adhered TPO single ply roof system including new insulation, flashing and trim metals.
   d. At Northern Shore Elementary School, installation of a 60 Mil Induction Welded TPO single ply recovery roof system including new coverboard high density insulation, flashing and trim metals.
2. The Owner will occupy the site and the existing building during the construction period.
3. Cooperate with the Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the work so as not to interfere with the Owner's daily operations.
4. Access to the building interiors will be restricted at all times during the course of this project.

C. The Contractor shall maintain a copy of the Project Manual, the Project Drawings, and a copy of all project submittals and MSDS sheets applicable to the Project on site at all times for the duration of the project.

D. Maintain the existing building in watertight condition throughout this Contract.

1. Interior of building to be kept free of water entry of ANY amount throughout the entire roof replacement process.

2. The roofing over each roof area shall be phased so as to have no more roof area open and/or under construction than can be made watertight at the end of each workday.

E. The Contractor shall follow all applicable safety requirements of OSHA and local, State, and Federal requirements.

F. Existing roof system compositions:

1. Oakland Elementary School - Steep Slope Shingle Roof Areas
   a. Existing 5/8-inch Plywood Roof Deck
   b. Existing Felt Underlayment
   c. Existing Dimensional Asphalt Shingles

2. Oakland Elementary School - Roof Area A
   a. Existing Metal Form Roof Deck
   b. Existing Lightweight Concrete
   c. Existing Coal-Tar BUR w/ Gravel Surfacing
   d. Existing 3-Inch Polyisocyanurate Insulation
   e. Existing 1-Inch Polyisocyanurate Insulation
   f. Existing 60 Mil EPDM Roof Membrane

3. Mack Benn JR. Elementary School - Steep Slope Shingle Roof Areas
   a. Existing 5/8-inch Plywood Roof Deck
   b. Existing Felt Underlayment
   c. Existing Dimensional Asphalt Shingles

4. Northern Shore Elementary School - Steep Slope Shingle Roof Areas
   a. Existing 5/8-inch Plywood Roof Deck
   b. Existing Felt Underlayment
   c. Existing Dimensional Asphalt Shingles

5. Northern Shore Elementary School - Roof Areas A & B
   a. Existing 60 Mil EPDM Membrane
   b. Existing 1-Inch Polyisocyanurate Insulation
   c. Existing 4-Inch Polyisocyanurate Insulation
   d. Existing 5/8-inch Fire Rated Gypsum Board
   e. Existing 15/32 Plywood Deck Over Wood Framing

Existing Roof Composition Notes:

1. It is the contractor's sole responsibility, to field verify all existing roof system compositions and conditions that will affect the execution of the work.

G. New roof system compositions:

1. Oakland Elementary School - Steep Slope Shingle Roof Areas
   a. Existing 5/8-inch Plywood Roof Deck

b. New Self-adhered Ice and Water Shield Membrane
c. New Self-adhered Felt Underlayment
d. New 24-gauge pre-painted galvalume aluminum-zinc alloy-coated carbon steel roof panel system

2. Oakland Elementary School - Roof Area A
   a. Existing Metal Form Roof Deck
   b. Existing Lightweight Concrete
   c. New Base Sheet Nailed
   d. New 4-Inch Polyisocyanurate Insulation
   e. New 1/16-inch Per Foot Tapered Polyisocyanurate Insulation
   f. New ½-Inch High Density Coverboard Insulation
   g. New 60 Mil Fully Adhered TPO Roof Membrane

3. Mack Benn JR. Elementary School - Steep Slope Shingle Roof Areas
   a. Existing 5/8-inch Plywood Roof Deck
   b. New Self-adhered Ice and Water Shield Membrane
   c. New Self-adhered Felt Underlayment
   d. New 24-gauge pre-painted galvalume aluminum-zinc alloy-coated carbon steel roof panel system

4. Northern Shore Elementary School - Steep Slope Shingle Roof Areas
   a. Existing 5/8-inch Plywood Roof Deck
   b. New Self-adhered Ice and Water Shield Membrane
   c. New Self-adhered Felt Underlayment
   d. New 24-gauge pre-painted galvalume aluminum-zinc alloy-coated carbon steel roof panel system

5. Northern Shore Elementary School - Roof Areas A & B
   a. Existing 5/8-inch Plywood Roof Deck
   b. Existing Coverboard Insulation
   c. Existing EPDM Roof Membrane
   d. New ½-Inch High Density Polyisocyanurate Insulation
   e. New 60 Mil Induction Welded / Mechanically Attached TPO Roof Membrane

New Roof Composition Notes:

1. Existing deteriorated wood blocking shall be removed and replaced with new treated blocking as required and shown on the roof plans and roof details.
2. All blocking at curbs and walls shall provide a minimum of 8-inch flashing height as required by the roof system manufacturer.
3. All blocking at roof edges shall match the height of the new insulation as required by the roof system manufacturer.
4. All new blocking shall be fastened to the substrate to meet the specifications.

H. Demolition and Preparation:

1. Remove and dispose of all existing asphalt shingles on all roof areas and existing EPDM membrane roof system on Oakland Elementary School - Roof Area A down to the plywood and lightweight concrete roof decks, including all existing felt underlayment, roof insulation, all flashings, trim metal, and accessories.
2. Gutters and downspouts shall remain in place on all roof areas.
3. Asbestos containing material that may be uncovered during the course of the project.
    a. ROOF SAMPLING FOR ASBESTOS WAS NOT PERFORMED. DU TO THE AGE OF THE ROOF SYSTEMS, THERE ARE NO MATERIALS IN THE EXISTING ROOF SYSTEM COMPOSITIONS THAT ARE SUSPECTED TO CONTAIN ASBESTOS.
    b. HOWEVER, ASBESTOS CONTAINING MATERIALS MAY BE PRESENT IN OTHER AREAS OF THE BUILDING WHERE WORK IS NOT DIRECTLY BEING PERFORMED. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ANY ASBESTOS CONTAINING MATERIALS ARE NOT DISTURBED OR DAMAGED, AND WILL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH CLEAN-UP AND CLEARANCE OF THE BUILDING DUE TO DISTURBANCE OR DAMAGE TO ASBESTOS CONTAINING MATERIALS NOT INCLUDED IN THE SCOPE OF WORK.
    c. IF SUSPECTED ASBESTOS MATERIALS ARE FOUND, IMMEDIATEY NOTIFY THE OWNER AND ARCHITECT FOR AWAIT FURTHER DIRECTIONS ON HOW TO PROCEED.
4. Leave existing wood blocking in place unless otherwise noted. Existing deteriorated blocking shall be removed and replaced at all roof perimeters, roof curbs, and all other locations as required by the roof system manufacturer's standard requirements. Unit prices, as provided on the bid form, shall be used as an Add/Deduct from the lump sum bid dollar amount.
5. Furnish and install new treated wood blocking as required to provide minimum 8-inch flashing heights at curbs and walls and to meet new insulation thicknesses at roof edges and penetrations. All new blocking shall be fastened to the substrate to meet the specifications.
6. The Contractor’s on-site representative shall keep a daily log with running total and before/after photographs of all unit price items with daily signatures being obtained from the Owner’s on-site project representative.

I. Roof Drainage

1. Perform a flow test on all existing roof drains and ground drain leaders prior to demolition work. Should roof drain lines or ground drain leaders be slow to drain or clogged, notify Architect and Owner’s representative prior to start of any work. All drain lines shall be fully functional throughout the course of the project.
2. Existing roof drain bowls, if found to be fully functional after flow testing and repairs, shall be cleaned and reused with all <u>new</u> cast iron drain parts, including; but, not limited to, new clamping ring, bolts, and drain strainer.

J. Scope of Work for New Standing Seam Metal Roof Systema - Oakland Elementary School, Mack Benn JR. Elementary School and, Northern Shore Elementary School.

1. After removal of the existing asphalt shingle roof systems and felt underlayment, inspect the roof deck for deterioration or damage. If deteriorated or damaged sections of roof

deck are found, remove and replace the roof deck panel and re-secure to structural supports.

2. After the roof deck substrate has been inspected and repaired to provide a structurally sound substrate, install, new self-adhered 36-inch wide minimum MetShield High Temperature Peel and Stick Underlayment upslope at both sides of all valleys and 36-inch wide sheet at all hips, eaves, rakes, rising walls and around all roof penetrations. **The MetShield underlayment shall extend a minimum of 36-inchs beyond exterior wall into the heated air space at all eaves and rake edges.**
3. Install MetShield Synthetic Underlayment at all other locations with both materials installed in shingle fashion to promote proper drainage and avoid bucking water.
4. Install new valley metal according to manufacturer requirements and detail drawings.
5. Install new metal panel roof system using floating clips as specified. Clip spacing shall be as instructed by the roof panel manufacturer to meet specified uplift pressures.
6. Install new hip metals and ridge metals according manufacturer requirements and detail drawings.
7. Remove and dispose of all debris in gutters and downspouts.
8. Clean and re-seal all gutter joints, gutter end caps and downspout outlets to provide a watertight gutter drainage system.
9. Install new gutter screens at locations indicated on drawings according to manufacturer requirements and detail drawings.
10. Install new roof curbs, pipe flashings and other trim metals as required and shown.
11. Install new snow guards at locations indicated on drawings.

K. Scope of Work for New Single Ply TPO Roof System – Oakland Elementary School - Roof Area A

1. After removal of the existing single ply EPDM and all underlying insulation, gravel surfacing and Coal-tar BUR roof membrane, inspect the existing lightweight concrete roof deck for deterioration or damage. If deteriorated or damaged sections of roof deck are found, remove and replace the roof deck to provide a structurally sound substrate.
2. After the roof deck substrate has been inspected and repaired to provide a structurally sound substrate, install one layer base sheet mechanically attached.
3. Install new 4-inch base layer of polyisocyanurate insulation loose laid.
4. Install new 1/16 inch per foot tapered polyisocyanurate insulation loose laid
5. Install new ½-inch high density polyisocyanurate insulation mechanically attached.
6. Install new 60 Mil TPO single ply membrane fully adhered.

L. Scope of Work for New Single Ply TPO Roof System – Northern Shore Elementary School - Roof Area A & B

1. Detach the existing single ply EPDM roof membrane according to the selected roof membrane manufacturers requirements.
2. Install new ½-inch high density polyisocyanurate insulation mechanically attached
3. Install new 60 Mil Induction Welded / Mechanically Attached TPO single ply membrane

1.3 CONTRACTOR USE OF PREMISES

A. Permission to interrupt utility service to the existing building shall be requested fourteen (14)

calendar days in advance.

B. Limit use of the premises to construction activities in areas indicated. Confine operations to areas within contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.

C. Limit use of the premises for construction activities and material storage in areas indicated; allow for Owner occupancy. Cooperate with Owner and code official in devising a plan to allow safe ingress and egress during construction.

D. Keep driveways, fire lanes and entrances serving the premises, clear and available to the Owner and the Owner's employees at all times. Do not use these areas for parking or storage of materials.

E. The Contractor shall protect from damage all improvements that are to remain. All improvements and ground areas damaged during construction shall be restored to like new work.

F. Site Safeguards: It shall be the Contractor's responsibility to take all prudent and reasonable measures and to comply with all local codes and governing jurisdictions to provide such safeguards as necessary to maintain the construction site and adjacent areas, as well as, the work in progress in a manner so as to protect the work person and the public from harm resulting from the construction work and related operations.

G. The Contractor shall strictly prohibit weapons, drugs and alcohol products on the project and Owner’s property.

H. A dress code that requires all construction personnel to wear shirts at all times (without vulgar slogans) will be enforced.

I. Use of the Existing Building: Maintain the existing building in a weathertight condition throughout the construction period. Immediately repair damage caused by construction operations. Take all precautions necessary to protect the building and building occupants during the construction period. It shall be mandatory that the contractor provide a watertight condition with appropriate “tie-in” on a daily basis.

1.4 OWNER OCCUPANCY

A. The Owner/tenant will occupy the site and the existing building during the construction period. Cooperate with the Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the work so as not to interfere with the Owner's daily operations.

1.5 CONTRACTOR CONDUCT

A. Use, consumption, and/or possession of any controlled substance, substances considered to be illegal, and alcohol are strictly prohibited on Owner’s property.

B. Smoking will only be permitted at designated areas approved by the Owner.

C. Use or possession of weapons, firearms, or archery equipment of any types, are strictly prohibited on Owner's property.

D. Use of vulgar, suggestive, or abusive language and/or gestures are strictly prohibited

E. Contractor shall provide photographic identity badges that must be visibly worn at all times by each construction worker while on Owner's property.

F. Contractor and construction workers shall not consult with facility personnel regarding any issue of a construction nature, except in emergency situations.

G. Fraternization between Contractor or construction workers and facility staff is strictly prohibited.

H. Use of facility restrooms is strictly prohibited. Contractor shall provide a porta-john that shall be cleaned and filled with required supplies on a regular basis.

I. Use of, or dining in facility cafeteria is strictly prohibited.

J. Use of facility dumpsters for construction debris and trash is strictly prohibited.

K. Use of radios, stereos, compact disc players, and/or other noise producing equipment may be deemed unacceptable at occupied facilities if they are disruptive to the facility personnel.

L. Construction traffic shall obey all traffic requirements as posted within the site. Where speed limits are not posted, limit speeds to no greater than 10 mph.

1.6 ROOFING GUARANTEE

A. Submit roofing Installer's warranty, signed by Installer and the Contractor, covering Work of this Contract, including membrane roofing, base flashing, roofing insulation, fasteners, metal counter flashing and roof drains and plumbing, and standing seam metal roof system for the following warranty period:

1. Warranty Period: Two (2) years from date of Final Completion of the entire project.

B. Manufacturer's Warranty: New Standing Seam Metal Roof Systems - In addition to the 2-year period specified above, furnish the metal roof panel manufacturer's printed 20 Year, full system watertight warranty covering all workmanship and materials for the Work of this Contract. The warranty shall include, but not be limited to, repair of leakage, and the repair and/or replacement of the roofing system caused by defects in materials or workmanship.

1. Warranty Period: Twenty (20) years from date of Final Completion of the entire project.

C. Manufacturer's Warranty: New Standing Seam Metal Roof Systems - In addition to the watertight warranty outlined above, provide Special Paint Anti-Weathering Warranty: Manufacturer's standard form PVDF (Fluorocarbon) System Warranty for film integrity, chalk

rating and fade rating in which manufacturer agrees to repair or replace panels that show evidence of deterioration within specified warranty period.

1. Deterioration shall include:

    a. Color fading on non-vertical surfaces of more than 7 Hunter units when tested according to ASTM D2244.
    b. Chalking on non-vertical surfaces in excess of a No. 6 rating when tested according to ASTM D4214.
    c. Peeling, cracking, checking, flaking or failure of paint to adhere to bare metal.

2. Warranty Period: Film integrity for 35 years and chalk and fade rating for 35 years from date of Substantial Completion.

D. Manufacturer's Warranty: Oakland Elementary School - Roof Area A and Northern Shore Elementary School - Roof Areas A & B - In addition to the 2-year period specified above, furnish the membrane manufacturer's printed 20 Year, No Dollar Limit, full system warranty with special terms for accidental puncture/damage covering workmanship and materials for the Work of this Section. The warranty shall include, but not be limited to, repair of leakage, and the repair and/or replacement of the roofing system caused by defects in materials or workmanship or accidental puncture/damage.

1. Warranty Period: Twenty (20) years from date of Final Completion of the entire project.

E. Note that these warranties/guarantees shall begin on the date of Final Completion and acceptance of the completed roof system by the Owner.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 010100

SECTION 010350 - MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

1.3 RELATED SECTIONS

A. The following sections contain requirements that relate to this section:

1. Division 1 - Section "Submittals"
2. Division 1 - Section "Schedules, Reports, Payments"
3. Division 1 - Section “Substitutions”

1.4 MINOR CHANGES IN THE WORK

A. Supplemental instructions authorizing minor changes in the Work, not involving an adjustment to the Contract Sum or Contract Time, will be issued by the Architect on AIA form G710, Architects' Supplemental Instructions.

1.5 CHANGE ORDER PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests:

1. Proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time will be issued by the Architect, with a detailed description of the proposed change and supplemental or revised Drawings and Specifications, if necessary. Proposal requests issued by the Architect are for information only. Do not consider them instruction either to stop work in progress, or to execute the proposed change. Unless otherwise indicated in the proposal request, within 10 days of receipt of the proposal request, submit to the Architect for the Owner's review an estimate of cost necessary to execute the proposed change.
2. Include a list of quantities of products to be purchased and unit costs, along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.
5. Comply with requirements in the Division 1 Section "Product Substitutions" if the proposed change requires substitution of one product or system for a product or system specified.

6. Where modifications involve the work of subcontractors, provide copies of the subcontractor's proposals on the subcontractor's standard company forms or company letterhead.

B. Contractor-Initiated Change Order Proposal Requests

1. When latent or other unforeseen conditions require modifications to the Contract, the Contractor may propose changes by submitting a request for a change to the Architect.
2. Include a statement outlining the reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and Contract Time.
3. Include a list of quantities of products to be purchased and unit costs along with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
4. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

C. Proposal Request Form: Use AIA Document G709 for Change Order Proposal Requests. All Proposal Request forms must be numbered consecutively, whether Owner or Contractor generated.

1.6 CONSTRUCTION CHANGE DIRECTIVE

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

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

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive as outlined in the Supplementary General Conditions.

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

1.7 CHANGE ORDER PROCEDURES

A. Upon the Owner's approval of a Change Order Proposal Request, the Architect will issue a Change Order for signatures of the Owner and Contractor on AIA Form G701, as provided in the Conditions of the Contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 010350

SECTION 010400 - PROJECT COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:

1. Superintendent, Administrative and supervisory personnel.
2. Coordination.
3. General installation provisions.
4. Cleaning and protection.
5. Conservation and salvage.

B. Superintendent: The Contractor shall employ a full time, competent superintendent and necessary assistants who must be in attendance at the Project site during performance of the Work, including through the Punch List period until Final Acceptance. The superintendent shall be, as a minimum, a senior supervisory foreman who shall be limited to not more than four (4) hours of hands-on work and shall provide four (4) hours or more each day of supervision and coordination of all trades and craftsmen.

1.3 COORDINATION

A. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.

1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.
4. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.

    a. Prepare similar memoranda for the Owner, Architect and separate Contractors where coordination of their Work is required.

B. Administrative Procedures:

1. Coordinate scheduling and timing of required administrative procedures with other

construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

a. Preparation of schedules.
b. Installation and removal of temporary facilities.
c. Delivery and processing of submittals.
d. Project Close-out activities.

C. Conservation:

1. Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
2. Salvage materials and equipment involved in performance of, but not actually incorporated in, the Work. Refer to other sections for disposition of salvaged materials that are designated as Owner's property.

1.4 SUBMITTALS

A. Staff Names: Within fifteen (15) days of Notice to Proceed, submit a list of the Contractor's principal staff assignments, including the Superintendent and other personnel in attendance at the site; identify individuals, their duties and responsibilities; list their addresses and telephone numbers. The home phone numbers of company presidents for all subcontractors (if any) shall be provided for use during emergency situations. The Project Superintendent shall be identified prior to the pre-construction conference and must be in attendance for all required meetings through Final Acceptance.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 GENERAL INSTALLATION PROVISIONS

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

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

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

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

E. Quality Control: Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision. Recheck measurements and dimensions, before starting each installation. Install each

component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

3.2 CLEANING AND PROTECTION

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

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

1. Excessive static or dynamic loading.
2. Excessively high or low temperatures and/or humidity.
3. Water and/or ice.
4. Solvents and/or Chemicals.
5. Puncture and/or Abrasion.
6. Heavy traffic, unusual wear or other misuse
7. Soiling, staining and corrosion.
8. Contact between incompatible materials.
9. Excessive weathering.
10. Unprotected storage.
11. Improper shipping or handling.
12. Theft or Vandalism.

END OF SECTION 010400

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SECTION 010450 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for cutting and patching.

B. Refer to other Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

C. Demolition: Demolition of the existing roof system is included in Section 02070 - Selective Demolition.

1.3 SUBMITTALS

A. Submit the following in accordance with conditions of the Contract and Division 1 specification Section 01300 – Submittals.

1. Cutting and Patching Proposal:

a. Where approval of procedures for cutting and patching is required before proceeding, submit a proposal describing procedures well in advance of the time cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the proposal:
b. Describe the extent of cutting and patching required and how it is to be performed.
c. Describe anticipated results in terms of changes to construction; include changes to structural elements and operating components.
d. Indicate dates when cutting and patching is to be performed.
e. List utilities that will be disturbed or affected, including those that will be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
f. Where cutting and patching involves addition of reinforcement to structural elements, submit details and engineering calculations to show how reinforcement is integrated with the original structure.

1.4 QUALITY ASSURANCE

A. Requirements for Structural Work: Do not cut and patch structural elements in a manner that would reduce their load-carrying capacity or load-deflection ratio. Obtain approval of the cutting and patching proposal before cutting and patching the following structural elements:

1. Bearing and retaining walls.
2. Structural concrete and/or Structural steel.
3. Lintels.

4. Structural decking.
5. Miscellaneous structural metals.
6. Equipment supports.

B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in a manner that would result in reducing their capacity to perform as intended, or result in increased maintenance, or decreased operational life or safety.

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces, in a manner that would reduce the building's aesthetic qualities or result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually unsatisfactory manner.

PART 2 – PRODUCTS

2.1 MATERIALS

A. Use materials that are identical to original materials. Use materials whose installed performance will equal or surpass that of original materials.

PART 3 - EXECUTION

3.1 INSPECTION

A. Before cutting surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding, if unsafe or unsatisfactory conditions are encountered. Before proceeding, meet at the site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

3.2 PREPARATION

A. Temporary Support: Provide temporary support of Work to be cut.

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas. Take all precautions necessary to avoid cutting existing pipe, conduit or ductwork serving the building.

3.3 PERFORMANCE

A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent fitting and patching required to restore surfaces to their original condition.

B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction. Where possible review proposed procedures with the original installer; comply with the original installer's recommendations.

1. In general, where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. To avoid marring finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.

1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
2. Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Remove existing floor and wall coverings and replace with new materials, if necessary to achieve uniform color and appearance.

    a. Where patching occurs in a smooth painted surface, extend final paint coat over entire surface containing the patch, after the patched area has received primer and second coat. Patch, repair or rehang existing ceilings as necessary to provide an even plane surface of uniform appearance. Replace damaged ceiling tiles with units to match original or if not available, replace ceiling tiles with new units throughout space.

3.4 CLEANING

A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Remove completely paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 010450

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SECTION 010950 - REFERENCE STANDARDS AND DEFINITIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

A. General Explanation: A substantial amount of specification language constitute definitions for terms found in other contract documents, including drawings which must be recognized as diagrammatic in nature and not completely descriptive of requirements indicated thereon. Certain terms used in contract documents are defined generally in this article. Definitions and explanations of this section are not necessarily either complete or exclusive but are general for the work to extent not stated more explicitly in another provision of contract documents.

B. General Requirements: The provisions or requirements of Division-1 sections apply to entire work of Contract and, where so indicate, to other elements which are included in this project.

C. Indicated: The term "indicated" refers to graphic representations, notes, or schedules on the Drawings, other paragraphs or schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown," "noted," "scheduled," and "specified" are used, it is to help the reader locate the reference; no limitation on location is intended.

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

E. Approved: The term "approved," where used in conjunction with the Owner's action on the Contractor's submittals, applications, and requests, is limited to the Architect's duties and responsibilities as stated in General and Supplementary Conditions.

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

G. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."

H. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."

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

J. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or sub-subcontractor, for performance of a particular construction

activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.

K. Experience: The term "experienced" when used with the term "Installer" means having a minimum of 5 previous Projects similar in size and scope to this Project, being familiar with the precautions required, and having complied with requirements of the authority having jurisdiction.

L. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

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

N. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division format.

B. Sections and Divisions: For convenience, basic unit of specification text is a "section," each unit of which is named and numbered. These are organized into related families of sections, and various families of sections are organized into "divisions," which are recognized as the present industry-consensus on uniform organization and sequencing of specifications. The section title is not intended to limit meaning or content of section, nor to be fully descriptive of requirements specified therein, nor to be an integral part of text.

C. Parts of Sections: Each section of specifications has been subdivided into 3 (or less) "parts" for uniformity and convenience (Part 1 - General, Part 2 - Products, and Part 3 - Execution). These do not limit the meaning of and are not an integral part of text which specifies requirements.

D. Subordination of Text: Portions of specification text are subordinated to other portions in the following (traditional) manner (lowest level to highest):

1. Indented (from left margin) paragraphs and lines of text are subordinate to preceding text which is not indented, or which is indented by a lesser amount.
2. Paragraphs and lines of text are subordinate to sub-article titles, which are printed in upper/lower-case lettering.
3. Sub-articles are subordinate to article titles, which are printed in upper-case lettering.
4. Subordination (if any) of certain sections (or portions of sections) to other sections is described within those sections.

E. Imperative Language: Used generally in specifications. Except as otherwise indicated, requirements expressed imperatively are to be performed by Contractor. For clarity of reading at

certain locations, contrasting subjective language is used to describe responsibilities which must be fulfilled indirectly by Contractor, or when so noted, by others.

F. Section Numbering: Used to facilitate cross-references in contact documents. Sections are placed in Project Manual in numeric sequence; however, numbering sequence is not complete, and listing of sections at beginning of Project Manual must be consulted to determine numbers and names of specification sections in contact documents.

G. Page Numbering: Numbered independently for each section; recorded in listing of sections (Index or Table of Contents) in Project Manual. Section number is shown with page number at bottom of each page, to facilitate location of text in Project Manual.

H. Project Identification: Project number is recorded at top of each page of specifications to minimize possible misuse of specifications, or confusion with other project specifications.

I. Specification Content: This Specification uses certain conventions in the use of language and the intended meaning of certain terms, works, and phrases when used in particular situations or circumstances. These conventions are explained as follows:

1. Abbreviated Language: Language used in Specifications and other Contract Documents is the abbreviated type. Implied works and meanings will be appropriately interpreted. Singular works will be interpreted as plural and plural words interpreted as singular where applicable and the full context of the Contract Documents so indicates.
2. Imperative Language: Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.
    a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.
3. Minimum Quality/Quantity: In every instance, quality level or quantity shown or specified is intended as minimum for the work to be performed or provided. Except as otherwise specifically indicated, actual work may either comply exactly with that minimum (within specified tolerances), or may exceed that minimum within reasonable limits. In complying with requirements, indicated numeric values are either minimums or maximums as noted or as appropriate for context of requirements. Refer instances of uncertainty to Architect for decision before proceeding.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Where the date of issue of a referenced standard is not specified, comply with the standard in effect as of date of Contract Documents.

C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards establish different or conflicting requirements for minimum quantities or quality levels,

refer requirements that are different, but apparently equal, and uncertainties to the Architect for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these requirements, indicated numeric values are minimum or maximum, as appropriate for the context of the requirements. Refer uncertainties to the Architect for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents. Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source. Although copies of standards needed for enforcement of requirements may be included as part of required submittals, the Owner reserves the right to require the Contractor to submit additional copies as necessary for enforcement of requirements.

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

1.5 SUBMITTALS

A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the Work.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 010950

SECTION 011260 - UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for unit prices.

B. A unit price is an amount established by the Contract Documents and stated herein with a price per unit of measurement for materials or services that will be added to or deducted from the Contract Sum by Change Order in the event the estimated quantities of Work required by the Contract Documents are increased or decreased.

C. Unit prices shall include all necessary material, overhead, profit and applicable taxes. No additional mark-ups or compensation will be paid by the Owner.

D. Refer to individual Specification Sections for construction activities requiring the establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.

E. Quantities will be calculated jointly by Contractor, Consultant, and the Owner's independent testing agency. Quantities shall be calculated by actual area and depth of excavation to be removed and or filled. All work shall be supervised by the Owner's inspection agency.

1.3 SCHEDULE

A. A "Unit Price Schedule" is included at the end of this Section. Specification sections referenced in the Schedule contain requirements for materials and methods described under each unit price.

B. The Owner reserves the right to reject the Contractor's measurement of work-in-place that involves use of established unit prices, and to have this Work measured by an independent surveyor acceptable to the Contractor at the Owner's expense.

1.4 COSTS

A. No change order involving unit prices will be paid unless the Owner's representative approves the change order.

1.5 SUBMITTALS

A. Submit data for purchase of products or systems included in Unit Prices.

1.6 CONTINGENCY

A. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under a Unit Price item are included in the Unit Price. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.

B. At Project closeout, credit unused amounts remaining in the Unit Price(s) to Owner by Change Order.

1.7 REDUCTIONS IN QUANTITIES OF WORK

A. Should less work be required than that required by the Contract Documents, reductions in the Contract Sum will be adjusted by unit prices established above less ten (10) percent.

1.8 UNUSED MATERIALS

A. Should less work be required than that required by the Contract Documents, reductions in the Contract Sum will be adjusted by unit prices established above less five (5) percent.

1.9 DOCUMENTATION

A. The Contractor’s on-site representative shall keep a daily log and running total of items encountered under the Unit Price. The daily log shall include documentation of the location and quantity of the items on a corresponding roof plan drawing.

B. The Contractor shall document all Unit Price work with photographs of the deteriorated ‘before’ condition and the completed ‘after’ conditions. The Contractor shall provide his on-site representative with a camera for the purposes of the photographic documentation.

1. The Contractor shall provide the Owner with electronic copies of all photographic documentation.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 UNIT PRICE BASED SCHEDULE

A. All unit price work performed shall require photographic documentation which shall include a date on the item photographed.

3.2 UNIT PRICE ITEMS:

A. The following unit prices shall be provided on the submitted Bid Form. All unit price work performed shall require photographic documentation which shall include a date on the item photographed.

Item 1. Plywood decking Replacement: Additional amount to remove wet or damaged plywood decking to match existing thicknesses (5/8-inch) as indicated in the specifications.

Item 2. Wet / Damaged Insulation Removal and Replacement: Additional amount to remove wet or damaged roof insulation over steel roof deck areas and infill with new polyisocyanurate insulation to match existing thicknesses (approx. 4-inch) as indicated in the specifications.

Item 3. Metal Deck Clean, Prime and Painting: Additional amount to clean, prime and paint deteriorated areas of the existing metal decking as indicated in the specifications.

Item 4. Metal Deck Replacement: Additional amount to replace the existing metal decking to match/nest into existing as indicated in the specifications.

Item 5. Treated Wood Nailers - 2" X 4": Additional amount to replace existing deteriorated lumber with new treated lumber as specified in Division 6, Section 06100 for directly related Work as indicated on the drawings.

Item 6. Treated Wood Nailers - 2" X 6": Additional amount to replace existing deteriorated lumber with new treated lumber as specified in Division 6, Section 06100 for directly related Work as indicated on the drawings.

Item 7. Treated Wood Nailers - 2" X 8": Additional amount to replace existing deteriorated lumber with new treated lumber as specified in Division 6, Section 06100 for directly related Work as indicated on the drawings.

Item 8. Treated Wood Nailers - 2" X 10": Additional amount to replace existing deteriorated lumber with new treated lumber as specified in Division 6, Section 06100 for directly related Work as indicated on the drawings.

Item 9. Treated Wood Nailers - 2" X 12": Additional amount to replace existing deteriorated lumber with new treated lumber as specified in Division 6, Section 06100 for directly related Work as indicated on the drawings.

END OF SECTION 011260

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SECTION 012000 - PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for project meeting including but not limited to:

1. Pre-Construction Conference.
2. Preinstallation Conference
3. Progress Meetings

1.3 PRE-CONSTRUCTION CONFERENCE

A. Schedule: Schedule a pre-construction conference and organizational meeting at the Project site or other convenient location no later than fifteen (15) days after execution of the Agreement and prior to commencement of construction activities. Conduct the meeting to review responsibilities and personnel assignments.

B. Attendees: The Owner, Architect, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.

C. Agenda: Discuss items of significance that could affect progress including such topics as:

1. Verify distribution of bond and insurance certificates.
2. Establish start date and completion date if not yet established.
3. Tentative construction schedule.
4. Critical Work sequencing.
5. Designation of responsible personnel.
6. Procedures for processing field decisions and Change Orders.
7. Procedures for processing Applications for Payment.
8. Establish date of progress meetings
9. Distribution of Contract Documents.
10. Submittal of Shop Drawings, Product Data and Samples.
11. Use of the premises and Parking availability.
12. Safety procedures and First aid.
13. Security.
14. Housekeeping.
15. Working hours.
16. Preparation of record documents.
17. Office, work and storage areas.
18. Utility coordination.

19. Equipment deliveries and priorities.
20. Hazardous materials.

D. Prepare and distribute copies of the minutes of the meeting to each entity present and to others who should have been present. Include all items outlined by the Owner and Architect.

1.4 PROGRESS MEETINGS

A. Conduct progress meetings at the Project Site at regular intervals. Architect will notify the Owner and the Contractor of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request.

B. Attendees: Representatives of the Owner, Contractor and the Architect, shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.

C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.

1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

D. Reporting (Meeting Minutes by Contractor): No later than three (3) days after each meeting, distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

1. Schedule Updating: Review the Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 012000

SECTION 013000 – SUBMITTALS AND SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS:

A. General Conditions, Supplementary General Conditions and other sections of Division 1 of these specifications govern all work hereunder.

B. This section includes requirements for the submittal schedule and administrative and procedural requirements for submitting shop drawings, product data, samples, and other submittals.

1.2 RELATED WORK SPECIFIED ELSEWHERE:

A. Payment Procedures and Submittals: Section 01310.

B. Submittal Schedule: Section 01300.

C. Operation and Maintenance Data: Section 01700.

D. Record Documents: Section 01700.

1.3 SUBMITTAL ADMINISTRATIVE REQUIREMENTS:

A. Coordination: Coordinate preparation and processing of all submittals with performance of construction activities so as to cause no delays in the progress of the project.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each specification section concurrently unless partial submittals for portions of the work are indicated on the approved submittal schedule.
3. Coordinate transmittal of different types of submittals for related portions of the work so processing will not be delayed, because of need to review submittals concurrently for proper coordination.
4. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

B. Processing Time: Contractor shall allow sufficient time for submittal review, including time for resubmittals as may be required. Time for review shall commence on Architect's (or consultant's) receipt of submittal. No extension of the Contract time will be authorized because of failure to transmit submittals enough in advance of work to permit processing, including resubmittals.

1. Allow fifteen (15) calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination with another submittal.
2. If an intermediate submittal is required, process it in the same manner as initial submittal.
3. Allow fifteen (15) calendar days for review of each subsequent resubmittal.
4. Where sequential review of submittals by Architect's consultants, Owner, or other parties is

indicated or required, allow twenty-one (21) calendar days for initial review of each submittal.

C. Options: All submittals shall clearly identify any and all options requiring selection by the Architect or Engineer.

D. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those required by Architect from previous submittals, and deviations from requirements in the Contract Documents, including variations and limitations. Include same identification information as on the related submittal.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, material suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for proper performance of construction activities. Indicate distribution on transmittal forms.

F. Use for Construction: Retain complete copies of all submittals on Project site. Use only final submittals that are permanently marked with the completed approval stamp or other approval notation of the Architect.

1.4 ELECTRONIC SUBMITTALS:

A. In lieu of hard copy submittals of shop drawings and product data, provide electronic PDF files for all submittals of shop drawings to the Architect. Identify and incorporate information in each electronic submittal file as follows:

1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single specification section and transmittal form with links enabling navigation to each item.
2. Name file with a submittal number or other unique identifier, including revision identifiers as required.
    a. File name shall use project identifier and specification section number followed by a decimal point and then a sequential number (e.g., WWMS-061000.01). Resubmittals shall include an alphabetical suffix after another decimal point (e.g., WWMS-061000.01.A).
3. Provide means for insertions to permanently record the Contractor's review and approval markings and for markings for actions taken by the Architect.
4. Transmittal form for electronic submittals shall contain the same information as required for paper or other submittals as indicated in Subparagraph 1.04 D. above.

B. Provide actual samples of all products where review of color samples is required. Electronically scanned and reproduced images of material products, textures, patterns and colors will not be accepted. These color samples are the only submittals that require actual samples. All other submittals are required to be provided electronically. Provide two sets of all color samples. One set will be returned to the Contractor and one set will be retained by the Architect.

1.5 SUBMITTAL PROCEDURES:

A. Shop drawings, product data and samples shall be submitted wherever required in any division or section of the specifications. Comments will be made electronically on the PDF submitted and will be returned to the Contractor with the Architect's transmittal attached for distribution to the

required parties. In addition, the Contractor will provide a maximum of two paper copies of all Submittals to the Owner as agreed upon with the Owner at the outset of the Project.

B. All submittals shall be identified with the complete name of the project, Owner's project identification number, Architect's name, Architect's commission number and the specification section and paragraph number. The specific items intended for use in the project shall be clearly identified. All related items shall be submitted at one time and shall be fully coordinated prior to submission.

C. All submittals shall have the name, address and telephone number of the company submitting the data, date of preparation and scale(s) of drawings.

D. Each submittal shall be accompanied by a transmittal letter listing the contents of the submittal and providing information noted in Subparagraph 1.05 B. above. Product data and other material that cannot be conveniently labeled shall be bound in suitable covers bearing proper identification. Submitting multiple non-related products under one transmittal letter will not be permitted.

E. Shop drawings and data shall be complete in every detail sufficient to show each component, how components relate to each other and to other adjacent work shown on the Contract Documents, and as required to fully describe the installation. Clearly indicate any work that is "By Others". Data shall show how all items submitted are to be fastened in place, including types of fasteners, clips and anchors.

F. Only shop drawings and data checked and marked "Approved" or "Approved As Noted" by Contractor will be accepted for review. Do not submit shop drawings that have not been thoroughly reviewed by the Contractor. Shop drawings that have not been reviewed by the Contractor will be returned marked "Rejected."

G. The Architect will review, stamp and note all shop drawings, product data and samples on the following basis:

1. Any submittal considered "NO EXCEPTIONS TAKEN" or "MAKE CORRECTIONS NOTED" will be marked by the Architect and returned to the Contractor. No resubmittal of material so marked will be required unless requested by the Architect. If so checked, fabrication may be undertaken. Approval does not authorize changes to contract sum unless stated in separate letter or change order.
2. Any submittal considered "AMEND AND RESUBMIT" will be so marked, stamped and noted by the Architect and returned to the Contractor.
3. Any submittal not properly submitted or identified, or if marked "REJECTED - SEE REMARKS" by the Architect, will be returned to the Contractor unmarked and with a letter from the Architect stating the basic reason for the action taken.
4. Shop drawings that do not meet all the requirements herein outlined or that are incomplete or with insufficient data will be returned without action and unmarked, and with a letter stating the basic reason for the action taken.
5. Resubmitted shop drawings, product data and samples, when required, shall be in the same quantities as the original submittal.

H. Except for pre-printed product data, all shop drawing submittals shall be made in the following manner:

1. For each drawing, submit one scanned page per drawing. All pages of shop drawings will

be combined into one electronic file.

2. After review, Architect will return the file to the Contractor with any applicable notations, transmittal and an appropriate stamp.
3. The Contractor shall be responsible for prints required for the work. These prints shall be from the final notated electronic file bearing the notations and stamp of the Architect.

I. Shop drawings for this project shall be submitted separately from those of any other project which may be bid or constructed at the same time.

J. Contractor is advised and requested to submit all color, texture, finish and pattern palettes and color chips to Architect as soon as possible after the date of the Contract to avoid delay in fabrication and delivery of items requiring color selection. **No color selections will be made until complete color palettes for all materials requiring selection of colors and finishes have been received by the Architect. Selections for interior colors, etc., and for exterior colors, etc., may be made by Architect on different schedules in order to expedite selections.**

K. All shop drawings, product and other data, samples, etc., shall be submitted in a timely manner to cause no delay in the project.

L. Submittals not required by the Contract Documents may be returned to the Contractor without action and unmarked.

M. Material safety data sheets need not be submitted, nor will they be reviewed or marked by the Architect. However, certification that these sheets are present at the job site and available for use in compliance with all applicable laws and regulations shall be submitted in their stead. At final completion of the project, all material safety data sheets for materials used in the project shall be turned over to the Owner.

N. Subject to other requirements in this Paragraph 1.05, Architect will review, mark and stamp the original submittal and up to two (2) resubmittals as part of his obligation under the Contract. Additional submittals required to be reviewed by the Architect due to the failure of those submittals' ability to meet the project requirements will be reviewed by the Architect at the expense of the Contractor. Cost of such reviews will be deducted from the Contract price by Change Order.

PART 2 – PRODUCTS

2.1 SAMPLES:

A. All samples submitted, where required or requested in any individual Specification section, shall be the same materials, model numbers, finishes, etc., as submitted in the shop drawings and product data and shall show all features of the product as required to enable the Architect to determine that the product submitted meets all requirements of the specifications.

2.2 COLOR AND TEXTURE SAMPLES:

A. All color and texture samples submitted for the use of the Architect in making color and texture selections shall be actual materials showing integral color and texture and shall be submitted in a complete range of colors and textures available from the selected manufacturer.

B. Color samples for materials with factory applied paint shall consist of actual paint applied to the same substrate as used for the project. Other color samples shall be actual fabric or other material and in a complete range of colors and patterns available from the selected manufacturer. Color samples for paints in Section 09900 shall be actual paint chips as supplied by the paint manufacturer.

C. Color, texture and pattern charts printed in published in printed brochures or other literature are not acceptable. Color, texture and pattern samples may not be submitted digitally.

D. Upon completion of color schedules for interior and for exterior materials, and their approval by the Owner, Architect will forward complete schedules of colors, textures and patterns for the entire project, one for interior products and one for exterior products. See Subparagraph 1.04 J. above.

PART 3 – SUBMITTAL LIST (Not Applicable)

END OF SECTION 013000

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SECTION 013100 - SCHEDULES, REPORTS, PAYMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 COORDINATION

A. Coordinate both the listing and timing of reports and other activities required by provisions of this and other sections, so as to provide consistency and logical coordination between the reports. Maintain coordination and correlation between separate reports by updating at monthly or shorter time intervals. Make appropriate distribution of each report and update report to all parties involved in the work.

1.3 PROGRESS MEETINGS, REPORTING

A. General: In addition to specific coordination and pre-installation meetings for each element of work, and other regular project meetings held for other purposes, hold a general progress meeting each week, unless otherwise directed by the Architect. Require each entity then involved in planning, coordination or performance of work to be properly represented at each meeting. Review each entity's present and future needs including interface requirements, time, sequences, delivered, access, site utilization, temporary facilities and services, hours of work, hazards and risks, housekeeping, change orders, and documentation of information for payment requests. Discuss whether each element of current work is ahead of schedule, on time, or behind schedule in relation with updated progress schedule. Determine how behind-schedule work will be expedited, and secure commitments from entities involved in doing so. Discuss whether schedule revisions are required to ensure that current work and subsequent work will be completed within Contract Time. Review everything of significance which could affect progress of the work.

B. Initial Progress Meeting: Schedule initial progress meeting, recognized as "Pre-Construction Meeting," for a date not more than fifteen (15) days after date of commencement of the work. Use it as an organizational meeting, and review responsibilities and personnel assignments.

C. Reporting: Within three (3) days after each progress meeting date, distribute copies of minutes-of-the-meeting to each entity present and to others who should have been present. Include brief summary (in narrative form) of progress of the work since previous meeting and report.

1.4 PAYMENT REQUESTS

A. General: Except as otherwise indicated, the progress payment cycle is to be regular. Each application must be consistent with previous applications and payments. Certain applications for payment, such as the initial application, the application at substantial completion, and the final payment application involve additional requirements. As-built drawings will be reviewed at each pay request meeting.

B. Payment Application Times: The "date" for each progress "payment" is as indicated in the General Conditions of the Contract or, if none is indicated therein, it is the last day of each month. The period of construction work covered by each payment request is the period ending fifteen (15) days prior to date for each progress payment, and starting day following end of preceding period.

C. Payment Application Forms: AIA Document G702 and Continuation Sheets; available from "Publications, a Division of The AIA Service Corporation," 1735 New York Avenue, NW, Washington, DC 20006 (also available at most local AIA chapter offices).

D. Application Preparation: Except as otherwise indicated, complete every entry provided for on the form, including notarization and execution by authorized persons. Incomplete applications will be returned without action. Entries must match current data of schedule of values and progress schedule and report. Listing must include amounts of change orders issued prior to last day of the "period of construction" covered by application.

E. Initial Payment Application: The principal administrative actions and submittals which must precede or coincide with submittal of contractor's first payment application can be summarized as follows, but not necessarily by way of limitation:

1. Approved schedule of values.
2. Listing of approved subcontractors and principal suppliers and fabricators.
3. Listing of approved Contractor's staff assignments and principal consultants.
4. Copies of acquired building permits and similar authorizations and licenses from governing authorities for current performance of the work.
5. Completed submittal register indicating the Contractor's planned submittal dates.
6. Approved construction schedule for the Work.
7. Initial progress meeting report.
8. Performance and/or payment bonds.

F. Application at Time of Substantial Completion: Following issuance of final "certificate of substantial completion," and also in part as applicable to prior certificates on portions of completed work as designated, a "special" payment application may be prepared and submitted by Contractor. The principal administrative actions and submittals which must proceed or coincide with such special applications are summarized in the General Conditions of the Contract. In addition, the Contractor shall submit a listing of Contractor's incomplete work.

G. Final Payment Application: The administrative actions and submittals which must precede or coincide with submittal of contractor's final payment application are summarized in the General Conditions of the Contract. In addition, administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:

1. Completion of Project closeout requirements.
2. Completion of items specified for completion after Substantial Completion.
3. Ensure that unsettled claims will be settled.
4. Proof that taxes, fees, and similar obligations were paid.
5. Removal of temporary facilities and services.
6. Removal of surplus materials, rubbish, and similar elements and submittal of related documents.
7. Final punch list items completed.

H. Application Transmittal: Submit five (5) executed copies of each payment application, one (1) copy of which is completed with waivers of lien and similar attachments. Transmit each copy with a transmittal form listing those attachments, and recording appropriate information related to application in a manner acceptable to Architect. Transmit one (1) copy to Owner and four (4) copies to the Architect by means ensuring receipt within twenty-four (24) hours.

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Prepare and submit a fully developed schedule of the work in accordance with the General Conditions of the Contract.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CORRESPONDENCE, REPORTS AND TRANSMITTALS

A. The Contractor shall forward all correspondence, reports and transmittals directly to the Architect. The Contractor shall forward two (2) copies of all correspondence, reports and transmittals directly to the Owner.

END OF SECTION 013100

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SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for quality assurance and quality control.

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

1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-control services required by Architect, Owner, Program/Construction Manager, or authorities having jurisdiction are not limited by provisions of this Section.

C. Related Sections include the following:

1. Division 1 Section "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
2. Divisions 2 through 16 Sections for specific test and inspection requirements.

1.3 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction complies with requirements. Services do not include contract enforcement activities performed by Architect or Program/Construction Manager.

C. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. Mockups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Mockups establish the standard by which the Work will be judged.

D. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.4 DELEGATED DESIGN

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.5 SUBMITTALS

A. Qualification Data: For testing agencies specified in Article 1.6 "Quality Assurance" to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

B. Delegated-Design Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

C. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Description of test and inspection.
3. Identification of applicable standards.
4. Identification of test and inspection methods.
5. Number of tests and inspections required.
6. Time schedule or time span for tests and inspections.
7. Entity responsible for performing tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

D. Reports: Prepare and submit certified written reports that include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Ambient conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

E. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

F. Specialists: Certain sections of the Specifications require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1. Requirement for specialists shall not supersede building codes and similar regulations governing the Work, nor interfere with local trade-union jurisdictional settlements and similar conventions.

G. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 548, and that specializes in types of tests and inspections to be performed.

H. Preconstruction Testing: Testing agency shall perform preconstruction testing for compliance with specified requirements for performance and test methods.

1. Contractor responsibilities include the following:

a. Provide test specimens and assemblies representative of proposed materials and construction. Provide sizes and configurations of assemblies to adequately demonstrate capability of product to comply with performance requirements.
b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.

c. Fabricate and install test assemblies using installers who will perform the same tasks for Project.
d. When testing is complete, remove assemblies; do not reuse materials on Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, through the Program/Construction Manager, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

3. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

a. Build mockups in location and of size indicated or, if not indicated, as directed by Architect or the Program/Construction Manager.
b. Notify Architect and the Program/Construction Manager seven (7) days in advance of dates and times when mockups will be constructed.
c. Demonstrate the proposed range of aesthetic effects and workmanship.
d. Obtain Architect's and Program/Construction Manager’s approval of mockups before starting work, fabrication, or construction.
e. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
f. Demolish and remove mockups when directed, unless otherwise indicated.

1.7 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.

B. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.

1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.

a. Contractor shall not employ the same entity engaged by Owner, unless agreed to in writing by Owner.

2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Special Tests and Inspections: Owner will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.

1. Testing agency will notify Architect, Program/Construction Manager, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Architect, through the Program/Construction Manager, with copy to Contractor, Owner and to authorities having jurisdiction.
3. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
5. Testing agency will retest and reinspect corrected work.

D. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.

E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that revised or replaced Work that failed to comply with requirements established by the Contract Documents.

F. Testing Agency Responsibilities: Cooperate with Architect, Program/Construction Manager, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect, Program/Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
3. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service.
4. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
5. Do not perform any duties of Contractor.

G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field-curing of test samples.

5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within 30 days of date established for the Notice to Proceed.

1. Distribution: Distribute schedule to Owner, Architect, Program/Construction Manager, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
2. Comply with the Contract Document requirements for Division 1 Section "Cutting and Patching."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 015000 – TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes requirements for temporary facilities, including temporary utilities.

1.3 DEFINITIONS

A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weather tight; exterior walls are insulated and weather tight; and all openings are closed with permanent construction or substantial temporary closures.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.

B. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry".

C. Paint: Comply with requirements in Division 9 Section "Painting."

D. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.

E. Water: Potable.

2.2 EQUIPMENT

A. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.

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

B. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

C. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F.

D. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, and reset button.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. Water Service: Utilize Owner's existing water service only at locations approved by the Owner.

B. Sanitary Facilities: Provide temporary toilets and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
2. Toilets: Install self-contained toilet units. Provide separate facilities for male and female personnel.
3. Drinking-Water Facilities: Provide bottled-water, drinking-water unit. Where power is accessible, provide electric water coolers to maintain dispensed water temperature at 45 to 55 deg F.

C. Electric Power: Utilize the Owner's existing electric service only at locations approved by the Owner. Provide weatherproof, grounded electric power cords of sufficient size, capacity, and power characteristics during construction period. Regardless of any temporary power provided by the Owner, the Owner's power will not be utilized for heat welding equipment. The applicator shall provide portable generators of the size and type recommended by the membrane manufacturer.

D. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.

1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
2. Provide warning signs at power outlets other than 110 to 120 V.
3. Provide metal conduit, tubing, or metallic cable for wiring exposed to possible damage. Provide rigid steel conduits for wiring exposed on grades, floors, decks, or other traffic areas.

4. Provide metal conduit enclosures or boxes for wiring devices.
5. Provide 4-gang outlets, spaced so 100-foot extension cord can reach each area for power hand tools and task lighting. Provide a separate 125-V ac, 20-A circuit for each outlet.

E. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.

1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
2. Provide one 100-W incandescent lamp per 500 sq. ft. uniformly distributed, for general lighting, or equivalent illumination.
3. Provide one 100-W incandescent lamp every 50 feet in traffic areas.
4. Install exterior-yard / roof top site lighting that will provide adequate illumination for construction operations, traffic conditions, and signage visibility when the Work is being performed.

END OF SECTION 015000

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SECTION 016000 - MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This section specifies administrative and procedural requirements governing the Contractor's selection of products for use in the Project. Refer to Section "Definitions and Standards" for applicability of industry standards to products specified. Administrative procedures for handling requests for substitutions made after award of the Contract are included in the "Instructions to Bidders" and the "General Conditions."

1.3 DEFINITIONS

A. Definitions: Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.

B. Products: Products are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named products are items identified by manufacturer's product name, including make or model designation, indicated in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
2. Foreign products, as distinguished from "domestic products," are items substantially manufactured (50 percent or more of value) outside of the United States and its possessions; or produced or supplied by entities substantially owned (more than 50 percent) by persons who are not citizens of nor living within the United States and its possessions.

C. Materials: Materials are products that are substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.

D. Equipment: Equipment is a product with operational parts, whether motorized or manually operated, that requires service connections such as wiring or piping.

1.4 QUALITY ASSURANCE

A. Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source.
B. Compatibility of Options: When the Contractor is given the option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

C. Nameplates: Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view in occupied spaces or on the exterior.

D. Labels: Locate required product labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface that is not conspicuous.

E. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on an easily accessible surface which is inconspicuous in occupied spaces. The nameplate shall contain the following information and other essential operating data:

1. Name of product and manufacturer.
2. Model and serial number.
3. Capacity.
4. Speed.
5. Ratings.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle products in accordance with the manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.

1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft and other losses.
3. Deliver products to the site in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting and installing.
4. Inspect products upon delivery to ensure compliance with the Contract Documents, and to ensure that products are undamaged and properly protected.
5. Store products at the site in a manner that will facilitate inspection and measurement of quantity or counting of units.
6. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.
7. Products that do not comply with the specifications and products that are damaged and unacceptable for use shall be removed from the site within twenty-four (24) hours.

PART 2 - PRODUCTS

2.1 GENERAL PRODUCT REQUIREMENTS

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

2.2 PRODUCT SELECTION PROCEDURES

A. Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following.

1. Semi-proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.

a. Where products or manufacturers are specified by name, accompanied by the term "or equal," or "or approved equal" comply with the Contract Document provisions concerning "substitutions" to obtain approval for use of an unnamed product.

. 2. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements.

3. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.

a. Manufacturer's recommendations may be contained in published product literature, or by the manufacturer's certification of performance.

4. Compliance with Standards, Codes and Regulations: Where the Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.

5. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Owner will select the color, pattern and texture from the product line selected.

PART 3 - EXECUTION

3.1 INSTALLATION OF PRODUCTS

A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 016000

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SECTION 016310 - SUBSTITUTIONS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

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

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

1. Division 1 Section "Reference Standards and Definitions" specifies the applicability of industry standards to products specified.
2. Division 1 Section "Submittals" specifies requirements for submitting the Contractor's Construction Schedule and the Submittal Schedule.
3. Division 1 Section "Materials and Equipment" specifies requirements governing the Contractor's selection of products and product options.

1.3 DEFINITIONS

A. Definitions in this Article do not change or modify the meaning of other terms used in the Contract Documents. Substitutions: Changes in products, materials, equipment, and methods of construction required by the Contract Documents proposed by the Contractor after award of the Contract are considered to be requests for substitutions. The following are not considered to be requests for substitutions:

1. Substitutions requested during the bidding period, and accepted by Addendum prior to award of the Contract, are included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
2. Revisions to the Contract Documents requested by the Owner or Architect.
3. Specified options of products and construction methods included in the Contract Documents.
4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.4 SUBMITTALS

A. Substitution Request Submittal: The Architect will consider requests for substitution if received within fifteen (15) days after commencement of the Work unless noted otherwise in these specifications. Requests received more than fifteen (15) days after commencement of the Work may be considered or rejected at the discretion of the Architect.

1. Submit three (3) copies of each request for substitution for consideration. Submit requests in the form and according to procedures required for change-order proposals.

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

PART 2 – PRODUCTS

2.1 SUBSTITUTIONS

A. Conditions: The Architect will receive and consider the Contractor's request for substitution when one or more of the following conditions are satisfied, as determined by the Architect. If the following conditions are not satisfied, the Architect will return the requests without action except to record noncompliance with these requirements.

1. Extensive revisions to the Contract Documents are not required.
2. Proposed changes are in keeping with the general intent of the Contract Documents.
3. The request is timely, fully documented, and properly submitted.
4. The specified product or method of construction cannot be provided within the Contract Time. The Architect will not consider the request if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
5. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
6. The requested substitution offers the Owner a substantial advantage, in cost, time, energy conservation, or other considerations, after deducting additional responsibilities the Owner

must assume. The Owner's additional responsibilities may include compensation to the Architect for redesign and evaluation services, increased cost of other construction by the Owner, and similar considerations.

7. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
8. The specified product or method of construction cannot be provided in a manner that is compatible with other materials and where the Contractor certifies that the substitution will overcome the incompatibility.
9. The specified product or method of construction cannot be coordinated with other materials and where the Contractor certifies that the proposed substitution can be coordinated.
10. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certifies that the proposed substitution provides the required warranty.
11. Where a proposed substitution involves more than one prime contractor, each contractor shall cooperate with the other contractors involved to coordinate the Work, provide uniformity and consistency, and assure compatibility of products.

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

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 016310

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SECTION 017000 - PROJECT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:

1. Project record document (as-built drawings) submittal.
2. Operating and maintenance manual submittal.
3. Final Cleaning.
4. Closeout requirements for specific construction activities are included in the General Conditions and appropriate Sections in Divisions-2 through -16.

1.3 RECORD DOCUMENT SUBMITTALS

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

B. Record Drawings (As-Builts): Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.

1. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set. Upon completion of work, submit record drawings to the Architect.

C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Mark these documents to show substantial variations in actual Work performed in comparison with the rest of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and Product Data.

1. Upon completion of the Work, submit record Specifications to the Architect.

PART 2 - PRODUCTS (Not Applicable)

PART 3 – EXECUTION

3.1 CLOSEOUT PROCEDURES

A. Operating and Maintenance Instructions: Arrange for each installer to meet with the Owner's personnel to provide instruction in proper operation and maintenance. If installers are not experienced in procedures, provide instruction by manufacturer's representatives. Include a detailed review of the following items:

1. Maintenance manuals.
2. Record documents.
3. Spare parts and materials.
4. Identification systems.
5. Hazards.
6. Cleaning.
7. Warranties and bonds.
8. Maintenance agreements and similar continuing commitments.

3.2 FINAL CLEANING

A. General: General cleaning during construction is required by the General Conditions and included in Section "Temporary Facilities."

B. Cleaning: Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion.

1. Remove labels that are not permanent labels.
2. Clean exposed exterior and interior hard-surfaced finishes to a dust-free condition, free of stains, films and similar foreign substances. Restore reflective surfaces to their original reflective condition. Repair, patch and touch-up marred surfaces to specified finish to match adjacent surfaces.
3. Clean the site, including landscape development areas, of rubbish, litter and other foreign substances. Sweep paved areas broom clean; remove stains, spills and other foreign deposits. Rake grounds that are neither paved nor planted, to a smooth even-textured surface.

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

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

END OF SECTION 017000

SECTION 020700 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes the following:

1. Demolition and removal of the existing asphalt shingle roof systems including all trim metals, valley metal, ridge, and hip metals, felt underlayment, roof curbs, gutters and downspouts.

2. Demolition and removal of existing roof membrane and crushed / damaged or wet insulation on all low slope roof areas at locations indicated on roof plan drawings.

3. Demolition and removal of the existing EPDM roof membrane, all roof insulation and underlying felt over lightweight concrete deck, all flashings, metal coping and trim metals and accessories.

4. On all low slope roof areas, remove existing wall, curb and base flashing materials as required by the selected roof system manufacturer.

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

1. Division 1, Section 010100 - Summary of Work.

1.3 DEFINITIONS

A. Remove: Remove and legally dispose of items except those indicated to be reinstalled, salvaged, or to remain the Owner's property.

B. Existing to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by the Architect, items may be removed to a suitable, protected storage location during selective demolition and then cleaned and reinstalled in their original locations.

1.4 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site with further disposition at the Contractor's option.

1.5 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections, for information only, unless otherwise indicated.

B. Proposed dust-control measures.

C. Proposed noise-control measures.

D. Schedule of selective demolition activities indicating the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.

E. Photograph or videotape, sufficiently detailed, or existing conditions of adjoining construction and site improvements that might be misconstrued as damage caused by selective demolition operations.

F. Record drawings at Project closeout according to Division 1 Section "Standard General Conditions."

1. Identify and accurately locate capped utilities and other subsurface structural, electrical, or mechanical conditions.

G. Landfill records indicating receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.6 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Engage an experienced firm that has successfully completed selective demolition Work similar to that indicated for this Project.

B. Regulatory Requirements: Comply with governing EPA notification regulations before starting selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

1.7 PROJECT CONDITIONS

A. Owner will occupy the building during the entire course of the project. Conduct selective demolition so that Owner's operations will not be disrupted. Provide not less than 72-hour notice to Owner of activities that will affect Owner's operations.

B. Owner assumes no responsibility for actual condition of portions of buildings to be selectively demolished.

1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Asbestos: Asbestos containing material that may be uncovered during the course of the project.

1. ROOF SAMPLING FOR ASBESTOS WAS NOT PERFORMED ON THESE PROJECTS. THERE ARE NO MATERIALS IN THE ROOF SYSTEM COMPOSITIONS THAT ARE SUSPECTED TO CONTAIN ASBESTOS.

2. HOWEVER, ASBESTOS CONTAINING MATERIALS MAY BE PRESENT IN OTHER AREAS OF THE BUILDING WHERE WORK IS NOT DIRECTLY BEING PERFORMED. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ANY ASBESTOS CONTAINING MATERIALS ARE NOT DISTURBED OR DAMAGED, AND WILL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH CLEAN-UP AND CLEARANCE OF THE BUILDING DUE TO DISTURBANCE OR DAMAGE TO ASBESTOS CONTAINING MATERIALS NOT INCLUDED IN THE SCOPE OF WORK.
3. ACM, IF FOUND, SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL GUIDELINES.

D. Storage or sale of removed items or materials on-site will not be permitted.

1.8 SCHEDULING

A. Arrange selective demolition schedule so as not to interfere with Owner’s on-site operations.

1.9 JOB CONDITIONS

A. Occupancy: Owner will occupy the building during the selective demolition. Conduct selective demolition work in manner that will minimize need for disruption of Owner's normal operations. Provide minimum of seventy-two (72) hours advance notice to Owner of demolition activities that will affect Owner's normal operations.

B. Partial Demolition and Removal: Items indicated to be removed but of salvageable value to Contractor may be removed from the structure as work progresses. Transport salvaged items from site as they are removed.

1. Storage or sale of removed items on site will not be permitted.

C. Protections: Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work.

1. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to occupied building.
2. Erect temporary covered passageways as required by authorities having jurisdiction.
3. Protect from damage existing finish work that is to remain in place and becomes exposed during demolition operations.
4. Protect floors with suitable coverings when necessary.
5. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.
6. Remove protections at completion of work.

D. Damages: Promptly repair damages caused to adjacent facilities by demolition work.

E. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.

1. Do not close, block, or otherwise obstruct streets, walks, or other occupied areas or used facilities without written permission from authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.

F. Flame Cutting: Do not use cutting torches for removal or alteration.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped.

B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

C. When unanticipated mechanical, electrical, or structural elements that conflict with the intended function or design are encountered, investigate and measure the nature and extent of the conflict. Promptly submit a written report to the Consultant.

D. Survey the condition of the building to determine whether removing an element might result in structural deficiency or unplanned collapse of any portion of the structure or adjacent structures during selective demolition.

E. Perform a water test on all existing roof drains prior to the start of demolition to confirm that water is flowing through the drainage system smoothly without restriction. If water restriction/clogged drains do exist, it is the contractor's responsibility to bring this to the attention of the Owner and Consultant for proper correction. If clogged conditions are not brought to the attention of the Owner and Consultant and demolition begins, the responsibility for correction becomes the installation contractor.

F. Perform surveys as the Work progresses to detect hazards resulting from demolition activities.

3.2 UTILITY SERVICES

A. Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Do not interrupt existing utilities serving occupied or operating facilities, except when authorized in writing by Owner. Provide temporary services during interruptions to existing utilities, as acceptable to Owner. Provide not less than 72 hour notice to Owner if shutdown of service is required during changeover.

3.3 PREPARATION

A. Conduct demolition operations and remove debris to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.

1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner. Provide alternate routes around closed or obstructed traffic ways.

B. Conduct demolition operations to prevent injury to people and damage to adjacent buildings and facilities to remain. Ensure safe passage of people around selective demolition area.

1. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required.
2. Protect existing site improvements, appurtenances, and landscaping to remain.
3. Provide temporary weather protection, during interval between demolition and removal of existing construction, on exterior surfaces and new construction to ensure that no water leakage or damage occurs to structure or interior areas.

3.4 POLLUTION CONTROLS

A. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level.

B. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before start of selective demolition.

3.5 SELECTIVE DEMOLITION

A. Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition work above each roof before disturbing supporting members on lower levels.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. To minimize disturbance of adjacent surfaces, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or diminished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches.
5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
6. Locate selective demolition equipment throughout the structure and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
7. Dispose of demolished items and materials promptly. On-site storage or sale of removed items is prohibited.

8. Return elements of construction and surfaces to remain to condition existing before start of selective demolition operations.

B. Install no more insulation than can be covered in one day by new roofing. See applicable Division 7 Section for new roofing requirements.

3.6 PATCHING AND REPAIRS

A. Promptly patch and repair holes and damaged surfaces caused to adjacent construction by selective demolition operations.

3.7 PLYWOOD DECK CORRECTION AND PREPARATION

A. After removal of the existing roof system and obsolete equipment, examine the plywood roof deck surface for condition and suitability to receive the new roof assembly.

B. Deck Replacement: If the plywood deck has been structurally impaired or open due to the removal of obsolete equipment, replace to provide a structurally sound substrate for installation of the new roof system and the following guidelines:

1. Examine the underside of the plywood deck for any equipment on conduit located directly below the deck surface, anything suspended or fastened to the deck, etc. If necessary, detach all objects from the bottom side of the deck to be removed.
2. Remove the structurally impaired plywood deck in full sheets. Care must be taken to prevent debris from falling into the building.
3. Inspect and replace existing deteriorated framing prior to installation of new plywood decking sheet(s).
4. Install new plywood sheet(s) and anchor to the existing structure as required.
5. Use plywood clips to matching existing installation as required.

C. All deck treatment/replacement except for areas of obsolete equipment and curb removal will be performed under the Unit Price Based Allowances established in the Contract Documents. All quantities shall be verified by the Owner’s representative and must be documented by the Contractor prior to covering the area with new roofing materials.

D. The Owner’s Representative with assistance from the Contractor's on-site project superintendent shall make the determination of areas of deck replacement. The Contractors on-site representative shall keep a daily log and running total of the above items with daily signatures being obtained from the Owner’ representative.

3.8 METAL DECK CORRECTION AND PREPARATION

A. After removal of the existing roof system, wet or damaged roof insulation and obsolete equipment, examine the metal roof deck surface for condition and suitability to receive the new roof assembly.

B. Deck Replacement: If the metal deck has been structurally impaired or open due to the removal of obsolete equipment, repair or replace according to structural requirements and drawings and the following guidelines:

1. Examine the underside of the metal deck for any conduit located directly below the deck surface, anything suspended or fastened to the deck, etc. If necessary, detach all objects from the bottom side of the deck to be removed.
2. Remove the structurally impaired metal deck using a Sawzall to prevent sparks. Care must be taken to prevent metal deck sections from falling into the building.
3. Fasten new galvanized structural metal deck of the same configuration and profile to the new or existing steel bar joists. New metal deck should span over a minimum of three steel bar joists (structural supports) and will lap over the outside supporting steel bar joists a minimum of 6". In the field and perimeter zones, fasten every deck flute at each steel bar joists using one (1) - TEK/5 12-24 x 1 1/4" hex head washer screws. Fasten metal deck side laps with a minimum of four (4) - TEK/1 10-16 x 3/4" hex head washer screws (maximum every 36" o.c.) between supporting bar joists. In the roof corners, fasten every deck flute at each steel bar joists using two (2) - TEK/5 12-24 x 1 1/4" hex head washer screws. Perimeter is defined as a 10'-0" strip around the entire roof perimeter. Corners are defined as the common areas shared by two or more intersecting roof perimeter areas (10'-0" x 10'-0"). Welding of the replacement metal deck will not be allowed.

C. Deck Cleaning and Painting: At areas of moderate corrosion development, the existing metal decking may require wire brushing, cleaning and painting. Wire brush, properly clean and paint areas of corroded roof decking with Sherwin Williams B66W1 DTM.

D. Verify that the deck is now suitable to receive the specified roof system.

E. All deck treatment/replacement except for areas of obsolete equipment and curb removal will be performed under the Unit Price Based Allowances established in the Contract Documents. All quantities shall be verified by the Owner's representative and must be documented by the Contractor prior to covering the area with new roofing materials.

F. The Owner's Representative with assistance from the Contractor's on-site project superintendent shall make the determination of areas of deck replacement. The Contractors on-site representative shall keep a daily log and running total of the above items with daily signatures being obtained from the Owner' representative.

3.9 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

B. Burning: Do not burn demolished materials

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.10 CLEANING

A. Sweep the roof areas broom clean on completion of selective demolition operation. Clean the grounds around the building daily.

END OF SECTION 020700

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SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes requirements for wood furring, nailers and blocking.
B. New plywood decking to match existing roof deck thickness (5/8 inch) will be used to replace deteriorated decking. Existing decking, if in good condition and properly anchored, will remain in place
C. New Nail Base Insulation to match existing Nail Base thickness (5/8 inch with 4-inch Polyisocyanurate Insulation) will be used to replace deteriorated Nail Base decking. Existing Nail Base decking, if in good condition and properly anchored, will remain in place
C. Where required by code, the specifications and/or if existing, fire-treated wood materials and/or roof deck shall be required.

1.3 DEFINITIONS

A. Rough Carpentry: Carpentry work not specified in other Sections and not exposed, unless otherwise specified.

1.4 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Material certification for dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for the use and design values approved by the American Lumber Standards Committee's (ALSC) Board of Review.

C. Wood treatment data as follows, including chemical treatment manufacturer's instructions for handling, storing, installing, and finishing treated materials:

1. For each type of preservative-treated wood product, include certification by treating plant stating type of preservative solution and pressure process used, net amount of preservative retained, and compliance with applicable standards.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Keep materials under cover and dry. Protect from weather and contact with damp or wet surfaces. Stack lumber, plywood, and other panels. Provide for air circulation within and around stacks and under temporary coverings.

1. For lumber and plywood pressure treated with waterborne chemicals, place spacers between each bundle to provide air circulations.

1.6 JOB CONDITIONS

A. All methods employed in performing the work, and all equipment, tools, and machinery used for handling materials and executing any part of the work, shall be subject to the approval of the Owner before the work is started, and whenever found unsatisfactory, shall be changed and improved as required.

B. Time delivery and installation of carpentry to avoid delaying other operations whose work is dependent on or affected by the carpentry work, and to comply with protection and storage requirements.

C. Protect installed carpentry from damage due to other work activities and weather.

D. Select anchors for attachment of carpentry suitable for structural roof substrate.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Wood-Preservative-Treated Materials:
   a. J.H. Baxter Co.
   b. Chemical Specialties, Inc.
   c. Continental Wood Preservers, Inc.
   d. Hoover Treated Wood Products, Inc.
   e. Osmose Wood Preserving, Inc.

2.2 LUMBER, GENERAL

A. Lumber Standards: Comply with DOC PS 20, “American Softwood Lumber Standard,” and with applicable grading rules of inspection agencies certified by ALSC’s Board of Review.

B. Inspection Agencies: Inspection agencies, and the abbreviations used to reference them, include the following:

1. NELMA - Northeastern Lumber Manufacturers Association.
2. SPIB - Southern Pine Inspection Bureau.

C. Grade Stamps: Provide lumber with each piece factory marked with grade stamp of inspection agency evidencing compliance with grading rule requirements and identifying grading agency, grade, species, moisture content at time of surfacing, and mill.

D. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.

1. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal (38-mm actual) thickness or less, unless otherwise indicated.

2.3 WOOD-PRESERVATIVE-TREATED MATERIALS

A. General: Where lumber or plywood is indicated as preservative treated or is specified to be treated, comply with applicable requirements of AWPA C2 (lumber) and AWPA C9 (plywood). Mark each treated item with the Quality Mark Requirements of an inspection agency approved by ALSC's Board of Review.
B. Pressure treat items with waterborne preservatives to a minimum retention of 0.25lb/cu. ft. (4.0 kg/cu. M). After treatment, kiln-dry lumber and plywood to a maximum moisture content of 19 and 15 percent, respectively. Treat indicated items and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sleepers, blocking, furring, stripping, and similar concealed members in contact with masonry or concrete.

2.4 MISCELLANEOUS LUMBER

A. General: Provide lumber for support or attachment of other construction, including rooftop equipment curbs and support bases, bucks, nailers, blocking, furring, grounds, stripping, and similar members.

B. Fabricate miscellaneous lumber from dimensional lumber of sizes indicated and in shapes shown.

C. Moisture Content: 19 percent maximum for lumber items not specified to receive wood preservative treatment.

D. Grade: For dimension lumber sizes, provide No. 3 or Standard grade lumber per ALSC's NGRs of any species. For board-size lumber, provide No. 3 Common grade per NELMA, NLGA, or WWPA; No. 2 grade per SPIB; or Standard grade per NLGA, WCLIB or WWPA of any species.

E. Plywood Decking: APA rated, exposure 1, CDX plywood, comprised of a minimum of four (4) plies. Thickness for replacement of deteriorated decking shall match the thickness of the existing roof deck.

2.5 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.

B. Nails: Nails shall be double hot-dipped galvanized or stainless steel (series 304) annular nails, size as required by construction, with a minimum embedment of one (1) inch or through nailer if dimension is less.

C. Fasteners: All fasteners shall be corrosion resistant stainless steel or heavy-duty fluorocarbon coated steel unless otherwise noted, to meet/exceed Factory Mutual Standard 4470 (current edition). Fastener materials shall be compatible with contact materials.

1. Wood Nailer to Metal: #10-14 Stainless Steel (Series 300) or fluorocarbon coated steel screw fastener with a minimum head diameter of .400". Penetration shall be 1" minimum. Maximum spacing shall be no greater than 12" on center.

2. Wood Nailer to Concrete: Blue Tapcon® brand concrete screws with 5/16" hex washer head and Climaseal® for use in concrete, brick or block, or approved equal. Penetration of 1.5" minimum and maximum spacing shall be as shown and never greater than 12" on center.
3. Use of powder-actuated nails for blocking or nailers to concrete is unacceptable.
4. Acceptable manufacturers are Construction Fasteners, Inc., SFS, Trufast, Olympic, Tapcon® and Rawl.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Discard units of material with defects that impair quality of rough carpentry and that are too small to use with minimum number of joints or optimum joint arrangement.

B. Set rough carpentry to required levels and lines, with members plumb, true to line, and fitted.

C. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.

D. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.10.1 - Fastening Schedule of the International Building Code, 2015 edition.

E. Use common wire nails galvanized, unless otherwise indicated. Use finishing nails for finish work. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; pre-drill as required.

F. Use hot-dip galvanized or stainless-steel nails where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity.

G. Countersink nail heads on exposed carpentry work and fill holes with wood filler.

3.2 WOOD NAILERS AND BLOCKING

A. Install wood nailers and blocking where shown and where required for screening or attaching other

work. Form to shapes shown and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build into masonry during installation of masonry work. Where possible, anchor to formwork before concrete placement.

C. Install permanent grounds of dressed, preservative-treated, key-beveled lumber not less than 1-1/2 inches (38 mm) wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

END OF SECTION 061000

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SECTION 072200 - ROOF INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This portion of the specification describes materials and workmanship required for the installation of insulation over the existing low slope roof systems.

B. All materials described herein shall be furnished and installed by the roofing contractor unless specifically noted otherwise.

1.3 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Insulation shall be delivered to the site in an undamaged and dry condition. Material received, which is not dry or is otherwise damaged shall be rejected. Material, which becomes wet on site shall be removed and replaced.

B. Storage under polyethylene or similar non-breathing film stock shall not be permitted.

C. Proper storage on or off the site shall be the responsibility of the roofing contractor.

D. Any unused insulation remaining on the roof at the end of the workday shall be returned to storage.

1.4 INSULATION - GENERAL

A. Insulation boards shall be full size except when cutting is required at roof edges and openings. Boards that are broken, cracked, have been exposed to moisture, or are otherwise damaged shall not be used.

B. The proper installation and fit of wood nailers, blocking, and other rough carpentry in appropriate locations shall be verified prior to installation of roof insulation.

C. Caution shall be exercised with construction traffic to avoid damage to new insulation. Breaking or crushing of insulation is unacceptable and any damaged insulation shall be replaced at the roofing contractor's expense.

D. Insulation shall be laid with end joints staggered and all joints tight; however, boards shall not be forced into place.

E. No more insulation shall be applied during any work period than can be covered by primary membrane of roofing system during the same work period. At the end of the work period,

temporary edge seals shall be installed to protect the roof insulation. Upon resumption of work, they must be removed. Such seals shall consist of strips of roofing membrane from new to existing roofing in a watertight seal to protect the previously installed roofing.

F. Insulation surfaces shall be cleared of all debris before roofing is placed.

1.5 SUBMITTALS

A. General: Submit each item according to the Conditions of the Contract and Division 1 Specifications.

B. Product data and samples for each type of insulation, fastener and component.

C. Shop Drawings showing tapered insulation layout and cross sections.

PART 2 - PRODUCTS

2.1 INSULATION

A. Materials:

1. Roof Insulation: Oakland Elementary School - Roof Area A - Roof system manufacturer's approved closed cell polyisocyanurate foam core insulation skinned on both sides with factory applied fiberglass facers suitable for installation with mechanical attachment.
    a. Type: ASTM C1289-01, Type II, Class 1, Grade 2 (20 psi), UL Classified and Factory Mutual Approved.
    b. Thickness: 4-inch base layer insulation with 1/16-inch per foot tapered insulation
    c. Maximum board size:
        i. Mechanically attached: 4'x8'
        ii. Adhered: 4' x 4'
    d. Attachment: Base layer shall be adhered over a new base sheet mechanically attached to the existing lightweight concrete roof deck and tapered shall be adhered to base layer.
2. Coverboard: Northern Shores Elementary School - Roof Areas A & B - Low slope roof areas shall receive a ½-inch high density polyisocyanurate recovery board over the top of the existing low slope roof membrane system. The recovery board shall consist of coated glass-fiber mat facers bonded to high density closed cell polyisocyanurate with an R-Value of 2.5. The coverboard shall be adhered on all assemblies.
    a. Thickness: ½-inch minimum
    b. Compressive Strength: 100 PSI minimum
    c. Maximum board size:
        i. Mechanically attached: 4'x8'
        ii. Adhered: 4' x 4'
    d. Attachment: Insulation shall be mechanically attached.
3. Tapered Edge Strips: Polyisocyanurate complying with Rigid, cellular polyisocyanurate thermal insulation complying with ASTM C 1289 Type II, Class 1, Grade 3 (20 psi), UL

1256 and UL790 or as approved by the manufacturer's representative.

4. Crickets (if required): Polyisocyanurate complying with Rigid, cellular polyisocyanurate thermal insulation complying with ASTM C 1289 Type II, Class 1, Grade 3 (20 psi), UL 1256 and UL790 or as approved by the manufacturer's representative.
    a. Thickness: minimum 1/2 inch thick
    b. Slope: 1/2 inch per foot slope
    c. As approved by the roof system manufacturer.
    d. Maximum board size: 4'x 4'
    e. Install 6-inch wide Tapered Fesco Board meeting ASTM C 728, Type 1 along the outside edge of all crickets to create a smooth transition. All crickets shall be installed on top of the polyisocyanurate insulation.
5. Roof Insulation (for replacement of identified wet areas only if required): Roof system manufacturer's approved closed cell polyisocyanurate foam core insulation skinned on both sides with factory applied fiberglass facers suitable for installation with mechanical attachment.
    e. Type: ASTM C1289-01, Type II, Class 1, Grade 2 (20 psi), UL Classified and Factory Mutual Approved.
    f. Thickness: To match existing wet insulation thickness being replaced
    g. As approved by the roof system manufacturer.
    h. Maximum board size:
        i. Mechanically attached: 4'x8'
        ii. Adhered: 4'x4'
    i. Attachment: Insulation shall be mechanically attached.

B. All insulation materials must be approved by the manufacturer of primary roof materials. Samples should be provided by the manufacturer and written approval from the manufacturer of primary roof materials is required prior to ordering these materials for the project.

C. On lightweight concrete roof deck areas, furnish and install a new base sheet meeting ASTM D 4601, Type II that is nailed using tube-loc fasteners. Use standard nailing patterns and manufacturer approved fasteners for attachment of the base sheet to the lightweight concrete roof deck. Overlap side laps 3" and end laps 4". Nail base sheet every 9" o.c. on side laps and every 18" o.c. in two staggered rows in from each edge.

2.2 INSULATION SECUREMENT

A. Lightweight concrete roof deck: Base sheet shall be mechanically attached to the lightweight concrete roof deck with the roof system manufacturer's approved fasteners. Base layer insulation and tapered insulation shall then be adhered with manufacturers approved low rise foam insulation adhesive.

B. Plywood Deck Sections: Coverboard insulation shall be mechanically attached to the plywood deck with the roof system manufacturer's approved fasteners.

C. Tapered insulation crickets (if required) shall be adhered utilizing insulation adhesive as approved by the roof system manufacturer.

D. Coverboard: New 1/2" high density polyisocyanurate cover board shall be mechanically attached over existing low slope roof membrane.

E. Heavy Duty / High Load plates and fasteners, as a minimum, shall be utilized for all mechanically attached insulation applications to plywood and steel decking. Actual fastener to be utilized shall be determined by pull testing and the manufacturer's acceptance. All pull testing shall be performed in accordance with the manufacturer's written requirements.

F. Two component low-rise ribbon applied foam insulation adhesive as approved by the primary roofing materials manufacturer shall be utilized for all adhered insulation applications. Secure all insulation in accordance with the manufacturer's recommendations to meet attachment requirements for the project as a minimum and be enhanced as required to meet the wind uplift pressures for the location of the project. However, in no case shall the bead spacing be more than a 6" o.c. pattern.

G. Contractor shall perform pull tests prior to ordering materials and provide a copy of the report to consultant. Insulation securement shall be in accordance with the manufacturer's requirements to meet the wind uplift pressures for the building conditions and geographic location per ASCE 7-16 and the International Building Code.

H. All fasteners and adhesives must be approved by the manufacturer of primary roof materials. Samples should be provided by the manufacturer and written approval from the manufacturer of primary roof materials is required prior to ordering these materials for the project.

I. Screw Length: Sufficient to engage plywood or steel roof deck by a minimum 1-inch and no greater than 1-1/2-inch or as required by the roof system manufacturer to meet wind uplift pressures.

PART 3 - EXECUTION

3.1 CONDITION OF DECK

A. Prior to installing insulation, the deck surface must be inspected and all deficiencies corrected.

B. The roofing contractor shall perform all other work of preparing the metal deck. When insulation is applied, the deck shall be dry and free of dew, frost, ice, and snow.

C. Repair all holes in roof deck.

3.2 DECK PREPARATION AND CORRECTION

A. After removal of the existing roofing, flashing and repair materials, examine the roof deck surface for condition and suitability to receive the new roof assembly. Reference Section 020700 – Selective Demolition for deck inspection and correction criteria.

3.3 THERMAL INSULATION

A. Installation of insulation: Oakland Elementary School

1. Install new base sheet mechanically attached over the entire lightweight concrete roof deck.
2. Over the new base sheet, install base layer of polyisocyanurate insulation with all joints staggered as required.
3. Install intermediate and top layer of polyisocyanurate insulation, along with coverboard, with joints of successive layers offset 12-inches minimum in both directions from joints of previous layer and all joints staggered as required.
4. Install tapered polyisocyanurate crickets (if required).
5. All insulation shall be secured as specified above according to the selected manufacturer's requirements for specific deck type to provide a wind uplift rating of the project.

B. Installation of insulation: Northern Shores Elementary School

1. Over the existing low slope roof membrane system, install new ½-inch high density polyisocyanurate insulation with all joints staggered as required.
2. All insulation shall be secured as specified above according to the selected manufacturer's requirements for specific deck type to provide a wind uplift rating of the project.

C. Other insulation installation requirements:

1. Stagger joints within layers 12-inches minimum.
2. Firmly butt each insulation board to surrounding boards. Do not jam or deform boards.
3. Maximum insulation gap: ¼-inch. Fill insulation board joint gaps larger than 1/4 inch with roof insulation.
4. Maximum elevation variation between boards at joints: 1/8-inch.
5. Cut and fit insulation boards where roof deck intersects vertical surfaces. Cut board ¼-inch from vertical surface.
6. Do not cantilever insulation edges. Minimum bearing surface: 1-1/2-inches.
7. Lay insulation in 48-inch wide courses.

END OF SECTION 072200

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SECTION 074113 – STANDING SEAM METAL ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Structural standing seam metal roof panels, including trim accessories.

B. Related Sections: Section(s) related to this section include:

1. Section 076200 - Sheet Metal Flashing and Trim
2. Section 077253 - Snow Guards
3. Section 079200 - Sealants and Caulking

1.2 REFERENCES

A. General: Standards listed by reference form a part of this specification section. Standards listed are identified by issuing authority, abbreviation, designation number, title or other designation. Standards subsequently referenced in this Section are referred to by issuing authority abbreviation and standard designation.

B. ASTM International:

1. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
2. ASTM A792 - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
3. ASTM A1011 - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength.
4. ASTM D2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
5. ASTM D4214 - Standard Test Methods for Evaluating the Degree of Chalking of Exterior Paint Films.
6. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
7. ASTM E1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.
8. ASTM E1680 - Standard Test Method for Rate of Air Leakage through Exterior Metal Roof Panel Systems
9. ASTM E2140 - Standard Test Method for Water Penetration of Metal Roof Panel Systems by Static Water Pressure Head.

C. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA): "Architectural Sheet Metal Manual."

D. Underwriters Laboratories (UL).

1. UL 263 - Fire Tests of Building Construction and Materials.
2. UL 580 - Tests for Uplift Resistance of Roof Assemblies.
3. UL 790 - Standard Test Methods for Fire Tests of Roof Coverings.
4. UL 2218 - Standard for Impact Resistance of Prepared Roof Covering Materials.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meetings: Conduct preinstallation meeting to clarify Project requirements, substrate conditions, manufacturer’s installation instructions and manufacturer’s warranty requirements.

1.4 ACTION SUBMITTALS

A. Product Technical Data: For each type of product required, including manufacturer's preparation recommendations, storage and handling requirements, and recommended installation methods.

B. Shop Drawings: Showing methods of installation, plans, sections, elevations and details of roof and wall panels, specified loads, wind zones, flashings, roof curbs, vents, sealants, interfaces with all materials not supplied by the metal panel system manufacturer, and identification of proposed component parts and their finishes. Do not proceed with fabrication prior to approval of shop drawings.

C. Samples: Selection and verification samples for finishes, colors and textures. Submit two complete sample sets of each type of panel, trim, clip and fastener required.

D. Certificates: Product certificates signed by manufacturer certifying materials comply with specified performance characteristics, criteria and physical requirements.

E. Test and Evaluation Reports: Showing compliance with specified performance characteristics and physical properties.

F. Qualifications Statements: For manufacturer and installer.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For installed products including maintenance methods and precautions against cleaning materials and methods detrimental to finishes and performance.

B. Warranty: Warranty documents required in this section.

1.6 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Provider of advanced installer training.
2. Minimum of ten years' experience in manufacturing metal roof systems.
3. Subscriber to a quality assurance audit process to include regular written reports prepared by an expert third party.
4. Provider of a quality assurance audit process of its licensed fabricators, to include annual written reports prepared by an expert third party.
5. Provider of products produced in a permanent factory environment with fixed roll-forming equipment or, by use of mobile field rolling equipment.
6. EPA ENERGY STAR Partner.

B. Installer Qualifications:

1. Authorized by manufacturer to install its products.
2. Minimum of five years of experience in the installation of standing seam metal roof panels.
3. Experience on at least five projects of similar size, type and complexity as the Project that have been in service for a minimum of two years with satisfactory performance of the roof system.
4. Employer of workers for this Project who are competent in techniques required by manufacturer for the installation indicated, and who shall be supervised at all times when products are being installed.

C. Mock-Ups: Install at Project site a mock-up using required products and manufacturer's approved installation methods. Obtain Owner and Architect approval of finish, color, texture, pattern, trim, fasteners and quality of installation before proceeding with further work.

1. Size: 4-feet by 10 feet
2. Maintenance: Maintain mock-up during construction for quality comparison. Remove and lawfully dispose of mock-up construction when no longer required.
3. Incorporation: Mock-up may be incorporated into final construction upon Owner approval.

D. Preinstallation Conference: Attend a preinstallation conference at the construction site after all project submittals have been received and approved by Architect

E. Fire Resistance Ratings: Determined by testing identical products and assemblies according to UL 263 and UL 790 by a testing agency acceptable to authorities having jurisdiction.

1. Flame-Spread Index: 25 Class A
2. Smoke-Developed Index: 450 or less.

1.7 DELIVERY, STORAGE AND HANDLING

A. General: Comply with manufacturer's current printed product storage recommendations.

B. Delivery: Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.

C. Storage: Store products in manufacturer's unopened packaging until immediately prior to installation, above ground, under waterproof covering, protected from exposure to harmful weather conditions and at temperature and humidity conditions recommended by manufacturer. Provide proper ventilation of metal panel system to prevent condensation build-up between each panel and trim or flashing component. Tilt stack to drain in wet conditions. Remove strippable plastic film before storage under high-heat conditions.

D. Handling: Exercise caution in unloading and handling metal panel system to prevent bending, warping, twisting and surface damage.

1.8 WARRANTY

A. Special System Weather Tightness Warranty: Manufacturer's standard form warranty for weather tightness in which manufacturer agrees to repair or replace panel systems that fail to remain water tight within specified warranty period.

1. Warranty Period: Twenty (20) years from date of Substantial Completion.
2. Failures may include, but not be limited to, leakage caused by installation deficiency, material failure, or non-compliance with performance requirements. Manufacturer’s warranty may exclude coverage due to failures caused by physical damage or environmental circumstances that negatively impact the performance of the substrate to which the metal roof system is applied.

B. Special Paint Anti-Weathering Warranty: Manufacturer's standard form PVDF (Fluorocarbon) System Warranty for film integrity, chalk rating and fade rating in which manufacturer agrees to repair or replace panels that show evidence of deterioration within specified warranty period.

1. Deterioration shall include:

    a. Color fading on non-vertical surfaces of more than 7 Hunter units when tested according to ASTM D2244.
    b. Chalking on non-vertical surfaces in excess of a No. 6 rating when tested according to ASTM D4214.
    c. Peeling, cracking, checking, flaking or failure of paint to adhere to bare metal.

2. Warranty Period: Film integrity for 35 years and chalk and fade rating for 35 years from date of Substantial Completion.
3. Manufacturer’s warranty may exclude coverage due to failures caused by physical damage or environmental circumstances that negatively impact the performance of the substrate to which the coating system is applied.

PART 2 - PRODUCTS

2.1 STANDING SEAM ROOF PANELS

A. Basis of Design Product: Subject to compliance with requirements provide Drexel Metals, Inc.; DMC150SS Standing Seam Metal Roof Panels.

B. Substitutions: Other standing seam metal roof panel manufacturers that meet the design intent of the specifications as outlined below will be accepted.

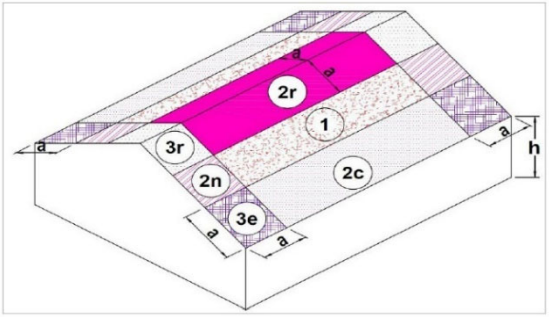
C. Product Options:

1. Panel Width: 16 inches (406.4 mm).
2. Rib Height: 1-1/2 inches (38.1 mm).
3. Material: Pre-painted Galvalume aluminum-zinc alloy-coated carbon steel sheet, ASTM A792, Class AZ50 coating designation, structural quality, Grade 50, tension leveled, minimum 24-gauge, surface finish minimum 70 percent polyvinylidene fluoride (PVDF) resin.
4. Color, Pre-painted Galvalume: As selected by Owner from manufacturer's full range of colors.
5. Roof Slope Capability: 4:12 over solid substrate.
6. Sealant: Field-applied side lap sealant
7. Edge Seam Configuration: 180-degree seamed.
8. Attachment: Concealed internal clip designed for thermal movement.
9. Application: Designed for application over solid substrate.
10. Fire Resistance Rating: Comply with UL 263 and UL 790 Class A.
11. Impact Resistance: Comply with UL 2218 Class 4.
12. Air Infiltration: Tested according to ASTM E1680.
13. Water Infiltration: Tested according to ASTM E1646 and no leakage when tested according to ASTM E2140.
14. Wind Uplift Resistance: Tested according to ASTM E1592 and UL 580, Class 90 Wind Uplift.

D. Performance Criteria:

1. Wind Design Uplift Resistance:

Zone 1	72.7 pounds per square foot
Zone 2c	72.7 pounds per square foot
Zone 2n	115.9 pounds per square foot
Zone 2r	115.9 pounds per square foot
Zone 3e	115.9 pounds per square foot
Zone 3r	149.5 pounds per square foot



a dimension = 12 feet / h dimension = max 30 feet

2.2 FIELD-INSTALLED THERMAL INSULATION

A. General: Refer to and coordinate with requirements in Division 07 - Thermal Insulation.

2.3 UNDERLAYMENT MATERIALS

A. General: Existing underlayment shall be removed and new underlayment shall be installed over the entire wood deck substrate prior to new roof panel installations.

B. Underlayment: Provide Drexel Metals, Inc.: 36-inch wide minimum MetShield High Temperature Peel and Stick Underlayment upslope at both sides of all valleys and 36-inch wide sheet at all hips, eaves, rakes, rising walls and around all roof penetrations. Install MetShield Synthetic Underlayment at all other locations with both materials installed in shingle fashion to promote proper drainage and avoid bucking water.

2.4 ACCESSORIES

A. General: Include all required accessories required for a complete installation including clips, trim metals, copings, fascia, corners, closures, panel clips, flashings, gutters, downspouts, pre-fabricated roof curbs, sealants, gaskets, fillers, closure strips, and other related items.

B. Anchor Clips: Provide Drexel Metals, Inc.: DMC 150SS Floating Clip.

2.5 SOURCE QUALITY CONTROL

A. Source: Obtain structural standing seam steel roof panels, trim and other accessories from a single manufacturer.

B. Quality Control: Obtain structural standing seam steel roof panels, trim and other accessories from a manufacturer capable of providing on-site technical support and installation assistance.

PART 3 - EXECUTION

3.1 PREPARATION

A. Roof Deck: After removal of the existing roof panels, trim metals and felt underlayment, inspect the roof deck for deterioration and adequate securement to the roof framing system.

B. Replace and areas of deteriorated substrate with new to match existing. Anchor new substrate according to metal roof panel manufacturer's recommendations.

3.2 UNDERLAYMENT INSTALLATION

A. Self-Adhering Sheet Underlayment: Install new MetShield High Temperature Peel and Stick Underlayment upslope at both sides of all valleys and 36-inch wide sheet at all hips, eaves, rakes, rising walls and around all roof penetrations.

B. Felt Underlayment: Install MetShield Synthetic Underlayment at all other locations with both materials installed in shingle fashion to promote proper drainage and avoid bucking water.

C. Apply slip sheet over underlayment prior to installing metal roof panels if required by the roof system manufacturer.

D. Install flashing in compliance with requirements in Division 07 Section 076200 - Sheet Metal Flashing and Trim.

3.3 STRUCTURAL STANDING SEAM METAL ROOF PANEL INSTALLATION

A. General: Comply with panel manufacturer's installation recommendations including but not limited to special techniques, interfacing with other work, and integration of systems.

B. Fasten metal roof panels to supports with concealed clips at each structural standing-seam roof panel joint at location, spacing, and using proper fasteners as recommended by panel manufacturer.

3.4 ACCESSORY INSTALLATION

A. General: Install accessories using techniques recommended by manufacturer and which will assure positive anchorage to building and weather tight mounting. Provide for thermal movement. Coordinate installation with flashings and other components.

B. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and the SMACNA "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and install units to true level. Install work with laps, joints, and seams that will be permanently watertight.

3.5 FIELD QUALITY CONTROL

A. Manufacturer's Field Services: Provide manufacturer's field service consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's recommendations.

1. Site Visits: Selected manufacturer technical representative shall attend following on-site meetings for verification of proper roof system installation.

a) Pre-construction meeting
b) Monthly site visits for duration of the project
c) Substantial completion inspection
d) Final punch list inspection

3.6 CLEANING

A. Remove temporary coverings and protection of adjacent work areas.

B. Repair or replace any installed products that have been damaged.

C. Clean installed panels in accordance with manufacturer's instructions prior to Owner's acceptance.

D. Remove and lawfully dispose of construction debris from Project site.

3.8 PROTECTION

A. Protect installed product and finish surfaces from damage during construction.

END OF SECTION 074113

SECTION 075420 – FULLY ADHERED TPO ROOFING SYSTEM

PART 1 GENERAL

1.1 DESCRIPTION

A. Installation of new roof insulation and new fully adhered.060 TPO membrane system.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Rough Carpentry: Section 06100

B. Roof Insulation: Section 07220

C. Flashing and Sheet Metal: Section 07620

D. Sealants and Caulking: Section 07920

1.3 REFERENCES

A. ASTM - American Society For Testing and Materials.

B. TIMA - Thermal Insulation Manufacturer's Association.

C. UL - Underwriters Laboratories.

D. FM - Factory Mutual.

1.4 DEFINITIONS

A. Company Field Advisor: An employee of the Company which lists and markets the primary components of the system under their name who is certified in writing by the Company to be technically qualified in design, installation, and servicing of the required products or an employee of an organization certified by the foregoing Company to be technically qualified in design, installation, and servicing of the required products.

1.5 SUBMITTALS

A. Submittals Package: Submit shop drawings, product data sheets, product samples, and quality control submittals specified below at the same time as a package. Partial submittals will not be considered.

B. Shop Drawings for Insulation: Submit an accurate layout of the insulation showing the slopes to the drains. Show cross section drawings illustrating the location and thickness of insulation pieces.

C. Product Data: Submit catalog sheets, specifications, and installation instructions for each material specified.

1. Revise the membrane manufacturer's product data as necessary to suit the requirements of the Contract Documents.

a. Do not use or submit manufacturer's details unless there is a proposed deviation from the Contract Documents. In such instances, submit the revised detail, labeled as such, for approval. The revised detail shall show the existing conditions and the proposed change and shall be referenced directly to the related detail on the Contract Drawings.

2. Manufacturer's Warranty: Sample copy of the membrane manufacturer's 20-year full system warranty covering workmanship and materials.

D. Samples:

1. Sheet Membrane: One 6-inch square piece.
2. Sheet Flashing: One 6-inch square piece.
3. Insulation: One 6-inch square piece.
4. Fasteners: Two, each type.
5. Welded Seam: Two 12-inch square samples of welded seams that are representative of the quality of field welded seams.

a. Samples must be labeled "Quality Standard Samples".

E. Quality Control Submittals:

1. Fire Hazard Certification: Submit written certification that the roof system, including the specific insulation, has been tested in conjunction with the type of structural roof deck and roof slope applicable to the project and has achieved an Underwriters Laboratories Class A external fire resistance rating.

a. Acceptable Certification: Letter from Underwriters Laboratories, or a copy of the Underwriters Laboratories classification listing for the roofing system.

2. Wind Uplift Certification: Submit written certification that the roof system, including the specific insulation and membrane has achieved a Factory Mutual Class 1-90 Wind Uplift rating.

3. Material Certification: Submit a letter from the roofing membrane manufacturer certifying that the insulation and insulation fasteners are approved for use with the roofing system.

4. Applicator's Certification:

a. Letter from the membrane manufacturer certifying that the applicator is licensed or approved to install the roof system.

b. Names, address, and telephone numbers of 3 buildings where the applicator has installed TPO sheet membrane roof systems that have had the manufacturer's warranty issued. Include the membrane manufacturer's name and the warranty number.

c. Letter certifying that the job foreman or crew chief and at least two other members of the roofing crew have installed at least 3 TPO sheet membrane roof systems and are thoroughly familiar with all aspects of the installation.

F. Contract Closeout Submittals:

1. Warranty: Warranties as specified.

1.6 QUALITY ASSURANCE

A. Applicator's Qualifications: The application of the roofing system shall be performed by an applicator licensed or approved by the membrane manufacturer. The licensed or approved applicator shall have previously installed at least 3 TPO sheet membrane systems for which the manufacturer's warranty was issued.

1. Workers: The crew chief or foreman and at least two other members of the roofing crew shall have installed at least 3 TPO sheet membrane roof systems and shall be thoroughly familiar with all aspects of the installation.
2. The crew chief or foreman must speak fluid English for proper communication with the owner and project inspector.

B. Fire Hazard Classification: The sheet membrane roof system shall have an Underwriters Laboratories Class A External Fire Resistance rating; as determined by tests conducted in conformity with UL-790 "Tests for Fire Resistance of Roof Covering Materials".

1. The roof system, which includes a specific generic type of insulation and in some instances a specific name brand insulation, shall have been tested in conjunction with the type of structural roof deck and roof slope applicable to this project.

C. Material Classification Identification: All materials delivered to the site that are a component of the roofing system shall bear the UL Classification mark.

D. Pre-installation Conference: Before the roofing Work is scheduled to commence, a conference will be called by the Owner's Representative at the site for the purpose of reviewing the Drawings and the Specifications and discussing requirements for the Work. The conference shall be attended by the Contractor, the authorized roofing applicator, and the Company Field Advisor.

E. Manufacturer's Field Advisor: Upon request, the roof membrane manufacturer shall provide the services of a Field Advisor. The Field Advisor shall be certified in writing by the manufacturer to be technically qualified in design, installation, and servicing of the required products. Personnel involved solely in sales do not qualify.

The Field Advisor shall be present at the beginning of the actual membrane installation for the purpose of:

1. Rendering technical assistance to the Contractor regarding installation procedures of the system.
2. Familiarizing the Owner's Representative with all aspects of the system including inspection techniques.
3. Answering all questions that might arise.

F. Inspections:

1. For the purpose of the required inspections, the Contractor shall keep the Manufacturer Field Advisor and the Owner's Representative advised of the progress of the Work and the anticipated Work schedule as the Work progresses.

G. Welded Seams (Splicing): Job site, and factory welded seams (if any) must be of the same quality and exhibit the same physical characteristics as the quality standard samples which are submitted for approval. The approved samples will be the standard of quality required for all welded seams. Failure to maintain the standard will be cause for rejection of the Work.

1. The approved samples must exhibit the following minimum physical characteristics:

a. The welded seams must be at least as strong as the parent material. The mating surfaces of each sheet must remain fully bonded to each other when sufficient peel or shear force is applied to the seam to delaminate or break the parent material.
b. The welded seam must be a minimum of 1-1/2 inches wide.
c. There must be complete fusion of the mating surfaces, with no skips, voids, or fishmouths.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to the site in the manufacturer's labeled, unbroken containers.

B. Storage and Handling: Store materials in a dry, well ventilated place protected from the weather.

1. Do not store materials so as to overload the deck or structural assembly.
2. Store all materials on raised platforms covered with properly secured breathable water resistant covers. Slit shrink wrapping to not permit condensation and cover with breathable tarp.
3. Remove materials that become wet from the site.
4. Store volatile liquids in separate storage building or trailer, or remove from the site at the end of each work day.
5. Store adhesives, and sealants at temperatures between 60 degrees F and 80 degrees F.

6. Do not remove materials from factory packaging until ready for use.

1.8 PROJECT CONDITIONS

A. **Regardless of any temporary power provided by the Owner, the Owner's power will not be utilized for heat welding equipment. The applicator shall provide portable generators of the size and type recommended by the membrane manufacturer.**

B. Do not execute the Work of this Section unless the Owner's Representative is present or unless he directs that the Work be performed during his absence.

C. Do not execute the Work of this Section unless the substrate is dry and free of dirt and debris.

D. Moisture Protection:

1. Cover, seal or otherwise protect the roof and flashings so that water cannot accumulate or flow under completed portions. When and where necessary to accomplish this, provide temporary water cut-offs in accordance with the membrane manufacturer's written specifications.
2. Limit the removal of existing materials to areas that can be completely re-roofed or temporarily protected within the same day.

E. Do not smoke or use open flames near volatile materials.

F. During the progress of the work every effort must be made to keep odors generated by the work from entering the building.

1. Coordinate the use of materials that could cause odors to permeate the building with the Owner's representative.
2. Shut off and wrap all air intakes in the vicinity of the work.
3. Ensure that all operable windows in the vicinity of the work area are closed.

1.9 WARRANTY

A. Submit roofing Installer's warranty, signed by Installer and the Contractor, covering Work of this Section, including membrane roofing, base flashing, roofing insulation, fasteners, metal counterflashing and roof drains and plumbing, for the following warranty period:

1. Warranty Period: Two (2) years from date of Substantial Completion of the entire project.

B. Manufacturer's Warranty: In addition to the 2-year period specified above, furnish the membrane manufacturer's printed 20 Year full system warranty covering workmanship and materials for the Work of this Section. The warranty shall include, but not be limited to, repair of leakage, and the repair and/or replacement of the roofing system caused by defects in materials or workmanship.

1. Warranty Period: Twenty (20) years from date of Substantial Completion of the project.

PART 2 PRODUCTS

2.1 TPO SHEET MEMBRANE AND RELATED PRODUCTS

A. Membrane: Flexible, heat weldable sheet composed of thermoplastic polyolefin polymer and ethylene propylene rubber; complying with ASTM D 6878, with polyester weft inserted reinforcement and the following additional characteristics:

1. Thickness: 0.060 inch plus/minus 10 percent, with coating thickness over reinforcement of 0.024 inch plus/minus 10 percent.
2. Sheet Width: Provide sheets of width necessary to accommodate batten spacing required by manufacturer for project conditions.
3. Puncture Resistance: 265 lbf, minimum, when tested in accordance FTM 101C Method 2031.
4. Solar Reflectance: 0.79, minimum, when tested in accordance with ASTM C 1549.
5. Color: White.
6. Acceptable Roof System Manufacturer's

    a. Johns Manville
    b. Carlisle SynTec
    c. Versico Roofing Systems

B. Curb and Parapet Flashing: Same material as membrane, with encapsulated edge which eliminates need for seam sealing the flashing-to-roof splice; precut to 18 inches (457 mm) wide.

C. Bonding Adhesive: TPO Bonding Adhesive shall be a high strength low VOC solvent-based contact adhesive that allows bonding of TPO membrane to various porous and non-porous substrates. The material shall be compliant with the OTC regulations on VOCs.

D. Formable Flashing: Non-reinforced, flexible, heat weldable sheet, composed of thermoplastic polyolefin polymer and ethylene propylene rubber.

1. Thickness: 0.060 inch (1.52 mm) plus/minus 10 percent.
2. Tensile Strength: 1550 psi (10.7 MPa), minimum, when tested in accordance with ASTM D 638 after heat aging.
3. Elongation at Break: 650 percent, minimum, when tested in accordance with ASTM D 638 after heat aging.
4. Tearing Strength: 12 lbf (53 N), minimum, when tested in accordance with ASTM D 1004 after heat aging.
5. Color: White.

E. Related Products: Furnish the membrane manufacturer's bonding adhesive, seam caulk, night seal and all other products related to the sheet membrane system.

F. Tape Flashing: 5-1/2 inch (140 mm) nominal wide TPO membrane laminated to cured rubber polymer seaming tape, overall thickness 0.065 inch (1.6 mm) nominal.

G. Pourable Sealer: Two-part polyurethane, two-color for reliable mixing.

H. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches (33 mm) wide by 0.10 inch (2.5 mm) thick.

I. Cut Edge Sealant: Synthetic rubber-based, for use where membrane reinforcement is exposed.

J. General Purpose Sealant: EPDM-based, one part, white general purpose sealant.

K. Molded Flashing Accessories: Unreinforced TPO membrane pre-molded to suit a variety of flashing details, including pipe boots, inside corners, outside corners, etc.

2.2 INSULATION

Reference Section 07220 – Roof Insulation

2.3 FASTENERS

A. Insulation and Membrane Fasteners: Unless recommended otherwise by the membrane manufacturer, provide heavy-Duty Fasteners & Plates.

B. Base Flashing Fasteners (For Top Edge Of Flashing):

1. Masonry Surfaces: Hardened masonry nails or drive pins thru 1-1/4 inch sheet metal discs.
2. Sheet Metal Surfaces. Hardened, self tapping, #10 sheet metal screws thru 1-1/4 inch sheet metal discs.
3. Wood Surfaces: “Cap Nail” annular ring roofing nail with one inch dia. or square solid cap, by Simplex Nails Inc., Americus, GA 31709.

D. Compression Clamp: Stainless steel worm drive hose clamp.

E. Metal Termination Bar and Fasteners:

1. Termination Bar: Factory fabricated 1-inch wide x .100 inches thick mill finish aluminum bar, with 1/4 inch x 3/8 inch slotted holes 8 inches oc and with a 1/4 inch wide 45 degree sealant and stiffener flange.
2. Fasteners:

a. Concrete or Masonry: Hard aluminum alloy or stainless steel screws with 1/4 inch dia. plastic expansion shield or 1/4 inch dia. aluminum hammer driven expansion anchor. Length as required to securely hold the compression bar tight against the flashing surface.

b. Wood and Sheet Metal: Hard aluminum alloy or stainless steel screw. Length as required to securely hold the compression bar tight against the flashing surface.

F. Metal Anchor Bar and Edge Retainer:

1. Anchor Bar: 1-inch wide roll formed and punched 14 gauge galvanized steel bar.
2. Edge Retainer: Continuous 5/32 inch round flexible thermoplastic rod.

2.4 MISCELLANEOUS MATERIALS

A. Pipe Flashing: Membrane manufacturers prefabricated pipe boot.

B. Compression Clamp (for factory fabricated flashings only): Stainless steel or cadmium plated steel worm drive clamp.

C. Walkway, Protection Pads: Membrane manufacturers prefabricated walkway pad.

D. Sacrificial Membrane Sheet to be used under the ballasted section shall be 60 mil TPO single ply membrane.

E. Pitch Pocket Filler Materials:

1. Mortar : ASTM C 270, Type S.
2. Pourable Sealer: Membrane manufacturer's 2 component liquid urethane.

F. Sealant: One-part, low modulus, silicone sealant: Dow Corning's 790, General Electric's Silpruf, Pecora's 864, or Sonneborn's Omniseal.

PART 3 EXECUTION

3.1 SURFACE

A. Ensure roof drain strainers are in place and secured during removal of insulation and other debris. Provide cast iron strainers where existing strainers are missing.

B. Cleaning: Before the roofing installation commences, sweep and/or vacuum all surfaces as required to remove all dirt, dust, loose aggregate, foreign matter, and debris left from removals of existing roofing.

C. Testing Existing Roof Drains and Conductor Pipes: Before commencing with the work, water test existing roof drains and conductor pipes and submit a written report to the Owner's Representative, indicating which drains or conductors, if any, are not functioning properly. Replacement of identified deficient drains and/or piping is included as a line item in the Base Bid. Repair of interior and/or exterior drain line pluming / ground drain leaders is not included in the lump sum contract. Repair Work (if any) to the interior and/or exterior drain line plumbing / ground drain leaders may

only be accomplished by prior acceptance by the Owner as a Change Order to this Contract.

D. Testing Pull-Out Resistance of Roof Insulation Adhesive: Before commencing with the roofing work, in the presence of the Owner's Representative, install approved insulation adhesive to the prepared roof membrane. Uplift of the insulation adhesive shall meet the minimum requirements of the roofing system manufacturer.

1. Do not proceed with the roofing work if the uplift pull out resistance of the roof insulation adhesive is less than that required by the roofing system manufacturer.

3.2 INSTALLING INSULATION

A. Reference Section 07220 – Roof Insulation for insulation installation requirements.

3.3 INSTALLING TPO SHEET MEMBRANE

A. Installing TPO Sheet Membrane:

1. The substrate shall be inspected prior to base component installations.
2. Do not allow the membrane to come in contact with surfaces contaminated with asphalt, coal tar, oil, grease, or other substances that are not compatible with TPO.
3. Install the membrane so the sheets run perpendicular to the slope of the system.
4. To avoid accidental water entrapment, start at the low point of the roof and work towards the high point. Lap the sheets so the flow of water is not against the edges of the sheet.
5. Position the membrane so it is free of buckles and wrinkles. Lap edges and ends of sheets as recommended by the manufacturer, but not less than 3 inches.
6. Fully Adhered TPO Membrane: Unroll the TPO roofing membrane and position without stretching. Allow the membrane to relax at least 30 minutes when the temperature is above 60 degrees Fahrenheit, or 45 minutes when the temperature is below 60 degrees Fahrenheit, prior to the installation. Inspect for any damaged membrane. Remove sections of membrane that are creased or damaged. Adhere the TPO membrane to the insulation with bonding adhesive.
    a. Apply bonding adhesive to both mating surfaces at the rate recommended by the manufacturer. Do not leave any skips or voids.
    b. Allow the adhesive to dry in accordance with the manufacturer's instructions.
    c. Install the flashing so it is free of wrinkles, voids, and blisters.
    d. Do not allow bonding adhesive to come in contact with areas to be hot air welded.
    e. Do not allow the flashing to bridge where it changes direction from vertical to horizontal.
7. The roofing contractor shall check all welded seams for continuity and integrity using a rounded screwdriver or other suitable blunt object. Seam checks shall be made daily by the contractor. For seam welding validation, it may be required that sample of seams, 2" wide and 12" long, shall be taken a minimum of three times a day from completed seams; at least one to be from the first seam made of the day. Each test cut shall be patched by the contractor at no extra charge to the

owner. Test cuts shall be used to determine adequate seam strength on the rooftop by the roofing contractor.

8. Install membrane and flashing sheets simultaneously. Splice all seams as the membrane and flashings are being installed (same working day).
9. At perimeter or raised dimensional wood detailing, turn the membrane over the front edge of the nailer. Secure the membrane to the vertical portion of the nailer.
10. At parapet walls, intersecting building walls and curbs secure the membrane to the structural deck with edge retainer and anchor bar fastened 12 inches o.c.

B. Splicing TPO Sheet Membrane and Flashing:

1. Splice all side and end laps of the sheet membrane and flashing, and all connections to TPO coated metal (if applicable).
    a. Hot air weld all splices with automatic hot air welders. Hand held welders may only be used for small localized areas and for areas that are inaccessible to automatic welders.
2. Before splicing seams remove all dirt, any dust, and foreign matter from the foreign matter. If detergent washing is required, wash off all detergent residue with clean water and allow the splice area to dry of all residue before welding.
3. Each day before welding the roofing membrane, test weld scrap samples from the actual rolls of membrane to be installed on that day to insure that the welders are calibrated properly and that the membrane has not cured.
4. Where a spliced seam running in one direction passes beneath or above a sheet of membrane running perpendicular to the seam (T joint), hand weld the seam at the intersection and use a small roller to insure that there are no voids or pin holes at the intersection caused by the raised seam edge. Apply lap sealant at the edges of the seam. Extend the lap sealant a minimum of 6 inches beyond each intersecting corner.
5. Samples of welded seams must be taken each day that seams are welded. Refer to FIELD QUALITY CONTROL.

C. Bonding TPO Membrane Underlayment and Flashing:

1. Before installing flashing, adhere TPO sheet flashing underlayment to the substrate with bonding adhesive so that all contaminated surfaces are completely hidden.
2. Adhere the TPO membrane flashing to the underlayment with bonding adhesive.
3. Applying Bonding Adhesive:
    a. Apply bonding adhesive to both mating surfaces at the rate recommended by the manufacturer. Do not leave any skips or voids.
    b. Allow the adhesive to dry in accordance with the manufacturer's instructions.
    c. Install the flashing so it is free of wrinkles, voids, and blisters.
    d. Do not allow bonding adhesive to come in contact with areas to be hot air welded.
    e. Do not allow the flashing to bridge where it changes direction from vertical to horizontal.

D. Phasing of Membrane Installation:

1. At the end of each working day temporarily seal the loose edge of the membrane so that water does not flow beneath the completed portion. Remove Ballast or Spud off all existing aggregate (if any) in the area to be sealed, remove all dirt, dust and foreign matter. Install the temporary seal.
    a. Apply the membrane manufacturer's night seal over the area to be sealed. Embed the membrane into the night seal. Apply a continuous weight over the membrane and night seal. Before the work resumes, cut off and discard all portions of the membrane that have been embedded in the night seal.
2. Install flashings as the membrane is being installed (same working day). If the flashing cannot be completely installed in one day, progress the installation until the flashing is in a watertight condition.

E. Flashing Roof Drains:

1. Remove the existing clamping ring, and flashings. Clean the contact area of the drain body down to bare metal. Residual contaminants including bitumen will not be permitted.
2. Apply the manufacturer's water cut off mastic around the perimeter of the drain body at clamping ring location. Embed the membrane flashing into the mastic. Install the clamping ring and strainer.
3. Secure the clamping ring with the existing bolts. Provide bolts to match existing to replace any bolts damaged or broken during the Work.

F. Installing TPO Base Flashing:

1. Install the flashing so it extends onto the roof surface a minimum of 3 inches beyond the fasteners that secure the roofing membrane. Terminate the flashing on the vertical surface where shown on the drawings.
2. Adhere the flashing to the vertical surface with bonding adhesive. Splice the flashing to the roof membrane.
3. At inside and outside corners splice a prefabricated TPO patch over the corners. Position the patch so it wraps around the corner onto each vertical surface and onto the roof surface a minimum of 3 inches.
4. Secure the top edge of the flashing with fasteners 12 inches o.c.

G. Installing Termination Bar:

1. Where base flashing does not terminate beneath a cap flashing, seal the top edge as follows:
    a. Install a continuous metal termination bar over the top edge of flashing and secure one foot o.c. Leave a 1/4 inch gap between ends for expansion and do not span across expansion joints.
    b. Apply a bead of sealant along the top edge.

H. Installing Formed TPO Pipe Flashing:

1. Wherever possible, flash pipe penetrations with the manufacturer's pre-molded pipe flashing.
2. Clean existing pipe of all contaminates or wrap pipe with manufacturer's separation tape.

3. Install flashing over the membrane extending a minimum of 2 inches out from the pipe base. Turn the flashing up 1/2 inch onto the pipe.
4. Coat the pipe, with bonding adhesive.
5. Wrap a second piece of flashing around the pipe. Extend the flashing 1/2 inch onto the horizontal portion of previously installed flashing. Hot air weld the flashing to the membrane and to the wrapped flashing. Install compression clamp around top of flashing. Apply lap sealant at the top edge of the flashing.

I. Installing TPO Flashing at Building Wall Expansion Joint:

1. Adhere the flashing to the vertical surface with bonding adhesive and secure the top edge of the flashing as detailed on the drawings. Extend the flashing into the expansion joint.
2. Install the roof membrane down into the expansion joint and up the wall. Mechanically attach the membrane and flashing to the wall 12 inches on center.
3. Install expansion joint filler tube at intersection of deck and building wall.
4. Secure membrane to the deck with anchor bar and edge retainer secured with fasteners 12 inches o.c.
5. Install reinforced flashing so it extends onto the roof surface a minimum of 2 inches beyond the anchor bar and 2 inches up the wall past the joint filler. Hot air weld the flashing to the membrane and wall flashing.

J. Sacrificial Membrane Sheet: 60 mil TPO membrane shall be used as a protective sheet under the ballast stone surfacing to be re-installed on the Connector Building roof.

1. The sacrificial membrane shall be fully welded to the primary membrane around the perimeter of the ballast area and all seams shall be fully welded. This shall be performed to prevent water from getting trapped between the two membranes.

3.4 FIELD QUALITY CONTROL

A. In the presence of the Owner's Representative closely examine and probe all seams in the membrane and flashing.

1. Probe the edges of all welded seams with a blunt tipped cotter pin removal tool. Use sufficient hand pressure to detect marginal welds, voids, skips, and fishmouths. Repair all defective areas.
2. Each day that seams are welded, a minimum of two, 2-inch wide x 8 inch long cross section samples must be taken thru the completed seams. Cut the sample in the presence of and where directed by the Owner's Representative. Failure of the samples to maintain the standard of quality of the approved samples will be cause for rejection of the Work.
3. Repair all areas of welded seams where samples have been taken.

END OF SECTION 075700

SECTION 075420 - INDUCTION WELDED TPO ROOF MEMBRANE SYSTEM

PART 1 - GENERAL

1.1 DESCRIPTION

A. The Base Bid for this project includes but is not limited to removal and proper disposal of the existing counter flashing metal, apron flashing metal, and flashing at roof penetrations and replacement with a new insulated induction welded 60 Mil TPO single ply membrane roofing system and all related flashing and sheet metal work.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Rough Carpentry: Section 061000

B. Roof Insulation: Section 072200

C. Flashing and Sheet Metal: Section 076200

D. Sealants and Caulking: Section 079200

1.3 REFERENCES

A. ASTM - American Society for Testing and Materials.

B. UL - Underwriters Laboratories.

C. FM - Factory Mutual.

1.4 DEFINITIONS

A. Company Field Advisor: An employee of the Company which lists and markets the primary components of the system under their name who is certified in writing by the Company to be technically qualified in design, installation, and servicing of the required products or an employee of an organization certified by the foregoing Company to be technically qualified in design, installation, and servicing of the required products.

1.5 SUBMITTALS

A. Submittals Package: Submit shop drawings, product data sheets, product samples, and quality control submittals specified below at the same time as a package. Partial submittals will not be considered.

B. Product Data: Submit catalog sheets, specifications, and installation instructions for each aterial specified.

1. Revise the membrane manufacturer's product data as necessary to suit the requirements of the Contract Documents.
    a. Do not use or submit manufacturer's details unless there is a proposed deviation from the Contract Documents. In such instances, submit the revised detail, labeled as such, for approval. The revised detail shall show the existing conditions and the proposed change and shall be referenced directly to the related detail on the Contract Drawings.
2. Manufacturer's Warranty: Sample copy of the membrane manufacturer's twenty (20) year, no dollar limit, full system warranty covering workmanship and materials.
    a. Provide written certification from the membrane manufacturer that the warranty reserve fund financially supports the warranty to be issued.

C. Quality Control Submittals:

1. Technical data on all components of the roofing system proposed. Technical data must be clearly marked as to which product is to be used when data sheets indicated more than one product on a sheet. Sizes of components must be clearly marked where varying sizes, thicknesses, etc. of a product are shown.

2. Material Certification: Submit a letter from the roofing membrane manufacturer certifying that the insulation and insulation fasteners are approved for use with the roofing system.

3. Applicator's Certification:
    a. Letter from the membrane manufacturer certifying that the applicator is licensed or approved to install the roof system.

D. Jobsite Safety: Contractor shall submit a copy of their roof work safety plan and compliance with OSHA standards.

E. Contract Closeout Submittals:

1. Warranty: Warranties as specified.

1.6 QUALITY ASSURANCE

A. Applicator's Qualifications: The application of the roofing system shall be performed by an applicator licensed or approved by the membrane manufacturer. The licensed or approved applicator shall have previously installed at least five (5) TPO sheet membrane systems for which the manufacturer's warranty was issued.

1. The roofing Contractor shall have a minimum quality rating of 9.0 with project references of the installation of a minimum of 500,000 square feet of TPO membrane roof systems.

2. Workers: The crew chief or lead foreman and at least four other members of the roofing crew shall have installed at least five (5) TPO sheet membrane roof systems and shall be thoroughly familiar with all aspects of the installation.

B. Fire Hazard Classification: The sheet membrane roof system shall have an Underwriters Laboratories Class A, External Fire Resistance Rating; as determined by tests conducted in conformity with UL-790 "Tests for Fire Resistance of Roof Covering Materials".

1. The roof system, which includes a specific generic type of insulation and in some instances a specific name brand of insulation, shall have been tested in conjunction with the type of structural roof deck and roof slope applicable to this project.

C. Wind Up-lift Requirements: The membrane roofing system shall meet the minimum wind uplift rating requirements of ASCE-7-16 and FM Global for the new roof systems.

D. Material Classification Identification: All materials delivered to the site that are a component of the roofing system shall bear the UL Classification mark.

E. Pre-installation Conference: Before the roofing Work is scheduled to commence, a conference will be called by the Owner's Representative at the site for the purpose of reviewing the Drawings and the Specifications and discussing requirements for the Work. The conference shall be attended by the following:

1. The Owner's Project Manager or his representative;
2. The Landlord or his representative;
3. The Consultant or his representative;
4. The prime Contractor (if applicable);
5. The authorized roofing applicator and their job Foreman;
7. All applicable sub-contractors and their job foremen.

F. Inspections: For the purpose of the required inspections, the Contractor shall keep the Owner and the Owner's Representative advised of the progress of the Work and the anticipated Work schedule as the Work progresses.

1. The Owner may request in-progress inspections by the membrane manufacturer and shall require written documentation of all inspections. The Contractor shall provide a copy of the manufacturer's inspection reports to the Owner within three (3) days of the visit.

G. Welded Seams (Splicing): Job site, and factory welded seams (if any) must be of the same quality and exhibit the same physical characteristics as the quality standard samples which are submitted for approval. The approved samples will be the standard of quality required for all welded seams. Failure to maintain the standard will be cause for rejection of the Work.

1. The approved samples must exhibit the following minimum physical characteristics:

a. The welded seams must be at least as strong as the parent material. The mating surfaces of each sheet must remain fully bonded to each other when sufficient peel or shear force is applied to the seam to delaminate or break the parent material.
b. The welded seam must be a minimum of 1-1/2 inches wide.
c. There must be complete fusion of the mating surfaces, with no skips, voids, or fishmouths.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials to the site in the manufacturer's labeled, unbroken containers.

B. Storage and Handling: Store materials in a dry, well ventilated place protected from the weather.

1. Do not store materials so as to overload the deck or structural assembly.
2. Store all materials on raised platforms covered with properly secured breathable water resistant covers. Slit shrink wrapping to not permit condensation and cover with breathable tarp.
3. Remove materials that become wet from the site.
4. Store volatile liquids in separate storage building or trailer, or remove from the site at the end of each work day.
5. Store adhesives, and sealants at temperatures between 60 degrees F and 80 degrees F.
6. Do not remove materials from factory packaging until ready for use.

1.8 PROJECT CONDITIONS

A. Regardless of any temporary power provided by the Owner, the Owner's power will not be utilized for heat welding equipment. The applicator shall provide portable generators of the size and type recommended by the membrane manufacturer.

B. Do not execute the Work of this Section unless the Owner's Representative is present or unless he directs that the Work be performed during his absence.

C. Do not execute the Work of this Section unless the substrate is dry and free of dirt and debris.

D. Moisture Protection:

1. Cover, seal or otherwise protect the roof and flashings so that water cannot accumulate or flow under completed portions. When and where necessary to accomplish this, provide temporary water cut-offs in accordance with the membrane manufacturer's written specifications.
2. Limit the removal of existing materials to areas that can be completely re-roofed or temporarily protected within the same day.

E. Do not smoke or use open flames near volatile materials.

F. During the progress of the work every effort must be made to keep odors generated by the work from entering the building.

1. Coordinate the use of materials that could cause odors to permeate the building with the Owner's representative.
2. Shut off and wrap all air intakes in the vicinity of the work.
3. Ensure that all operable windows in the vicinity of the work area are closed.

1.9 WARRANTY

A. Submit roofing Installer's warranty, signed by Installer and the Contractor, covering Work of this Section, including membrane roofing, base flashing, roofing insulation, fasteners, metal counter flashing and roof drains and plumbing, for the following warranty period:

1. Warranty Period: Two (2) years from date of Substantial Completion of the entire project.

B. Manufacturer's Warranty: In addition to the Installer's warranty specified above, furnish the membrane manufacturer's printed non-prorated, no-dollar limit roof system warranty covering workmanship and materials for the Work. The warranty shall include, but not be limited to, repair of leakage, and the repair and/or replacement of the roofing system caused by defects in materials or workmanship. Defect is defined to include, but not be limited to, leakage of water, abnormal aging or deterioration, and failure to perform as required.

1. Base Bid Warranty Period: Twenty (20) years from date of Substantial Completion of the project.

PART 2 - PRODUCTS

2.1 TPO SHEET MEMBRANE AND RELATED PRODUCTS

A. Membrane: Flexible, heat-weldable sheet composed of thermoplastic polyolefin polymer and ethylene propylene rubber; complying with ASTM D 6878, with polyester weft inserted reinforcement and the following additional characteristics:

1. Thickness: 0.060 inch (1.52 mm) plus/minus 10 percent, with coating thickness over reinforcement of 0.024 inch (0.61 mm) plus/minus 10 percent.
2. Sheet Width: Provide sheets of width necessary to accommodate batten spacing required by manufacturer for the project conditions and location.
3. Puncture Resistance: 265 lbf (1174 N), minimum, when tested in accordance FTM 101C Method 2031.
4. Solar Reflectance: 0.79, minimum, when tested in accordance with ASTM C 1549.

5. Color: White.
6. Acceptable Manufacturers (National Account Vendors – NO SUBSTITUTIONS):
   a. Johns Manville
   b. Carlisle Syntec
   b. Firestone Building Products Co.
   c. GAF Materials Corp.

B. Curb and Parapet Flashing: Same material as membrane, with encapsulated edge which eliminates need for seam sealing the flashing-to-roof splice; precut to 18 inches (457 mm) wide.

C. Formable Flashing: Non-reinforced, flexible, heat-weldable sheet, composed of thermoplastic polyolefin polymer and ethylene propylene rubber.

1. Thickness: 0.060 inch (1.52 mm) plus/minus 10 percent.
2. Color: White.

D. Tape Flashing: 5-1/2-inch (140 mm) nominal wide TPO membrane laminated to cured rubber polymer seaming tape, overall thickness 0.065 inch (1.6 mm) nominal.

E. Pourable Sealer: One or Two-part polyurethane

F. Insulation Plates: Steel with Galvalume® and TPO coating; corrosion-resistance complying with FM 4470.

G. Seam Plates: Steel with barbs and Galvalume® coating; corrosion-resistance complying with FM 4470.

H. Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches (33 mm) wide by 0.10 inch (2.5 mm) thick or equal as provided by the roof system manufacturer.

I. Cut Edge Sealant: Synthetic rubber-based, for use where membrane reinforcement is exposed.

J. General Purpose Sealant: Polyether-based, one-part, white general purpose sealant.

K. Molded Flashing Accessories: Unreinforced TPO membrane pre-molded to suit a variety of flashing details, including pipe boots, inside corners, outside corners, etc.

2.2 INSULATION

A. Install new insulation as specified in Section 07220 - Roof Insulation.

2.3 FASTENERS

A. Insulation and Membrane Fasteners: Furnish and install new polyisocyanurate roof insulation mechanically fastened to the metal deck using heavy duty fasteners and Rhinobond® or Isoweld® plates. The minimum number of Rhinobond® or Isoweld Plates® per 4-foot by 8-foot insulation board shall be as follows:

a. Field Prime - 8 Per Board
b. Field - 8 Per Board
c. Perimeter - 15 Per Board
d. Corners - 20 Per Board

B. Base Flashing Fasteners (For Top Edge of Flashing):

1. Masonry Surfaces: Hardened masonry nails or drive-pins thru 1-1/4-inch sheet metal discs.
2. Sheet Metal Surfaces. Hardened, self-tapping, #10 sheet metal screws thru 1-1/4-inch sheet metal discs.
3. Wood Surfaces: "Cap Nail" annular ring roofing nail with one-inch dia. or square solid cap, by Simplex Nails Inc., Americus, GA 31709.

C. Compression Clamp: Stainless steel worm drive hose clamp.

D. Metal Termination Bar and Fasteners:

1. Termination Bar: Factory fabricated one inch wide x .100 inches thick mill finish aluminum bar, with 1/4 inch x 3/8 inch slotted holes 6 inches on center and with a 1/4 inch wide 45 degree sealant and stiffener flange. "AL200 Pressure Bar" by JBD Supply, 1424 Maple Avenue, N.E., Canton, OH 44705.

2. Fasteners:
   a. Concrete or Masonry: Hard aluminum alloy or stainless steel screws with 1/4 inch dia. plastic expansion shield or 1/4 inch dia. aluminum hammer driven expansion anchor. Length as required to securely hold the compression bar tight against the flashing surface.
   b. Wood and Sheet Metal: Hard aluminum alloy or stainless steel screw. Length as required to securely hold the compression bar tight against the flashing surface.

E. Metal Anchor Bar and Edge Retainer:

1. Anchor Bar: 1-inch wide roll formed and punched 14 gauge galvanized steel bar.
2. Edge Retainer: Continuous 5/32 inch round flexible thermoplastic rod.

2.4 MISCELLANEOUS MATERIALS

A. Pipe Flashing: Membrane manufacturers prefabricated pipe boot.

B. Compression Clamp (for factory fabricated flashings only): Stainless steel or cadmium plated steel worm drive clamp.

C. Expansion Joint Tube: Compressible neoprene or polyethylene tube, twice the diameter of the width of the expansion joint.

D. Walkway, Protection Pads: Membrane manufacturers prefabricated walkway pad.

E. Pitch Pocket Filler Materials:

1. Pourable Sealer: Membrane manufacturer's one or two part component liquid urethane.

F. Sealant: One-part, low modulus, silicone sealant: Dow Corning's 790, General Electric's Silpruf, Pecora's 864, or Sonneborn's Omniseal.

PART 3 - EXECUTION

3.1 SURFACE

A. Cleaning: Before the roofing installation commences, sweep and/or vacuum all surfaces as required to remove all dirt, dust, loose aggregate, foreign matter and debris left on the existing roofing.

3.2 INSTALLING ROOF INSULATION

A. Install new insulation as specified in Section 07220 - Roof Insulation.

3.3 INSTALLING TPO SHEET MEMBRANE

A. Installing TPO Sheet Membrane:

1. The substrate shall be inspected and approved by the membrane manufacturer's technical representative prior to membrane installation.
2. Do not install the membrane on days with cooler temperatures or high humidity, without the approval by the membrane manufacturer's technical representative and the Owner's Representative.
3. Do not allow the membrane to come in contact with surfaces contaminated with asphalt, coal tar, oil, grease, or other substances that are not compatible with TPO.
4. Install the membrane so the sheets run perpendicular to the long dimension of the insulation boards.
5. Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30 minutes before attachment or splicing; in colder weather allow for longer relax time.
6. Lay out the membrane pieces so that field and flashing splices are installed to shed water.
7. Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in accordance with membrane manufacturer's

requirements.

2. 8. The induction welded fastening pattern will vary from the field, perimeter and corners. The minimum numbers of Rhinobond® or Isoweld Plates® per 4-foot by 8-foot insulation board shall be as follows:

    a. Field Prime - 8 Per Board
    b. Field - 8 Per Board
    c. Perimeter - 15 Per Board
    d. Corners - 20 Per Board

9. Using manufacturer's fasteners and Rhinobond® or Isoweld® plates, the Contractor is recommended to use the widest sheet available with a fastening pattern to meet ASCE 7-16 wind uplift requirements.
10. At wall and curb flashing locations, apply bonding adhesive at about the same time to both the exposed underside of the sheet and the substrate to which it will be adhered so as to allow approximately the same drying time. Apply bonding adhesive so to provide an even and uniform film thickness at the coverage rate as required by the proposed roof system manufacturer
11. Allow bonding adhesive to flash off until tacky. Touch the bonding adhesive surface with a clean, dry finger to be certain that the adhesive does not stick or string. As you are touching the adhesive, pushing straight down to check for stringing, also push forward on the adhesive at an angle to ensure that the adhesive is ready throughout its thickness. If either motion exposes wet or stringy adhesive when the finger is lifted, then it is not ready for mating. Flash off time will vary depending on ambient air conditions. Roll the previously coated portion of the sheet into the coated substrate slowly and evenly so as to minimize wrinkles. To ensure proper contact, compress the bonded half of the sheet to the substrate with a stiff push broom.
12. Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change greater than 2 in 12 inches (1:6) using mechanically fastened reinforced perimeter fastening strips, plates, or metal edging as indicated or as recommended by roofing manufacturer.

3.4 FLASHING AND ACCESSORIES INSTALLATION

A. Install flashings, including laps, splices, joints, bonding, adhesion and attachment as required by membrane manufacturer's recommendations and details.

B. Metal Accessories: Install metal edgings, gravel stops and copings as indicated on the drawings, with horizontal leg of edge member over membrane and flashing over metal onto membrane.

1. Follow roofing manufacturer's instructions.
2. Remove protective plastic surface film immediately before installation.
3. Install water block sealant under the membrane anchorage leg.
4. Flash with manufacturer's recommended flashing sheet unless otherwise indicated.
5. Where single application of flashing will not completely cover the metal flange,

install additional piece of flashing to cover the metal edge.

6. If roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging, install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel stop; apply seam edge treatment at the intersections of the two flashing sections.

C. Flashing at Walls, Curbs, and Other Vertical and Sloped Surfaces: Install weathertight flashing at all walls, curbs, parapets, curbs, skylights, and other vertical and sloped surfaces that the roofing membrane abuts to; extend flashing at least 8 inches (200 mm) high above membrane surface.

1. Use the longest practical flashing pieces.
2. Evaluate the substrate and overlay and adjust installation procedure in accordance with membrane manufacturer's recommendations.
3. Complete the splice between flashing and the main roof sheet with specified splice adhesive before adhering flashing to the vertical surface.
4. Provide termination directly to the vertical substrate as shown on roof drawings.

D. Flashing at Penetrations: Flash all penetrations passing through the membrane; make flashing seals directly to the penetration.

1. Pipes, Round Supports, and Similar Items: Flash with specified pre-molded pipe flashings wherever practical; otherwise use specified non-reinforced TPO flashing.

3.5 FIELD QUALITY CONTROL

A. In the presence of the Owner’s Representative closely examine and probe all seams in the membrane and flashing.

1. Probe the edges of all welded seams with a blunt tipped cotter pin removal tool. Use sufficient hand pressure to detect marginal welds, voids, skips, and fishmouths. Repair all defective areas.
2. Each day that seams are welded, a minimum of two, 2 inch wide x 8 inch long cross section samples must be taken thru the completed seams. Cut the sample in the presence of and where directed by the Owner’s Representative. Failure of the samples to maintain the standard of quality of the approved samples will be cause for rejection of the Work.
3. Repair all areas of welded seams where samples have been taken.
4. Check the adhesion at all induction welded membrane locations to ensure proper attachment of the membrane has been achieved.

3.6 FINAL CLEANING

A. Upon completion of all roof membrane installation, flashings, terminations and metal work, clean the entire roof surface by power washing and utilizing cleaning agents as recommended by the roof system manufacturer.

1. Final cleaning shall occur prior to the Punch List Inspection.

END OF SECTION 075420

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SECTION 076200 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Provide all flashing and sheet metal not specifically described in other Sections of these Specifications but required to prevent penetration of water through roof flashing details and penetrations.

B. Related work described elsewhere:

1.	Selective Demolition	Section 020700
2.	Standing Seam Metal Roofing	Section 074413
3.	Sealants and Caulking	Section 079200

1.2 QUALITY ASSURANCE

A. Standards: Comply with standards specified in this Section.

B. Qualification of manufacturer: Prefabricated products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Owner.

C. Qualification of installers: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

A. General: Comply with provisions of General Conditions.

B. Manufacturer's data: Within ten (10) calendar days after receipt of the Notice to Proceed, submit:

1. Complete materials list of all items proposed to be furnished and installed under this Section indicating amount, gauge and/or weight, dimensions, and type.
2. Manufacturer's specifications and other data required to demonstrate compliance with the specified requirements.
3. The manufacturer's recommended installation procedures and the shop drawings, when approved by the Owner, will become the basis for inspecting and accepting or rejecting actual installation procedures used on the Work.

1.4 PRODUCT HANDLING

A. Protection: Use all means necessary to protect materials of this Section before, during, and after installation and to protect installed work and materials of all other trades.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 DESIGN

A. Standard commercial items may be used for flashing, trim, and reglets, provided all such items meet or exceed the quality standards specified herein.

B. Quality standards: In addition to complying with all pertinent codes and regulations, comply with all pertinent recommendations contained in "Architectural Sheet Metal Manual," current edition of the Sheet Metal and Air Conditioning Contractors National Association.

2.2 RIVETS

A. Use only soft iron rivets having a rust-resistive coating when required.

2.3 COUNTERFLASHING

A. Provide min. 4-inch metal counter flashing at all flashing locations.

2.4 PITCH POCKETS

A. Material for pitch pockets on TPO roof areas shall be the manufacturer’s standard pre-fabricated accessory installed to meet the manufacturer’s requirements.

B. All pre-fabricated pitch pockets shall be filled with compatible material according to manufacturer’s recommendations.

2.5 METAL COPING (if required)

A. Provide pre-manufactured metal coping system tested per ANSI/SPRI/FM4435 ES-1 for the wind uplift requirements of the project. Material for metal coping shall be minimum 24-gauge steel with factory applied finish.

B. Finish shall be minimum 70% Kynar fluorocarbon coating (or approved equal). Color shall be as selected by Owner from manufacturer’s full range of colors.

C. Metal coping shall be included in the system warranty by the primary roof system manufacturer.

D. Outside face of new metal coping shall be minimum 4-inchs and extend below top of EFIS facing minimum 2-inches.

2.6 GUTTERS, DOWNSPOUTS & LEAF GUARDS

A. All existing gutters and downspouts shall remain in place. Remove and dispose of all debris from existing gutters and downspouts.

B. All gutter joints, gutter endcaps and downspout outlets shall be cleaned and be resealed to provide a watertight gutter drainage system.

C. At all gutter locations, install LeafBlaster Pro https://www.leafblaster.com/ or equal leaf guard protection made with Type 316 stainless steel micro-mesh.

2.7 RIDGE VENTS, HIPS, EXPANSION JONTS, DRIP EDGE, VALLEY AND RAKE TRIM METAL

A. Furnish and install new shop fabricated metal at ridge vents, hips, expansion joints, drip edge, valleys, rake edges and eave locations with no gutter that meet the manufacturers installation and warranty requirements fabricated from the same material and finish as roof panels. Color as selected by the Owner from the manufacturer's full range of colors.

B. All sheet metal accessories shall be included in the watertight roof system warranty by the primary roof system manufacturer.

2.8 OTHER MATERIALS

A. All other materials, not specifically described but required for a complete and proper installation of the work of this Section, shall be new, first quality of their respective kinds, and as selected by the Contractor subject to the approval of the Owner.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions under which work of this Section will be installed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 WORKMANSHIP

A. General:

1. Form all sheet metal accurately and to the dimensions and shapes required, finishing all molded and broken surfaces with true, sharp, and straight lines and angles and, where intercepting other members, soldering securely.
2. Unless otherwise specifically permitted by the Owner, turn all exposed edges back ½-inch.

B. Weatherproofing:

1. Finish watertight and weather tight where so required.
2. Make all lock seam work flat and true to line.
3. Make all lock seam and lap seams, when soldered, at least ½-inch wide.

4. Make all flat and lap seams in direction of flow.
5. Counter flashing at curbs shall be lapped a minimum of 4-inches, riveted and sloped from the penetration to prevent water from laying on the detail.

C. Nailing:

1. Whenever possible, secure metal by means of clips or cleats without nailing through the metal.
2. In general, space all screws not more than 8-inches apart, where exposed to the weather, and use neoprene washers.
3. For nailing into brick, use drilled plugholes and plugs.

END OF SECTION 076200

SECTION 077253 - SNOW GUARDS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Snow guards for metal roofs.
   2. Non-penetrating attachment system.

1.2 RELATED SECTIONS

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

B. Section 074113 – Standing Seam Metal Roofing

C. Section 076200 – Sheet Metal Flashing and Trim

1.3 REFERENCES

A. Aluminum Association (AA) - Aluminum Standards and Data, 2003 Edition.

B. ASTM International (ASTM):
   1. B85-03 - Standard Specification for Aluminum-Alloy Die Castings.
   2. B221-04a - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

1.4 SUBMITTALS

A. Action Submittal:
   1. Shop Drawings: Include roof plans showing locations of snow guards on roof and attachment details and spacing.
   2. Product Data:
      a. Product description.
      b. Construction details.
      c. Material descriptions.
      d. Individual component dimensions.
      e. Finishes.
      f. Installation instructions.
   3. Samples:
      a. Clamp samples.
      b. 12-inch long cross member samples including all associated hardware.

B. Informational Submittals:

1. Include calculation of number and location of snow guards based on designed roof snow load, roof slope, roof type, components, spacings and finish
2. Test results: Results of product tensile load testing, issued by a recognized independent testing laboratory, showing ultimate load-to-failure value of attachment.

C. Closeout Submittals:
1. Certification: Installer's certification that snow guard system was installed in accordance with manufacturer's instructions and approved Shop Drawings.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturer to specialize in production of Snow Guard Products of the type specified with a minimum of 20 years documented experience.

B. Installer Qualifications: Installer to specialize in metal roof installation and installation of Snow Guard Products with a minimum of 5 years documented experience.

C. Mockup:
1. Size: Minimum 8 feet long.
2. Show: Snow guard attachment, cross members, and accessories.
3. Locate where directed by Architect.
4. Approved mockup may remain as part of the Work.

1.6 DELIVERY, STORGE AND HANDLING

A. Deliver components to jobsite properly packaged to provide protection during transport, delivery and handling.

B. Store products in manufacturer’s original labeled and unopened packaging in a clean and dry location, protected from potential damage, until ready for application.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Attachment system to provide attachment to standing seam metal roofs:
1. With only minor dimpling of panel seams.
2. Without penetrations through roof seams or panels.
3. Without use of sealers or adhesives.
4. Without voiding roof warranty.

B. Performance Requirements: Provide snow guards to withstand exposure to the weather and environmental elements, and resist design forces without failure due to defective manufacture.
1. Loading: Install snow guard system to resist minimum in-service vector load of 365 pounds per linear foot of eave.

2. Factor of safety: Utilize a factor of safety 2 to determine allowable loads from ultimate tested clamp tensile load values.
3. Source Limitation: Provide snow guard system as designed and tested by the manufacturer as a complete system. Install components by the same manufacturer.

2.2 MANUFACTURER

A. Acceptable Manufacturer: S-5! Metal Roof Innovations, Ltd., 8655 Table Butte Road, Colorado Springs, CO. 80908; Tel: 888-825-3432; Fax: 719-495-0045; Email: support@s-5.com; Web: www.s-5.com

B. Substitutions: Substitutions will be permitted if submitted prior to bid receipt date.

2.3 BAR/RAIL-TYPE SNOW RETENTION SYSTEMS FOR STANDING SEAM METAL ROOFS

A. Basis of Design: ColorGard, manufactured by S-5! Metal Roof Innovations, Ltd.
B. Components:
1. Clamps
a. Manufactured from 6061-T6 aluminum extrusions conforming to ASTM B221 or aluminum castings conforming to ASTM B85 and to AA Aluminum Standards and Data.
1) Model: No. S-5-S
b. Set screws: 300 Series stainless steel, 18-8 alloy, 3/8 inch diameter, with round nose point.
c. Attachment bolts: 300 Series stainless steel, 18-8 alloy, 8 mm or 10 mm diameter, hex flange bolt.
2. Cross Members:
a. Manufactured from 6061-T6 or 6005-T5 alloy and temper aluminum extrusions conforming to ASTM B221 and AA Aluminum Standards and Data.
b. Receptacle in face to receive color-matched metal strips.
c. Provide splice connectors ensuring alignment and structural continuity at end joints.

3. Color Strips: Same material and finish as roof panels; obtained from roof panel manufacturer.

4. Snow and Ice Clips:
a. Aluminum, with rubber foot, minimum 3 inches wide.
1) Model: SnoClip II for standing seam heights 1” to 1.75”

PART 3- EXECUTION

3.1 EXAMINATION

A. Prior to beginning installation, verify that:
1. Panel seaming is complete.
2. Panel attachment is sufficient to withstand loads applied by snow guard system.
3. Installation will not impede roof drainage.

3.2 PREPARATION

A. Clean areas to receive attachments; remove loose and foreign matter that could interfere with installation or performance.

3.3 INSTALLATION

A. Install system in accordance with manufacturer's instructions and approved Shop Drawings

B. ColorGard Snow Retention System:

1. Place clamps at maximum 32 inches on center or as required by in-service loads.

2. Place clamps in straight, aligned rows.

3. Place both set screws on same side of clamp.

4. Tighten set screws to manufacturer's recommended torque. Randomly test set screw torque using calibrated torque wrench.

5. Insert color-matched metal strips into cross members, staggering strips to cover cross member joints.

6. Attach cross members to clamps; tighten bolts to manufacturer's recommended torque.

7. Install splice connectors at cross member end joints.

8. Do not cantilever cross members more than 4 inches beyond last clamp at ends.

9. Install one SnoClip per panel between panel seams. SnoClips slide onto cross member before securing cross member to clamps

10. Place brackets at maximum 32 inches on center or as required by in-service loads.

11. Clean roof area to receive bracket. Remove protective seal on butyl tape

12. Place brackets in straight rows along underlying substrate.

13. Insert color-matched metal strips into cross members.

14. Place brackets at spot of attachment and fasten with screws best suited for type of attachment

15. Attach cross members to brackets using self drilling screws.

16. Install splice connectors at cross member end joints.

17. Do not cantilever cross members more than 4 inches beyond last bracket at ends.

18. Do not install clamps where panel clips are located.

END OF SECTION 077230

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SECTION 079200 - SEALANTS AND CAULKING

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work included: Throughout the Work, seal all joints as required to provide a positive barrier against passage of air and passage of moisture. In general, Work of this Section includes cleaning and caulking miscellaneous joints as needed.

B. Related work described elsewhere:

1. PVC Membrane Roofing - Section 075420
2. Sheet Metal Flashing and Trim - Section 076200

1.2 QUALITY ASSURANCE

A. Standards: Comply with all standards specified in this Section.

B. Qualifications of Manufacturers: Products used in the work of this Section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Owner.

C. Adhere strictly to the details shown on the Drawings or in manufacturer's recommended procedures.

D. Qualifications of Installer:

1. Proper caulking and proper installation of sealant requires that installer be thoroughly trained and experienced in the necessary skills and thoroughly familiar with the specified requirements.
2. For caulking and installation of sealant throughout the Work, use only personnel who have been specifically trained in such procedures and who are completely familiar with the joint details shown on the Drawings and the installation requirements called for in this Section.

1.3 SUBMITTALS

A. General: Comply with provisions of the General and Special Conditions.

B. Manufacturer's data: Within ten (10) calendar days after receipt of the Notice to Proceed, submit:

1. A complete materials list showing all items proposed to be furnished and installed under this Section.
2. Sufficient data to demonstrate that all such materials meet or exceed the specified requirements.
3. Specifications, installation instructions, and general recommendations from the materials manufacturers showing procedures for installation.

C. Upon approval by the Owner, the proposed installation procedures will become the basis for inspecting and accepting or rejecting actual installation procedures used on the work.

D. Samples: Upon request, submit samples of products to be used, within ten (10) days of such request.

1.4 PRODUCT HANDLING

A. Delivery and storage: Deliver all materials of this Section to the job site in the original unopened containers with all labels intact and legible at time of use. Store only under conditions recommended by the manufacturers. Do not retain on the job site, any material that has exceeded the shelf life recommended by its manufacturer.

B. Protection: Use all means necessary to protect the materials of this Section before, during, and after installation and to protect the work and materials of all other trades.

C. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of and at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 SEALANTS

A. General: Except as specifically otherwise directed by the Owner, use only the type of sealant described in this Article.

B. Sealant shall be a gun grade compound conforming to ASTM C-920-79. Each color and each class of sealant shall be the product of a single manufacturer selected from the following, or shall be equal products as approved in advance by the Owner.

1. Acceptable products include:

a. “Chem-Calk N-Cure 2000”: Bostik construction Products Div.
b. “Dow Corning 790”: Dow Corning Corp
c. “864”: Pecora Corp.
d. “Sonolastic NP2”: Sonneborn

C. Colors: Colors for each sealant installation will be selected by the Owner from standard colors normally available from the specified manufacturers. Should such standard color not be available from the approved manufacturer, except at additional charge, provide all such colors at no additional cost to the Owner.

1. In concealed installations, and in partially or fully exposed installations, where so approved by the Owner, standard aluminum gray sealant may be used.

2.2 PRIMERS

A. Use only those primers, which are non-staining, have been tested for durability on the surfaces to be sealed and are specifically recommended for this installation by the manufacturer of the sealant used.

2.3 BACKUP MATERIALS

A. General: Use only those backup materials which are specifically recommended for this installation by the manufacturer of the sealant used, and which are nonabsorbent and non-staining.

B. Acceptable types include:

1. Closed-cell-sponge of vinyl or rubber.
2. Polychloroprene tubes or beads.
3. Polyisobutylene extrusions.
4. Oil-less dry jute.

2.4 BOND-PREVENTIVE MATERIALS

A. Use only one of the following as best suited for the application and as recommended by the manufacturer of the sealant used:

1. Polyethylene tape, pressure-sensitive adhesive, with the adhesive required only to hold tape to the construction materials as indicated.

2.5 MASKING TAPE

A. For masking around joints, provide masking tape conforming to manufacturer standards.

2.6 OTHER MATERIALS

A. All other materials not specifically described but required for complete and proper caulking and installation of sealants, shall be first quality of their respective kinds, new, and as selected by the Contractor subject to the approval of the Owner.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to the proper and timely completion of the Work. Do not proceed until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Concrete and masonry surfaces:

1. All surfaces in contact with sealant shall be dry, sound, and well brushed and wiped free from dust.
2. Use solvent to remove oil and grease, wiping the surfaces with clean rags.
3. Where surfaces have been treated, remove the surface treatment by use of sandblasting or wire brushing.
4. Remove all laitance and mortar from the joint cavity.

5. Where backstop is required, insert the approved backup material in the joint cavity to the depth required.

B. Steel surfaces: Steel surfaces in contact with sealant shall be sandblasted or, if sandblasting would not be practical or would damage adjacent finish, the metal shall be scraped or wire-brushed to remove mill scale.

1. Use solvent to remove oil and grease, wiping the surfaces with clean rags.
2. Remove protective coatings on steel by sandblasting or by a solvent that leaves no residue.

3.3 INSTALLATION OF BACKUP MATERIAL

A. Use only the backup material recommended by the manufacturer of the sealant and approved by the Owner for the particular installation, compressing the backup material 25% to 50% to achieve a positive and secure fit. When using backup of tube or rod stock, avoid lengthwise stretching of the material. Do not twist or braid hose or rod backup stock.

3.4 PRIMING

A. Use only the primer recommended by the manufacturer of the sealant and approved by the Owner for the particular installation. Apply the primer in strict accordance with the manufacturer's recommendations.

3.5 BOND-BREAKER INSTALLATION

A. Install an approved bond-breaker where recommended by the manufacturer of the sealant and where directed by the Owner, adhering strictly to the installation recommendations.

3.6 INSTALLATION OF SEALANT

A. General: Prior to start of installation in each joint, verify the joint type according to the Details in the Drawings, and verify that the required proportion of width of joint to depth of joint has been achieved.

B. Equipment: Apply sealant under pressure with hand or power-actuated gun or other appropriate means. Guns shall have nozzle of proper size and shall provide sufficient pressure to completely fill joints as designed.

C. Masking: Thoroughly and completely mask all joints where the appearance of sealant on adjacent surfaces would be objectionable.

D. Installation of sealant: Install the sealant in strict accordance with the manufacturer's recommendations, thoroughly filling all joints to the recommended depth.

E. Tooling: Tool all joints.

F. Cleaning up: Remove masking tape immediately after joints have been tooled. Clean adjacent surfaces free from sealant as the installation progresses. Use solvent or cleaning agent as

recommended by the sealant manufacturer.

END OF SECTION 079200

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SECTION 099000 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Special Conditions and Technical Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation, painting, and finishing of exposed exterior items and surfaces as specifically indicated on contract drawings.

1. Surface preparation, priming, and finish coats specified in this Section are in additions to shop-priming and surface treatment specified under other Sections.

B. Paint exposed surfaces where rust/corrosion has begun to develop, except where a surface or material is specifically indicated not to be painted or is to remain natural.

1. Painting includes field painting of the following items:

a. Previously painted metal surfaces that are not being replaced.
b. All roof top components that are rusted.

C. Painting is not required on pre-finished items, finished metal surfaces, concealed surfaces, operating parts, and labels.

1. Pre-finished items not to be painted include the following factory-finished or pre-finished components showing no sign of corrosion.

1.3 SUBMITTALS

A. General: Submit the following according to Conditions of the Contract and Division 1 Specification Sections.

B. Product data for each paint system specified, including primers and finish coats.

1. List each material and cross-reference the specific coating, finish system, and application. Identify each material by the manufacturer's catalog number and general classification.
2. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).

C. Samples for initial color selection in the form of manufacturer's color charts. After color selection, the Owner will furnish color designations for surfaces to be coated.

1.4 QUALITY ASSURANCE

A. Single-Source Responsibility: Provide primers and undercoat paint produced by the same manufacturer as the finish coats.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to the job site in the manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:

1. Product name or title of material.
2. Product description (generic classification or binder type).
3. Manufacturer's stock number and date of manufacture.
4. Contents by volume, for pigment and vehicle constituents.
5. Thinning instructions and Application instructions.
6. Color name and number.

B. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F. Maintain containers used in storage in a clean condition, free of foreign materials and residue.

1. Protect from freezing. Keep storage area neat and orderly. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing, and application.

1.6 PROJECT CONDITIONS

A. Apply solvent-thinned paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 45 deg F and 95 deg F.

B. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to, the following:

1. Devoe and Raynolds Co. (Devoe).
2. The Glidden Company (Glidden).
3. Benjamin Moore and Co. (Moore).
4. PPG Industries, Pittsburgh Paints (PPG).
5. The Sherwin-Williams Company (S-W).

2.2 PAINT MATERIALS, GENERAL

A. Materials Compatibility: Provide primers, finish coat materials, and related materials that are

compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.

B. Material Quality: Provide the manufacturer's best-quality trade sale paint material of the various coating types specified.

1. Propriety Names: Use of manufacturer's proprietary product names to designate colors of materials is not intended to imply that products named are required to be used to the exclusion of equivalent products of other manufacturers. Furnish the manufacturer's material data and certificates of performance for proposed substitutions.

C. Colors: Provide color selections made by the Consultant from the manufacturer's full range of standard colors, where applicable.

2.3 PRIMERS

A. Primers: Provide the manufacturer's recommended factory-formulated primers that are compatible with the substrate and finish coats indicated.

B. Available Products: Subject to compliance with requirements, prime coat materials that may be incorporated in the Work include, but are not limited to, the following.

1. Ferrous Metal Primer: Synthetic, quick-drying, rust-inhibiting primer applied at spreading rate recommended by manufacturer to achieve total dry film thickness recommended by manufacturer but not less than 1.3 mils.
   a. Devoe: 13101 Mirrolac Cover Up Rust Penetrating Primer.
   b. Glidden: 5205 Glid-Guard Tank & Structural Primer, Red.
   c. Moore: IronClad Retardo Rust-Inhibitive Paint #163.
   d. PPG: 6-208 Speedhide Interior/Exterior Rust Inhibitive Steel Primer.
   e. S-W: Kem Kromik Metal Primer B50N2/B50W1.

2. Galvanized Metal Primer: Applied at spreading rate recommended by manufacturer to achieve total dry film thickness recommended by manufacturer, but not less than 1.2 mils.
   a. Devoe: 8502/8520 Mirrolac - WB Interior/Exterior Waterborne Flat DTM Primer and Finish.
   b. Glidden: 5229 Glid-Guard Tank and Structural Primer, Red.
   c. Moore: IronClad Galvanized Metal Latex Primer #155.
   d. PPG: 90-709 Pitt-Tech One Pack Interior/Exterior Primer/Finish DTM Industrial Enamel.
   e. S-W: Galvite Paint B50W3.

2.4 RUST INHIBITIVE PRIMER

A. 100% acrylic emulsion, waterborne, corrosion resistant coating for both new construction and industrial applications. It can be used as a primer under most water based topcoats or alone as a primer/topcoat system. It can be used directly over multiple substrates.

1. Product: Sherwin Williams B66W1 DTM Acrylic Primer / Finish or Approved Equal

2. Color: white
3. Volume Solids: 46% (+/- 2%)
4. Weight Solids: 61% (+/- 2%)

2.5 EXTERIOR FINISH PAINT MATERIAL

A. Finish Paint: Provide the manufacturer's recommended factory-formulated finish-coat materials that are compatible with the substrate and undercoats indicated.

B. Available Products: Subject to compliance with requirements, finish coat materials that may be incorporated in the Work include, but are not limited to, the following:

1. Alkyd Gloss Enamel: Weather-resistant, air-drying, high-gloss exterior alkyd enamel, applied in 2 coats at spreading rate recommended by manufacturer to achieve a total dry film thickness recommended by manufacturer, but not less than 3.0 mils.
   a. Devoe: 70XX Mirrolac Interior/Exterior Alkyd-Urethane Gloss Enamel.
   b. Glidden: 4500 Glid-Guard Alkyd Industrial Enamel.
   c. Moore: Impervo Enamel #133.
   d. PPG: 6-282 Speedhide Interior/Exterior Gloss - Oil Enamel.
   e. S-W: Industrial Enamel B-54 Series.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which painting will be performed for compliance with paint application requirements. Surfaces receiving paint must be thoroughly dry before paint is applied.

1. Do not begin to apply paint until unsatisfactory conditions have been corrected.
2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.

1. Notify the Owner about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted, or provide surface-applied protection prior to surface preparation and painting. Remove these items, if necessary, to completely paint the items and adjacent surfaces. Following completion of painting operations in each space or area, have items reinstalled by workers skilled in the trades involved.

B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

C. Surface Preparation: Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition and as specified.

1. Provide barrier coats over incompatible paints, or remove and prime.
2. Ferrous Metals: Clean ungalvanized ferrous metal surfaces that have not been shop-coated; remove oil, grease, dirt, loose mill scale, and other foreign substrates. Use solvent or mechanical cleaning methods that comply with recommendations of the Steel Structures Painting Council (SSPC).
    a. Blast steel surfaces clean as recommended by the paint system manufacturer and according to requirements of SSPC specification SSPC-SP 10.
    b. Treat bare, sandblasted or pickled clean metal with a treatment wash coat before priming.
    c. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by the paint manufacturer, and touch up with the same primer as the shop coat.
3. Galvanized Surfaces: Clean galvanized surfaces with nonpetroleum-based solvents so that the surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet metal fabricated from coil stock by mechanical methods.

D. Materials Preparation: Carefully mix and prepare paint materials according to manufacturer's directions.

1. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
2. Stir material before application to produce a mixture of uniform density; stir as required during application, stain material before using.
3. Use only thinners approved by the paint manufacturer and only within recommended limits.

3.3 APPLICATION

A. General: Apply paint according to manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.

1. Locations of surfaces to be painted are indicated on contract drawings or specified, or both.
2. Provide finish coats that are compatible with primers used.
3. The number of coats and the film thickness required are the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Sand between applications where sanding is required to produce a smooth even surface according to the manufacturer's directions.
4. Apply additional coats if undercoats, stains, or other conditions show through final coat of

paint until paint film is of uniform finish, color, and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners, receive a dry film thickness equivalent to that of flat surfaces.

5. Omit primer on metal surfaces that have been shop-primed and touch-up painted.

C. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

1. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.

D. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to the manufacturer's directions.

1. Brushes: Use brushes best suited for the material applied.
2. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.

E. Minimum Coating Thickness: Apply materials no thinner than the manufacturer's recommended spreading rate. Provide the total dry film thickness of the entire system as recommended by the manufacturer.

F. Prime Coats: Before applying finish coats, apply a prime coat of material, as recommended by the manufacturer, to material that is required to be painted or finished and that has not been prime-coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.

G. Pigmented (Opaque) Finished: Completely cover to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be accepted.

H. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or repaint work not complying with specified requirements.

3.4 CLEANING

A. Cleanup: At the end of each work day, remove empty cans, rubbish, and other discarded paint materials from the site.

1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.5 PROTECTION

A. Protect work of other trades, whether being painted or not, against damage by painting. Correct

damage by cleaning, repairing or replacing, and repainting, as acceptable to Consultant.

1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

END OF SECTION 099000

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