



**UNION COUNTY PUBLIC SCHOOLS
2026- UCPS- MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT
PROJECT MANUAL**

BID # 6-97648063

**2825 CRANE RD
WAXHAW, NC 28173**

APRIL 2026

Prepared by:



WOLF TRAIL™
ENGINEERING

NC P-1817 | SC 5872

1001 Lancaster Avenue | Monroe, NC 28112
704.282.0826 | WolfTrailEngineering.com



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SECTION 00 01 15
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The following drawings and details are included as part of the Contract Documents:

<u>Drawing</u>	<u>Description</u>	<u>Date</u>
C01	Cover	04-16-2026
AP-1	Appendix B	04-16-2026
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RP-01	Roof Plan	04-16-2026
DP01	Detail Plan	04-16-2026
DP02	Detail Plan	04-16-2026
DP03	Detail Plan	04-16-2026
DP04	Detail Plan	04-16-2026
C-1	Elevations	04-16-2026
C-2	Elevations	04-16-2026
C-3	Elevations	04-16-2026
C-4	Elevations	04-16-2026
C-5	Elevations	04-16-2026
R-1	Roof Details	04-16-2026
R-2	Roof Details	04-16-2026
R-3	Roof Details	04-16-2026
R-4	Roof Details	04-16-2026
R-5	Roof Details	04-16-2026
R-6	Roof Details	04-16-2026
R-7	Roof Details	04-16-2026
TP01	Taper Plan	04-16-2026
TP02	Taper Plan	04-16-2026
TP03	Taper Plan	04-16-2026
TP04	Taper Plan	04-16-2026
T-01	Thermal Plan	04-16-2026
T-02	Thermal Plan	04-16-2026
T-03	Thermal Plan	04-16-2026
RA-1	Roof Accessories	04-16-2026
RA-2	Roof Accessories	04-16-2026
RA-3	Roof Accessories	04-16-2026
WU-01	Wind Uplift Plan	04-16-2026
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WU-03	Wind Uplift Plan	04-16-2026
WU-04	Wind Uplift Plan	04-16-2026

END OF SECTION 00 01 15

SECTION 00 11 13
ADVERTISEMENT FOR BIDS

Sealed bids for the **Union County Public Schools, 2025 Marvin Ridge High School Roof Replacement Project , 2825 Crane Rd, Waxhaw, NC 28173** will be received by the Owner at 201 Venus St., Monroe NC 28112/ Sealed Bid, by **2:00 PM, May 19, 2026**, at which time bids will be opened publicly and read aloud.

The Owner is: **Union County Public Schools**
 C/O: Lynn Elms, UCPS
 Address: 201 Venus St.
 Monroe, NC 28112

Project Manager: Randy Mullis, UCPS

The Engineer is: **Wolf Trail Engineering, LLC**
 Attention: Lynne Hall
 Phone # 704-282-0826
 Email: Lynne@wolftrailengineering.com

Prime Bidders & major subcontractors may receive a complete PDF set of plans and specifications upon request to the office of the Engineer.

All questions should be emailed to the Engineer at the phone number shown above.

A Pre-Bid conference is scheduled for April 30, at 10:00 AM at 3501 Stallings Rd, Stallings, NC 28104 then proceed to Marvin Ridge High School at 2825 Crane Rd, Waxhaw, NC 28173. Attendance is Required.

A bid security for 5% of the total bid amount shall be submitted with each bid.

The Owner reserves the right to reject any and all bids, to waive informalities, and to award the contract to another bidder, other than the low bidder, should it be deemed in their best interest.

SECTION 00 21 13
INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.1 SECURING DOCUMENTS

- A. Obtain procurement documents for bidding purposes under conditions as set forth in the Advertisement for Bid.

1.2 BID FORM

- A. Submit Bids on the forms provided, properly executed and with all items filled out. Modification of the Bid Form, attachment of conditions or limitation of provisions may be cause for rejection of the Bid. Alterations, erasure, or interlineations must be noted with explanation on the Bid Form over the signature of the Bidder.

1.3 FAMILIARITY WITH WORK AND CONDITIONS:

- A. Before preparing Bids, Bidders are urged to visit the site to inform and familiarize themselves with all conditions involved and under which the project is to be constructed or apparatus erected or installed. The Owner will not be responsible to the Contractor for payments other than as set out in the Construction Contract should construction conditions be different from those assumed or contemplated by the Contractor. The Contractor is required to satisfy himself, before bidding, as to the correctness of the site as indicated by the Contract Documents.

1.4 SUBMISSION OF BIDS

- A. Deliver Bid to the location indicated in the Advertisement for Bid before time set for receipt of bids. Submit Bid in an opaque, sealed envelope and marked in the lower left-hand corner with the following information:

1. Bidder's Name
2. Bidder's Address
3. Bidder's Phone
4. Contractor's License No.
5. Title of Project
6. Date and Time of the Bid Opening

- B. Bids shall be mailed to the follows:

Union County Public Schools/ Sealed Bid
C/O: Lynn Elms
201 Venus St., Monroe, NC 28112
Label Packages "URGENT- TIME SENSITIVE BID ENCLOSED"

- C. It is the sole responsibility of the Bidder to submit Bid prior to time fixed for receipt.
- D. Electronic submission of Bids or Bid modifications will not be accepted. Bids received after the time fixed for receipt will be considered late and will be returned to the Bidder unopened.

1.5 BID SECURITY

- A. A Bid Security in the amount of 5 percent (5%) of the Bid Sum shall be furnished with the submission of the Bid. Acceptable Bid Securities include a bid bond, or other type of security, as stipulated by the North Carolina General Statutes. Submitted Bid Security should be on the Owner's form, attached in the Project Manual.

1.6 PERFORMANCE AND PAYMENT BONDS

- A. Performance Bond and Labor and Material Payment Bonds, each in the amount of 100 percent of the Contract Sum, shall be furnished at the time of Contract execution. Submit Bonds on the forms attached in the Project Manual. See Sections 00 61 13.13 and 00 61 13.16

1.7 EXAMINATION OF CONTRACT DOCUMENTS AND SITE OF WORK

- A. Prior to submitting Bid, each Bidder shall carefully examine the proposed Contract Documents and visit the project site. Bidders shall fully inform themselves, prior to Bidding, as to all existing conditions and limitations under which the Work is to be performed and shall include in the Bid Sum an amount to cover the cost of all items necessary to perform the Work as set forth in the proposed Contract Documents. No allowance will be made due to lack of such examination or knowledge. The contractor shall verify the square footage of the roof in the project. The submission of a Bid shall be construed as conclusive evidence that the Bidder has made such an examination.

1.8 SUBSTITUTIONS

- A. Each Bidder represents that their Bid is based upon the materials and equipment described in the proposed Contract Documents. Substitutions will be considered during the Bidding process in accordance with Document 00 26 00 - Procurement Substitution Procedures. Substitutions after the execution of the Agreement will only be considered in strict accordance with Section 01 25 00 - Substitution Procedures.

1.9 MODIFICATION AND WITHDRAWAL OF BIDS

- A. Bids may be withdrawn upon request from the Bidder prior to opening time. Withdrawn Bids may be resubmitted up to opening time. Negligence or error on the part of the Bidder in preparing his Bid confers no right for withdrawal of the Bid after it has been opened. No Bid may be withdrawn for 90 calendar days after opening except as provided by North Carolina G.S. 143-129.1.

1.10 AWARD OR REJECTION OF BIDS

- A. Award of Contract, if awarded, will be based on, but not limited to, the following criteria:
 - 1. Cost (best advantage for the Owner)
 - 2. Submission of the Owner's required qualification documents before or with the Bid.
 - 3. Acceptance of the contractor's qualifications based on the response to the contractor qualification documents demonstrating his past performance and ability to complete similar work.
 - 4. Conformance with contract documents
 - 5. Acceptable date of delivery
 - 6. Acceptable Form of Bid Security
 - 7. Other reasonable factors deemed fit by the Owner.
- B. A Single Prime Contract will be awarded.
- C. To be considered, a minimum of three Bidders must submit for the Contract.
- D. All bids are subject to the Owner's right to reject any or all bids and to waive any informality in the bids or in the bidding. Failure to provide qualifications, complete all information required on the bid form, or provide adequate bid security may result in rejection of bid.

1.11 EXECUTION OF AGREEMENT

- A. The successful Bidder, to whom the Contract is awarded by the Owner, shall, within 10 days after Notice of Award from the Owner, sign and deliver to the Owner all required copies of the Agreement.
- B. Prior to or in conjunction with delivery of the executed Agreement, the Contractor shall deliver to the Owner documents described in the Project Manual and the policies or certificates of insurance as required by the Contract Documents. The Owner shall approve all bonds and policies or certificates of insurance before the Contractor may proceed with the Work.
- C. Failure or refusal to furnish Bonds or insurance policies or certificates in a form satisfactory to the Owner shall subject the Bidder to forfeiture of Bid Security.

1.12 INTERPRETATION OF CONTRACT DOCUMENTS PRIOR TO BIDDING

- A. If any person contemplating submitting a Bid for the construction of the Work is in doubt as to the true meaning of any part of the proposed Contract Documents or finds discrepancies in or omissions from any part of the Contract Documents, they may submit to the Architect a written request for interpretation or correction thereof, no later than 7 calendar days prior to the receipt of Bids.
- B. Communications regarding this Work should be addressed to the Architect indicated in the Advertisement for Bids.

- C. Interpretation or correction of the Contract Documents shall be made by written addendum and will be mailed, faxed, or delivered to each Bidder of record. The Owner will not be responsible for any other explanations or interpretation of the Contract Documents.
- D. It is the responsibility of each Bidder to verify that they have received all Addenda before submitting a Bid. It is the responsibility of all sub-bidders and material suppliers to be familiar with and to include in their price, all Addenda issued up to the time of Bid opening. Requests for clarification or additional information shall be accepted only from Bidder submitting as the General Contractor, sub-Bidders and suppliers shall coordinate their requests through these Bidders.

1.13 PRE-BID CONFERENCE

- A. A pre-bid conference will be held as indicated in the Advertisement for Bids. All prospective bidders are requested to attend. The conference will include a discussion of the proposed site of the work, discussion of the scope and nature of the work, review of the proposed Contract Documents, and discussion of questions submitted by the Bidders.

1.14 CONSTRUCTION TIME AND LIQUIDATED DAMAGES

- A. The Conditions of the Contract include stipulations that the Work be completed within the Contract Time expressed in calendar days.
 - 1. Article 1) Obligations of Contractor of the Conditions of the Contract (Section 00 70 00) includes a stipulation, states that Liquidated Damages accrue per calendar day for each day Work remains incomplete beyond the Contract Completion Date. Refer to the Document 00 31 13 - Preliminary Schedule (Sample) included in the Project Manual for proposed start, completion, and intermediate milestones.

1.15 ROOF MANUFACTURER'S ACKNOWLEDGEMENT

- A. The roof system manufacturer shall complete the Roof Manufacturer's Acknowledgement (Section 00 62 33) form. The Contractor shall enclose the signed Roof Manufacturer's Acknowledgement form from the manufacturer they intend to use on the project with their bid.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION 00 21 13

SECTION 00 26 00
PROCUREMENT SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Administrative and procedural requirements for handling requests for substitutions prior to the Owner's receipt of bids.

1.2 DEFINITIONS

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, and equipment, of construction required by Contract Documents proposed by the Contractor are considered requests for substitutions. The following are not considered substitutions:
 - 1. Substitutions that are requested by Bidders beyond the 10 days prior to bid opening submittal period
 - 2. Revisions to Contract Documents requested by the Owner or Architect
 - 3. Specified options of products and construction methods included in Contract Documents
 - 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities

1.3 SUBSTITUTION REQUEST

- A. Request for substitution from Bidders, submitted Bid as General Contractor will be considered if received by the Architect a minimum of 10 days prior to receipt of Bids.
 - 1. Submit three (3) copies of each request for substitution for consideration.
 - 2. Identify the product or method to be replaced in each request. Include reference to related Specification Sections and drawing sheet number.
 - 3. Provide complete documentation on both the product specified and the proposed substitution including the following information as appropriate.
 - a. Comparison of specified and proposed substitute product data, fabrication drawings, and installation procedures.
 - b. Samples where applicable or requested.
 - c. A detailed comparison of significant qualities of the proposed substitution with those of the work specified.
 - d. Coordination information, including a list of changes or modifications

required to other parts of the Work and to construction performed by others that will become necessary to accommodate the proposed substitution.

4. Certification by the Bidder or the manufacturer that the proposed substitution is equal-to or better in every respect to that required by the proposed Contract Documents and that it will perform equal-to or superior to product specified in the application indicated. The Contractor waives any right to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
- B. Architect's Action: The Architect may request additional information or documentation necessary for evaluation of the request. The Architect will notify Bidders of acceptance of the proposed substitution by means of an addendum to the proposed Contract Documents.
- C. Architect's Substitution Approval during bidding and subsequent addenda does not void the Contractor's responsibility to submit the required shop drawings and comply with the requirements of the Contract Documents.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

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

PART 3 – EXECUTION (NOT USED)

END OF SECTION 00 26 00

**SECTION 00 31 13
PRELIMINARY SCHEDULE**

Pre-Construction	Start	Finish
Construction Bid Advertisement	April 27, 2026	
Pre-Bid Meeting	April 30, 2026 10:00 am	
Receive Bids	May 19, 2026 2:00 pm	
UCPS Board Approval	June 2, 2026	
◆ Issue Notice to Proceed	June 4, 2026	
Construction Period		
◆ Milestone 1 (rename as necessary/delete as necessary)		
◆ Milestone 2 (rename as necessary/delete as necessary)		
◆ Milestone 3 (rename as necessary/delete as necessary)		
◆ Milestone 4 (rename as necessary/delete as necessary)		
◆ Substantial Completion		
◆ Final Completion		
☒ = Contractor milestone completion dates.		

END OF SECTION



WOLF TRAIL™

ENGINEERING

NC P-1817 | SC 5872

Mr. Maurice Brown
Construction Project Manager
UCPS Facilities Department
201 Venus Street
Monroe, NC 28112

Subject: Marvin Ridge High School Roof Replacement Project

Dear, Mr. Brown:

On May 5th, 2023, our team performed a roof take-off and audit for the proposed roof areas for this project. There were no suspected ACM's in the area of the current scope of work.

Regards,

Chris Tucker

Chris Tucker | Project Manager
North Carolina Asbestos Accredited Inspector # 13312
chris@wolftrailengineering.com | 704-562-0791

**Invitation for Bid
Formal**

BID NO. 6-97648063

TITLE: Marvin Ridge High School Roof Renovation Project

PROCUREMENT

LEAD: Lynn Elms
UCPS Purchasing Department
facilitiesbids@ucps.k12.nc.us

ENGINEER:

Wolf Trail Engineering, LLC
Attention: Lynne Hall
Phone #: 704-282-0826
Email: Lynne@wolftrailengineering.com

BID/QUOTE SUBMITTAL

Sealed Bids will be received no later than 2:00 PM local time on Tuesday, May 19, 2026 at Union County Public Schools, Facilities Department, 201 Venus St, Monroe, NC 28112. All sealed bids must be in an opaque, sealed envelope marked in the lower left-handed corner with the following information:

1. Bidder's Name
2. Bidder's Address
3. Bidder's Phone
4. Contractor's License No.
5. Title of Project
6. Bid Number
7. Date and Time of the Bid Opening

PREBID MEETING

Mandatory

A Pre-Bid meeting is scheduled for April 30, 2026, at 10:00 AM at Stallings Elementary School, 3501 Stallings Rd., Stallings, NC 28104 then proceed to Marvin Ridge High School at 2825 Crane Rd, Waxhaw, NC 28173.

It is the sole responsibility of the Bidder, Contractor to familiarize themselves to all aspects of this project. Failure to meet this requirement will not justify a change order. Attendance is required.

COMMUNICATION

During the bid process, all communication relating to this bid shall be directed to the Engineer identified above. Failure to meet the requirement may consider your bid non-responsible.

All questions relating to this project shall be directed to the Engineer identified above in the form of an email no later than **May 11, 2026, 2:00 PM**. Please include the following in the subject line: **"Bid# 6-97648063 Questions"**. Answers will be provided to all bidders in the form of an addendum on May 13, 2026, which will be posted on UCPS website: <https://www.ucpsnc.org/about/purchasing-and-contracts> and NC State website: <https://evp.nc.gov/solicitations/?status=0>.

DESCRIPTION OF PROJECT:

Union County Public Schools seeks quotes/informal bids for the above referenced Project.

The Scope of Work is attached as Exhibit 1.

AWARD:

UCPS reserves the right to award this project in a method considered to be most advantageous. This includes the right to issue single award, multiple awards, or reject all bids. UCPS is not required to award a contract.

EXHIBIT 1

SCOPE OF WORK

- a. The low slope roof areas denoted 01.01, 01.02, 01.03, 01.05, 01.07, 01.09, 01.10, 01.11, 01.12, 01.13, 01.16, 01.18, 01.19, 01.20, 01.22, 01.23, 01.24 are to be stripped of existing TPO membrane and have new isocyanurate insulation mechanically attached on top of existing insulation, also install new cover board set in foam adhesive, a two-ply modified bitumen membrane and flashings in cold adhesive.
- b. The existing roof assembly on low slope roof area denoted 04.01 is to be removed down to the roof deck and install new isocyanurate insulation, gypsum cover board and two ply modified bitumen.
- c. The low slope roof areas denoted 01.08, 03.01, 03.02, 03.03, 03.04, 03.05, 03.06, 03.07 are to be stripped of existing TPO membrane and install new cover board mechanically attached to existing insulation and install a two-ply modified bitumen membrane and flashings in cold adhesive.
- d. All gutters and downspouts attached to low slope roofs are to be removed and replaced with new downspouts and gutters, include splash pans where the downspouts discharge on low slope roofs.
- e. For all metal roofs denoted 01.04, 01.06, 01.12, 01.14, 01.15, 01.17, 01.21, 01.25, 01.26, 01.27, 02.01, 02.02 :
 - i. The existing boots and boot cover on vent stacks are to be removed and new boots and boot covers reinstalled.
 - ii. The existing fasteners are to be replaced with new fasteners and neoprene washers that are one size larger than the existing.
 - iii. The existing gutters and downspouts are to be cleaned of debris. Repair / replace deteriorated downspout and gutter as needed.
- f. The EIFS repairs include:
 - i. Bevel cut minor EIFS cracks and repair with scratch coat.
 - ii. Pressure wash all EIFS surface with environmentally friendly chemical applied as specified.
 - iii. Re-coat all EIFS surfaces.
 - iv. Replace backer rods and caulk around wall vents in EIFS walls.
- g. All fan, vent and HVAC curbs are to be raised as needed to achieve 8" minimum flashing height.
- h. Roof accessories such as walk pads are to be installed on the roofs.
- i. Replace damaged line supports with new line supports under electrical conduits, soil stack and other pipes.
- j. Condensation lines, where applicable, need to be supported by base strut 5' on center max. all condensate lines to be schedule 80 pvc and must have a p-trap at each unit discharge. Route condensation lines to nearest drain or gutter edge.
- k. New platform shall be constructed on roof area 01.02
- l. Flashing shall be carefully attached to translucent window on roof area 01.02 as indicated in the designs.
- m. The vent on roof area 01.11 shall be extended 2 feet and attached to brick wall with angles.

Cost Proposal/Execution of Proposal

Bidders Checklist:
<input type="checkbox"/> Bid Submittal form
<input type="checkbox"/> Affidavit A or B
<input type="checkbox"/> Identification of Minority Business Form
<input type="checkbox"/> Contractors Qualification Statement
<input type="checkbox"/> 5 % Bid Bond

Project title: Marvin Ridge High School Roof Renovation Project

Location: 2825 Crane Road, Waxhaw, NC, 28173

BID NO: 6-97648063

The undersigned, as bidder, hereby declares that the only person or persons interested in this proposal as principal or principals is or are named herein and that no other person than herein mentioned has any interest in this proposal or in the contract to be entered into; that this proposal is made without connection with any other person, company or parties making a bid or proposal; and that it is in all respects fair and in good faith without collusion or fraud. The bidder further declares that he has examined the site of the work and the contract documents relative thereto, and has read all special provisions furnished prior to the opening of bids; that he has satisfied himself relative to the work to be performed. The bidder further declares that he and his subcontractors have fully complied with NCGS 64, Article 2 in regards to E-Verification as required by Section 2.(c) of Session Law 2013-418, codified as N.C. Gen. Stat. § 143-129(j)

By submitting this proposal, the potential contractor certifies the proposal is signed by an authorized representative of the firm.

- The cost and availability of all equipment, materials, and supplies associated with performing the services described herein have been determined and included in the proposed cost.
- All labor costs, direct and indirect, sales tax, etc. have been determined and included in the proposed cost.
- The offeror is aware of prevailing conditions associated with performing these services.
- The potential contractor has read and understands the conditions set forth in this bid and agrees to them with no exceptions.

Therefore, in compliance with this Request for Proposal, and subject to all conditions herein, the undersigned offers and agrees, if this proposal is accepted within 60 days from the date of the opening, to furnish the subject services for a cost not to exceed:

Base Bid:

Base Bid	\$ _____ (Includes (Insert Percentage (10%) allowance funds)						
Alternate 1: N/A	\$ _____ (Add or Deduct)						
Alternate 2: N/A	\$ _____ (Add or Deduct)						
Acknowledge Addenda:	Addendum 1 ___ Addendum 2 ___ Addendum 3 ___ Addendum 4 ___ Not Applicable ___						
Project Schedule:	Consecutive calendar days required to achieve Final Completion from issuance of Notice to Proceed: _____ calendar days						
<table border="1"> <tr> <td>Notice to Proceed:</td> <td></td> </tr> <tr> <td>Substantial Completion:</td> <td></td> </tr> <tr> <td>Final Completion:</td> <td></td> </tr> </table>	Notice to Proceed:		Substantial Completion:		Final Completion:		
Notice to Proceed:							
Substantial Completion:							
Final Completion:							

Unit Costs:

Unit Costs may be used to add or delete from the project.

1. List materials and expected cost per unit.

SUB-CONTRACTORS: List all proposed sub-contractors by firm name. If no sub-contractors are anticipated, so state.

General Contractor _____

Electrical Contractor _____

Plumbing Contractor _____

Mechanical Contractor _____

GS143-128(d) requires all single prime bidders to identify their subcontractors for the above subdivisions of work. A contractor whose bid is accepted shall not substitute any person as subcontractor in the place of the subcontractor listed in the original bid, except (i) if the listed subcontractor's bid is later determined by the contractor to be non-responsible or non-responsive or the listed subcontractor refuses to enter into a contract for the complete performance of the bid work, or (ii) with the approval of the awarding authority for good cause shown by the contractor.

Execution:

Offeror: _____ Federal Tax ID No. _____

License Description: _____ License No. _____

Address: _____ City, State, Zip _____

Telephone Number: _____ Mobile: _____ Email: _____

By: _____ Date: _____ Title: _____

(Typed or printed name)

00 43 13
FORM OF BID BOND

KNOW ALL MEN BY THESE PRESENTS THAT _____
_____ as
principal, and _____, as surety, who is
duly licensed to act as surety in North Carolina, are held and firmly bound unto the State of
North Carolina* through _____ as
obligee, in the penal sum of _____ DOLLARS, lawful money of
the United States of America, for the payment of which, well and truly to be made, we bind
ourselves, our heirs, executors, administrators, successors and assigns, jointly and
severally, firmly by these presents.

Signed, sealed, and dated this ____ day of _____ 202

WHEREAS the said principal is herewith submitting proposal for
and the principal desires to file this bid bond in lieu of making the cash deposit as required
by G.S. 143-129.

NOW, THEREFORE, THE CONDITION OF THE ABOVE OBLIGATION is such, that
if the principal shall be awarded the contract for which the bid is submitted and shall
execute the contract and give bond for the faithful performance thereof within ten days after
the award of same to the principal, then this obligation shall be null and void; but if the
principal fails to so execute such contract and give performance bond as required by G.S.
143-129, the surety shall, upon demand, forthwith pay to the obligee the amount set forth in
the first paragraph hereof. Provided further, that the bid may be withdrawn as provided by
G.S. 143-129.1

_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

_____(SEAL)

GUIDELINES FOR RECRUITMENT AND SELECTION OF MINORITY BUSINESSES FOR PARTICIPATION IN STATE CONSTRUCTION CONTRACTS

In accordance with G.S. 143-128.2 (effective January 1, 2002) these guidelines establish goals for minority participation in single-prime bidding, separate-prime bidding, construction manager at risk, and alternative contracting methods, on State construction projects in the amount of \$300,000 or more. The legislation provides that the State shall have a verifiable ten percent (10%) goal for participation by minority businesses in the total value of work for each project for which a contract or contracts are awarded. These requirements are published to accomplish that end.

SECTION A: INTENT

It is the intent of these guidelines that the State of North Carolina, as awarding authority for construction projects, and the contractors and subcontractors performing the construction contracts awarded shall cooperate and in good faith do all things legal, proper and reasonable to achieve the statutory goal of ten percent (10%) for participation by minority businesses in each construction project as mandated by GS 143-128.2. Nothing in these guidelines shall be construed to require contractors or awarding authorities to award contracts or subcontracts to or to make purchases of materials or equipment from minority-business contractors or minority-business subcontractors who do not submit the lowest responsible, responsive bid or bids.

SECTION B: DEFINITIONS

1. Minority - a person who is a citizen or lawful permanent resident of the United States and who is:
 - a. Black, that is, a person having origins in any of the black racial groups in Africa;
 - b. Hispanic, that is, a person of Spanish or Portuguese culture with origins in Mexico, South or Central America, or the Caribbean Islands, regardless of race;
 - c. Asian American, that is, a person having origins in any of the original peoples of the Far East, Southeast Asia and Asia, the Indian subcontinent, the Pacific Islands;
 - d. American Indian, that is, a person having origins in any of the original peoples of North America; or
 - e. Female
2. Minority Business - means a business:
 - a. In which at least fifty-one percent (51%) is owned by one or more minority persons, or in the case of a corporation, in which at least fifty-one percent (51%) of the stock is owned by one or more minority persons or socially and economically disadvantaged individuals; and
 - b. Of which the management and daily business operations are controlled by one or more of the minority persons or socially and economically disadvantaged individuals who own it.
3. Socially and economically disadvantaged individual - means the same as defined in 15 U.S.C. 637. "Socially disadvantaged individuals are those who have been subjected to racial or ethnic prejudice or cultural bias because of their identity as a member of a group without regard to their individual qualities". "Economically disadvantaged individuals are those socially disadvantaged individuals whose ability to compete in the free enterprise system has been impaired due to diminished capital and credit opportunities as compared to others in the same business area who are not socially disadvantaged".
4. Public Entity - means State and all public subdivisions and local governmental units.
5. Owner - The State of North Carolina, through the Agency/Institution named in the contract.
6. Designer – Any person, firm, partnership, or corporation, which has contracted with the State of North Carolina to perform architectural or engineering, work.
7. Bidder - Any person, firm, partnership, corporation, association, or joint venture seeking to be awarded a public contract or subcontract.

8. Contract - A mutually binding legal relationship or any modification thereof obligating the seller to furnish equipment, materials or services, including construction, and obligating the buyer to pay for them.
9. Contractor - Any person, firm, partnership, corporation, association, or joint venture which has contracted with the State of North Carolina to perform construction work or repair.
10. Subcontractor - A firm under contract with the prime contractor or construction manager at risk for supplying materials or labor and materials and/or installation. The subcontractor may or may not provide materials in his subcontract.

SECTION C: RESPONSIBILITIES

1. Office for Historically Underutilized Businesses, Department of Administration (hereinafter referred to as HUB Office).

The HUB Office has established a program, which allows interested persons or businesses qualifying as a minority business under G.S. 143-128.2, to obtain certification in the State of North Carolina procurement system. The information provided by the minority businesses will be used by the HUB Office to:

- a. Identify those areas of work for which there are minority businesses, as requested.
- b. Make available to interested parties a list of prospective minority business contractors and subcontractors.
- c. Assist in the determination of technical assistance needed by minority business contractors.

In addition to being responsible for the certification/verification of minority businesses that want to participate in the State construction program, the HUB Office will:

- (1) Maintain a current list of minority businesses. The list shall include the areas of work in which each minority business is interested.
- (2) Inform minority businesses on how to identify and obtain contracting and subcontracting opportunities through the State Construction Office and other public entities.
- (3) Inform minority businesses of the contracting and subcontracting process for public construction building projects.
- (4) Work with the North Carolina trade and professional organizations to improve the ability of minority businesses to compete in the State construction projects.
- (5) The HUB Office also oversees the minority business program by:
 - a. Monitoring compliance with the program requirements.
 - b. Assisting in the implementation of training and technical assistance programs.
 - c. Identifying and implementing outreach efforts to increase the utilization of minority businesses.
 - d. Reporting the results of minority business utilization to the Secretary of the Department of Administration, the Governor, and the General Assembly.

2. State Construction Office

The State Construction Office will be responsible for the following:

- a. Furnish to the HUB Office a minimum of twenty-one days prior to the bid opening the following:
 - (1) Project description and location;
 - (2) Locations where bidding documents may be reviewed;
 - (3) Name of a representative of the owner who can be contacted during the advertising period to advise who the prospective bidders are;
 - (4) Date, time and location of the bid opening.
 - (5) Date, time and location of prebid conference, if scheduled.
- b. Attending scheduled prebid conference, if necessary, to clarify requirements of the general statutes regarding minority-business participation, including the bidders' responsibilities.

- c. Reviewing the apparent low bidders' statutory compliance with the requirements listed in the proposal, that must be complied with, if the bid is to be considered as responsive, prior to award of contracts. The State reserves the right to reject any or all bids and to waive informalities.
- d. Reviewing of minority business requirements at Preconstruction conference.
- e. Monitoring of contractors' compliance with minority business requirements in the contract documents during construction.
- f. Provide statistical data and required reports to the HUB Office.
- g. Resolve any protest and disputes arising after implementation of the plan, in conjunction with the HUB Office.

3. Owner

Before awarding a contract, owner shall do the following:

- a. Develop and implement a minority business participation outreach plan to identify minority businesses that can perform public building projects and to implement outreach efforts to encourage minority business participation in these projects to include education, recruitment, and interaction between minority businesses and non-minority businesses.
- b. Attend the scheduled prebid conference.
- c. At least 10 days prior to the scheduled day of bid opening, notify minority businesses that have requested notices from the public entity for public construction or repair work and minority businesses that otherwise indicated to the Office for Historically Underutilized Businesses an interest in the type of work being bid or the potential contracting opportunities listed in the proposal. The notification shall include the following:
 - 1. A description of the work for which the bid is being solicited.
 - 2. The date, time, and location where bids are to be submitted.
 - 3. The name of the individual within the owner's organization who will be available to answer questions about the project.
 - 4. Where bid documents may be reviewed.
 - 5. Any special requirements that may exist.
- d. Utilize other media, as appropriate, likely to inform potential minority businesses of the bid being sought.
- e. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
- f. Review, jointly with the designer, all requirements of G.S. 143-128.2(c) and G.S. 143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with corresponding total dollar value of the bid and affidavit listing good faith efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award to the State Construction Office.
- g. Evaluate documentation to determine good faith effort has been achieved for minority business utilization prior to recommendation of award to State Construction Office.
- h. Review prime contractors' pay applications for compliance with minority business utilization commitments prior to payment.
- i. Make documentation showing evidence of implementation of Owner's responsibilities available for review by State Construction Office and HUB Office, upon request

4. Designer

Under the single-prime bidding, separate prime bidding, construction manager at risk, or alternative contracting method, the designer will:

- a. Attend the scheduled prebid conference to explain minority business requirements to the prospective bidders.
- b. Assist the owner to identify and notify prospective minority business prime and subcontractors of potential contracting opportunities.
- c. Maintain documentation of any contacts, correspondence, or conversation with minority business firms made in an attempt to meet the goals.
- d. Review jointly with the owner, all requirements of G.S. 143-128.2(c) and G.S.143-128.2(f) – (i.e. bidders' proposals for identification of the minority businesses that will be utilized with

corresponding total dollar value of the bid and affidavit listing Good Faith Efforts, or affidavit of self-performance of work, if the contractor will perform work under contract by its own workforce) - prior to recommendation of award.

- e. During construction phase of the project, review “MBE Documentation for Contract Payment” – (Appendix E) for compliance with minority business utilization commitments. Submit Appendix E form with monthly pay applications to the owner and forward copies to the State Construction Office.
- f. Make documentation showing evidence of implementation of Designer’s responsibilities available for review by State Construction Office and HUB Office, upon request.

5. Prime Contractor(s), CM at Risk, and Its First-Tier Subcontractors

Under the single-prime bidding, the separate-prime bidding, construction manager at risk and alternative contracting methods, contractor(s) will:

- a. Attend the scheduled prebid conference.
- b. Identify or determine those work areas of a subcontract where minority businesses may have an interest in performing subcontract work.
- c. At least ten (10) days prior to the scheduled day of bid opening, notify minority businesses of potential subcontracting opportunities listed in the proposal. The notification will include the following:
 - (1) A description of the work for which the subbid is being solicited.
 - (2) The date, time and location where subbids are to be submitted.
 - (3) The name of the individual within the company who will be available to answer questions about the project.
 - (4) Where bid documents may be reviewed.
 - (5) Any special requirements that may exist, such as insurance, licenses, bonds and financial arrangements.

If there are more than three (3) minority businesses in the general locality of the project who offer similar contracting or subcontracting services in the specific trade, the contractor(s) shall notify three (3), but may contact more, if the contractor(s) so desires.

- d. During the bidding process, comply with the contractor(s) requirements listed in the proposal for minority participation.
- e. Identify on the bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit listing good faith efforts as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).
- f. Make documentation showing evidence of implementation of PM, CM-at-Risk and First-Tier Subcontractor responsibilities available for review by State Construction Office and HUB Office, upon request.
- g. Upon being named the apparent low bidder, the Bidder shall provide one of the following: (1) an affidavit (Affidavit C) that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal; (2) if the percentage is not equal to the applicable goal, then documentation of all good faith efforts taken to meet the goal. Failure to comply with these requirements is grounds for rejection of the bid and award to the next lowest responsible and responsive bidder.
- h. The contractor(s) shall identify the name(s) of minority business subcontractor(s) and corresponding dollar amount of work on the schedule of values. The schedule of values shall be provided as required in Article 31 of the General Conditions of the Contract to facilitate payments to the subcontractors.
- i. The contractor(s) shall submit with each monthly pay request(s) and final payment(s), “MBE Documentation for Contract Payment” – (Appendix E), for designer’s review.
- j. During the construction of a project, at any time, if it becomes necessary to replace a minority business subcontractor, immediately advise the owner, State Construction Office, and the Director of the HUB Office in writing, of the circumstances involved. The prime contractor shall make a good faith effort to replace a minority business subcontractor with another minority business subcontractor.

- k. If during the construction of a project additional subcontracting opportunities become available, make a good faith effort to solicit subbids from minority businesses.
- l. It is the intent of these requirements apply to all contractors performing as prime contractor and first tier subcontractor under construction manager at risk on state projects.

6. Minority Business Responsibilities

While minority businesses are not required to become certified in order to participate in the State construction projects, it is recommended that they become certified and should take advantage of the appropriate technical assistance that is made available. In addition, minority businesses who are contacted by owners or bidders must respond promptly whether or not they wish to submit a bid.

SECTION 4: DISPUTE PROCEDURES

It is the policy of this state that disputes that involves a person's rights, duties or privileges, should be settled through informal procedures. To that end, minority business disputes arising under these guidelines should be resolved as governed under G.S. 143-128(g).

SECTION 5: These guidelines shall apply upon promulgation on state construction projects. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: www.nc-sco.com

SECTION 6: In addition to these guidelines, there will be issued with each construction bid package provisions for contractual compliance providing minority business participation in the state construction program.

MINORITY BUSINESS CONTRACT PROVISIONS (CONSTRUCTION)

APPLICATION:

The **Guidelines for Recruitment and Selection of Minority Businesses for Participation in State Construction Contracts** are hereby made a part of these contract documents. These guidelines shall apply to all contractors regardless of ownership. Copies of these guidelines may be obtained from the Department of Administration, State Construction Office, (physical address) 301 North Wilmington Street, Suite 450, NC Education Building, Raleigh, North Carolina, 27601-2827, (mail address) 1307 Mail Service Center, Raleigh, North Carolina, 27699-1307, phone (919) 807-4100, Website: <http://www.nc-sco.com>

MINORITY BUSINESS SUBCONTRACT GOALS:

The goals for participation by minority firms as subcontractors on this project have been set at 10%.

The bidder must identify on its bid, the minority businesses that will be utilized on the project with corresponding total dollar value of the bid and affidavit (Affidavit A) listing good faith efforts **or** affidavit (Affidavit B) of self-performance of work, if the bidder will perform work under contract by its own workforce, as required by G.S. 143-128.2(c) and G.S. 143-128.2(f).

The lowest responsible, responsive bidder must provide Affidavit C, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, which is equal to or more than the applicable goal.

OR

Provide Affidavit D, that includes a description of the portion of work to be executed by minority businesses, expressed as a percentage of the total contract price, **with documentation of Good Faith Effort, if the percentage is not equal to the applicable goal.**

OR

Provide Affidavit B, which includes sufficient information for the State to determine that the bidder does not customarily subcontract work on this type project.

The above information must be provided as required. Failure to submit these documents is grounds for rejection of the bid.

MINIMUM COMPLIANCE REQUIREMENTS:

All written statements, affidavits or intentions made by the Bidder shall become a part of the agreement between the Contractor and the State for performance of this contract. Failure to comply with any of these statements, affidavits or intentions, or with the minority business Guidelines shall constitute a breach of the contract. A finding by the State that any information submitted either prior to award of the contract or during the performance of the contract is inaccurate, false or incomplete, shall also constitute a breach of the contract. Any such breach may result in termination of the contract in accordance with the termination provisions contained in the contract. It shall be solely at the option of the State whether to terminate the contract for breach.

In determining whether a contractor has made Good Faith Efforts, the State will evaluate all efforts made by the Contractor and will determine compliance in regard to quantity, intensity, and results of these efforts. Good Faith Efforts include:

- (1) Contacting minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists at least 10 days before the bid or proposal date and notifying them of the nature and scope of the work to be performed.
- (2) Making the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bid or proposals are due.
- (3) Breaking down or combining elements of work into economically feasible units to facilitate minority participation.
- (4) Working with minority trade, community, or contractor organizations identified by the Office for Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- (5) Attending any prebid meetings scheduled by the public owner.
- (6) Providing assistance in getting required bonding or insurance or providing alternatives to bonding or insurance for subcontractors.
- (7) Negotiating in good faith with interested minority businesses and not rejecting them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- (8) Providing assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisting minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- (9) Negotiating joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- (10) Providing quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

APPENDIX E

MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

The following is a list of payments made to Minority Business Enterprises on this project for the above-mentioned period.

MBE FIRM NAME	* INDICATE TYPE OF MBE	AMOUNT PAID THIS MONTH	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

*Minority categories: Black, African American (B), Hispanic (H), Asian American (A), American Indian (I), Female (F), Social and Economically Disadvantage (D)

Date: _____ Approved/Certified By: _____

Name

_____ Title

_____ Signature

SUBMIT WITH EACH PAY REQUEST & FINAL PAYMENT

Attach AFFIDAVIT A or AFFIDAVIT B to the Bid

State of North Carolina

AFFIDAVIT A – Listing of the Good Faith Effort

County of _____

Affidavit of _____
(Name of Bidder)

I have made a good faith effort to comply under the following areas checked:

Bidder must earn at least 50 points from the Good Faith Efforts list for their bid to be considered responsive.

- 1 – (10 Points)** Contacted minority businesses that reasonably could have been expected to submit a quote and that were known to the contractor or available on State or local government maintained lists, at least 10 days before the bid date and notified them of the nature and scope of the work to be performed.
- 2 – (10 Points)** Made the construction plans, specifications and requirements available for review by prospective minority businesses, or providing these documents to them at least 10 days before the bids are due.
- 3 - (15 Points)** Broken down or combined elements of work into economically feasible units to facilitate minority participation.
- 4 – (10 Points)** Worked with minority trade, community, or contractor organizations identified by the Office of Historically Underutilized Businesses and included in the bid documents that provide assistance in recruitment of minority businesses.
- 5 – (10 Points)** Attended pre-bid meetings scheduled by the public owner.
- 6 – (20 Points)** Provided assistance in getting required bonding or insurance or provided alternatives to bonding or insurance for subcontractors.
- 7 – (15 Points)** Negotiated in good faith with interested minority businesses and did not reject them as unqualified without sound reasons based on their capabilities. Any rejection of a minority business based on lack of qualification should have the reasons documented in writing.
- 8 – (25 Points)** Provided assistance to an otherwise qualified minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letters of credit, including waiving credit that is ordinarily required. Assisted minority businesses in obtaining the same unit pricing with the bidder's suppliers in order to help minority businesses in establishing credit.
- 9 - (20 Points)** Negotiated joint venture and partnership arrangements with minority businesses in order to increase opportunities for minority business participation on a public construction or repair project when possible.
- 10 – (20 Points)** Provided quick pay agreements and policies to enable minority contractors and suppliers to meet cash-flow demands.

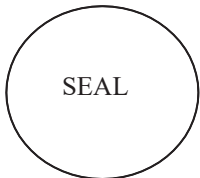
In accordance with GS143-128.2(d) and Board of Education Policy the undersigned will enter into a formal agreement with the firms listed in the Identification of Minority, Women, and Small Business Participation schedule conditional upon execution of a contract with the Owner. Failure to abide by this statutory provision will constitute a breach of the contract. The undersigned hereby certifies that he or she has read the terms of the Minority, Women, and Small Business Enterprise commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____

Name of Authorized Officer: _____

Signature: _____

Title: _____



State of _____ *County* _____

Subscribed and sworn to before me this _____ *day of* _____ *20* _____

Notary Public _____ *My commission expires* _____

Attach AFFIDAVIT A or AFFIDAVIT B to the Bid

State of North Carolina

**--AFFIDAVIT B-- Intent to Perform Contract
with Own Workforce.**

County of _____

Affidavit of _____

(Name of Bidder)

I hereby certify that it is our intent to perform 100% of the work required for the _____
_____ contract.

(Name of Project)

In making this certification, the Bidder states that the Bidder does not customarily subcontract elements of this type project, and normally performs and has the capability to perform and will perform **all elements of the work** on this project with his/her own current work forces; **AND** the bidder will not purchase any materials or supplies in the performance of the contract

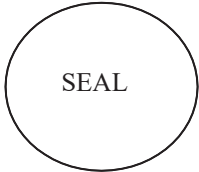
The Bidder agrees to provide any additional information or documentation requested by the owner in support of the above statement.

The undersigned hereby certifies that he or she has read this certification and is authorized to bind the Bidder to the commitments herein contained.

Date: _____ **Name of Authorized Officer:** _____

Signature: _____

Title: _____



State of _____, *County of* _____

Subscribed and sworn to before me this _____ *day of* _____ 20

Notary Public _____

My commission expires _____

State of North Carolina --- AFFIDAVIT C --- Portion of the Work to be Performed by M/W/SBE Firms

County of _____

**** (NOTE: THIS FORM IS TO BE SUBMITTED ONLY BY THE APPARENT LOWEST RESPONSIVE BIDDER) ****

If the portion of the work to be executed by M/WBE firms as defined in GS143-128.2(g) and Board of Education M/W/SBE Policy is equal to or greater than the M/W/SBE aspirational goal of MBE 10%, WBE 6%, and SBE 5% in **Construction**, and/or MBE 5%, WBE 4%, and SBE 5% in **Other Services** and/or MBE 3%, WBE 3%, and SBE 5% in **Goods** participation of the bidders total contract price, then the bidder must complete this affidavit. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being the **apparent low** bidder.

Affidavit of _____ I do hereby certify that on the _____
 (Name of Bidder)

(Project Name)

Project ID# _____ Amount of Bid \$ _____

I will expend a minimum of _____% of the total dollar amount of the contract with minority, women, or small business enterprises. M/W/SBEs will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below. Attach additional sheets if required

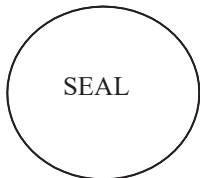
Name and Address	*M/W/SBE Category	Work description	Dollar Value

*M/W/SBE categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) Native American Indian (**N**), Female (**F**) Socially and Economically Disadvantaged (**D**), Small (**S**)

In accordance with GS143-128.2(d) and Board of Education Policy the undersigned will enter into a formal agreement with the firms for work listed in this schedule conditional upon execution of a contract with the Owner. Failure to fulfill this commitment may constitute a breach of contract. The undersigned hereby certifies that he or she has read the terms of the Minority, Women, and Small Business Enterprise commitment and is authorized to bind the bidder to the commitment herein set forth.

Date: _____ Name of Authorized Officer: _____

Signature: _____
 Title: _____
 State of _____, County of _____



Subscribed and sworn to before me this _____ day of _____ 20____
 Notary Public _____
 My commission expires _____

Project: _____ County of _____

If the aspirational goal of MBE 10%, WBE 6%, and SBE 5% in **Construction**, and/or MBE 5%, WBE 4%, and SBE 5% in **Other Services** and/or MBE 3%, WBE 3%, and SBE 5% in **Goods** participation by M/W/SBE businesses **is not** achieved, the apparent lowest responsible, responsive bidder shall provide the following documentation to the Owner of his good faith efforts **and** the M/W/SBE firms that **will** be used on the project. This affidavit shall be provided by the apparent lowest responsible, responsive bidder within **72 hours** after notification of being the **apparent low** bidder.

(Name of Bidder)

Affidavit of: _____

I do certify the attached documentation as true and accurate representation of my good faith efforts.

I will expend a minimum of _____% of the total dollar amount of the contract with minority, women, or small business enterprises. M/W/SBEs will be employed as construction subcontractors, vendors, suppliers or providers of professional services. Such work will be subcontracted to the following firms listed below.

Attach additional sheets if required

Name and Address	*M/W/SBE Category	Work description	Dollar Value

*M/W/SBE categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**), Small (**S**)

Documentation of the Bidder's good faith efforts to meet the goals set forth in these provisions. Examples of documentation include, but are not limited to, the following evidence:

- A. Copies of solicitations for quotes to at least three (3) M/W/SBE firms from the source list provided by the State for each subcontract to be let under this contract. Each solicitation shall contain a specific description of the work to be subcontracted, location where bid documents can be reviewed, representative of the Prime Bidder to contact, and location, date and time when quotes must be received.
- B. Copies of quotes or responses received from each firm responding to the solicitation.
- C. A telephone log of follow-up calls to each firm sent a solicitation.
- D. For subcontracts where a minority business firm is not considered the lowest responsible sub-bidder, copies of quotes received from all firms submitting quotes for that particular subcontract.
- E. Documentation of any contacts or correspondence to minority business, community, or contractor organizations in an attempt to meet the goal.
- F. Letter documenting efforts to provide assistance in obtaining required bonding or insurance for minority business.
- G. Letter detailing reasons for rejection of minority business due to lack of qualification.
- H. Letter documenting proposed assistance offered to minority business in need of equipment, loan capital, lines of credit, or joint pay agreements to secure loans, supplies, or letter of credit, including waiving credit that is ordinarily required.

Failure to provide the documentation as listed in these provisions may result in rejection of the bid and award to the next lowest responsible and responsive bidder.

Date: _____ Name of Authorized Officer: _____

Signature: _____

Title: _____

State of _____, County of _____

Subscribed and sworn to before me this _____ day of _____ 20

Notary Public _____ My commission expires _____



****This document must be submitted with each pay request & final payment****

APPENDIX E

MBE DOCUMENTATION FOR CONTRACT PAYMENTS

Prime Contractor/Architect: _____

Address & Phone: _____

Project Name: _____

Pay Application #: _____ Period: _____

The following is a list of payments to be made to minority business contractors on this project for the above-mentioned period.

MBE FIRM NAME	* INDICATE TYPE OF MBE	AMOUNT PAID THIS MONTH	TOTAL PAYMENTS TO DATE	TOTAL AMOUNT COMMITTED

*Minority categories: Black, African American (**B**), Hispanic (**H**), Asian American (**A**) American Indian (**I**), Female (**F**) Socially and Economically Disadvantaged (**D**)

Date: _____

Approved/Certified By: _____
Name

Title

Signature

Signature certifies that any minority firms not previously verified in the bid/award process have been appropriately verified, services have been rendered, and payment is due as processed.

SECTION 00 60 00
PROJECT FORMS

PART 1 - GENERAL

1.1 FORMS

A. The following documents are hereby incorporated into the Contract Documents by reference:

1. AIA Document G701 – Change Order Form, 2001 Edition
2. AIA Document G702, Application and Certificate for Payment, and
3. AIA Document G703, Continuation Sheet, 1992 Edition
4. AIA Document G704, Certificate of Substantial Completion, 2000 Edition
5. AIA Document G706, Contractor’s Affidavit of Payment of Debts and Claims, 1994 Edition
6. AIA Document G706A, Contractor’s Affidavit of Payment of Release of Liens, 1994 Edition
7. AIA Document G707, Consent of Surety to Final Payment, 1994 Edition
8. AIA Document G707A, Consent of Surety to Reduction in or Partial Release of Retainage, 1994 Edition
9. AIA Document G709 – Proposal Request, 2001 Edition
10. AIA Document G710 Architect’s Supplemental Instruction Form, 1992 Edition
11. AIA Document G714 Construction Change Directive, 2007 Edition
12. Certificate of Insurance (Accord form 25S with changes)

B. The following documents are included in the Project Manual:

1. Bid Security Form, Owner’s Form (Document 00 43 13)
2. Performance Bond Form, Owner’s Form (Document 00 61 13.13)
3. Payment Bond Form, Owner’s Form (Document 00 61 13.16)
4. Roofing Manufacturer’s Acknowledgement (Document 00 62 33)
5. State/County Sales/Use Tax Statement and Certification (Document 00 62 76.13)
6. Change Order Form (Document 00 63 63)
7. Certification of Asbestos-Free Compliance, Owner's Form (Document 00 65 14)
8. Warranty Form, Owner's Form (Document 00 65 36)
9. Roofing Warranty Form, Owner's Form (Document 00 65 37)

C. Copies of standard The American Institute of Architects (AIA) documents cited above are available from The American Institute of Architects, 1735 New York Avenue, NW, Washington, DC 20006 or from local AIA offices.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION 00 60 00

SECTION 00 61 13.13
PERFORMANCE BOND

Date of Execution of
this bond

Name and Address of
Principal (Bidder)

Name and Address
of Surety

Name and Address of
Contracting Body

Union County Board of Education
a body corporate of the State of North Carolina
400 North church St
Monroe, NC 28112

Amount of Bond

Contract
abovenamed dated

That certain contract by and between the Principal and the Contracting Body

_____ for _____

KNOW ALL MEN BY THESE PRESENTS, that we, the PRINCIPAL and SURETY above named, are held and firmly bound unto the above-named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators, and successor, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal entered into a certain contract, with the Contracting Body, identified as shown above and hereto attached;

NOW THEREFORE, if the Principal shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Contracting Body, with or without notice of the Surety, and during the life of any guarantee required under the contract, and shall also well and truly perform and fulfil all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of the contract that may hereafter be made, notice of which modifications to the surety being hereby waived, then, this obligation to be void; otherwise, to remain in full force and virtue.

THIS PERFORMANCE BOND is made and given pursuant to the requirements and provisions of Section 129 of Chapter 143 of the General Statutes of North Carolina and pursuant to Article 3 of Chapter 44-A of the General Statutes of North Carolina, and each and every provision set forth and contained in Article 3 of Chapter 44-A of the General Statutes of North Carolina is incorporated herein, made a part hereof, and deemed to be conclusively written into this Bond.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals of the date indicated above, the name and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned and representative, pursuant to authority of its governing body.

WITNESS:

Principal (Name of individual, and trade Name, partnership, corporation, or jointventure)

(Proprietorship or Partnership)

BY _____ (Seal)

TITLE _____
(Owner, Partner, Office held in corporation, joint venture)

(Corporate Seal)

ATTEST (Corporation)

BY _____

TITLE _____
(Corporation Secretary or Assistant Secretary Only)

Surety (Name of Surety Co.)

BY _____

TITLE _____ Attorney in Fact

(Corporate Seal of Surety)

WITNESS:

(Address of Attorney in Fact)

COUNTERSIGNED:

N.C. Licensed Resident Agent

SECTION 00 61 13.16
PAYMENT BOND

Date of Execution of this bond _____

Name and Address of Principal (Bidder) _____

Name and Address of Surety _____

Name and Address of Contracting Body _____

Amount of Bond _____

Contract That certain contract by and between the Principal and the Contracting Body abovenamed dated _____
_____ for _____

KNOW ALL MEN BY THESE PRESENTS, that we, the PRINCIPAL and SURETY above named, are held and firmly bound unto the above-named Contracting Body, hereinafter called the Contracting Body, in the penal sum of the amount stated above for the payment of which sum well and truly to be made, we bind ourselves, our heirs, executors, administrators and successor, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that whereas the Principal entered into a certain contract with the Contracting Body, identified as shown above and hereto attached;

NOW THEREFORE, if the Principal shall promptly make payment to all persons supplying labor and material in the prosecution of the work provided for in said contract, and any and all duly authorized modifications and extensions of time of said contract may be here-after be made, notice of which modification and extension of time to the Surety being hereby waived, then this obligation to be void; otherwise, to remain in full force and virtue.

THIS PAYMENT BOND is made and given pursuant to the requirements and provisions of Section 129 of Chapter 143 of the General Statutes of North Carolina and pursuant to Article 3 of Chapter 44-A of the General Statutes of North Carolina, and each and every provision set forth and contained in Article 3 of Chapter 44-A of the General Statutes of North Carolina is incorporated herein, made a part hereof, and deemed to be conclusively written into this Bond.

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument under their several seals of the date indicated above, the name and corporate seal of each corporate party being hereto affixed, and these presents duly signed by its undersigned and representative, pursuant to authority of its governing body.

WITNESS:

Principal (Name of individual, and trade Name, partnership, corporation, or jointventure)

(Proprietorship or Partnership)

BY _____ (Seal)

TITLE _____
(Owner, Partner, Office held in corporation, joint venture)

(Corporate Seal)

ATTEST _____ (Corporation)
BY _____

TITLE _____
(Corporation Secretary or Assistant Secretary Only)

Surety (Name of Surety Co.)

WITNESS:

BY _____

TITLE _____ Attorney in Fact

(Corporate Seal of Surety)

(Address of Attorney in Fact)

COUNTERSIGNED:

N.C. Licensed Resident Agent

SECTION 00 62 33

ROOF MANUFACTURER'S ACKNOWLEDGMENT

Owner:

Project Name:

Address:

Roofing Contractor: _____

Address: _____

Telephone: _____

This is to advise the Owner that having thoroughly reviewed the Specifications and Drawings contained within the Project Manual dated _____ for the above-titled project, we acknowledge that the roof system(s) and flashing system(s) specified are suitable for the issuance of the specified Manufacturer's warranty on this project and have been tested and approved for the wind uplift pressures outlined in the project specifications. Having reviewed the project requirements in detail, the Manufacturer will provide a written response of exceptions to the Engineer through the contractor before five (5) days of the bid due date or as otherwise outlined in the Instructions to Bidders, if conflicts exist between the Manufacturer's warranty requirements and the above listed documents. Exceptions not submitted accordingly are subject to rejection. The manufacturer also certifies that the installer is approved, authorized, or licensed by the manufacturer to install the specified roof system and is eligible to provide the specified manufacturer's warranty. The manufacturer will comply with the specified requirements for on-site technical support.

_____ is hereby designated as our Liaison on this project.

(Print or type name of Liaison)

Telephone

Facsimile

Roof Manufacturer's Company Name

Roof Manufacturer Representative's Signature Date

Roof Manufacturer Representative's Name Title

Roof Manufacturer's Address

Telephone

Facsimile

END OF SECTION 00 62 33

SECTION 00 62 76.13
STATE AND COUNTY SALES/USE TAX STATEMENT AND CERTIFICATION

STATE OF NORTH CAROLINA
COUNTY SALES AND USE TAX REPORT
SUMMARY TOTALS AND CERTIFICATION

CONTRACTOR: _____

Page 1 of

PROJECT: _____

FOR PERIOD: _____

	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL FOR COUNTY OF:	TOTAL ALL COUNTIES
CONTRACTOR							
SUBCONTRACTOR(S)*							
COUNTY TOTAL							

* Attach subcontractor(s) report(s)

** Must balance with Detail Sheet(s)

I certify that the above figures do not include any tax paid on supplies, tools and equipment which were used to perform this contract and only includes those building materials, supplies, fixtures and equipment which actually became a part of or annexed to the building or structure. I certify that, to the best of my knowledge, the information provided here is true, correct, and complete.

Sworn to and subscribed before me,

This the _____ day of _____, 20____

Signed

Notary Public

My Commission Expires: _____

Print or Type Name of Above

Seal

NOTE:

This certified statement may be subject to audit.

SECTION 00 65 14
CERTIFICATION OF ASBESTOS-FREE COMPLIANCE

PROJECT NAME: _____

PROJECT DESCRIPTION: _____

UNION COUNTY, NORTH CAROLINA

The undersigned Contractor hereby certifies that no asbestos-containing materials of any kind were used in the construction of _____, at _____ North Carolina.

Signed: _____

Name: _____

Title: _____

Date: _____

(Corporate Seal)

Subscribed and sworn before me this

_____ day of _____, 20__

(Notary Public)

END OF DOCUMENT

SECTION 00 65 36
WARRANTY FORM

PROJECT NAME: _____

PROJECT DESCRIPTION: _____

UNION COUNTY, NORTH CAROLINA

The undersigned Contractor hereby warrants, in accordance with the applicable provisions and terms set forth in the Contract Documents, all materials and workmanship incorporated in the _____ contract of the _____ Building, _____, Union County, North Carolina, against any and all defects due to faulty materials or workmanship or negligence for a period of twenty-four (24) months, or such longer periods as set forth in the Contract Documents, from the effective date **of this warranty**(_____) **as defined by the date of substantial completion** . This warranty supersedes any and all dates listed in the enclosed subcontractor warranties thus honoring warranty work two years from the date of substantial completion listed here. This contractor further warrants all work incorporated in this project to remain leakproof and watertight at all points for a period of twenty-four (24) months from the effective date of this Warranty.

This Warranty shall be binding where defects occur due to normal usage conditions and does not cover willful or malicious damage, damage caused by acts of God or other casualties beyond the control of the Contractor.

This Warranty shall be in accordance to other warranties and guarantees set forth in the Contract Documents, and shall not act to constitute a waiver of additional protection of the Owner afforded, where applicable, by consumer protection and product liability provisions of law, and these stipulations shall not constitute waiver of any additional rights or remedies available to the Owner under the law.

Date of Substantial Completion: _____

Signed: _____

Name: _____

Title: _____

Date: _____

(Corporate Seal)

Subscribed and sworn before me this

_____ day of _____, 20__

(Notary Public)

DOCUMENT 00 65 37
ROOFING WARRANTY FORM

PROJECT NAME: _____

PROJECT DESCRIPTION: _____

UNION COUNTY, NORTH CAROLINA

KNOW ALL MEN BY THESE PRESENTS, that we, (_____) having installed roofing, flashing, and sheet metal work on Marvin Ridge High School under contract between Union County Public Schools and _____, warrant to Union County Public Schools with respect to said work that for a period of two (2) years from date of Substantial Completion of said Work by _____, the roofing membrane, flashing, and sheet metal work shall be watertight and free from all leaks, provided however, the following are excluded from this warranty:

- a) Defects or failures resulting from abuse by the Owner.
- b) Defects in design involving failure of (1) structural frame, (2) load bearing walls, and (3) foundations.
- c) Damages caused by fire, tornado, hail, hurricane, acts of God, wars, vandalism, riots, or civil commotion.

We, (___), agree that should any leaks occur in the roofing system we will perform emergency repairs within twenty-four (24) hours' notice and perform permanent repairs within thirty (30) days in a manner to restore the roof to a watertight condition by methods such as to restore the work to a condition comparable to that at date of final acceptance, all at no expense to the Owner.

We (___), further agree that for a period of two (2) years from date of final acceptance referred above, we will make repairs at no expense to the Owner, to any defects which may develop in the work, including but not limited to blisters, wrinkles, fish-mouths, ridges, splits, warped insulation, loose flashing, in such a way as to restore the work to a condition comparable to that at date of final acceptance.

This two (2) year warranty shall be extended one (1) day for each day there has been an established leak and the leak goes without being successfully corrected.

IN WITNESS WHEREOF, we have caused this instrument to be duly executed this _____ day of ____ 20____.

(Contractor)

(Seal if a corporation)

BY: _____
(President)

WITNESS:

(Notary Public)

END OF DOCUMENT 00 65 37

SECTION 00 70 00
CONDITIONS OF THE CONTRACT

**MARVIN RIDGE HIGH SCHOOL
ROOF REPLACEMENT PROJECT
(CONTRACT NUMBER)**

This Contract is made and entered into this **Date** between **The Union County Board of Education** ("UCBOE") located at 400 North Church Street, Monroe, North Carolina 28112 and **[Contractor Name]** located at **[Address]** ("Contractor").

For and in consideration of the mutual promises set forth in this Contract, the parties do mutually agree as follows:

1. Obligations of Contractor - The Contractor agrees to provide all services as required to fully, timely and properly complete **Marvin Ridge High School Roof Replacement Project** (the "Project") in accordance with, and as more particularly described, in the Project Manual **dated April 2026**, which is incorporated herein by reference (the "Services"). The Project Manual includes the drawings and specifications.

The Contractor agrees to coordinate its Services with the work of any other separate contractors or with the work of the UCBOE's own forces to avoid delaying or interfering with their work. The Contractor further agrees to inform the UCBOE on a regular basis or at the UCBOE's request of the progress of the Services.

Unless otherwise provided, the Contractor shall secure and pay for all permits, licenses, or inspections necessary for the proper execution and completion of the Services; shall comply with all laws, ordinances, or regulations bearing on the performance of the Services; shall enforce good order and discipline among his employees and subcontractors on the Project; and shall keep the Project reasonably free from waste materials or rubbish resulting from the Contractor's operations.

The Contractor warrants that the Contractor has visited the location of the Project and is familiar with all field conditions bearing upon the Contractor's performance of the Services; that the materials and equipment furnished under the Contract are of good quality and new (unless otherwise permitted); that the Services meets or exceeds the standards ordinarily observed in the industry; and that the Services conforms to the requirements of the Contract and to all applicable codes, ordinances, laws, or regulations. The Contractor further warrants and promises that the Services shall be free from defects and nonconformities in materials and workmanship for a period of two years from the later of the Date of Completion or such date as the Contractor actually completes all the Services. During such period the Contractor will remedy at Contractor's expense nonconformities or defects in the Services within a reasonable time after receiving notice thereof from UCBOE.

In addition to the indemnification obligations contained in the attached terms and conditions to this Contract, the Contractor further agrees to defend and indemnify the UCBOE from and against all claims, damages, losses, and expenses, including reasonable attorneys' fees, arising out of the Contractor's failure to pay subcontractors or materials suppliers.

The Contractor agrees that the UCBOE may order changes in the general scope of the Services, including additions, deletions, and similar revisions. The parties agree to adjust the Contract Price and Date of Completion to reflect the effects of such changes, which adjustments shall be authorized only upon execution of a written change order (a "Change Order"). In case of emergency or extenuating circumstances or if a construction contingency is provided as stated below, approval of changes may be obtained verbally by telephone or field orders approved by all parties, then shall be substantiated in writing as outlined under normal procedures.

The UCBOE may issue written Change Orders to the Contractor directing a change in the Services. The amount of any increase or decrease in the Contract Price shall be by mutual acceptance of a total amount supported by sufficient data and information to substantiate the change. If the UCBOE and Contractor do not mutually agree on the amount of the change in the Contract Price, the Contractor will proceed with the Services described in the Change Order and the UCBOE will pay the reasonable costs of any additional work, including a reasonable amount for the Contractor's overhead and profit. Any decrease in Contract Price for a decrease in the Services will be the reasonable costs of the Services deleted, including a reasonable amount for the decrease in the Contractor's overhead.

Asbestos may or may not be present at the project site. In accordance with the Asbestos Hazard Emergency Response Act (AHERA) the UCBOE has had an Asbestos Management Plan (AMP) prepared for this site. A copy of the AMP is available at the UCPS Facilities Department or at the project site. The AMP is designed to document (to the best of the UCBOE's ability) the asbestos containing building materials (ACBM) or presumed asbestos containing materials (PACM) present at the project site. It is incumbent upon the Contractor to review the AMP to insure his/her staff does not come in contact or otherwise disturb the ACBM/PACM. The Contractor is to notify all their subcontractors and other staff involved with the project of the AMP so they may also avoid being exposed to and /or disturbing any ACBM/PACM during construction. It shall be understood that by executing an agreement between the UCBOE and Contractor that the Contractor has made this review and has notified all staff involved with this project of the availability of the AMP.

The UCBOE and Contractor recognize that time is of the essence to this Agreement and that the UCBOE will suffer financial loss if the work is not completed within the times specified herein. Both parties also recognize the delays, difficulties and expense involved in proving, in a legal or arbitration proceeding, the actual loss suffered by the UCBOE if the Work is not completed on time. Accordingly, in lieu of requiring such proof, the UCBOE and Contractor agree that as liquidated damages for delay (but not as a penalty) the Contractor shall pay to the UCBOE for each day in excess of the term allowed for completion of the Work, the Contractor shall pay to the UCBOE the sum of \$500.00 as liquidated damages.

Contractor shall for the duration of this Contract maintain and pay for insurance through insurers approved by the UCBOE having provisions for the following coverages:

Workman's Compensation and Employers Liability Insurance in the Contractor's name with limits of liability under the Employers Liability portion of not less than \$1,000,000.00, containing a waiver of subrogation in favor of the UCBOE executed by the insurance carrier

Public Liability Insurance including Contractual Liability Insurance in the Contractor's name, with bodily injury limits of not less than \$1,000,000.00 for each occurrence and Property Damage Insurance with a minimum of \$500,000.00 for each occurrence.

The Contractor shall take out and maintain such insurance as will indemnify and save the UCBOE harmless from any and all claims made by any person or persons for damage for personal injury-including death-and property damage which may arise from the Contractor's operations on the premises of the UCBOE whether such operations are by the Contractor, any sub-contractor or anyone directly indirectly employed by either of them.

Automobile Liability Insurance with an Employer's Non-Ownership Liability Endorsement in the Contractor's name covering all owned, non-owned, and hired vehicles. Limits of liability shall not be less than \$1,000,000.00 for each accident for bodily injury and property damage.

Builders Risk or Installation Floater covering fire, vandalism, malicious mischief, and extended coverage perils in amounts sufficient to cover the value of the work installed and the building materials stored at the Construction Site.

Before commencing any Work, the Contractor shall forward to the UCBOE two copies of a Certificate of Insurance issued by the Insurance Carrier, not the local agent or representative, indicating that all required insurance is in force. The Certificate shall state the policy number, date of expiration, and limits of liability, and contain a provision that the insurance will not be cancelled, changed or allowed to lapse prior to ten days after written notice to such cancellation or intention to allow lapse has been forwarded by Registered Mail to the UCBOE. The Contractor shall list Union County Board of Education as additional insured. The Contractor must certify that he has obtained similar certificates or evidence of insurance from each of his sub-contractors before work commences. Each sub-contractor must be covered by insurance of the same type and in the same amounts as the Contractor unless the Contractor and the UCBOE agree that a reduced coverage is adequate because of the nature of the particular sub-contract work. The Certificate of Insurance must be received within 48 hours of request by UCBOE.

The term of this contract: Work to be performed under this Agreement shall commence upon receipt of purchase order issued by UCBOE, and shall be pursued continuously until completed. Contractor shall endeavor to accomplish its substantial completion by _____ days, from start date. The date of substantial completion of the work or designated portion thereof shall be that date when the Work is sufficiently complete that the UCBOE can utilize the work or any designated portion thereof for the use for which it is intended. The guarantee and warranty period shall begin on the date of final acceptance of the roofing assemblies by the UCBOE (the "Date of Completion"). The Contractor agrees to perform the Services in a timely, complete, and professional manner and in accordance with the terms and conditions of this Contract.

This contract does not grant the Contractor the right or the exclusive right to provide specified services to UCBOE. Similar services may be obtained from sources other than the Contractor (or not at all) at the discretion of the UCBOE.

The Contractor represents and warrants that (i) it is duly qualified and licensed to provide the Services, (ii) it will provide the Services in a manner consistent with the level of care and skill ordinarily exercised by contractors providing similar services under similar conditions, (iii) it possesses sufficient experience, personnel, and resources to complete the Services, (iv) it shall perform the Services in compliance with applicable laws, statutes, ordinances, codes, orders, rules and regulations, and (v) its reports, if any, shall be complete, accurate, and unambiguous.

2. Obligations of UCBOE. UCBOE agrees to pay the Contractor for services as follows:

		Budget Account No. :
(i) Base Bid (Roof Areas 01.26 Section B, 02.02, 02.03, 02.07, 2.08, 02.09)	\$ _____	_____
(ii) Contingency Funds	\$ _____	_____
(iii) Total Bid	\$ _____	_____
(iv) Add/ Deduct Alternate #1	\$ _____	_____

3. Project Coordinator. **[Primary Contact for UCBOE]** is designated as the Project Coordinator for the UCBOE. The Project Coordinator shall be the UCBOE’s representative in connection with the Contractor’s performance under this Contract. The UCBOE has complete discretion in replacing the Project Coordinator with another person of its choosing.

4. Contractor Supervisor. **[Primary Contact for Contractor]** is designated as the Contractor Supervisor for the Contractor. The Contractor Supervisor is fully authorized to act on behalf of the Contractor in connection with this Contract. Substitution of Contract Supervisor must be presented to Project Coordinator with a minimum of 24 hour notice and shall include contact information of the newly selected Contractor Supervisor.

5. Terms and Methods of Payment. UCBOE will make payment after pay applications are approved on a net 30 day basis. Failure to submit all required documents will delay payment. UCBOE will not pay for services or materials in advance without the prior approval of the Finance Officer. Contractor shall submit applications for payment to Nelson Hall & Associates, Inc. by the twenty fifth (25) date of the month. The application for payment shall be in the amount of ninety-five (95%) percent of the value of work installed by Contractor and approved by UCBOE until project is fifty (50%) percent complete. The UCBOE will pay for materials stored on the site only if agreed to prior to shipment of the materials. Otherwise, payment will be made for materials in place and work complete as verified by observation reports and the roof observer.

Waivers of Lien from material suppliers shall be submitted commencing with the second request for payment. No requests for payment (after the first request) will be processed without appropriate Waivers of Lien attached to the payment request. All pay requests must be signed by the onsite roof observer (if applicable) prior to submission, contain the MBE Documentation for Contract Payments, Subcontractor Information for Contract Payments, Sales Tax Certification Form.

Request for final payment must be accompanied by the warranty letter from the Contractor stating that all punch list items have been completed, lead and asbestos free certification and lien waivers from the Contractor and material suppliers.

6. Additional Provisions. Contractor agrees to the Standard Terms and Conditions set forth as Attachment A attached hereto and incorporated herein by reference.
7. Counterpart Execution. This Contract may be executed and recorded in two or more counterparts, each of which shall be deemed an original and all of which, when taken together, shall constitute one and the same instrument. Each party shall be entitled to rely upon executed copies of this Contract transmitted by facsimile or electronic “PDF” to the same and full extent as the originals.

[THE REST OF THIS PAGE HAS BEEN LEFT BLANK INTENTIONALLY]
[SIGNATURES ON NEXT PAGE]

IN WITNESS WHEREOF, UCBOE and Contractor have executed this Contract on the day and year first written above.

[CONTRACTOR NAME]

Contractor Name

Signature of Authorized Representative

Date

Printed Name

Title

Contractor's Federal Identification #

[if Contract is with Organization or Social Security Number if individual]

THE UNION COUNTY BOARD OF EDUCATION

Board Chairperson

Date

This instrument has been pre-audited.
in the manner required by the School Budget
and Fiscal Control Act.

Finance Officer

Date

APPROVED AS TO FORM:

School Board Attorney

Date

REVIEWED BY:

Division of Insurance and Risk Management

Date

SECTION 00 71 00
Standard Terms and Conditions

Attachment A

1. Contract Documents. Contractor's acknowledgment of the terms hereof or Contractor's shipment or performance, constitutes an agreement to (i) all terms and conditions set forth or referenced herein, (ii) any attachments hereto, (iii) any applicable solicitation documentation (including without limitation any request for proposals or invitation for bids or Contractor's response thereto) that deal with the same subject matter as this contract, and (iv) any other terms and conditions of a written agreement signed by Contractor and The Union County Board of Education ("UCBOE") that deals with the same subject matter as this Order (collectively, the "Contract Documents"). The terms and provisions set forth in the Contract Documents shall constitute the entire agreement between Contractor and UCBOE with respect to the purchase by UCBOE of the (i) goods ("Goods") and/or (ii) services provided or work performed ("Services") as described in the Contract Documents. The agreements set forth in the Contract Documents are sometimes referred to herein as the "Contract." In the event of any conflict between any terms and conditions of the Contract Documents, the terms and conditions most favorable to UCBOE shall control. This Order constitutes an offer by UCBOE and expressly limits acceptance to the terms and conditions stated herein. No additional or supplemental provision or provisions in variance herewith that may appear in Contractor's quotation, acknowledgment, invoice, or in any other communication from Contractor to UCBOE shall be deemed accepted by or binding on UCBOE. UCBOE hereby expressly rejects all such provisions which supplement, modify or otherwise vary from the terms of the Contract Documents, and such provisions are superseded by the terms and conditions stated in the Contract Documents, unless and until UCBOE's authorized representatives expressly assent, in writing, to such provisions. Stenographic and clerical errors and omissions by UCBOE are subject to correction.
2. Quantities. Shipments must equal exact amounts ordered unless otherwise agreed in writing by UCBOE. The award of a term contract neither implies nor guarantees any minimum or maximum purchases.
3. Safety Data Sheets. Safety Data Sheets must be provided with shipment of all chemicals.
4. Prices. If Contractor's price or the regular market price of any of the Goods or Services covered hereunder is lower than the price stated in the Contract Documents on the date of shipment of such Goods or Services, Contractor agrees to give UCBOE the benefit of such lower price on any such Goods or Services. In no event shall Contractor's price be higher than the price last quoted or last charged to UCBOE unless otherwise agreed in writing. No charges for transportation, boxing, crating, etc. are allowable unless such charges are included in the Contract Documents.
5. Invoices. It is understood and agreed that orders will be shipped at the established Contract prices in effect on dates orders are placed. Invoicing at variance with this provision may subject the Contract to cancellation. Applicable North Carolina sales tax shall be invoiced as a separate item. Invoices shall be sent to UCBOE's accounts payable department with a copy to the UCBOE Project Coordinator.
6. Freight on Board. All shipments of Goods are FOB destination unless otherwise stated in the Contract Documents.
7. Payment Terms. Payment terms are Net 30 days after receipt of correct invoice or acceptance of Goods or Services, whichever is later.
8. Condition and Packaging. Unless otherwise provided by special terms and conditions or specifications, it is understood and agreed that any item offered or shipped has not been sold or used for any purpose and shall be in first class condition. All containers/packaging shall be suitable for handling, storage, or shipment.

9. Delays in Shipment. Time and date of delivery are of the essence, except when delay is due to causes beyond Contractor's reasonable control and without Contractor's fault or negligence.
10. Risk of Loss. Contractor shall have the risk of loss of and damage to the Goods subject to the Contract Documents until such Goods are delivered to the destination and accepted by UCBOE or its nominee.
11. Rejection. All Goods and Services shall be received subject to UCBOE's inspection. Goods or Services that are defective in workmanship or material or otherwise not in conformity with the requirements of the Contract Documents may be rejected and returned at Contractor's expense or may be accepted at a reduced price. UCBOE may require Contractor to promptly replace or correct any rejected Goods or Services and, if Contractor fails to do so, UCBOE may contract with a third party to replace such Goods and Services and charge Contractor the additional cost.
12. Compliance with All Laws. Contractor warrants that all performance hereunder shall be in accordance with all applicable federal, state and local laws, regulations and orders.
13. Compliance with UCBOE Policies. During the term of this Contract, Contractor agrees to comply with all UCBOE imposed policies, rules and regulations while on UCBOE property and guarantees strict compliance by all of its employees, agents and subcontractors with such policies, rules and regulations. UCBOE will make available to Contractor copies of other applicable UCBOE policies, rules and regulations upon Contractor's request. Upon request by UCBOE, Contractor and its applicable employees and agents will execute UCBOE's standard documents reflecting the obligation to comply with applicable policies, rules and regulations. The requirements of this Section shall apply continuously during the term of this Contract and shall not be limited to normal working hours. Without limiting the generality of the foregoing, Contractor shall be responsible for its acts or omissions in connection with the safety of all persons and property where any Goods and Services or other work are being performed and during performance of such Goods and Services or work. No act, service, drawing review or construction review by UCBOE or its representatives is intended to include review of the adequacy of Contractor's safety measures in, on or near UCBOE's premises.
14. Warranties. Contractor warrants that all Goods and Services delivered hereunder will be free from defects in materials and workmanship and will conform strictly to the specifications, drawings, or samples specified or furnished. This warranty shall survive any inspection, delivery, acceptance or payment by UCBOE of the Goods and Services and shall run to UCBOE and any user of the Goods or Services. This express warranty is in addition to Contractor's implied warranties of merchantability and fitness for a particular purpose which shall not be disclaimed. In addition to any other rights available at law or equity, UCBOE shall be entitled to all rights and remedies provided by the Uniform Commercial Code, Chapter 25 of the North Carolina General Statutes, for breach of express warranties and implied warranties of merchantability or fitness for a particular purpose, including but not limited to consequential and incidental damages.
15. Termination for Convenience. UCBOE may terminate this Contract at any time at its complete discretion by five (5) calendar day notice in writing from the UCBOE to the Contractor. If the Contract is terminated by the UCBOE in accordance with this paragraph, the Contractor will be paid in an amount which bears the same ratio to the total compensation as does the service actually performed to the total service originally contemplated in this Contract.
16. Termination for Default.

If Contractor fails to perform its obligations timely and in conformance with the requirements of this contract, UCBOE shall give Contractor written notice of the default and intent to terminate if the default is not cured within ten (10) calendar days to the satisfaction of UCBOE.

All finished or unfinished deliverable items under this contract prepared by the Contractor shall become the property of UCBOE, and the Contractor shall be entitled to receive payment for any

satisfactory work completed on such materials. Notwithstanding, the Contractor shall not be relieved of liability to UCBOE for damages sustained by UCBOE by virtue of any breach of the agreement, and UCBOE may withhold any payment due the Contractor for the purpose of setoff until such time as the breach is cured or the exact amount of damages due UCBOE from such breach can be determined.

In case of default by the Contractor, UCBOE may procure the services from other sources and hold the Contractor responsible for any excess cost incurred.

Upon the entering of a judgment of bankruptcy of insolvency by or against the Contractor, UCBOE may terminate this contract for cause.

17. Contract Funding. It is understood and agreed between the Contractor and the UCBOE that the UCBOE's obligation under this Contract is contingent upon the availability of appropriated funds from which payment for Contract purposes can be made. The execution of this contract by UCBOE is assurance that sufficient funds have been appropriated for the current fiscal year budget. Should such funds not be appropriated or allocated, this Contract may be immediately terminated by either party. UCBOE shall give prompt written notice to the Contractor if funds are not available. The UCBOE shall not be liable to the Contractor for damages of any kind (general, special, or exemplary) as a result of such termination.
18. Indemnification. Contractor shall indemnify and hold harmless UCBOE, its officers, agents, employees and assigns from and against all claims, losses, costs, damages, expenses, attorneys' fees and liability that any of them may sustain (a) arising out of Contractor's failure to comply with any applicable law, ordinance, regulation, or industry standard or (b) arising directly or indirectly out of Contractor's performance or lack of performance of the terms and conditions of the Contract. In the event that any Goods or Services sold and delivered or sold and performed under the Contract Documents shall be defective in any respect whatsoever, Contractor shall indemnify and save harmless UCBOE, its officers, agents, employees and assigns from all loss or the payment of all sums of money by reason of all accidents, injuries or damages to persons or property that shall happen or occur in connection with the use or sale of such Goods or Services and are contributed to by said condition. In the event Contractor, its employees, agents, subcontractors and or lower-tier subcontractors enter premises occupied by or under the control of UCBOE in the performance of the Contract Documents, Contractor agrees that it will indemnify and hold harmless UCBOE, its officers, agents, employees and assigns, from any loss, costs, damage, expense or liability by reason of property damage or personal injury of whatsoever nature or kind arising out of, as a result of, or in connection with such entry.
19. Insurance. Unless such insurance requirements are waived or modified by UCBOE or UCBOE's Department of Insurance and Risk Management ("DIRM"), Contractor certifies that it currently has and agrees to purchase and maintain during its performance under the Contract the following insurance from one or more insurance companies acceptable to UCBOE and authorized to do business in the State of North Carolina: Automobile - Contractor shall maintain bodily injury and property damage liability insurance covering all owned, non-owned and hired automobiles. The policy limits of such insurance shall not be less than \$1,000,000 combined single limit each person/each occurrence. Commercial General Liability - Contractor shall maintain commercial general liability insurance that shall protect Contractor from claims of bodily injury or property damage which arise from performance under the Contract. This insurance shall include coverage for contractual liability. The policy limits of such insurance shall not be less than \$1,000,000 combined single limit each occurrence/annual aggregate. Worker's Compensation and Employers' Liability Insurance - If applicable to Contractor, Contractor shall meet the statutory requirements of the State of North Carolina for worker's compensation coverage and employers' liability insurance. Contractor shall also provide any other insurance or bonding specifically recommended in writing by the DIRM or required by applicable law.

Certificates of such insurance shall be furnished by Contractor to UCBOE and shall contain the provision that UCBOE be given 30 days' written notice of any intent to amend or terminate by either Contractor or the insuring company. Failure to furnish insurance certificates or to maintain such insurance shall be a default under the Contract and shall be grounds for immediate termination of the Contract.

20. Accounting Procedures. The Contractor shall comply with accounting and fiscal management procedures prescribed by the UCBOE to apply to this Contract. The Contractor shall assure such fiscal control and accounting procedures as may be necessary for proper disbursement of and accounting for all project funds. The Contractor shall assure that all funds received by it pursuant to this Contract will be used only to support the cost of those activities described in this Contract.
21. Improper Payments. The Contractor shall assume all risks attendant to any improper expenditure of funds under this Contract. The Contractor shall refund to the UCBOE any payment made pursuant to this Contract if it is subsequently determined by audit that such payment was improper under any applicable law, regulation or procedure. The Contractor shall make such refunds within 30 days after the UCBOE notifies the Contractor in writing that a payment has been determined to be improper.
22. Contract Transfer. The Contractor shall not assign, subcontract or otherwise transfer any interest in this Contract without the prior written approval of the UCBOE. In the event UCBOE approves the Contractor to assign, subcontract or other methods of transferring the interest of this Contract, the Contractor shall warrant all work to be performed in accordance to the contract documents by an individual or company that is qualified and properly licensed in the state of North Carolina to perform such work.
23. Contract Personnel. The Contractor agrees that it has, or will secure at its own expense, all personnel required to perform the services set forth in this Contract.
24. Key Personnel. The Contractor shall not substitute for key personnel assigned to the performance of this Contract without prior written approval from the UCBOE Project Coordinator. "Key personnel" are defined as those individuals identified by name or title in this Contract or in written communication from the Contractor.
25. Contract Modifications: This contract may be amended only by written amendment duly executed by both the UCBOE and the Contractor.
26. Relationship of Parties. The Contractor is an independent contractor and not an employee of the UCBOE. The conduct and control of the work will lie solely with the Contractor. This Contract shall not be construed as establishing a joint venture, partnership or any principal-agent relationship for any purpose between the Contractor and the UCBOE. Employees of the Contractor shall remain subject to the exclusive control and supervision of the Contractor, which is solely responsible for their compensation.
27. Advertisement. The Contract will not be used in connection with any advertising by the Contractor without prior written approval by the UCBOE.
28. Nondiscrimination. During the performance of this Contract, the Contractor shall not discriminate against or deny the Contract's benefits to any person on the basis of sexual orientation, national origin, race, ethnic background, color, religion, gender, age or disability.
29. Conflict of Interest. The Contractor represents and warrants that no member of the UCBOE or any of its employees or officers has a personal or financial interest or will benefit from the performance of this Contract or has any interest in any Contract, subcontract or other agreement

related to this Contract. Contractor shall not permit any member of the UCBOE or any of its employees or officers to obtain a personal or financial interest or benefit from the performance of this Contract or to have any interest in any Contract, subcontract or other agreement related to this Contract, during the term of this Contract. The Contractor shall cause this paragraph to be included in all Contracts, subcontracts and other agreements related to this Contract.

30. Gratuities to UCBOE. The right of the Contractor to proceed may be terminated by written notice if the UCBOE determines that the Contractor, its agent or another representative offered or gave a gratuity to an official or employee of the UCBOE in violation of policies of the UCBOE.
31. Kickbacks to Contractor. The Contractor shall not permit any kickbacks or gratuities to be provided, directly or indirectly, to itself, its employees, subcontractors or subcontractor employees for the purpose of improperly obtaining or rewarding favorable treatment in connection with a UCBOE Contract or in connection with a subcontract relating to a UCBOE Contract. When the Contractor has grounds to believe that a violation of this clause may have occurred, the Contractor shall promptly report to the UCBOE in writing the possible violation.
32. Monitoring and Evaluation. The Contractor shall cooperate with the UCBOE, or with any other person or agency as directed by the UCBOE, in monitoring, inspecting, auditing or investigating activities related to this Contract. The Contractor shall permit the UCBOE to evaluate all activities conducted under this Contract. UCBOE has the right at its sole discretion to require that Contractor remove any employee of Contractor from UCBOE property and from performing services under this Contract following provision of notice to Contractor of the reasons for UCBOE's dissatisfaction with the services of Contractor's employee.
33. Financial Responsibility. The Contractor is financially solvent and able to perform under this Contract. If requested by the UCBOE, the Contractor agrees to provide a copy of its latest audited annual financial statements or other financial statements as deemed acceptable by the UCBOE's Finance Officer.
34. Dispute Resolution. At the option of the parties, disputes may be resolved by any method of ADR to which the parties agree in writing, including, but not limited to:
 - a. Mediation, pursuant to NCGS 7A-38.1 or the American Arbitration Association Mediation, or by written agreement of the parties.
 - b. Arbitration: pursuant to The Uniform Arbitration Act (NCGS 1-567.1 et seq.)

The award rendered by the arbitrator or arbitrators shall be final unless a party thereto gives written notice of its objection to the final award by arbitration within twenty (20) days from receipt of said decision. Upon giving of said notice the party objecting thereto may file suit concerning the dispute as if arbitration had never occurred. Unless legally required to do otherwise, the parties agree not to refer to the arbitration in the filing of any lawsuit or during its subsequent litigation, or to submit to the court any record of information concerning the arbitration.

35. No Third Party Benefits. This Contract shall not be considered by the Contractor to create any benefits on behalf of any third party. The Contractor shall include in all contracts, subcontracts or other agreements relating to this Contract an acknowledgment by the contracting parties that this Contract creates no third party benefits.
36. Confidentiality of Student Information. If, during the course of the Contractor's performance of this Contract, the Contractor should obtain any information pertaining to the students' official records, the Contractor agrees to keep any such information confidential and to not disclose or permit to be disclosed, directly or indirectly, to any person or entity any such student

information. This Contract shall not be construed by either party to constitute a waiver of or to in any manner diminish the provisions for confidentiality of students' records. Additionally, pursuant to N.C.G.S. 115C-401.1, Prohibition on the Disclosure of Information about Students, it is unlawful for a person who enters into a contract with a local board of education to sell personally identifiable information that is obtained from a student as a result of that person's performance under the contract.

37. Background Checks. At the request of UCBOE's Project Coordinator, the Contractor (if an individual) or any individual employees of the Contractor shall submit to UCBOE criminal background check and drug testing procedures.
38. Jessica Lunsford Act. Contractors, subcontractors, consultants, sub-consultants, and vendors shall annually conduct a review of the State Sex Offender and Public Protection Registration Program, the State Sexually Violent Predator Registration Program, and the National Sex Offender Registry for all employees who will provide services under this contract. Any employee of the contractor, subcontractor, consultant, sub-consultant, or vendor found to be registered on any of the lists identified herein shall not perform any work under this contract and shall not be permitted to enter property owned by Union County Public Schools or Union County on behalf of Union County Public Schools. Failure to comply may result in legal action and termination of the contract for default.
39. E-verification. Contractor shall comply with the requirements of E-Verification NCGS Article 2 of Chapter 64A and the Iran Divestment Act of NCGS 147-86.58.
40. Force Majeure. If UCBOE is unable to perform its obligations or to accept the services or goods because of Force Majeure (as hereinafter defined), the time for such performance by UCBOE or acceptance of services will be equitably adjusted by allowing additional time for performance or acceptance of services equal to any periods of Force Majeure. "Force Majeure" shall mean any delays caused by acts of God, riot, war, terrorism. Inclement weather, labor strikes, material shortages and other causes beyond the reasonable control of UCBOE.
41. Ownership of Documents. All rights in the work created pursuant to this Contract are owned by the UCBOE including, but not limited to, copyright, trade or service mark and licensing rights. Upon the termination or expiration of this Contract, any and all finished or unfinished documents and other materials produced by the Contractor pursuant to this Contract shall, at the request of the UCBOE, be turned over to UCBOE. Any technical knowledge or information of Contractor which Contractor shall have disclosed or may hereafter disclose to UCBOE shall not, unless otherwise specifically agreed upon in writing by UCBOE, be deemed to be confidential or proprietary information and shall be acquired by UCBOE as part of the consideration of this Contract free from any restrictions.
42. Contract Situs. All matters, whether sounding in contract or tort relating to the validity, construction, interpretation and enforcement of this Contract, will be determined in Union County, North Carolina. North Carolina law will govern the interpretation and construction of this Contract.
43. Entire Contract. This Contract constitutes and expresses the entire agreement and understanding between the parties concerning the subject matter of this Contract. This document (including exhibits, if any), any purchase order used in connection with this Contract and any other document expressly incorporated in this Contract by reference supersede all prior and contemporaneous discussions, promises, representations, agreements, and understandings relative to the subject matter of this Contract.

END OF SECTION

SECTION 00 73 00
SUPPLEMENTARY CONDITIONS

1.1 APPLICABLE DOCUMENTS:

- A. Specifications and Drawings contained herein and dated April 16th, 2026.
- B. Where these Supplementary General Conditions are in variance with the General Conditions the Supplementary General Conditions contained herein shall take precedence over and prevail over all others.

1.2 SUBMISSION OF BID:

- A. Bids shall be submitted on the Bid Form included in the Bid Documents with all blank spaces filled (negative responses required when appropriate). In addition to Bid Form the contractor shall include the appropriate MBE Forms, Iran Divestment Act, Jessica Lunsford Act, and Bid Bond. The name of the Bidder shall be clearly displayed on the Bid.
- B. The BASE BID shall be a lump-sum, fixed price submitted by the Bidder. It shall be the responsibility of the Bidder to inform all his Sub-bidders of the conditions included herein and of all alternate bid items set forth on the Bid Form. Alternates may not be listed in the specifications and may appear only on the Bid Form.
- C. BIDS SHALL BE RECEIVED NO LATER THAN 2:00 PM, DATE
- D. It will be assumed that the Bid will be valid for sixty (60) days unless otherwise stipulated on the Bid Form.

1.3 CONTRACT

- A. This Project will be constructed as a Single Prime Contract.

1.4 SPECIFICATION FORMATS AND CONVENTIONS

- A. Technical Specifications Format: The Specifications are organized into Divisions and Sections using the 50-division format and Construction Specifications Institute/ Construction Specifications Canada (CSI/CSC's) 2018 "Master Format" numbering system.
- B. Section Identification: The Technical Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.
 - 1. Technical Specifications Content: The Technical Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

- a. Abbreviated Language: Language used in the Technical Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
- b. Imperative mood and streamlined language are generally used in Technical Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
- c. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.5 TIME OF CONSTRUCTION:

- A. The contractor shall bid the total time allotted for the performance of the work included in this project is the Contractors estimate of calendar days. Rain days are included and will only be added if unusual weather delays are incurred. Work shall commence on the date stipulated in the Notice to Proceed and be pursued continuously until complete. Contractor's time estimate may be used as a factor in awarding a Contract.
- B. The successful contractor shall not commence work or allow any subcontractor to commence work until the requirements of the General Conditions and requirements of the Contract for Construction listed herein have been satisfied.
- C. The successful bidder agrees to commence work on this Contract upon written receipt of a purchase order, and to prosecute the Work continuously and without interruption (excepting weather delays) until all Work is completed. The construction schedule shall be agreed upon at the pre-construction meeting. The job inspector will be on the site on the agreed start date. If Work does not commence as agreed (excepting weather delays), the Contractor shall be responsible for payment of the costs of inspection provided for periods of no-work, including transportation to and from the site.
- D. The successful contractor agrees to complete the Work stipulated in the Bid Documents within the number of calendar days stated on the Form of Proposal commencing on the date of commencement of Work. If extra work is ordered by the Owner or if unforeseen conditions interfere with the normal progress of the Work, the stated time to completion may be adjusted accordingly by Change Order.
- E. A calendar day is every day in a month including weekends and holidays.
- F. Based upon local Weather data, the following 10-year average shall establish the number of rain days to be included in the Contractor's Construction Schedule as normal. Rain days are defined as periods of 24 hours within which precipitation is one-tenth (0.1) of an inch or greater. Rain days shall be understood to be workdays,

exclusive of holidays, weekends, and other non-working days. Rain-related days will be considered based upon amounts of precipitation encountered during the construction process. The Contractor shall use these monthly averages when establishing the construction schedule for this project. Claims for delays due to abnormal rain delays will not be considered until the number of rain days during which critical path work is delayed exceeds the number allowed in the schedule as follows:

January: 6 Days	May: 6 Days	September: 4 Days
February: 6 Days	June: 5 Days	October: 4 Days
March: 6 Days	July: 6 Days	November: 4 Days
April: 5 Days	August: 6 Days	December: 6 Days

- G. Rain days, as identified above, are to aid the Contractors in their scheduling. These days are included in the total time allowed for construction. Used and unused days are not available for extending the project time nor may they be used to decrease the project time. Rain Days shall cease upon substantial completion of project, unless the Contractor can prove his claim for weather related delay based upon extreme conditions or Acts of God.
- H. All work must be completed by (**Contractor shall bid the number of calendar days to complete the project**). If the Contractor does not complete the work in time to arrange for the final inspection and submit the final invoice by this date a Liquated Damages of \$500.00 per calendar day will be deducted from the Contract amount.
- I. All punch list items are to be completed by 14 calendar days beyond the completion date or a Liquated Damages of \$500.00 per calendar day will be deducted from the Contract amount.

1.6 CONTRACTOR REQUIREMENTS:

- A. All Roofing Contractors submitting bids must have a valid Contractors License in the State of North Carolina with limits adequate to submit a bid for the work. Contractors submitting bids must have been in business a minimum of five years and be approved by two of the listed Manufacturers to install premium roof systems with twenty-year NDL warranties.
 - 1. All Contractors bidding or performing work must comply with the following requirements:
 - d. Have been in business a minimum of five years or provide documentation that the key management personnel have a minimum of fifteen years experience at a management level in the roof contracting field.

- e. Have a drug/alcohol free workplace program that is DOT approved or equal.
- f. Have management personnel responsible for implementing Safety and Environmental programs.

1.7 CONTRACTOR EMPLOYEE REQUIREMENTS

- A. The Crew provided for the work must have a project manager, foreman, lead roof mechanic and three roof mechanics with the following minimums in experience:
 - 1. Project Manager - This person will be full-time project manager employed by the roofing contractor. This person will be responsible for the following: A) Planning B) Communications C) Scheduling Activities between crews and Site, Owner & Owner Representative D) Safety E) Environmental F) Security. This person must be fluent in English, or an interpreter must be provided by the contractor.
 - 2. Foremen - 5 years experience in roofing with systems similar to the system specified and who can speak fluent English. Preferably a foreman who speaks English as their first language.
 - 3. Lead Roof Mechanic - 3 years experience in roofing with systems similar to the system specified.
 - 4. Roof Mechanic - 2 years' experience in roofing with systems similar to the system specified.

1.8 CONTRACTOR SUBMITTALS:

- A. The successful Contractor shall prepare and submit two (2) submittal notebooks and one electronic copy to Wolf Trail Eng. prior to scheduling of the Pre-Construction meeting. Notebooks are to be hard bound ring binders with tabbed dividers separating each section and table of contents. Each submittal notebook shall contain the following:
 - 1. Emergency Contact List with the name and phone numbers of the contractor's office, project manager, project superintendent, and project foreman. Also list the name, address, and phone numbers of the roofing consultant.
 - 2. Certificate of Insurance (See Section 1.23).
 - 3. A copy of the payment and performance bonds.
 - 4. Any required local permits or letter stating permits are not required. (See Section 1.22).
 - 5. A document from the roofing manufacturer stating they have reviewed these specifications and drawings and this roofing system will be eligible for a 20-year NDL warrantee at the end of the project. This document is required before the Contract or Notice to Proceed is issued.
 - 6. The enclosed material lists and drawings shall serve as a preapproved submittal package for the successful bidder. The material lists herein shall be copied and the proposed materials marked to show the system and materials included in the contractor's bid. Where ASTM specifications are given the Contractor shall

furnish the name of the material to be used. MSDS sheets are required for all materials used and are to be attached to the submittals.

7. The detail drawings shall be copied from this manual and initialed by the Contractor and shall serve as the shop drawings for the project. See section on substitution of materials for additional instructions. A detailed schedule for the project is required.
8. The Contractor shall submit manufacturer's literature on insulation or base sheet and fasteners to be used on the project. The submittal information shall include the type and number of fasteners for the type of base sheet or type and size of insulation board material to be installed, and the quantity of fasteners to be used at perimeters, corners, and the field of the roof wherever mechanical securement of roof system is required by the specifications.
9. The Contractor shall submit in writing on the form provided, that all materials to be used on the project do not contain asbestos.
10. Tapered Insulation Design & Layout. Tapered insulation design must show crickets/saddles. Roof curbs and penetrations must be considered when designing tapered roof insulation system.
11. The Contractor must deliver to the consultant a document from the roofing manufacturer stating they have reviewed these specifications and drawings and this roofing system will be eligible for a 20-year NDL warrantee at the end of the project. This document is required before the Contract or Notice to Proceed is issued.
12. Manufacturers Contractor Certification Certificate, manufacturer's literature and materials list for proposed roof assembly.

1.9 TAXES:

- A. The payment of sales, use, unemployment, old age pension, FICA and any other taxes imposed by local, State or Federal governments on all Work performed shall be included in the Base Bid.

1.10 BOND REQUIREMENTS:

- A. The successful contractor shall provide Performance (00 61 13.13) bonding.
- B. The successful contractor shall provide Payment bonding (00 61 13.16).
- C. The actual cost of the bonds shall be included in the base bid.

1.11 EXAMINATION OF SITE AND PREMISES:

- A. IT SHALL BE THE SOLE RESPONSIBILITY of each Bidder and/or Sub-bidder to examine all documents and drawings pertaining to the Bid and to visit the premises on which the proposed Work is to be performed to determine the existing conditions in the areas included in The Scope of Work. If a discrepancy, omission, ambiguity, or conflict exists between the existing conditions and the Bid Documents, the Bidder shall inform the Owner or his representative prior to the submission of his Proposal.

- B. It is the responsibility of the Contractor to verify all dimensions of areas included in the Scope of Work during the time of site inspection. Representations herein are of general existing conditions, but the Owner assumes no responsibility for assessment of existing conditions for Bidding purposes or that all representations of existing conditions stated herein are accurate. The Contractor shall satisfy himself of all existing conditions prior to submission of a Bid, and the Bid shall reflect the Contractor's cost for completion of the Work in general compliance with these specifications and requirements and/or recommendations of the manufacturers specified for installation of their specified roofing assemblies.
- C. The submission of a Bid Proposal shall be considered by the Owner as acceptance of all requirements and stipulations contained in the Documents for Construction and awareness of conditions at the job site by the contractor.
- D. Where information is not clearly indicated or specified, the Owner will issue an addendum to all Bidders clarifying ambiguous conditions. The addendum will become a part of the Contract Documents. The Owner will not be responsible for oral instructions or agreements by any party.
- E. ADDS to the Contract Price will be considered only for items for which Unit Prices are submitted or for undiscovered conditions, and under no circumstances will the Owner pay for miscalculations by the Contractor made during the time of Bid preparation.

1.12 PREBID SITE ACCESS:

- A. The Owner will make the site available for pre-bid inspection at a time mutually convenient to the Contractor and the representative of the Owner. Coordination of the pre-bid site visit shall be the responsibility of the Bidder.

1.13 SUBSTITUTION OF MATERIALS:

- A. Substitutions of the materials listed herein are prohibited unless approved IN WRITING by the Owner or the Owners Representative. Requests for substitution shall clearly describe the material, product or equipment for which approval is requested and shall be accompanied by the manufacturer's literature, specifications, drawings, performance criteria and/or other information necessary to completely describe the items to establish their acceptability.
- B. The approval of the Owner is required prior to inclusion of any substitute material(s) in the Bid or the Work. If the Bidder includes unapproved materials in the Bid, it will be assumed that the specified materials were included and must be installed. If a less expensive material is approved and used for the Work after a bid has been submitted, the Bidder shall issue an appropriate credit to the Owner. The Owner's approval will be required even though "or equal" or synonymous terms are used in the Bid Documents. **SUBSTITUTIONS AND COST DIFFERENCE MUST BE SUBMITTED WITH THE PROPOSAL ON A SEPARATE SHEET WITH JUSTIFICATION FOR THE SUBSTITUTION.**
- C. The approval or rejection of a proposed substitution is vested in the Owner whose decision shall be final and binding. The determination may or may not explain the

reason for the decision. Substitutions will be approved by Addendum to the Project Documents.

1.14 CHANGES TO THE CONTRACT:

- A. Interpretation and correction of the Project Documents will be made by addendum issued by the Owner and/or Consultant. Each Bidder shall ascertain prior to submitting his Bid that he received all addenda issued for his Work and shall acknowledge their receipt on his Bid Form.

1.15 ADDITIONAL WORK:

- A. Extra Work not included in the Unit Prices shall be compensated for based on Cost plus a percentage for overhead and profit for the Bidder and/or sub-bidder. The Bidder shall state the percentages for overhead and profit for Work completed by the Bidder and by his sub-bidders on the Bid Form. Proposed costs for extra work will be used in determining the award of the Contract.

1.16 LISTING OF PROPOSED SUB-BIDDERS:

- A. The Bidder shall submit a list of the proposed Sub-bidders, if any, that he intends to use on this project. No changes in Sub-bidders shall be made without the approval of the Owner. Listings shall be included on the Bid Form.

1.17 COORDINATION OF THE WORK:

- A. The successful contractor shall not commence work or allow any sub-contractor to commence work until the requirements of the General and Special Conditions of the Contract for Construction listed herein have been satisfied.
- B. The successful bidder agrees to commence work on this Contract upon written notification of award of the Contract or verbal receipt of a work order number, and to prosecute the Work continuously and without interruption (excepting weather delays) until all Work is completed. The beginning date shall be agreed upon at the pre-job meeting, and the agreed upon beginning date shall be the coordination date for start-up for all parties including the roof observation service. The roof observer will be on the site on the agreed upon start date. If Work does not commence as agreed (excepting weather delays), the Contractor shall be responsible for payment of the costs of the roof observer provided for periods of no-work, including transportation to and from the site.
- C. The successful contractor agrees to complete the Work stipulated in the Bid Documents within the number of calendar days stated on the Bid Form commencing on the date of commencement of Work. If extra work is ordered by the Owner or if unforeseen conditions interfere with the normal progress of the Work, the stated time to completion may be adjusted accordingly by Change Order.
- D. If the time to completion exceeds that stated on the Bid Form (by the contractor's estimate), the Contractor shall assume responsibility for any additional observer costs resulting from the delay. Additional incurred roof observer/consulting costs shall be

deducted from the final payment due the Contractor. Non-working days due to inclement weather shall be mutually agreed to by the Contractor and the representative of the Owner. Non-working days due to weather will not be counted in the total estimated time to completion provided by the Contractor.

- E. The Contractor's estimated time to completion will be considered in the award of the Contract for the Work specified.

1.18 AWARD OF CONTRACT:

- A. The Owner reserves the right to accept any or none of the submitted bids, whichever he deems to be in his best interest; and hereby does not obligate himself to accept the lowest bid.
- B. The Owner reserves the right to reject to waive any formalities in the bidding. The Owner reserves the right to accept any Alternate listed on the Bid Form in any order or combination and to determine the low bidder on the basis of the sum of the Base Bid, Unit Prices submitted, Alternates accepted, percentages submitted for extra work and estimated time to completion stipulated by the contractor on the Bid Form.

1.19 APPLICABLE BUILDING CODES/REQUIREMENTS:

- A. The Contractor shall install all Work in strict compliance with all requirements of all Local, State and Federal Authorities, National Board of Fire Underwriters, Kemper Insurance Company, Factory Mutual System and other applicable authorities in force at the time of execution of this Contract.
- B. The Contractor shall comply fully with all the requirements of the Occupational Safety and Health Act (OSHA) of 1970, a Federal Regulation, and all State/local OSHA requirements. The Contractor shall hold the Owner harmless for any damages or fines that may be assessed by OSHA against the Contractor and/or the Owner.
- C. The Contractor shall secure complete approval of all above mentioned authorities for his Work and shall deliver certificates of approval/compliance from them to the Owner before final payment is made if such certificates are required to assure the Work is in compliance with all applicable code requirements. The Contractor shall pay all fees for testing, inspection and certificates as may be required by local officials and/or building codes and shall furnish any and all drawings and documents in addition to Contract Drawings required in order to secure approval of his Work from governing authorities.

1.20 INDEMNITY AGREEMENT:

- A. The contractor shall be responsible for the safety of his employees and subcontractors on the site during the performance of the work and any related activities.
- B. To the fullest extent permitted by law, Contractor shall indemnify, defend and hold harmless the Owner, any lender, its officers, agents, employees, representatives, consultants and contractors, of and from any and all claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from the performance of Work under the Agreement, which are attributable to, or are alleged to be attributable to, any breach hereof or negligent or illegal act or omission of

Contractor, any subcontractor, anyone directly or indirectly employed by them or anyone for whose acts any of them may be liable. Notwithstanding the foregoing, if losses, liabilities, damages, liens, costs and expenses so arising are caused by the concurrent negligence of both Owner and Contractor, their employees, agents, invitees, representatives, consultants and contractors, Contractor shall indemnify Owner only to the extent of Contractor's own negligence or that of its agents, employees, invitees, representatives, consultants and contractors.

1.21 PERMITS FOR CONSTRUCTION:

- A. The successful contractor shall obtain and deliver to the Owner two (2) copies of all applicable Building/Construction Permits as may be required by local authorities prior to commencing Work. If permits are not required, a letter on the Contractor's Letterhead shall state that the proper authorities have been contacted and building/construction permits are not required. Include contact information of the responsible authority in the required letter.
 - 1. The system shall be designed to meet a minimum wind uplift rating of 90# per square foot as tested and listed by FM Global or Underwriters Laboratories with corner and perimeter enhancements.
 - 2. System shall have a class A fire resistance rating per UL.

1.22 INSURANCE REQUIREMENTS:

- A. The Contractor shall for the duration of this Contract maintain and pay for insurance through insurers approved by the Owner having provisions for the following coverages:
- B. Workman's Compensation and Employers Liability Insurance in the Contractor's name with limits of liability under the Employers Liability portion of not less than \$1,000,000.00, containing a waiver of subrogation in favor of the Owner executed by the insurance carrier.
- C. Public Liability Insurance including Contractual Liability Insurance in the Contractor's name, with bodily injury limits of not less than \$1,000,000.00 for each occurrence and Property Damage Insurance with a minimum of \$500,000.00 for each occurrence.
- D. The Contractor shall take out and maintain such insurance as will indemnify and save the Owner harmless from any and all claims made by any person or persons for damage for personal injury—including death—and property damage which may arise from the Contractor's operations on the premises of the Owner whether such operations are by the Contractor, any sub-contractor or anyone directly indirectly employed by either of them.
- E. Automobile Liability Insurance with an Employer's Non-Ownership Liability Endorsement in the Contractor's name covering all owned, non-owned and hired vehicles. Limits of liability shall be not less than \$1,000,000.00 for each accident for bodily injury and property damage.
- F. Before commencing any Work, the Contractor shall forward to the Owner two copies of a Certificate of Insurance issued by the Insurance Carrier, not the local agent or

representative, indicating that all required insurance is in force. The Certificate shall state the policy number, date of expiration and limits of liability, and contain a provision that the insurance will not be cancelled, changed or allowed to lapse prior to ten days after written notice to such cancellation or intention to allow lapse has been forwarded by Registered Mail to the Owner. The Contractor must certify that he has obtained similar certificates or evidence of insurance from each of his sub-contractors before their work commences. Each sub-contractor must be covered by insurance of the same type and in the same amounts as the Contractor unless the Contractor and the Owner agree that a reduced coverage is adequate because of the nature of the particular sub-contract work.

1.23 OWNERS BUILDERS RISK INSURANCE:

- A. The Owner will carry insurance or self-insure for Builder's Risk covering fire, vandalism, malicious mischief, and extended coverage perils in amounts sufficient to cover the value of the Work installed and the building materials stored and paid for by the Owner at the construction site. This insurance will not cover equipment belonging to the Contractor or any of his sub-contractors.

1.24 OWNERS REPRESENTATION:

- A. The Owner reserves the right to provide full-time roof observation during the time of construction. The roof observer is the representative of the Owner, and the Contractor shall perform the work included in the Contract in accordance with the recommendations of the roof observer. The roof observer shall be the liaison between the Contractor and the Owner/Consultant and all changes in the Contract are to be processed by the roof observer prior to submission to the Owner/Consultant. The inspector shall review all pay requests prior to submission to the Owner. All pay requests must bear the signature of the roof observer to be considered for payment.
- B. The Owner's engineer or other authorized representative of the Owner shall observe the Work and will interpret the plans and specifications governing the Project.
- C. The Owner, his engineer or other authorized representative will not be responsible for direct supervision of the Work, nor will the Owner, his engineer or other representative be responsible for means, methods or techniques of construction, for sequences or procedures or for safety control during the time of Work. Neither the Owner nor the Consultant/Observer will be responsible for the Contractor's failure to carry out the Work in accordance with the Contract documents.
- D. The Owner reserves the right to perform non-destructive evaluation of the in-place roofing assembly to determine whether or not the newly installed roofing assembly has been affected by moisture infiltration. Testing shall be at the Owner's expense. The Contractor is encouraged to be present during the time of NDE.

1.25 PROTECTION OF THE STRUCTURE & SURROUNDING AREA:

- A. The successful contractor shall always maintain barricades and take appropriate protective measures around the construction site. The contractor shall be responsible

for payment for any required protective measures or additional security at the construction site.

- B. The contractor is responsible for damage to parking lots, roads, landscaping, etc. that may have been damaged during construction. The contractor shall return damaged areas to pre-construction condition.

1.26 ACCESS TO THE SITE FOR CONSTRUCTION:

- A. Every effort will be made by the Owner during the time of construction to allow expedient access to the Work subject to local codes and restrictions. ALL SITE USAGE MUST BE APPROVED BY THE OWNER PRIOR TO USE BY THE CONTRACTOR. Materials, signage or equipment that are set-up or stored in unauthorized areas are subject to be moved at the expense of the Contractor at the discretion of the Owner.
- B. The Contractor shall be responsible for the erection and dismantling of any required scaffolding or safety netting. Scaffolds/safety nets shall be erected in accordance with local, State and Federal laws/regulations. All Owner requirements must be reviewed and complied with during the course of the work.
- C. It is intended that the Contractor shall perform his work with a minimum of disruption to the Owner's operations. The Contractor shall contact the following facility personnel during bidding and prior to commencement of Work for a meeting on the site to establish the location for storage of materials, set-up areas, access to the roof and for coordination of the Work to assure a minimum of inconvenience to both parties:

CONTACT: Randy Mullis
Email: randy.mullis@ucps.k12.nc.us

1.27 STAGING AREAS, STORAGE OF MATERIAL AND CLEAN-UP:

- A. Storage of materials, vehicles, hoists, trash chute, rubbish container and/or other materials and material handling equipment necessary for completion of the Work shall be located to cause minimal disruption to traffic flow to the facility and normal operations. Any such storage of equipment and/or materials shall utilize only the minimum space for such storage and in no way block entrances or impede vehicular or pedestrian traffic. All barricades and signs required to redirect present traffic flow shall be furnished by the Contractor and shall be removed when no longer needed. The location and required amount of space for the storage/staging area shall be mutually agreed upon by the Contractor and facility representatives prior to commencement of Work or delivery of materials. At the end of each day's work, debris shall be placed in a suitable container and periodically removed from the site when the container is full. At the completion of the Work, the Contractor shall immediately remove all equipment, temporary erections, leftover materials, and debris from his operation from the premises leaving the work area in "broom-clean" condition. All asphalt spills shall be removed from walls, sidewalks, and hardstand areas after completion of the Work.

1.28 RIGHT TO TERMINATE THE WORK:

- A. If the Contractor fails to prosecute the Work promptly or properly or breaches or fails to perform any obligation under the Agreement, the Owner, after seven days written notice to the Contractor, and to its surety, if any, may, without prejudice to any other right or remedy it may have, terminate the Agreement and take possession of and finish the Work by such means as it sees fit, and if the unpaid balance of the compensation due the Contractor exceeds the expense of finishing the Work and damages suffered by the Owner, such excess shall be paid to the Contractor following final completion of the Work, but if such Work exceeds the unpaid balance due the Contractor, the Contractor shall immediately pay the difference to the Owner.
- B. If a lawsuit arises in connection with the Agreement, the prevailing party therein shall be entitled to recover from the other party the prevailing party's reasonable attorneys' fees, costs, and expenses.

1.29 OWNERS SUBCONTRACTORS:

- A. During the course of the work, it may become necessary for the Owner to subcontract additional work in connection with the Project. In such event, and upon written notice of the existence of such other agreements, the Contractor shall coordinate as necessary and reasonable, his work to provide opportunities for the Owners subcontractor(s) to complete their work. The Contractor shall freely exchange drawings or other information, and shall review, integrate, and coordinate, upon request, the work of such other contractors with its own.

1.30 WORK UNDER OTHER CONTRACTS

- A. Separate Contract: Owner reserves the right to award a separate contract for performance of certain construction operations at Project site. Those operations may be conducted simultaneously with Work under this Contract. Separate Work may include but is not limited to:
 - 1. Hazardous Materials Abatement Contract
 - 2. Plumbing
 - 3. Electrical
 - 4. HVAC
- B. Contractor shall cooperate fully with separate contractors so work on other contracts may be carried out smoothly, without interfering with or delaying Work under this Contract.

1.31 COORDINATION WITH FACILITY SECURITY:

- A. In no instance shall the Contractor or any of his sub-contractors perform any Work on the project except during regular working hours without, in each instance, notifying the Owner in order that the Owner's representative may be present to observe the Work and to coordinate security requirements. This shall not be interpreted as a measure to prevent the Contractor from working overtime under any circumstances, but merely to

ensure that the Owner may have the opportunity to have a representative present to assist the Contractor as may be required to interpret the Contract Documents, plans and specifications and to coordinate for security and disarming of alarm systems.

1.32 ROOF TOP MECHANICAL/HVAC EQUIPMENT:

- A. The roofing contractor shall not make connections or disconnects in electrical or mechanical equipment unless specifically authorized by the Owner in writing or as specified herein. Connects/disconnects shall be made by personnel currently licensed by the local government having jurisdiction over the Work. Notify the Owner or their representatives should such activities become necessary and perform the work to insure minimum disruption of interior operations.

1.33 TITLE OF WORK:

- A. The Contractor shall guarantee that title to all Work governed by this Contract and any equipment or materials installed in place on the facility will have passed to the Owner prior to making application for payment free of all liens, claims, security interests and/or encumbrances, and that no Work, materials or equipment installed in place will have been acquired by the Contractor or by any other person performing the Work or furnishing materials and equipment for the Project subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or any other person.

1.34 WARRANTIES:

- A. The Roofing Contractor shall Warranty all work governed by these Specification for a period of two (2) years from the date of final acceptance of the Work by the Owner.
- B. An NDL Manufacturer's Warranty for a period of not less than twenty (20) years shall be provided by the Contractor as part of the base bid and delivered to the Owner at the completion of the Project. Additional warranty period may be considered in selection of the successful bidder.
- C. When work is performed by sub-contractors and where guarantees are required, the Contractor shall secure the required guarantees from said sub-contractors on their letterhead or standard trade guarantee form. Guarantees/warranties from sub-contractors shall be countersigned by the Contractor addressed to and in favor of the Owner.
- D. All required guarantees/warranties shall be submitted to the Owner prior to final payment of the Project.

1.35 COORDINATION WITH FACILITY OPERATIONS:

- A. The building will remain occupied during the time of construction. The Contractor is responsible for taking all necessary precautions to protect the building, its contents and

occupants from damage and/or injury during the roofing operation. Dirt and dust must be kept to a minimum. Coordinate work areas with the Owner or its representative so that inside operations can be coordinated with roofing work.

- B. If it becomes necessary to reach a proper stopping place in any portion of the Work, or to complete the Work within the contract time limit, the Contractor shall work his forces and the forces of his sub-contractors' overtime without addition to the Contract Price. The Contractor shall insure that installation of any Work under any sub-contract does not interfere with or delay progress of his own Work.
- C. In the event of any labor dispute in connection with the Work governed by this Contract, the Contractor shall use his best efforts to promptly adjust and settle disputes in order to avoid unnecessary delays in the Work.
- D. Set-up areas shall be kept clean and uncluttered by debris, loose gravel and materials packaging scraps. At the end of each workday, all debris scattered over the Owner's premises or adjacent areas shall be picked up and disposed of in appropriate containers. All debris and removed roofing materials shall be removed from the site in a manner to minimize accumulation. The Contractor shall be responsible for erecting and maintaining appropriate barricades around set-up and storage areas to channel foot and auto traffic away from or around work areas and for compliance with all requirements of the Occupational Safety and Health Act (OSHA) governing work under this contract. The Contractor shall be responsible for removal of bitumen accumulations on automobiles parked around the work area. The Contractor shall be responsible for any damage to grounds, landscaping, and hardstand surfaces. In the event of any damage, the property shall be restored to a condition equal to that at the start of operations. The entire roof surface shall be free from debris, scraps, and any aggregate accumulations prior to closing out the job.
- E. Ladders shall be removed from the site at the end of each workday to eliminate unauthorized access to roof areas.

1.36 EXISTING STRUCTURAL CONDITIONS:

- A. The contractor and the Owner's representative shall check all surfaces over which roofing materials are to be installed. Application of materials constitutes acknowledgement that the substrate is satisfactory for installation of the roofing system. Do not proceed with roofing work until all vents, drains, curbs, cants, blocking/nailers, and projections have been installed. Repair or replace any and/or all deck, which is damaged or deteriorated with like materials prior to application of the new roofing system. Clean all deck surfaces, allow to dry, and apply protective coatings as specified and/or required to prevent further deterioration. Do not install roof insulation until all wood insulation stops/nailers have been replaced or installed as required.

END OF SECTION 00 73 00

- f. The existing roof area (01.08) consists of a structurally sloped metal deck, 5/8" gypsum cover board, tapered isocyanurate insulation and mechanically attached TPO membrane.
- g. The existing roof areas (03.01, 03.02, 03.03, 03.04, 03.05, 03.06, 03.07, 04.01) consist of a structurally sloped metal deck, 5/8" gypsum cover board, isocyanurate insulation and mechanically attached TPO membrane.
- h. The existing roof area (01.10) consists of a structurally sloped metal deck, fiberglass in deck flutes, 2-1/2" isocyanurate insulation and mechanically attached TPO membrane.
- i. Exterior walls at the second floor are made up of EIFS, brick and split faced blocks with windows, louvers and metal doors.

2. Demolition:

- a. All Low Slope Roof areas:
 - 1) Remove twelve-inch (12") strips at forty-eight inches (48") on center of the existing TPO membrane.
- b. Roof Area 04.01:
 - 1) Completely remove existing roof assembly (roofing membrane, cover board, and insulation).
- c. Roof Area 01.11:
 - 1) Remove existing redundant hanging brick masonry at specified locations.
- d. Masonry wall at Roof Area 02.09:
 - 1) Cut EIFS around parapet & curb vent perimeter to allow for new flashing as specified herein and as shown in the project drawings and at other damaged surfaces to allow for repairs & recoating.
- e. Vent Stacks:
 - 1) Remove boots and boot covers around vent stacks on metal roof areas.
- f. Gas line and Conduit Support detail.
 - 1) Remove damaged gas / conduit supports.
- g. Louvers and Windows
 - 1) Remove caulk and backer rods around second floor exterior louvers and windows as indicated in detail drawings.
- h. Remove fasteners on metal roof areas (01.04, 01.06, 01.12, 01.14, 01.15, 01.17, 01.21, 01.25, 01.26, 01.27, 02.01, 02.02)

3. Renovation/New Construction

Roof areas 01.01, 01.02, 01.03, 01.05, 01.07, 01.09, 01.10, 01.11, 01.12, 01.13, 01.18, 01.19, 01.20, 01.22, 01.23, 01.24

- 1) Mechanically attach a new 2-5/8 inch (2.6”) layer of isocyanurate insulation as required to meet minimum uplift requirements per UL or FM Global. Install the new cover board in foam insulation adhesive per detail drawings. Install new fully adhered modified bituminous membrane and flashings as specified herein and as shown in the project drawings as required by the manufacturer for a twenty-year (20) NDL Manufacturer’s Warranty.
- b. Roof Area 01.16
- 1) Mechanically attach a new 1-1/2 inch (1.5”) layer of isocyanurate insulation as required to meet minimum uplift requirements per UL or FM Global. Install the new cover board in foam insulation adhesive per detail drawings. Install new fully adhered modified bituminous membrane and flashings as specified herein and as shown in the project drawings as required by the manufacturer for a twenty-year (20) NDL Manufacturer’s Warranty.
 - 2) Install new through wall flashings as specified herein and as shown in the project drawings (Roof Area 02.03).
- c. Roof Area 01.08, 03.01, 03.02, 03.03, 03.04, 03.05, 03.06, 03.07,
- 1) Mechanically attach a new cover board in existing foam insulation per detail drawings as required to meet minimum uplift requirements per UL or FM Global. Install new fully adhered modified bituminous membrane and flashings as specified herein and as shown in the project drawings as required by the manufacturer for a twenty-year (20) NDL Manufacturer’s Warranty.
- d. Roof Area 04.01
- 1) Mechanically attach a new cover board and new isocyanurate insulation as required to meet minimum uplift requirements per UL or FM Global. Install new fully adhered modified bituminous membrane and flashings as specified herein and as shown in the project drawings as required by the manufacturer for a twenty-year (20) NDL Manufacturer’s Warranty.
- e. EIFS Repair:
- 1) Repair EIFS as specified herein and as shown in the project drawings
 - 2) Bevel cut minor EIFS cracks and repair with scratch coat.
 - 3) Pressure wash (with environmentally friendly chemical applied).

- 4) Re-coat all EIFS surfaces.
 - 5) Replace backer rods and caulk around wall vents in EIFS walls.
- f. General
- 1) Install roof accessories as specified. See Sheets RA-1 to RA-3.
 - 2) Replace damaged line supports with new line supports under soil stack lines and electrical conduits.
 - 3) Transition from modified bituminous flashing membrane to PVC flashing membrane with using a PVC coated flashing with a metal counterflashing as detailed in drawing set (See detail 4/R4).
 - 4) All fan, vent and HVAC curbs are to be raised as needed to achieve 8" minimum flashing height.
 - 5) Install new pre-finished metal accessories and trim as indicated on the detail drawings per manufacturer's specifications.
 - 6) Install new platform on roof area 01.02 as shown in detail 1/R6 of the detail drawings.
 - 7) Flashing shall be carefully attached to translucent window on roof area 01.02 as indicated in the designs
 - 8) The vent on roof area 01.11 shall be extended 2 feet and attached to brick wall with angles.
 - 9) Completely remove, down to the roof deck, all roof areas exhibiting water intrusion, as identified on the Thermal Plans (Details T-01 through T-03), and replace the affected areas with new roof framing members.
- g. Alternate #1
- 1) All associated work on roofs Roof Area 01.04, 01.06, 01.12, 01.14, 01.15, 01.17, 01.21, 01.25, 01.26, 01.27, 02.01, 02.02 (Metal Roof Areas)
 - 2) Install new boots and boot covers on vent stacks.
 - 3) Replace fasteners with new fasteners with Neoprene washers that are one size larger than existing.
 - 4) Replace deteriorated downspout and gutter.

1.3 WORK SEQUENCE

- A. The Work shall be conducted in phases as described above in the work summary.
 - 1. Phase-1: Removal of existing components and installation of waterproofing materials.
 - 2. Phase-2: Install the new roof assembly components as specified herein and as shown on the project drawings.

PART 2 - PRODUCTS

2.1 PRODUCTS ORDERED IN ADVANCE

- A. Unless otherwise stated in the Contract Documents, Costs for receiving, handling, storage if required, and installation of material and equipment shall be included in the Contract Sum.

2.2 OWNER-FURNISHED PRODUCTS (None - Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 11 00

SECTION 01 14 00
WORK RESTRICTIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 USE OF PREMISES

- A. Use of Site: Limit use of premises to work in areas indicated on the drawings. Do not disturb portions of site beyond areas in which the Work is indicated.
 - 1. Limits: Confine constructions operations to areas indicated during the pre-construction meeting. After the pre-construction meeting, maps will be provided to indicate the area of operation by awarded contractor.
 - 2. Owner Occupancy: Allow for Owner's use of facility during construction.
 - 3. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 - 4. Construction hours shall be as follows: Hours to be determined at Pre-Bid Meeting
 - a. Unless specifically noted otherwise, construction hours shall be during normal business hours.
 - 1) Normal business hours are defined as occurring Monday through Saturday between the times of 8:00am to 5:00pm.
 - 2) Normal business hours do not include nationally recognized holidays in which the Owner is not occupying the building.

1.3 OCCUPANCY REQUIREMENTS

- A. Owner Occupancy: Owner reserves the right to occupy this building during all phases of the project.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 14 00

SECTION 01 21 00
CONTINGENCY AND ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances. The Contingency shall be part included in the total contract amount.
- B. Types of allowances include the following:
 - 1. Contingency amount shall equal 10% of total bid less the alternate #1
(For a non-specific item)-Place dollar amount on Bid Form
- C. Related Sections include the following:
 - 1. Division 1, Technical Specifications Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise Consultant of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Consultant's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Consultant from the designated supplier.

1.4 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, on the "Proposal Request" and "Proposal Request Log" forms.

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

1.5 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Consultant for Owner's purposes and amount(s) to be charged to the allowance.
- B. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

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

3.3 SCHEDULE OF ALLOWANCES (Not Used)

END OF SECTION 01 21 00

SECTION 01 22 00
UNIT PRICES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
 - 1. Division 1, of the Technical Specifications Section "Allowances" for procedures for using unit prices to adjust quantity allowances.
 - 2. Division 1, of the Technical Specifications Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
 - 3. Division 1, of the Technical Specifications Section "Quality Requirements" for general testing and inspecting requirements.

1.2 DEFINITIONS

- A. Unit price is an amount proposed by bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to or deducted from the Contract Sum by appropriate modification, if estimated quantities of Work required by the Contract Documents are increased or decreased.

1.3 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, taxes, overhead, and profit.
- B. Measurement and Payment: Refer to individual Technical Specifications Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent agent.
- D. List of Unit Prices: A list of unit prices is included at the end of this of the Technical Specifications Section. Specification Sections referenced in the schedule contain requirements for materials described under each unit price.

PART 2 - PRODUCTS

2.1 LIST OF UNIT PRICES

<u>UNIT PRICE</u>	<u>COST/UNIT</u>
UP – 1 Fire Treated Wood Blocking & Installation	\$ _____ per bd. / ft.

END OF SECTION 01 22 00

SECTION 01 23 00
ALTERNATES

PART 1 – GENERAL

1.1 SCOPE

- A. The following items are to be included as Alternate Work under the Contract and a price for each item shall be entered in the Bid Form in the spaces provided for Bid Alternates.

1.2 RELATED DOCUMENTS

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

1.3 SUMMARY

- A. This Section specifies administrative and procedural requirements for Alternates.
- B. Definition: An alternate is an amount proposed by Bidders and stated on the Bid Form for certain construction activities defined in the Bidding Requirements that may be added to or deducted from the Base Bid amount if the Owner decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in Contract Documents.
- C. Coordination: Coordinate related work and modify or adjust adjacent work as necessary to ensure that the Work performed by each accepted Alternate is complete and fully integrated into the Project.
- D. Include as part of each Alternate, miscellaneous devices, accessory object and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.
- E. The Bidder shall quote all-inclusive deductive or added costs for proposed Bid Alternates to the Project scope listed on the Bid Form. The Bidder shall provide a quote for all proposed Bid Alternates. Quoted Bid Alternates shall include the costs for all work, including Contractor's direct and indirect costs and fees, proposed to be added or deleted from the scope of the Project and all work, including all costs and fees, required to fully execute the proposed substitute Project scope.
- F. Owner reserves the right to accept or reject any Bid Alternate. The Owner may, at its option, exercise alternate(s) no later than insert date. add by Change Order(s) to the Work to be performed under the Contract Documents, the Work contemplated by the Alternates, any of them, or any combination of them, at the Alternate pricing as listed on the Bid Form – Section 00 41 00.
- G. Acceptance or non-acceptance of any Bid Alternates by the Owner shall have no effect on the Contract Period, Date of Substantial Completion, or Date of Final Completion.

PART 2 – SCHEDULE OF ALTERNATES

- a. Alternate #1
 - 1) All associated work on roofs Roof Area 01.04, 01.06, 01.12, 01.14, 01.15, 01.17, 01.21, 01.25, 01.26, 01.27, 02.01, 02.02 (Metal Roof Areas)
 - 2) Install new boots and boot covers on vent stacks.
 - 3) Replace fasteners with new fasteners with Neoprene washers that are one size larger than existing.
 - 4) Replace deteriorated downspout and gutter.

PART 3 – EXECUTION (NOT USED)

END OF SECTION 01 23 00

SECTION 01 25 00
SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. During bidding period, the Bidders shall comply with the substitution request procedures specified in Section 00 26 00 - Procurement Substitution Procedures. This Section specifies administrative and procedural requirements for handling requests for substitutions proposed by the Contractor after the award of the Contract.
- B. The substitution process is available as a means to promote fair and open procurement by the Union County Board of Education and not to provide the Contractor the opportunity to substitute products of an inferior quality. To that end, the Owner reserves the right to reject a product not deemed equal to the product specified; charge the Contractor for the Additional Services, if required, of the Engineer; or require an equitable credit for the substituted product.
- C. This section specifies administrative and procedural requirements for handling requests for substitutions made after award of the Contract.
- D. Procedural requirements governing the Contractor's selection of products and product options are included in Section 01 60 00 Product Requirements.

1.2 DEFINITIONS

- A. Definitions used in the Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions". The following are not considered substitutions:
 - 1. Revisions to Contract Documents requested by the Owner or Engineer.
 - 2. Specified options of products and construction methods included in Contract Document.
 - 3. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.3 SUBMITTALS

- A. Substitution Request Submittal: Requests for substitution will be considered if received within thirty (30) days after the Notice to Proceed, or Letter of Intent, whichever comes first. Requests received more than thirty (30) days after the commencement of the work may be considered or rejected at the discretion of the Engineer. Substitution items submitted without requests will be rejected.

1. Submit three (3) copies of each request for substitution for consideration. Submit requests in the form and in accordance with the procedures required for change order proposals.
2. Clearly indicate on the transmittal that the product being submitted is a substitution. Do not include on the same transmittal any product that is not a substitution.
3. Provide a credit change order proposal if the substitution is intended to provide the Owner a product of a lesser value than the value of the specified product.
4. Identify the product or the fabrication or installation method to be replaced in each request. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions and the following information as appropriate:
 - a. Product Data, including Drawings and descriptions of products, fabrications, and installation procedures.
 - b. Samples, where applicable or requested.
 - c. A detailed comparison of significant qualities of the proposed substitution with those for the Work specified. Significant qualities may include elements such as size, weight, durability, performance, and visual effect.
 - d. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by the Owner and separate Contractors, which will become necessary to accommodate the proposed substitution.
 - e. A statement indicating the substitution's effect on the Contractor's Construction Schedule compared to the schedule without approval of the substitution. Indicate the effect of the proposed substitution on overall Contract Time.
 - f. Certification by the Contractor that the substitution proposed is equal to or better in every significant respect to that required by the Contract Documents and that it will perform adequately in the application intended. Include the Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of the failure of the substitution to perform adequately.
 - g. Cost information, including a proposal of the net change, if any in the contract sum.
5. Engineer's Action: The Engineer may request additional information or

documentation necessary for evaluation of the request. The Engineer will notify the Contractor of acceptance or rejection of the proposed substitution. If a decision on use of a proposed substitute cannot be made, use the product specified by name.

1.4 PROCEDURES

- A. Reference in the project manual or on the drawings to an article device, product, material, fixture, form or type of construction by name, make or catalog number (product or method) whether or not followed by “or equal” establishes a standard of quality, and does not eliminate from competition other products or methods of equal or better quality by other manufacturers, where fully suitable, as approved by the Engineer. Applications for approval of substitutions for the specified products or methods will be considered only upon request of the Contractor, not of Subcontractors individual trades or suppliers, and only for a specific purpose; no blanket approvals will be granted. No approval of a substitution will be valid unless it is in written form.
- B. If a proposed substitution affects a correlated function, adjacent construction, or the Work of other Contractors, then the necessary changes and modifications to the affected Work are considered an essential part of the proposed substitution, to be accomplished by the Contractor as a part of the Work, if and when approved. Submit detailed drawings and other information necessary to show and explain the proposed modifications with the request for approval of the substitution. The Contractor agrees to include data to substantiate that the proposed substitution is in compliance with the Contract Documents and that the operation and maintenance costs are equal to or less than those for the named products.
- C. No substitutions will be allowed when the phrase “no substitutions” or “no substitutions will be allowed” or words of similar effect, is specified or indicated with products or methods or when three or more manufacturers, suppliers, or products are specified, without the words “or equal.”
- D. The following information is required if, the Contractor desires to submit a substitute product or method in lieu of what has been specified or shown in the Contract Documents:
 - 1. Full explanation of the proposed substitution and submittal of all supporting data including technical information, catalog cuts, warranties, performance and test results, installation instruction, operating procedures, samples where applicable and other like information necessary for a complete evaluation of the substitution and an itemized comparison of the proposal substitution with the product specified relating to such thing as capacities, operation, functions, dimensions, construction details, methods of assembly connections installation, design and artistic effect where applicable and relationship to other Prime separate contracts.

2. Reasons the substitution is advantageous and necessary, including the benefits to the Owner and the Work in the event the substitution is acceptable.
 3. The adjustment, if any, the Contract Sum, in the event the substitution is acceptable. Each substitution must be accompanied by accurate cost data on proposed substitution in comparison with specified product whether or not a Contract sum modification is to be a consideration.
 4. The adjustment, if any, in the time of completion of the Contract and the Construction Schedule in the event the substitution is acceptable. Any delays to other Primes must be taken into consideration with any substitution request. Delay damages will be paid by for by the Party requesting a substitution who will hold the Owner and Engineer harmless for any delay damages arising out of approval of a substitution.
- E. An affidavit stating that (1) the proposed substitution conforms and meets all the requirements of the pertinent Specifications and the requirements shown on the Drawings and (2) the Contractor accepts the warranty and correction obligations in connection with the proposed substitution as if originally specified by the Engineer, (3) represents that he or she personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that which is specified; and will provide the same guarantee for the substitution that would otherwise be provided for the product which is specified: (4) Certifies that the cost data presented is complete and includes all related costs under this Contract, but excludes costs under separate contracts and the Engineer's re-design costs, and that he or she waives all claims for additional costs related to the substitution which subsequently became apparent: (5) will coordinate the installation of the accepted substitute, making such changes as may be required for the Work to be complete in all respects.
- F. Proposals for substitutions shall be submitted in triplicate to the Engineer in sufficient time to allow the Engineer no less than ten (10) working days for review before a product will be ordered to allow delivery on the date required by the schedule but in no case less than fifteen (15) days after the date of the date of execution of the Contract. No substitutions will be considered or allowed without the Contractor's submittal of complete substantiating data and information as stated hereinbefore.
- G. Substitutions will not be considered without the formal request as required in accordance with the contract terms.
- H. Substitutions and alternates may be considered only if:
1. Required for compliance with building code requirements or insurance regulations then existing.
 2. Specified products are unavailable, through no fault of the Contractor.
 3. Subsequent information discloses that specified products will not perform properly or fit in designated space.

4. A manufacturer/fabricator refuses to certify or guarantee performance of a specified product as required or.
 5. In the judgment of the Owner or the Engineer, a substitution would be substantially in the Owner's best interest, in terms of cost, time or other considerations.
- I. In the case of Contractor-proposed substitutions which fail to meet the requirements of the Contract Documents, the Contractor shall, at the sole election of the Owner, reimburse the Owner for any fees charged by the Engineer or other consultants for evaluating each such proposed substitute.
 - J. No change in brand or make will be permitted unless (i) satisfactory written evidence is presented to demonstrate that the manufacturer cannot make scheduled delivery of an approved item and that such delivery failure will adversely affect the project's critical path, (ii) the item delivered has been rejected and the substitution of suitable item is required to maintain the project's critical path, or (iii) other conditions have become apparent which indicate that approval of such other material is, in the sole opinion of the Engineer, in the best interest of the Owner.

PART 2 – PRODUCTS

2.1 SUBSTITUTIONS

- A. Conditions: The Contractor's substitution request will be received and considered by the Engineer when all of the following conditions are satisfied, as determined by the Engineer; otherwise, requests will be returned without action except to record noncompliance with these requirements.
 1. Extensive revisions to Contract Documents are not required
 2. Proposed changes are in keeping with the general intent of Contract Documents
 3. The request is timely, fully documented and properly submitted.
 4. The request is directly related to an "or-equal" clause or similar language in the Contract Documents.
 5. Where a proposed substitution involves more than one (1) prime Contractor, each Contractor shall cooperate with the other Contractors involved to coordinate the Work, provide uniformity and consistency and to assure compatibility of products.
 6. The specified product or method of construction cannot be provided within the Contract Time. The request will not be considered if the product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
 7. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations or merit, after deducting offsetting

responsibilities the Owner may be required to bear. Additional responsibilities for the Owner may include additional compensation to the Engineer for re-design and evaluation services, increased cost of other construction by the Owner or separate Contractors and similar considerations.

- B. The contractor's submittal and Engineer's acceptance of Shop Drawings, product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an approval or valid request for substitution.

Part 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01 26 00
CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications whereas all parties agree to the following:
 - 1. A modification in the Work or Contract Documents.
 - 2. The amount of the adjustment in the Contract Sum, if any.
 - 3. The extent of the adjustment in the Contract Time, if any.

1.3 NOTIFICATION TO SURETY

- A. The Contractor shall notify the Surety of any modifications to the Work or provisions of the Contract Documents, including, but not limited to, the Contract Price or Contract Time.

1.4 MINOR CHANGES IN WORK

- A. The Engineer shall have authority to order Minor Changes in the Work not involving adjustment to the Contract Sum or extension of the Contract Time, and consistent with the intent of the Contract Documents. Such changes shall be in the form of a written order and shall be binding for both the Owner and Contractor when fully executed.

1.5 CLAIMS FOR ADDITIONAL COST:

- A. No claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with the following:

1. Notice: Written notice stating the general nature of each claim shall be delivered by the claimant to the other party to the Contract promptly, but in no event later than thirty (30) days after the start of the event giving rise to the claim.
 2. The responsibility to substantiate a claim shall rest with the party making the claim. The amount or extent of the claim, with supporting data, shall be delivered to the other party to the Contract within fifteen (15) days after the initial Notice of the Claim. Each claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The opposing party shall submit any response to the claimant within thirty (30) days after receipt of the claimant's last submittal. Prior notice is not required for Claims relating to an emergency endangering life or property.
- B. The Contractor shall submit a claim if he believes additional cost is involved for reasons including but not limited to the following:
1. A written interpretation from the Engineer,
 2. An order by the Owner to stop the Work where the Contractor was not at fault.
 3. A written order for a minor change in the Work issued by the Engineer,
 4. A change in the Scope of the Work by the Engineer.

1.6 PROPOSAL REQUESTS

- A. The Owner initiated Proposal Requests is generated by the Owner to modify the Work or Contract Documents. The Engineer will issue a detailed description of proposed modifications in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications. The description is for information and shall be considered as a directive to automatically stop work or execute the proposed change.
1. Within ten 10-calendar days after receipt of the Proposal Request, the Contractor shall submit a Proposal Request Form with an estimate to adjust the Contract Sum and the Contract Time if necessary to execute the change. Proposal shall include support documents from Subcontractor, if applicable.
 - a. Include a list of quantities of (plus or minus) the materials and/or products required with unit prices, total amount of purchases, and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

- c. Include costs of labor and supervision directly attributable to the change, including social security, old age and unemployment insurance, fringe benefits, and workmen’s compensation insurance.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start, and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
2. The Contractor may initiate proposals if latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Engineer.
- a. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - b. Include a list of quantities of (plus or minus) the materials and/or products required with unit prices, total amount of purchases, and credits to be made. If requested, furnish survey data to substantiate quantities.
 - c. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - d. Include costs of labor and supervision directly attributable to the change, including social security, old age and unemployment insurance, fringe benefits, and workmen’s compensation insurance.
 - e. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - f. Comply with requirements in Division 1 Section, of the Technical Specifications "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- B. An alternative method to price the changes in the work is to utilize current “Mean’s Cost Data”
- C. Profit and Overhead shall not exceed ten percent (10%) of the cost of the changes to the Work.
- D. Use Proposal Request Form provided by Owner. A Sample is included under Project Manual Heading VII - Forms. The Contractor shall prepare three copies, one for the

Engineer, one for the Owner and one for himself and for all parties to sign. Each shall keep a copy.

- E. The Contractor shall be responsible for keeping and updating a "Proposal Request Log", listing all Proposal Requests and Minor Changes. The log shall also indicate the date of the Proposal Request, approval date, action taken, running balances, and a complete description of the change.
- F. After all parties have signed "The Proposal Request Form", it shall be the Contractor's authorization to proceed with the changes to the Work.
- G. If the Owner and Contractor do not agree with the requested adjustment in the Contract Sum, the Contract Time or the method of determining each, the provisions for Mediation shall be utilized.

1.7 CHANGE ORDER PROCEDURES

- A. The Engineer shall issue a Change Order for signatures once all the Proposal Request(s) amounts exceeds the contingency amount or at the end of the project.
- B. The Contractor shall not invoice for the Change Order until it has been executed by all parties.

1.8 CONSTRUCTION CHANGE DIRECTIVE

- A. The Engineer may issue a Construction Change Directive that has been signed by the Owner to the Contractor directing a change in the Work. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved. And the Contractor shall advise the Engineer of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.
- C. The Contractor shall maintain detailed records on a time and material basis of work required by the Construction Change Directive.

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PROCESSING CHANGE ORDERS

- A. The Change Order request will be issued describing the change or changes to the Work and/or Contract Documents and will refer to the Proposal Requests.
- B. The Contractor shall issue one copy of the Change Order request to the Engineer. The Engineer shall promptly sign the copy and return the copy to the Owner who will sign the Change Order request and forward the Change Order to the Contractor to execute.
- C. Once the Change Order has been fully executed, a copy shall be forwarded to the Engineer and to the Contractor for their files.

END OF SECTION 01 26 00

SECTION 01 29 00
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 1, of the Technical Specifications Section "Allowances" for procedural requirements governing handling and processing of allowances.
 - 2. Division 1, of the Technical Specifications Section "Unit Prices" for administrative requirements governing use of unit prices.
 - 3. Division 1, of the Technical Specifications Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 4. Division 1, of the Technical Specifications Section "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 DEFINITIONS

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

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms AIA G702.
 - b. Continuation Sheets
 2. Submit the Schedule of Values to the Engineer at earliest possible date but no later than fourteen days before the date scheduled for submittal of initial Applications for Payment.
 3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each of the Technical Specifications Section and line item for potential billing against the Construction Contingency Allowance.
1. Identification: Include the following Project information on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Engineer.
 - c. Contract number.
 - d. Purchase Order number.
 - e. Contractor's name and address.
 - f. Date of submittal.
 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Technical Specifications Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractors.
 - d. Name of manufacturer or fabricator.
 - e. Name of suppliers.

- f. Change Orders (numbers) that affect value.
 - g. Dollar value.
3. Group items that are “Non-Tangible & Non-Taxable and Tangible & Taxable Items” on the Schedule of Values.
 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
 5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include labor and materials and/or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
 7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 8. Closeout documentation: Provide a separate line item in the Schedule of Values for close out documentation as set forth in the Supplementary Conditions.
 9. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
 10. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

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

1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involves additional requirements.
- B. Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for material and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such material and equipment or otherwise protect the Owner's interest, and shall include applicable insurance, storage and transportation to the site for such material and equipment stored off the site.
- C. The Contractor warrants that title to all Work covered by an Application and Certificate for payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application and Certificate for payment all work for which Certificates for payment have been previously issued and payment received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of claims of liens, claims, security, interests, or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work.
- D. Payment Application Times: Each Month, the Owner can make a partial payment to the Contractor on the basis of a duly notarized Application and Certification for Payment approved and certified by the Engineer.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. The Engineer will return incomplete applications without action.
1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 3. The Owner shall retain five(5%) percent of each payment to up fifty (50%) percent completion of the Contract.
 - a. The Owner shall not retain more than ten percent (10%) of any periodic payment due a prime Contractor.
 - b. When the project is fifty percent (50%) complete, the Owner, with written consent of the surety, shall not retain any further retainage from periodic

payments due the Contractor if the Contractor continues to perform satisfactorily and any nonconforming work identified in writing prior to that time by the Engineer or Owner has been corrected by the Contractor and accepted by the Engineer and Owner. If the Engineer determines the Contractor's performance is unsatisfactory, the Owner may reinstate retainage for each subsequent periodic payment application as authorized in this subsection up to the maximum amount of ten percent (5%). The project shall be deemed fifty percent (50%) complete when the Contractor's gross project invoices, excluding the value of materials stored off-site, equal or exceed fifty percent (50%) of the value of the contract, except the value of materials stored on-site shall not exceed twenty percent (20%) of the Contractor's gross project invoices for the purpose of determining whether the project is fifty percent (50%) complete.

- c. Within 60 days after the submission of a pay request and one of the following occurs, as specified in the contract documents, the Owner with written consent of the surety shall release to the Contractor all retainage on payments held by the Owner:
 - 1) The Owner receives a certificate of substantial completion from the Engineer in charge of the project; or (ii) the Owner receives beneficial occupancy or use of the project. However, the Owner may retain sufficient funds to secure completion of the project or corrections on any work. If the Owner retains funds, the amount retained shall not exceed two and one-half times the estimated value of the work to be completed or corrected. Any reduction in the amount of the retainage on payments shall be with the consent of the Contractor's surety.
- d. The existence of any third-party claims against the Contractor or any additive change orders to the construction contract shall not be a basis for delaying the release of any retainage on payments.
 - 1) Full payment, less authorized deductions, shall also be made for those trades that have reached one hundred percent (100%) completion of their contract by or before the project is fifty percent (50%) complete if the Contractor has performed satisfactorily. However, payment to the early finishing trades is contingent upon the Owner's receipt of an approval or certification from the Engineer of record or applicable engineer that the work performed by the subcontractor is acceptable and in accordance with the contract documents.
 - 2) Neither the Owner's nor Contractor's release of retainage on payments as part of a payment in full on a line-item of work under 3-d of this section shall affect any applicable warranties on work done by the Contractor or subcontractor, and the warranties shall not begin to run

any earlier than either the Owner's receipt of a certificate of substantial completion from the Engineer in charge of the project or the Owner receives beneficial occupancy.

- e. Nothing in this section shall prevent the prime Contractor at the time of application and certification to the Owner from withholding application and certification to the Owner for payment to the subcontractor for unsatisfactory job progress; defective construction not remedied; disputed work; third party claims filed or reasonable evidence that claim will be filed; failure of subcontractor to make timely payments for labor, equipment, and materials; damage to prime Contractor or another subcontractor; reasonable evidence that subcontract cannot be completed for the unpaid balance of the subcontract sum; or a reasonable amount for retainage not to exceed the initial percentage retained by the Owner.
- f. Nothing in this section shall prevent the Owner from withholding payment to the Contractor in addition to the amounts authorized by this section for unsatisfactory job progress, defective construction not remedied, disputed work, or third-party claims filed against the Owner or reasonable evidence that a third-party claim will be filed.

4. Provide a separate line item in the Schedule of values for close out documentation.

- F. Transmittal: Submit one (1) original signed and notarized copy of each Application for Payment to the Engineer.
 - 1. An original signed copy by Vendor and Engineer must be sent to Accounts Payable on every pay app by the Engineer. Address for Accounts Payable to be on the PO.
- G. With each Application and Certification for payment, the Contractor must furnish for themselves, as well as for all Subcontractors, certified statements stating the cost of the property purchased from each vendor and the amount of sales and/or use taxes paid. See General Conditions, Sales and Use Tax for additional information.
- H. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
- I. Neither Final payment nor any remaining retained percentage shall become due until the Contractor submits the following to the Engineer for approval:

1. An affidavit that payrolls, bills for material and other indebtedness connected with the Work has been paid or otherwise satisfied,
 2. A certificate evidencing that insurance required by the Contract Document to remain in force after Final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner,
 3. Consent of surety to Final payment
 4. Other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of claim of liens, claims security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If the Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such claim of lien. If such claim of lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such claim, including all costs and reasonable attorneys' fees.
 5. MWSBE form VI.
 6. A list of all suppliers and subcontractors that were involved with the project. As part of the list, the Contractor shall include the address, phone number, what they supplied or Work performed, and a contact name.
 7. "As-Builts" Drawings and all other specified closeout documents
 8. Maintenance and Operation instructions and guarantees.
- J. Final Payment Application: Submit one original copy of the final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Warranties and Test results required by the Contract Documents.
 2. Updated final statement, accounting for final changes to the Contract Sum.
 3. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 4. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 5. AIA Document G707, "Consent of Surety to Final Payment."

6. Additional Evidence that claims have been settled if required by the Owner. An example of the evidence could be a letter from a subcontractor indicating that he has been paid in full for the work that he has performed.
7. Certificates from all local and State Governing Agencies as required by Law.
8. Final liquidated damages settlement statement.
9. List of Subcontractors and Suppliers that has contributed to the completion of the Work. The list shall include:
 - a. Material they supplied or type of construction they performed.
 - b. Address
 - c. Contact person
 - d. Phone number
10. M/WSBE Form VI
11. Final Sales Tax Form.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 19
PROJECT MEETINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings including but not limited to:
 - 1. Pre-Construction Conference.
 - 2. Progress Meetings.

1.2 PRE-CONSTRUCTION CONFERENCE

- A. The Owner's Representative will schedule a pre-construction conference and organizational meetings at the Project site or other convenient location after execution of the Agreement and prior to commencement of construction activities. The Architect or Engineer will conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: The Owner, the Owner's Representative, the Engineer and their consultants, the Contractor and his 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. Introduction of Key Personnel
 - a. Distribution and Discussion of:
 - 1) Project Reference List.
 - 2) List of Major Subcontractors and Suppliers.
 - 3) Roles and responsibilities and coordination methods.
 - 2. Schedules
 - a. Notice to Proceed Date/Completion Date.
 - b. Construction Schedule.
 - c. Critical Work Sequencing.
 - d. Submittal Schedule.
 - e. Recovery Plans.

3. Procedures and Processing
 - a. Modifications/Architects Supplemental Instructions.
 - b. Proposal Request.
 - c. Change Orders.
 - d. Field Reports.
 - e. Applications for Payment.
 - f. Submittals.
 - g. Permits.

4. Contract Close-out Procedures
 - a. Record Documents
 - b. Certifications and Warranties
 - c. Substantial and Final Completion

5. Miscellaneous
 - a. Use of Premises.
 - 1) Storage Area(s).
 - 2) Phasing Plan and Fencing Plan.
 - b. Temporary Utilities.
 - c. Safety and First-aid Procedures.
 - d. Security.
 - e. Housekeeping.
 - f. How to coordinate work with school (i.e., Principal, staff, Custodian, Temporary Relocations).
 - g. Hours of Operation.
 - h. Clean-up.

D. The Engineer will record minutes and distribute copies within five (5) days after meeting to all participants.

1.3 PROGRESS MEETINGS

- A. The Engineer will schedule and shall conduct in coordination with the Owner's Representative progress meetings at the Project site as deemed as necessary. The Owner and Engineer will coordinate dates of meetings with preparation of the payment request.

- B. Attendees: In addition to representatives of the Owner, the Program Manager, the Engineer, the Contractor's Project Superintendent and Project Manager, as well as the superintendents and project managers of the plumbing, mechanical, and electrical subcontractors are mandatory along with suppliers or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.

C. Agenda:

1. Review and correct or approve minutes of the previous progress meeting.
2. Review items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.
3. 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.
4. Submittals: Review overall schedule and anticipated near term needs.
5. Field Observations, Deficiency Lists, Problems, and Conflicts.
6. Change Orders.
7. Off-site fabrication, deliveries, and sequences.
8. Documentation of information for record documents.
9. Safety, hazards, and risks.
Other Business:
 - a. Access.
 - b. Site utilization and security.
 - c. Quality and Work Standards.
 - d. Housekeeping.

D. Reporting: After each progress meeting date, the Engineer shall prepare and distribute copies of minutes of the meeting to each party present and to other parties who should have been present.

E. Schedule Updating: The Contractor shall revise the construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting. No logic or original durations shall be changed without the Engineer and Owner Representative's approval.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01 33 00
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUBMITTAL PROCEDURE

- A. General: The Contractor is responsible for providing submittals to the Engineer. Each submittal must be accepted in writing prior to commencement of work.
- B. Submission Requirements: Submit all required submittals electronically in pdf format. to the Engineer for review. The submittals will then be returned electronically to the Contractor with comments. Final submittals will require written responses to all Construction Document submittal comments.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as specified below. Time for review shall commence on Engineer's receipt of submittal.
 - 1. Initial Review: Allow 7 workdays for initial review of submittals.
 - 2. Allow 7 workdays for processing each resubmittal.
 - 3. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- D. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals and provide a letter describing in detail any proposed changes, substitutions, or deviations from the project or manufacturer's specifications. A written explanation of why substitutions should be considered is required and shall be included under the appropriate tab.
- E. Transmittal and Identification: Package submittals appropriately and include a title page and/or pdf bookmark for each numbered schedule of submittal item identified below. Engineer will discard submittals received from sources other than Contractor. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
- F. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

1.3 SCHEDULE OF SUBMITTALS

The successful Contractor shall prepare and submit two (2) submittal note books and one (1) electronic copy to Wolf Trail Engineering prior to scheduling of the Pre-Construction meeting. Notebooks are to be hard bound ring binders with tabbed dividers separating each section and table of contents. Each submittal notebook shall contain the following:

- A. Emergency Contact List with the name and phone numbers of the contractor's office, project manager, project superintendent, and project foreman. Also list the name, address, and phone numbers of the roofing consultant.
- B. Copy of Contractor's Certificate of Insurance
- C. Copy of the Payment and Performance Bond
- D. Copy of required local permits.
 - 1. The successful contractor shall obtain and deliver to the Owner two (2) copies of all applicable Building/Construction Permits as may be required by local authorities prior to work on site. If permits are not required, a letter on the Contractor's Letterhead shall state that the proper authorities have been contacted and building/construction permits are not required. Include contact information of the responsible authority in the required letter.
- E. Roof Manufacturer's Acknowledgement stating they have reviewed these specifications and drawings, and this roofing system will be eligible for a 20-year NDL warrantee at the end of the project. This document is required before the Contract or Notice to Proceed is issued.
- F. Copy of all Warranties to meet the requirements of their respective specification section.
- G. Letter describing in detail any proposed changes, substitutions, or deviations from the project or manufacturer's specifications. A written explanation of why substitutions should be considered is required.
- H. Work schedule indicating start date, crew size, completion date, etc.
 - 1. See Section 00 31 13 Preliminary Schedule
- I. Sample Application for Payment including Schedule of Values. Immediately after execution and delivery of the Contract, and before the first partial payment is submitted, the Contractor shall submit to the Owner through the Engineer the following:
 - 1. An Application for Payment on AIA G702.
 - 2. A schedule of values on AIA G703 Continuation Sheet consisting of a detailed breakdown of the Contract amount showing separate figures for labor and

materials. The work listed under the various sections and subsections of the Specifications shall serve as the format for preparation of the following.

- J. The enclosed material lists, and drawings shall serve as a preapproved submittal package for the successful bidder. The material lists herein shall be copied and the proposed materials marked to show the system and materials included in the contractor's bid. Where ASTM specifications are given the Contractor shall furnish the name of the material to be used. MSDS sheets are required for all materials used and are to be attached to the submittals.
- K. The detail drawings shall be copied from this manual and initialed by the Contractor and shall serve as the shop drawings for the project. See section on substitution of materials for additional instructions.
- L. The Contractor shall submit manufacturer's literature on insulation or base sheet and fasteners to be used on the project. The submittal information shall include the type and number of fasteners for the type of base sheet or type and size of insulation board material to be installed, and the quantity of fasteners to be used at perimeters, corners, and the field of the roof wherever mechanical securement of roof system is required by the specifications.
- M. The Contractor shall submit in writing on the form provided, that all materials to be used on the project do not contain asbestos.
- N. Complete list of materials with Material Safety Data Sheets (MSDS)
- O. Tapered Insulation Design & Layout. Tapered insulation design must show crickets/saddles. Roof curbs and penetrations must be considered when designing tapered roof insulation system.
- P. Manufacturer's Contractor Certification Certificate, manufacturer's literature, and materials list for proposed roof assembly.
- Q. The contractor shall submit a signed copy of the Jessica Lunsford Act. (See Forms)
- R. The contractor must submit the employee training information listed below for all personnel who disturb asbestos containing materials.
 - 1. Name of employee
 - 2. Last date of training
 - 3. Type of training
 - 4. Copies of personnel accreditation/license.
 - 5. The contractor must submit CERTA training information for all personnel who will be using a torch.
 - 6. Nailing/screwing pattern layout for the insulation from the manufacturer.

- S. Existing damaged/dysfunctional components documentation (videotape, photos, etc.) including but not limited to, asphalt spills, windows, walls, sidewalks, paving, ceilings, etc. Lack of submission prior to commencement of work indicates Contractor has discovered no existing damaged components and takes responsibility for any damages caused by operations.

PART 2 - PRODUCTS

2.1 SUBMITTALS

- A. General: Prepare and submit Submittals required herein and by individual Specification Sections.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard printed data is not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Compliance with recognized trade association standards.
 - e. Compliance with recognized testing agency standards.
- C. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- D. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- E. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- F. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- G. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

- H. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- I. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, uplift diagram, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.
- J. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer.
- K. Insurance Certificates and Bonds: Prepare written information indicating current status of insurance or bonding coverage. Include name of entity covered by insurance or bond, limits of coverage, amounts of deductibles, if any, and term of the coverage.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal, check for compliance with the Contract Documents and note corrections and field dimensions prior to submitting to Engineer.

3.2 ENGINEER'S ACTION

- A. Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. The Engineer will stamp each submittal item with an action stamp and will mark the stamp appropriately to indicate action taken.
- B. Submittals not required by the Contract Documents will not be reviewed and may be discarded.

END OF SECTION 01 33 00

SECTION 01 40 00
QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

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

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

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.

1.4 SUBMITTALS

- A. 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.

1.5 QUALITY ASSURANCE

- A. Quality Assurance will be performed in accordance with governing Codes, referenced or established standards, or industry standards.
- B. Control of Installation
 1. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce work of specified quality.
 2. Comply with manufacturers' instructions, including each step-in sequence.
 3. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
 4. Comply with specified standards as the minimum quality for the Work, except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

5. Only allow Work to be performed by person qualified to produce workmanship of specified quality.
 6. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
- C. Tolerances
1. Monitor tolerance control of installed products to produce acceptable work. Do not permit tolerance to accumulate.
 2. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.
 3. Adjust products to appropriate dimensions; position before securing products in place.
- D. It is the intent under this contract that workmanship shall be of the best quality consistent with the materials and construction methods specified. The presence or absence of the Owner's or Engineer's representative shall in no way relieve the Contractor of his responsibility to furnish materials and construction in full compliance with the drawings and specifications. The Owner and Engineer shall have the authority to judge the quality and require replacement of unacceptable work or personnel at any time.
- E. All contractors shall cooperate in the execution of their work and shall plan their work in such manners as to avoid conflicting schedules or delays of work. If any part of a Contractor's work depends upon the work of another Contractor, defects, which may affect that work, shall be reported to the Engineer in order that prompt inspection may be made, and defects corrected. Commencement of work by a Contractor where such a condition exists will constitute acceptance of the other Contractor's work as being satisfactory in all respects to receive the work commenced, except defects, which may later develop. The work of all trades under this contract shall be closely coordinated in such a manner as to obtain the best possible workmanship for the entire project. All components of the work shall be installed in accordance with the best practices of the particular trade. The General Contractor is responsible for advising the Owner sufficiently in advance of operations to allow for assignment of personnel.
- F. Materials or methods described by words which, when applied, have a well-known technical or trade meaning will be held to refer to such recognized standard. Standard specifications or manufacturer's literature, when referenced, shall be of the latest revision or printing unless otherwise stated, and are intended to establish the minimum requirements acceptable.
- G. All materials shall be new, all materials and workmanship shall be in every respect in accordance with the best modern practice.
- H. When special makes or grades of material which are normally packaged by the supplier or manufacturer are specified or accepted, such materials shall be delivered to the site in original packages or containers with seals unbroken and labels intact and shall not be

opened until inspected and approved by the Engineer. The contractor shall notify the Engineer prior to such material's delivery.

- I. The Contractor's Foreman or Superintendent to maintain one complete set of the contract documents and approved submittals on the job site.
- J. Contractor shall be responsible to correct deficiencies identified by Engineer and non-conforming work within 24 hours of receipt of notification, either verbally or written, and submit a plan of action for addressing the deficiencies and non-conforming work. Further tear-off or commencement of other work shall not occur until all deficiencies and non-conforming work are properly addressed.
- K. At any time during the construction and completion of work covered by these Specifications, if the conduct of any workman of the various crafts be determined unsuitable or a nuisance to the Owner or Engineer, or if the workman be considered incompetent or detrimental to the work, the Contractor shall order such party removed immediately from the grounds with the person not returning at any time during the course of work on the project.
- L. During the performance of any work by the Contractor or subcontractors, the Contractor shall provide for the entire length of the project a full-time onsite superintendent/representative meeting the following requirements:
 - 1. For the purpose of these Specifications the designation "superintendent" is hereby defined as the individual present on the job site at all times while work is being performed, and whose primary responsibility is to supervise and direct the performance of the Work.
 - 2. The superintendent shall attend the project site at all times during the progress of the work and his duties as superintendent shall be limited to this project only. The superintendent shall supervise and instruct workmen without engaging in the work process. Should the superintendent be absent temporarily from the project at any time, he shall designate a competent foreman to assume duties. During the superintendent's absence the foreman shall not engage in the work process but shall supervise and instruct only. Likewise, any communications given to the foreman shall be as binding as if given to the Contractor.
 - 3. It shall be the superintendent's responsibility to communicate all matters pertaining to the Work with the Owner and/or Engineer. In case of emergency or safety, the superintendent shall communicate directly with the Owner and/or Engineer. No decisions regarding changes in the Work will be made without the Owner's knowledge.
 - 4. Decision making authority and ability.
 - 5. Able to demonstrate knowledge of work being installed.
 - 6. Fluent in the English language (i.e., reading, writing and speaking).
 - 7. In possession of a mobile telephone at all times.

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

1.6 QUALITY CONTROL

A. The authorized representatives and agents of the Owner shall be permitted to inspect all work, materials, payrolls, records of personnel, invoices of materials, and other relevant data and records.

B. Contractor's Responsibilities:

1. Repair and protection of work and materials are Contractor's responsibility.
2. Should any work or materials not conform with requirements of the Specifications or become damaged during the progress of the work, such work or materials shall be removed and replaced, together with any work disarranged by such alterations, at any time before completion and acceptance of the project. All such work shall be done at the expense of the Contractor.
3. Contractor will coordinate documents with manufacturer and perform such testing, reporting, and communication incidental to provisions of the warranty procedures.
4. Inclement Weather
 - a. In the event of temporary suspension of work as during inclement weather, or whenever the Engineer shall direct, the Contractor will carefully protect its work and materials against damage or injury from weather. If, in the opinion of the Engineer, any work or materials have been damaged or injured by reason of failure of the Contractor to protect its work, such materials shall be removed and replaced at the expense of the Contractor.
 - b. During inclement weather and temporary suspension of work, the Contractor shall inspect the facility each day for leaks and perform temporary repairs if necessary. Inspections shall be made daily during extended periods of inclement weather. Upon arrival at the facility, Superintendent shall immediately inform the Owner of his presence and purpose.
 - c. Should inclement weather occur after normal business hours Friday, Saturday, and Sunday or holidays, Contractor shall make arrangements with the Owner to provide access to the building to inspect for leaks.

C. Manufacturer's Field Services: During construction and until substantial completion, manufacturer's representative shall perform quality assurance site visits monthly to ensure materials are being properly installed and as required to obtain the specified warranty.

1. The first site visit shall be performed within the first three (3) days of operations.

2. Coordinate all site visits with Engineer. Submit reports of findings within one week of inspection. Payment applications will be rejected until applicable reports are received.
3. Inspections to be performed by an employee of the selected manufacturer that is assigned full time to their technical services department. Sales personnel will not be acceptable for this function and may result in rejection of the work installed that does not fulfill this requirement.
4. The manufacturer's final inspections shall be performed only with Wolftail Engineering personnel in attendance. A minimum of seven days' written notice is required. Any manufacturer's final inspection conducted without Wolftail Engineering personnel in attendance will be repeated at no additional cost to the Owner.

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.
- B. Comply with the Contract Document requirements for Section 01 73 29-Cutting and Patching.
- C. Protect construction exposed by or for quality-control service activities.
- D. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality- control services.

END OF SECTION 01 40 00

SECTION 01 42 00
REFERENCES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Requirements relating to Referenced Standards.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.3 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Engineer's action on Contractor's submittals, applications, and requests, "approved" is limited to Engineer's duties and responsibilities as stated in the Conditions of the Contract.
- C. "Directed": A command or instruction by Engineer. Other terms including "requested," "authorized," "selected," "approved," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations
- G. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations
- H. "Provide": Furnish and install, complete and ready for the intended use

- I. "Installer": Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub- subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations
 - 1. Using a term such as "carpentry" does not 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 trades people of the corresponding generic name.
- J. "Experienced": When used with an entity, "experienced" means having successfully completed a minimum of five previous projects similar in size and scope to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- K. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.4 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated
- C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to Engineer for a decision before proceeding
 - 1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Engineer for a decision before proceeding
- D. Abbreviations and Acronyms for Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up to date as of the date of the Contract Documents

1. Accessibility Guidelines for Buildings and Facilities. Available from Access Board www.access-board.gov
2. CFR - Code of Federal Regulations. Available from Government Printing Office www.access.gpo.gov/nara/cfr
3. FED-STD - Federal Standard (See FS)
4. FS - Federal Specification. Available from National Institute of Building Sciences www.nibs.org

1.5 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up to date as of the date of the Contract Documents.

1. AA - Aluminum Association, Inc. (The) www.aluminum.org
2. ACI - American Concrete Institute/ACI International www.aci-int.org
3. ACPA - American Concrete Pipe Association www.concrete-pipe.org
4. AGC - Associated General Contractors of America (The) www.agc.org
5. AHA - American Hardboard Association www.ahardbd.org
6. AI - Asphalt Institute www.asphaltinstitute.org
7. AIA - American Institute of Architects (The) www.aia.org
8. AIE - American Institute of Engineers www.aieonline.org
9. AISC - American Institute of Steel Construction www.aisc.org
10. AISI - American Iron and Steel Institute www.steel.org
11. ALCA - Associated Landscape Contractors of America www.alca.org
12. ALSC - American Lumber Standard Committee www.alsc.org
13. ANLA - American Nursery & Landscape Association www.anla.org
14. ANSI - American National Standards Institute www.ansi.org
15. APA - The Engineered Wood Association www.apawood.org
16. APA - Architectural Precast Association www.archprecast.org

17. ASCE - American Society of Civil Engineers www.asce.org
18. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers
www.ashrae.org
19. ASME - ASME International (The American Society of Mechanical Engineers International) www.asme.org
20. ASTM - American Society for Testing and Materials www.astm.org
21. AWI - Architectural Woodwork Institute www.awinet.org
22. AWPA - American Wood-Preservers' Association www.awpa.com
23. AWS - American Welding Society www.aws.org
24. BHMA – Builders Hardware Manufacturers Association www.buildershardware.com
25. BIA - Brick Industry Association (The) www.bia.org
26. CCFSS - Center for Cold-Formed Steel Structures www.umn.edu/~ccfss
27. CDA - Copper Development Association Inc. www.copper.org
28. CIMA - Cellulose Insulation Manufacturers Association www.cellulose.org
29. CISCA - Ceilings & Interior Systems Construction Association www.cisca.org
30. CISPA - Cast Iron Soil Pipe Institute www.cispi.org
31. CLFMI - Chain Link Fence Manufacturers Institute www.chainlinkinfo.org
32. CPA - Composite Panel Association (Formerly: National Particleboard Association)
www.pbmdf.com
33. CPPA - Corrugated Polyethylene Pipe Association www.cppa-info.org
34. CRSI - Concrete Reinforcing Steel Institute www.crsi.org
35. CSI - Construction Specifications Institute (The) www.csinet.org
36. DHI - Door and Hardware Institute www.dhi.org
37. EIMA - EIFS Industry Members Association www.eifsfacts.com
38. EJMA - Expansion Joint Manufacturers Association, Inc. www.ejma.org
39. FMG (FM) - FM Global (Formerly: FM - Factory Mutual System) www.fmglobal.com
40. GA - Gypsum Association www.gypsum.org

41. GANA - Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association) www.glasswebsite.com/gana
42. HPVA - Hardwood Plywood & Veneer Association www.hpva.org
43. IGCC - Insulating Glass Certification Council www.igcc.org
44. LGSi - Light Gage Structural Institute www.loseke.com
45. MBMA - Metal Building Manufacturers Association www.mbma.com
46. MCA - Metal Construction Association www.metalconstruction.org
47. MFMA - Metal Framing Manufacturers Association www.metalframingmfg.org
48. MIA - Marble Institute of America www.marble-institute.com
49. NAAMM - National Association of Architectural Metal Manufacturers www.naamm.org
50. NAIMA - North American Insulation Manufacturers Association (The) www.naima.org
51. NCMA - National Concrete Masonry Association www.ncma.org
52. NCPI - National Clay Pipe Institute www.ncpi.org
53. NECA - National Electrical Contractors Association www.necanet.org
54. NEMA - National Electrical Manufacturers Association www.nema.org
55. NETA - International Electrical Testing Association www.netaworld.org
56. NFPA - National Fire Protection Association www.nfpa.org
57. NFRC - National Fenestration Rating Council www.nfrc.org
58. NGA - National Glass Association www.glass.org
59. NHLA - National Hardwood Lumber Association www.natlhardwood.org
60. NLGA - National Lumber Grades Authority www.nlga.org
61. NPA - National Particleboard Association (See CPA)
62. NRCA - National Roofing Contractors Association www.nrca.net
63. NRMCA - National Ready Mixed Concrete Association www.nrmca.org
64. NSA - National Stone Association www.aggregates.org
65. NTMA - National Terrazzo and Mosaic Association, Inc. www.ntma.com

66. NWWDA - National Wood Window and Door Association (See WDMA)
67. PCI - Precast/Prestressed Concrete Institute www.pci.org
68. PDCA - Painting and Decorating Contractors of America www.pdca.com
69. PDI - Plumbing & Drainage Institute www.pdionline.org
70. RCSC - Research Council on Structural Connections www.boltcouncil.org
71. RMA - Rubber Manufacturers Association www.rma.org
72. SDI - Steel Deck Institute www.sdi.org
73. SDI - Steel Door Institute www.steeldoor.org
74. SGCC - Safety Glazing Certification Council www.sgcc.org
75. SIGMA - Sealed Insulating Glass Manufacturers Association www.sigmaonline.org/sigma
76. SJI - Steel Joist Institute www.steeljoist.org
77. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association
www.smacna.org
78. SPFA - Spray Polyurethane Foam Alliance(Formerly: SPI/SPFD - The Society of the
Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org
79. SPI - The Society of the Plastics Industry www.plasticsindustry.org
80. SPIB - Southern Pine Inspection Bureau (The) www.spib.org
81. SPRI - SPRI (Single Ply Roofing Institute) www.spri.org
82. SSINA - Specialty Steel Industry of North America www.ssina.com
83. SSMA - Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel
Framing Association) www.ssma.com
84. SSPC - The Society for Protective Coatings www.sspc.org
85. SWI - Steel Window Institute www.steelwindows.com
86. TCA - Tile Council of America, Inc. www.tileusa.com
87. TPI - Truss Plate Institute
88. UL - Underwriters Laboratories Inc. www.ul.com

89. WDMA - Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and Door Association) www.wdma.com

90. WMMPA - Wood Moulding & Millwork Producers Association www.wmmpa.com

91. WWPA - Western Wood Products Association www.wwpa.org

B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up to date as of the date of the Contract Documents.

1. BOCA - BOCA International, Inc. www.bocai.org

2. IAPMO - International Association of Plumbing and Mechanical Officials (The) www.iapmo.org

3. ICBO - International Conference of Building Officials www.icbo.org

4. ICC - International Code Council (Formerly: CABO - Council of American Building Officials) www.intlcode.org

5. SBCCI - Southern Building Code Congress International, Inc. www.sbcci.org

C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Names, telephone numbers, and Web site addresses are subject to change and are believed to be accurate and up to date as of the date of the Contract Documents.

1. CPSC - Consumer Product Safety Commission www.cpsc.gov

2. EPA - Environmental Protection Agency www.epa.gov

3. OSHA - Occupational Safety & Health Administration www.osha.gov

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 42 00

SECTION 01 50 00
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.3 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
 - 1. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.4 SCHEDULE OF SUBMITTALS

- A. Conditions of Use: The following conditions apply to the use of temporary services and facilities by all parties engaged in the work.
 - 1. Keep temporary services and facilities clean and neat.
 - 2. Relocate temporary services and facilities as required by progress of the Work.
- B. Parking and Traffic Control: Contractor shall be responsible for obtaining and erecting street/parking lot signage as necessary to divert traffic away from staging areas, etc. Contractor is to coordinate signage requirements with the Owner and Engineer. All associated costs are to be borne by the Contractor. Contractor shall provide area for parking for subcontractors, Engineer, and Owner representatives.

PART 2 - PRODUCTS

2.1 MATERIALS AND EQUIPMENT

- A. General: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by the Engineer. Provide materials suitable for use intended.
- B. Portable Chain-Link Fencing: Minimum 2-inch 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide non-permanent bases for support.
- C. Water: Potable.
- D. 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.
- E. Electrical Outlets: Provide properly configured NEMA polarized outlets that prevent insertion of 110-120 volt plugs into higher voltage outlets. Provide receptacle outlets equipped with ground-fault circuit interrupters, reset buttons and pilot lights for connection of power tools and equipment within 100 feet of all work areas. All temporary electrical systems should be inspected and tested on a regular basis. Contractor shall document these inspections.
- F. Electrical Power Cords: All Contractors shall provide UL tested and labeled, grounded "hard service" cords of an appropriate gauge for the intended application. Provide waterproof connectors as needed to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. All electrical cords shall be inspected on a regular basis (Quarterly at a Minimum) and identification of inspection must be visible, i.e. mark with colored tape or tag
- G. Scaffolds: Scaffolds should be built in their entirety and not left unfinished or in an unsafe condition. All scaffolds must be tagged to indicate the latest inspection. Scaffolds should be tied into the structure as close to a 3:1 ratio as possible and repeated tie-ins shall follow OSHA guidelines. All scaffolds shall have safe access with stairs being the first choice over a ladder. Scaffolds should include netting on upper levels if there is any possibility for materials to fall over the toe boards, per OSHA guidelines.
- H. Fire Extinguishers: Provide hand-carried, portable UL-rated, class "ABC" fire extinguishers for temporary offices and similar spaces. In other locations provide hand-carried,

portable, UL-rated, class “ABC” dry chemical extinguishers or a combination of extinguishers of NFPA recommended classes suited for the exposures.

1. Comply with NFPA 10 and 241 for classification of extinguishing agent and size required by location and class of fire exposure.
2. Provide an appropriate number of designated fire watch individuals with fully charged fire extinguishers, welding blankets and welding screens as required to limit risks associated with welding, cutting, and burning or any other activity which has the potential to cause a fire. All Hot work shall be done under a permit system.

PART 3 - EXECUTION

3.1 GENERAL

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

3.2 PROJECT SITE LOGISTICS

- A. The Contractor shall develop a detailed site logistics plan for review and coordination with the Owner. The logistics plan shall be discussed with all site personnel and updated monthly by the Contractor. The logistics plan should include the following information:
 1. Staging areas
 2. Material storage area
 3. Dumpster location(s)
 4. Temporary toilet locations
 5. Delineation of site fencing
 6. Other pertinent information
- B. The Contractor shall separate pedestrian and vehicular traffic from their staging and material storage area, using barriers, cones, or similar materials and provide signage delineating routes.
- C. The Contractor is responsible for always keeping the project site in a clean and orderly fashion.
- D. The Contractor shall provide signs throughout the site where necessary to provide clear instruction (i.e., “No Smoking”, “No Entry”, “Emergency Exit”, etc.) All signage shall be provided in English and Spanish.

3.3 LIFTING EQUIPMENT

- A. Where cranes and other lifting equipment are required, the Contractor shall develop and maintain a plan to execute the work in a safe manner. The plan should include the following items at a minimum:
 - 1. Erection, climbing and dismantling process
 - 2. Inspection process for all equipment and rigging
 - 3. Exclusion zones
 - 4. Maintenance processes
 - 5. Identification of Qualified/Competent persons
 - 6. Lifting plan
 - 7. Process for identifying and working around aerial hazards
 - 8. Signalmen communication
 - 9. Working around energized lines
 - 10. Ground conditions and underground hazard
- B. The Contractor is responsible for ensuring that all cranes and lifting equipment are certified for use by a Qualified/Competent person prior to first use and annually (at a minimum).
- C. The Contractor is responsible for ensuring that all cranes and lifting equipment are inspected as required by a third party Qualified/Competent person.

3.4 TEMPORARY UTILITY INSTALLATION

- A. **Water Service:** Water for construction purposes will be available from the Owner at no charge. The contractor shall operate exterior hose bids only with properly fitted handles which shall be removed at the end of each workday. Any damage to hose bids or hose bib stems shall be repaired by the Contractor. Hose bibs shall not be operated with pliers.
- B. **Sanitary Facilities:** Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities. Facilities will be located at sites approved by Owner.
 - 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. Shield toilets to ensure privacy.
 - 3. **Drinking-Water Facilities:** Provide bottled-water, drinking-water units.
- C. **Electrical Power Service:** Contractor shall provide portable generators for all electrical power requirements.

- 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.

3.5 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access. Coordinate with Engineer on location.
 - 2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
 - 3. Maintain support facilities until near Final Acceptance. Remove before Final Acceptance. Personnel remaining after Final Acceptance will be permitted to use permanent facilities, under conditions acceptable to the Owner.
- B. Traffic Controls: Provide temporary traffic controls at junction of temporary roads with public roads. Include warning signs for public traffic and "STOP" signs for entrance onto public roads. Comply with requirements of authorities having jurisdiction.
- C. Project Identification and Temporary Signs: Prepare Project identification and other signs in sizes indicated. Install signs where indicated to inform public and persons seeking entrance to Project. Do not permit installation of unauthorized signs.
 - 1. Prepare temporary signs to provide directional information to construction personnel and visitors.
- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Section 01 74 00 Cleaning and Waste Management for progress cleaning requirements.
 - 1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.
- E. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services. Sheds may be open shelters or fully enclosed spaces within building or elsewhere on-site.

3.6 SECURITY AND INSPECTION FACILITIES

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other

undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.

- B. Material Storage Enclosure Fence: Install enclosure fence with lockable gates to completely enclose and hide the materials storage, or store as much material in locked trailers as practicable.
- C. Provide, erect, and always maintain six (6) foot chain link fence with lockable gates around the asphalt kettle.
- D. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- E. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- F. Develop and supervise an overall fire-prevention and first-aid fire-protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
- G. Protection of adjacent roof areas: Contractor shall provide protection to adjacent roof systems in the form of
- H. $\frac{3}{4}$ " CDX plywood over 1.5" rigid insulation with warning flags on both sides. All foot and equipment traffic shall be limited to protected walkways.

3.7 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Final Acceptance.

END OF SECTION 01 50 00

SECTION 01 60 00
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements governing the Contractor's selection of products, materials, and equipment for use in the Project.
- B. The Contractor's construction schedule and the Schedule of Submittals are included in Section 01 33 00 - Submittal Procedures.
- C. Administrative procedures for handling requests for substitution made after award of the Contract are included in Section 01 25 00 - Substitution Procedures

1.2 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties", "systems", "structure", "finishes" "accessories" and similar terms. Such terms are self-explanatory and have well recognized meanings in the construction industry.
 - 1. "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.
 - 2. "Named Products" are items identified by manufacturer's product name, including the make or model designation, as indicated in the manufacturer's published product literature, current as of the date of the Contract Documents.
 - 3. "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.
 - 4. "Equipment" is a product with operational parts; whether motorized or manually operated that requires service connections such as wiring or piping.

1.3 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 (2) or more products for use on the Project; the product selected shall be compatible

with products previously selected even if the previously selected products were also options.

1. If a dispute arises between Contractors over concurrently selectable, but incompatible products, the Engineer will determine which products shall be retained and which are incompatible and must be replaced.

C. Owner's Right of Final Approval: The Owner reserves the right of Final Approval of all labor, material, and equipment.

1.4 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. Transport and handle products in accordance with manufacturer's instructions.
2. Promptly inspect shipments to ensure that products comply with requirements, that quantities are correct, and products are undamaged.
3. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.
4. Store and protect products in accordance with manufacturers' instructions, with seals and labels intact and legible.
5. Store sensitive products in weather tight, climate-controlled enclosures.
6. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.
7. For exterior storage of fabricated products, place on sloped supports, above ground.
8. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
9. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to avoid condensation or potential degradation of product.
10. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
11. Always maintain storage in a neat and clean condition.

12. The Owner's Representative will not receive Contractor Materials, nor sign shipping bills. On-site storage shall be in areas designated by the Contractor, with the approval of the Owner.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents that are undamaged and, unless otherwise indicated, unused at the time of installation.
 1. Provide products complete with all accessories, trims, finishes, safety guards and other devices and details needed for a complete installation and for the intended use and effect.
 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other Projects.
 3. Reference in the project manual or on the drawings to an article device, product, material, fixture, form, or type of construction by name, make or catalog number (product or method) whether or not followed by "or equal" establishes a standard of quality, and does not eliminate from competition other products or methods of equal or better quality by other manufacturers, where fully suitable, as approved by the Engineer. Applications for approval of substitutions for the specified products or methods will be considered only upon request of the Contractor, not of Subcontractors individual trades or suppliers, and only for a specific purpose; no blanket approvals will be granted. No approval of a substitution will be valid unless it is in written form and submitted in accordance with 01 25 00 Substitution Procedures.
- B. Product Selection Procedures: Product selection is governed by the Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:
 1. Semi-proprietary Specification Requirements: Where two (2) or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted. 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. Non-Proprietary Specifications: When the Specifications list products or manufacturers that are available and may be incorporated in the Work, but do not

restrict the Contractor to use of these products only, the Contractor may propose any available product that complies with Contract requirements. Comply with Contract Document provisions concerning “substitutions” to obtain approval for use of an unnamed product.

3. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with the Contract requirements.
4. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products that comply with these requirements and are recommended by the manufacturer for the application indicated. Overall performance of a product is implied where the product is specified for a specific application. Manufacturer’s recommendations may be contained in published product literature or by the manufacturer’s certification of performance.
5. Compliance with Standards, Codes and Regulations: Where the Specifications only requires compliance with an imposed code, standard or regulation, select a product that complies with the standards, codes or regulations specified.
6. Visual Matching: Where Specifications require matching an established Sample, the Engineer’s decision will be final on whether a proposed product matches satisfactorily. Where no product available within the specified category matches satisfactorily and complies with other specified requirements, comply with the provisions of the Contract Documents concerning “substitutions” for selection of a matching product in another product category or seek the Engineers recommendation in writing.
7. Visual Selection: Where specified product requirements include the phrase “...as selected from manufacturer’s standard colors, patterns, textures...” or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Engineer 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 01 60 00

SECTION 01 73 29
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and supervisory 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. The Contractor shall do all cutting, fitting, or patching of his work that may be required to ensure various parts fit together properly and are prepared to receive or be received by Work of others as indicated or reasonably implied by the drawings and specifications for the completed structure. The Contractor will make corrections as the Engineer may direct.
- D. Any cost brought about by defective or ill-timed work shall be borne by the Contractor.
- E. The Contractor shall not endanger any existing or newly completed work by cutting, digging or other activity and shall not cut or alter the Work of any other Prime Contractor except with the consent of the Engineer.
- F. Cutting and patching should be performed by workers skilled in the trade and sequenced to avoid delays.
- G. The Contractor shall not perform cutting or patching operations that impact the structural, functional, or aesthetic qualities of the Work.

1.2 SUBMITTALS

- A. Cutting and Patching Plan: Where approval of procedures for cutting and patching is required before proceeding, the Contractor shall submit a plan describing procedures well in advance of the time the cutting and patching will be performed and request approval to proceed. Include the following information, as applicable, in the plan:
 - 1. Describe the extent of cutting and patching required and how it is to be performed; indicate why it cannot be avoided.
 - 2. Describe anticipated results in terms of changes to existing construction; include changes to structural elements and operating components as well as changes in the building's appearance and other significant visual elements.
 - 3. List products to be used and firms or entities that will perform Work.
 - 4. Indicate dates when cutting and patching is to be performed.

5. 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.
6. 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.
7. Approval by the Engineer to proceed with cutting and patching does not waive the Engineer's right to later require complete removal and replacement of a part of the Work found to be unsatisfactory.

1.3 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.
 1. Obtain written approval of the Engineer and Structural Engineer for the cutting and patching proposed before cutting and patching the following structural elements:
 - a. Foundation construction.
 - b. Bearing and retaining walls.
 - c. Structural concrete.
 - d. Structural steel.
 - e. Lintels.
 - f. Timber and primary wood framing.
 - g. Structural decking.
 - h. Stair systems.
 - i. Miscellaneous structural metals.
 - j. Exterior curtain wall construction.
 - k. Equipment supports.
 - l. Piping, ductwork, vessels, and equipment.
- 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, in the Engineer's professional judgment, reduce the building's aesthetic qualities, or result in visual evidence of cutting and patching. Retain the original installer or fabricator, if possible, to cut and patch any Work that remains exposed. Remove and replace any Work that is cut and patched in a visually unsatisfactory manner.
- D. Coordination: The Contractor is responsible for coordinating the Work to minimize the amount of cutting and patching.
 - 1.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Use materials that are identical to existing materials and that fully match existing adjacent surfaces as much as possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Before cutting existing surfaces examine surfaces to be cut and patched and conditions under which cutting, and patching is to be performed. Make corrections before proceeding, if unsafe or unsatisfactory conditions are encountered.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction or finishes during cutting and patching operations to prevent damage. Provide protection from adverse weather conditions for any portions of the Project that might be exposed during cutting and patching operations.

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.
- B. Cutting: Cut existing construction using methods least likely to damage elements to be retained or adjoining construction to provide for installation of other components or performance of other construction activities and provide the subsequent fitting and patching required to restore surfaces to their original condition. 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 existing finished surfaces, cut or drill from the exposed or finished side into concealed areas.
 3. Cut through concrete and masonry using appropriate cutting equipment such as a carborundum saw or diamond core drill.
 4. Comply with requirements of applicable Specification Sections where cutting and patching requires excavating and backfilling.
 5. By-pass utility services such as pipe or conduit, before cutting, where services are shown or required to be removed, relocated or abandoned. Cut-off pipe or conduit in walls or partitions to be removed. Conspicuously label any abandoned sections of pipe or conduit and, if required, support remaining sections. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
1. 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. Where removal of walls or partitions extends one finished area into another, patch and repair floor and wall surfaces in the new space to provide an even plane surface of uniform appearance and color. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance. Where patching occurs in a smooth painted surface, extend final paint coat over entire unbroken area containing the patch, after the patched area has received primer and second coat.
 4. Patch, repair, or re-hang existing ceilings as necessary to provide an even plane surface of uniform appearance.
- D. Cutting and patching shall be the responsibility of the trade whose work requires the cutting and patching unless specifically detailed and assigned in the Contract Documents. All patching shall be performed by qualified mechanics experienced in the specialty involved, to the standards of the project specifications. The Contractor shall coordinate all cutting and patching with the Owner's representative prior to commencement of the work.
- E. Renovation Project Procedures
1. Materials: As specified in technical sections, match existing products and Work.
 2. Employ skilled and experienced installer to perform cutting and patching.
 3. Remove, cut, and patch materials in a manner to minimize damage and to provide a means of restoring products and finishes to original condition.
 4. Refinish existing visible surfaces to remain in renovated rooms and spaces, to renewed condition for each material, with a neat transition to adjacent finishes.

5. Where new work abuts or aligns with existing, provide a smooth and even transition. Patch work to match existing adjacent work in texture and appearance.
 6. When a smooth transition with new Work is not possible, submit recommendation to Engineer for review. Terminate existing surface along a straight line at a natural line of division when possible.
 7. Patch or replace portions of existing surfaces, which are damaged, lifted, discolored, or showing other imperfections.
 8. Finish surfaces as specified in individual Product sessions.
 9. Cutting and patching shall be done in a manner such that the patched surfaces are compatible with the surfaces in which the repairs were made, both structurally and aesthetically as deemed appropriate by the Project Engineer.
- F. Restoration: Restore existing work, including concealed work not indicated or specified to be modified, and which is damaged or otherwise affected by The Contractor's operations, to a condition equal to that, which existed before the work was commenced. Use workers skilled in reconstruction and alteration work where new construction adjoins, connects to, or abuts existing work. Join new Work to existing Work in such a manner as to make the joining as inconspicuous as possible. Obvious patching of damaged Work will not be acceptable. At the completion, ensure that the buildings and grounds are in first-class condition within the intent of these specifications, with new parts well joined to the old as required, all connections completed, and facilities in full working condition.

3.4 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching performed where required for construction or used as access. Leave work in an acceptable completed condition.

END OF SECTION 01 73 29

SECTION 01 74 13
PROGRESS AND FINAL CLEANING

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for progress cleaning and final cleaning.

1.2 ACTION SUBMITTALS

A. Product Data:

- 1. Cleaning Products: Indicate compliance with quality assurance requirements.
- 2. Disinfectants, Metal Polish, Floor Finishes, and Strippers: Indicate compliance with quality assurance requirements.

- B. Equipment Data: Indicate equipment used for final cleaning complies with quality assurance requirements.

- C. Product Application Schedule: Schedule of cleaning products indicating application for each type of product.

- D. Final Cleaning Program: Description of cleaning procedures and product applications for final cleaning for each type of room, surface and material.

1.3 QUALITY ASSURANCE

- A. Worker Qualifications: Provide cleaning services performed by experienced firm specializing in cleaning of new construction of similar type and scope, employing workers trained by suppliers of products and equipment utilized in progress and final cleaning.

- B. Equipment Certification: Perform final cleaning utilizing vacuum equipment certified under Carpet and Rug Institute Green Label program, equipped with HEPA filters.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Materials, General: Do not introduce cleaning agents, disinfectants, metal polishes, floor strippers, or other products into the facility that are not listed on the approved product application schedule.

- B. Cleaning Agents: Use cleaning materials and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Unless otherwise indicated, use cleaning products that meet Green Seal GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 – EXECUTION

3.1 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials for more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Utilize containers intended for holding waste materials of type to be stored.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
 3. Sweep the parking lot and drive with a magnet daily.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Construction Waste Management and Disposal."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure

protection from damage or deterioration at Substantial Completion.

- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

3.2 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations. Leave Project clean and ready for occupancy.
- B. Cleaning: Clean each surface or unit to the quality level specified. Comply with product manufacturers and equipment manufacturers' written instructions.
- C. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:

1. Project Site

- a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
- b. Sweep paved areas broom clean, wash walkways clean. Remove petrochemical spills, stains, and other foreign deposits.
- c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
- d. Remove tools, construction equipment, machinery, and surplus material from Project site.

2. Building Exterior and Interior

- a. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
- b. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
- c. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
- d. Remove labels and protective films that are not permanent.
- e. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
- f. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint from surface to provide intended readability.

- g. Clean both sides of the first floor, and the interior of second floor and higher, windows and vision lights.
- h. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls."
- i. Do not utilize storm drain system for disposal of floor stripping wastewater.

END OF SECTION 01 74 13

SECTION 01 74 19
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous construction waste.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:
 - 1. Material category
 - 2. Generation points of waste
 - 3. Total quantity of waste in tons
 - 4. Quantity of waste salvaged, both estimated and actual in tons
 - 5. Quantity of waste recycled, both estimated and actual in tons
 - 6. Total quantity of waste recovered (salvaged plus recycled) in tons
 - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste

- B. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

- C. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

- D. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

- E. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

- F. Submittal: Letter signed by Contractor, tabulating total waste material, quantities diverted and means by which it is diverted, and statement that requirements have been met.

1.5 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, with a record of successful waste management coordination of projects with similar requirements, that employs a waste management coordinator.

- B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

1.6 WASTE MANAGEMENT PLAN

- A. General: Develop a waste management plan according to ASTM E 1609 and requirements in this Section. The plan shall consist of waste identification, waste reduction work plan,

and cost/revenue analysis. Indicate quantities by weight or volume but use same units of measure throughout waste management plan.

- B. Waste Identification: Indicate anticipated types and quantities of demolition, site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 - 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 - 6. Hazardous materials: Indicate how and where mercury containing materials will be disposed including name, address and phone number of authorized vendor that will be responsible for the pickup, transport, & disposal & of mercury containing materials including all associated processing paperwork & recycling certifications.
 - 7. Handling and Transportation Procedures: include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Division 01 Section "Temporary Facilities and Controls".
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at the Project site full-time during the duration of the project.
 - C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
 1. Distribute waste management plan to everyone concerned within three days of submittal return.
 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
 - D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING, DEMOLITION AND CONSTRUCTION WASTE

- A. General: Recycle paper and beverage containers used by on-site workers
- B. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substance deleterious to the recycling process.
- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.3 RECYCLING DEMOLITION WASTE

- A. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.
- B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
 1. Pulverize concrete to maximum 1-1/2-inch size.
 2. Crush concrete and screen to comply with requirements in Division 31 Section "Earth Moving" for use as satisfactory soil for fill or sub-base.
- C. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- D. Metals: Separate metals by type.
 1. Structural Steel: Stack members according to size, type of member, and length.
 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- E. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.
- F. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- G. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- H. Conduit: Reduce conduit to straight lengths and store by type and size.

3.4 RECYCLING CONSTRUCTION WASTE

- A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate, and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

3.5 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

D. Disposal/Mercury containing materials: Remove mercury from Owner's property and legally dispose of mercury containing items. Provide records & certifications documenting the disposal.

END OF SECTION 01 74 19

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Closeout requirements are hereby defined to include general requirements near the end of Contract time, in preparation for final acceptance, final payment, normal termination of Contract, occupancy of Owner, and similar actions evidencing completion of the Work. Specific requirements for individual units of Work are specified in other sections. Start of closeout other than the delivery of operation and maintenance manuals is directly related to "Substantial Completion," and therefore, may be either a single time period for entire Work or a series of time periods for individual parts of the Work which have been certified as substantially complete at different dates. That time variation (if any) shall be applicable to other provisions of this section, regardless of whether resulting from "phased completion" originally specified by the Contract Documents or subsequently agreed upon by Owner and Contractor.
- B. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
1. AIA G704 – Certificate of Substantial completion
 2. AIA G706 – Contractor's Affidavit Payment Plan & Claims
 3. AIA G706A – Contractor's Affidavit of Release of Liens
 4. AIA G707 – Consent of Surety to Final Payment
 5. Letter of punch list completion
 6. State & County Sales Tax Statement
 7. Contractor's (Two) year guarantee
 8. Manufacturer's Guarantee
 9. Waiver of Lien
 10. Asbestos Free Certificate
 11. List of Material Suppliers
 12. Waste Manifest Landfill Disposal tickets

1.2 SUBSTANTIAL COMPLETION

- A. Procedures: Before requesting Architect's inspection for certification of Substantial Completion, complete the items listed below. Any exceptions or omissions from the items listed below should be explained, in writing, as part of the request.
1. The Application for Payment that coincides with, or initially follows, the date Substantial Completion is claimed, indicates 100 percent completion for the portion

of the Work claimed as substantially complete. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.

- a. If 100 percent completion cannot be shown, indicate a list of incomplete items, the value of incomplete construction and reasons the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
 3. Obtain and submit releases enabling the Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
 4. Discontinue, change over, or remove temporary facilities from the site. Also remove construction tools, mock-ups, and similar elements.
 5. Complete final clean up requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
 6. Deliver warranties per Section 01 78 36 – Warranties.
 7. Correction of previously identified deficiencies.
 8. Prior to date of Substantial Completion Contractor to provide a list of pending claims or disputes with associated itemized cost breakdown.
 9. Provide Owner documentation of disposal of any mercury containing materials by an authorized vendor.
- B. Inspection Procedures: After completion of the above-specified items, submit written notice to the Architect- Engineer that the Work, or designated portion thereof, is substantially complete and request an inspection of same. Include a comprehensive list of items to be completed or corrected. Proceed promptly to complete and correct items on the list. Give a minimum of ten (10) days' notice to allow the Architect-Engineer sufficient time to schedule and coordinate the inspection. On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued. The Contractor shall remedy the noted deficiencies in the work and shall send a second written notice of substantial completion to the Architect-Engineer and request another inspection. The Architect-Engineer will then:
1. The Architect will repeat inspection when requested and ensure that the Work has been substantially completed. When the Architect-Engineer concurs that the Work is substantially complete, the Architect-Engineer will:
 - a. Prepare a Certificate of Substantial Completion on AIA Document G704, accompanied by Contractor's list of items to be completed or corrected, as verified, and amended by the Architect-Engineer as a result of the substantial completion inspection.

- b. Submit the Certificate of Substantial Completion to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in the certificate. If after repeated requests (two or more) by the Contractor for the Architect to inspect the Work, it is discovered not to be “substantially complete” the Contractor shall compensate the Architect for additional inspections.
2. Results of the completed inspection will form the basis of requirements for final acceptance

1.3 FINAL ACCEPTANCE

- A. Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the items listed below. Any exceptions or omissions from the items listed below should be explained, in writing, as part of the request.
 1. Submit the final payment request with consent of surety to final payment, releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the Architect’s substantial completion inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance and the list has been endorsed and dated by the Architect.
 4. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 5. Submit record drawings
 6. Submit warranties, bonds, certifications, and letters as called for in Section 01 78 36 - Warranties.
 7. Re-clean areas soiled during correction of deficiencies.
 8. Certify that equipment and systems that have been tested, balanced, and are operational.
 9. Submit Consent of Surety.
- B. Re-inspection Procedure: Upon completion of the above-specified prerequisites, submit written notice to the Architect-Engineer that the work is complete and ready for final inspection on or after a specified date. Give a minimum of ten (10) days’ notice to allow the Architect-Engineer sufficient time to schedule and coordinate the inspection. The Architect will re-inspect the Work upon receipt of signed off punch list and notice that the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Architect.

1. Upon completion of re-inspection, the Architect-Engineer will either prepare a certificate of final acceptance or advise the Contractor of work that is not acceptable, or obligations not fulfilled as required for final acceptance. The Contractor shall immediately take such measures as are necessary to complete such work or remedy such deficiencies.
2. If necessary, re-inspection will be repeated once. If after this re-inspection the work is discovered to be “incomplete” the Contractor shall compensate the Architect for additional inspections.

1.4 RECORD AND DOCUMENT SUBMITTALS

- A. Record Drawings: Maintain a clean, undamaged set of blue- or black-line white prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date.
 1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of the Work.
 2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.
 3. Note related Change Order numbers where applicable.
 4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets and print suitable titles, dates, and other identification on the cover of each set.
- B. Record Specifications: Maintain one (1) completed copy of the Project Manual, including addenda and one(1) copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications. Give particular attention to substitutions, selection of options and similar information or elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related to record drawing information and product data.
 1. Upon Completion of the Work, submit record Specifications to the Engineer for the Owner’s records.
- C. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the Work. Immediately prior to the date or dates of Substantial Completion, complete

miscellaneous records, and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Engineer for the Owner's records.

1. Completed and signed Engineer's Punch List
2. Copy of Manufacturer's Final Inspection Report
3. Landfill Charge Tickets
4. Certificate of Compliance (Evidence Building Permit has been finalized)

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: General cleaning during construction is required by the General Conditions. The Contractor will be completely responsible for the final cleanup of the site upon completion of the Site Work phase. The Contractor will be completely responsible for final cleanup of the Project prior to Substantial Completion and Owner occupancy. Contractor shall be responsible for their own cleanup and trash removal daily and should make sure no trash is left on the job site upon completion. A high standard of cleanliness will be rigidly enforced.
- B. Cleaning: Employ workers experienced in providing quality commercial cleaning and knowledgeable of the proper cleaning chemicals to use for final cleaning. Clean each surface or unit to the condition expected in a normal, commercial building cleaning and maintenance program. Comply with manufacturer's instructions.
 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion.
 - a. Remove labels that are not permanent labels.
 - b. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compound and other substances that are noticeable vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
 - c. 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.

- d. Remove debris and surface dust from limited access spaces including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - e. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials from interior and exterior surfaces of fixtures, hardware, finish surfaces of equipment for a finished, sellable product prior to final inspection.
2. Cleaning items not completed as of Date of Substantial Completion shall be completed prior to Final Acceptance.
 3. Contractor is responsible for protection, repair, and final cleaning of the asphalt paving. The Contractor is also responsible for repair and or replacement of curbs damaged during construction.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
- 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.

3.2 FINAL ADJUSTMENT OF ACCOUNTS

- A. Submit a final statement of accounting to Engineer. The statement shall reflect all adjustments to the Contract sum including the following:
 - B. The original contract sum.
 - C. Additions and deductions resulting from:
 1. Previous change orders.
 2. Allowances.
 3. Unit prices.
 4. Deductions of uncorrected work.
 5. Deductions of liquidated damages.
 6. Deductions for additional submittal reviews in accordance with Section 01 33 00 - Submittal Procedures, Reimbursement from Contractor.
 7. Deductions for reinspection for substantial and final completions in accordance with this Section, Substantial Completion and Final Acceptance.
 8. Other adjustments.

D. Total Contract sum, as adjusted.

E. Previous payments.

F. Sum remaining due.

3.3 FINAL CHANGE ORDER

A. Architect-Engineer will prepare a final change order, reflecting approved adjustments to the Contract sum which were not previously made by change orders

3.4 FINAL APPLICATION FOR PAYMENT

A. Contractor shall submit the final application for payment in accordance with procedures and requirements stated in the General Conditions.

END OF SECTION 01 77 00

SECTION 01 78 36
WARRANTIES

PART 1 - GENERAL

1.1 SUMMARY

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

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

- C. All warranties are in addition to Seller's implied warranties of merchantability and fitness for a particular purpose which shall not be disclaimed by Seller. In addition to its rights to reject nonconforming goods, The Owner shall be entitled to all rights and remedies provided by the uniform Commercial Code for breach of express warranties and implied warranties of merchantability and fitness for a particular purpose, including but not limited to consequential and incidental damages.

- D. Separate Prime Contracts: Each prime Contractor is responsible for warranties related to its own Contract.

1.2 SUBMITTALS

- A. Submit written warranties to the Engineer prior to the date certified for Substantial Completion
 - 1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period,

submit properly executed warranties to the Engineer within fifteen (15) days of completion of that designated portion of the Work only when occupancy is substantially ahead of original planned occupancy and not identified in the schedule contained in the Contract Documents

- B. When a special warranty is required to be executed by the Contractor or the Contractor and a subcontractor, supplier, or manufacturer, prepare a written document that contains appropriate terms and identification ready for execution by the required parties. Submit a draft to the Owner through the Engineer for approval prior to final execution.
 - 1. Refer to individual Specification Sections for specific content requirements and particular requirements for submittal of special warranties.
- C. Form of Submittal: Organize the warranty documents as specified in 017700.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF WARRANTIES

- A. Schedule: Provide warranties on products and installations as indicated in Specification Sections for warranty requirements
 - 1. Roofing System Warranty as outlined in corresponding section.
 - 2. Pre-finished Sheet Metal Finish Warranty as outlined in Section 07 62 00.
 - 3. Contractor's Two (2) Year Warranty on their company letterhead using sample contained in the Project Manual.
 - a. Contractor will be required to attend a post construction field inspection no earlier than twenty -three (23) months and no later than twenty-four (24) months after the date of Substantial Completion and complete any corrective action requested by Owner, Engineer, or Manufacturer at no additional cost to the Owner.
 - 4. Contractor's Certification of Asbestos Free Compliance.

END OF SECTION 01 78 36

SECTION 05 50 00
METAL FABRICATIONS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Shop Drawings: Indicate profiles, sizes, connection attachments, reinforcing, anchorage, size and type of fasteners, and accessories. Include erection drawings, elevations, and details where applicable.

1.02 QUALITY ASSURANCE

- A. Design Platform under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located.

PART 2 PRODUCTS

2.01 MATERIALS - STEEL

- A. Steel Sections: ASTM A36/A36M.
- B. Steel Tubing: ASTM A501/A501M hot-formed structural tubing.
- C. Plates: ASTM A283/A283M.
- D. Pipe: ASTM A53/A53M, Grade B Schedule 40, black finish.
- E. Stainless Steel, General: ASTM A666/A666M, Type 304.
- F. Stainless Steel Tubing: ASTM A554, Type 304, 16 gauge, 0.0625 inch minimum metal thickness, 1-1/2 inch diameter.
- G. Bolts, Nuts, and Washers: ASTM A307, Grade A, plain.
- H. Bolts, Nuts, and Washers: ASTM F3125/F3125M, Type 1, plain.

2.02 MATERIALS - ALUMINUM

- A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.
- B. Sheet Aluminum: ASTM B209/B209M, 5052 alloy, H32 or H22 temper.
- C. Aluminum-Alloy Drawn Seamless Tubes: ASTM B210/B210M, 6063 alloy, T6 temper.
- D. Bolts, Nuts, and Washers: Stainless steel.

2.03 FABRICATION

- A. Fit and shop assemble items in largest practical sections, for delivery to site.
- B. Fabricate items with joints tightly fitted and secured.
- C. Grind exposed joints flush and smooth with adjacent finish surface. Make exposed joints butt tight, flush, and hairline. Ease exposed edges to small uniform radius.

2.04 FINISHES - ALUMINUM

- A. Exterior Aluminum Surfaces: Class I natural anodized.
- B. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7 mils thick.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install items plumb and level, accurately fitted, free from distortion or defects.

END OF SECTION

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Rough Carpentry work required to facilitate installation of new roof assembly including:
1. Installation of new pressure treated wood blocking and plywood sheathing.
 2. Re-securement of existing rough carpentry to remain in place.
 3. Removal and replacement of damaged, rotted or deteriorated rough carpentry to match existing.

1.2 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Specification Sections, apply to this Section, including but not limited to:

1.3 REFERENCES

- A. Refer to the following references, current edition for specification compliance:
1. 2012 North Carolina Building Code
 2. American Society for Testing and Materials (ASTM)
 3. American Wood-Preserver's Association (AWPA)
 - a. AWPA C1 All Timber Products-Preservative Treatment by Pressure Process
 - b. AWPA C2 Lumber, Timber, Bridge Ties and Mine Ties - Pressure Treatment by Pressure Processes.
 - c. AWPA C9 Plywood - Preservative Treatment by Pressure Processes
 - d. AWPA C15 Wood for Commercial-Residential Construction Preservative Treatment by Pressure Process.
 4. American Plywood Association (APA)
 5. American National Standard
 - a. ANSI/SPRI ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems
 6. Underwriters Laboratories, Inc. (UL)
 7. FM Global/Factory Mutual Research (FM)

1.4 DEFINITIONS

- A. Rough Carpentry includes carpentry work not specified as part of other Sections and generally not exposed.
- B. KDAT: Kiln Dried After Treatment

1.5 SUBMITTALS

- A. Refer to Section 01 33 00-Submittal Procedures for Submittals.
- B. Manufacturer's Product Data Sheets for all materials specified certifying material complies with this specification.

1.6 QUALITY ASSURANCE

- A. Contractor shall inspect wood to be installed for damage, warping, splits, and moisture content as defined by the applicable wood products industry standards. Materials that do not comply shall be rejected.
- B. Rough carpentry installation shall present a smooth, consistent substrate for roof system and flashing installation.
- C. Qualifications of workers: Provide sufficient, competent, and skilled carpenters in accordance with accepted practices and supervisors who shall be present at all times during execution of this portion of the work, and who shall be thoroughly familiar with type of construction involved in this section and related work and techniques specified.
- D. Moisture Content:
 - 1. Treated wood products shall be KDAT.
 - 2. Treated lumber used in the roofing assembly shall not be stored or installed in a manner exposing it to rain.
 - 3. Moisture content of treated lumber shall be 19 percent or less before being covered/enclosed into roofing assembly.
 - 4. Contractor shall be responsible for ensuring lumber is delivered, stored and installed at 19% or less moisture content.
 - 5. Plywood shall be 18% or less before being covered/enclosed into roofing assembly.
- E. Each piece of treated lumber and plywood shall bear the stamp of the AWWA Quality Mark, indicating compliance with the requirements of the AWWA Quality Control Program.
- F. Lumber Standards: Comply with PS 20 and applicable rules of respective grading and inspecting agencies for species and products indicated.
- G. Plywood Product Standards: Comply with PS 1 (ANSI A 199.1) or, for products not manufactured under PS 1 provisions, with applicable APA Performance Standard for type of panel indicated.

- H. Installation of all required new rough carpentry for roofing and flashing terminations to ensure plumb, uniform and level metal flashings.
- I. Rough carpentry installation shall ensure roof membrane flashing transitions are smooth for complete roof drainage and appearance.
- J. Installation of all fasteners and associated materials to secure rough carpentry as detailed and specified.

1.7 DELIVERY STORAGE AND HANDLING

- A. Keep materials under cover and dry. Protect against exposure to weather and contact with damp or wet surfaces. Store a minimum of four inches above ground on framework or blocking. Stack lumber as well as plywood and other panels; provide for air circulation within and around stacks. Cover with protective waterproof covering providing for adequate air circulation and ventilation.
- B. Exposure to precipitation during shipping, storage or installation shall be avoided. If material does become wet, it shall be replaced or permitted to dry prior to covering or enclosure by other roofing, sheet metal or other construction materials (except for protection during construction).
- C. Immediately upon delivery to job site, place materials in area protected from weather. Do not store seasoned materials in wet or damp portions of building.
- D. Protect sheet materials from corners breaking and damaging surfaces, while unloading.

PART 2 – PRODUCTS

2.1 MATERIALS

- A. Lumber: Shall Be No. 2 or better spruce or southern yellow pine. Shall be sound, thoroughly seasoned, dressed to nominal finish dimension, and free of warpage, cupping, and bowing. Dimensions shall be determined by job conditions or as indicated in detail drawings.
- B. Plywood Sheathing: Shall be structural 1 rated. Plywood shall be stamped APA RATED SHEATHING grade-C or better and shall be manufactured with exterior glue (exposure 1). Plywood shall have a minimum thickness of 3/4 inch or as required to match existing.
- C. Fire Treated: A flame spread index of 25 or less (Class A) when tested in accordance with ASTM E84 and labeled as fire resistant. All wood in the roof assembly shall be fire treated.

2.2 FASTENERS

- A. General:
 - 1. All fasteners shall be stainless steel or as approved by Engineer.
 - 2. Fasteners securing pressure treated lumber shall be manufactured for corrosion

resistance and exposures associated with pressure treated wood applications.

3. Nails shall not be used at roof edges to fasten rough carpentry, lumber, plywood, etc. Screws, anchors, and/or machine bolts shall be used to secure rough carpentry at roof perimeter edges.
4. Masonry screws, spikes, and drive-pins shall not be used to fasten edge/perimeter nailers to concrete decks. Minimum ½" diameter anchors or bolts shall be used to secure roof edge nailers to concrete substrates.

B. Wood to light gage steel framing (16-ga. or less):

1. Shall be #14-13 DPI, pancake or panhead, corrosion resistant, ASTM A153, FM Approved, self-drilling and self-tapping screw, length to provide minimum 3 pitches of thread through metal thicknesses. Acceptable manufacturers include:
 - a. ITW Buildex Teks
 - b. Concealor®
 - c. Blazer
 - d. SFS Intec
 - e. Engineers accepted equivalent.

C. Wood to wood:

1. Screws: No. 10 or greater, stainless steel wood screws with flat head, or insulation screws. Length to embed into base substrate a minimum of 1-1/2".
2. Nails: 8, 10 or 16 penny, stainless steel, ring shank nails. Length to embed into base substrate a minimum 1-1/2". Acceptable manufacturers include:
 - a. Maze Nails
 - b. Anchor Staple and Nail
 - c. Swan Secure Products
 - d. Manasquan Premium Fasteners
 - e. Engineers accepted equivalent.

D. Wood to Masonry:

1. Drive Pins: 1/4", stainless steel drive pins with mushroom head. Length to embed into base substrate a minimum of 1-1/4".
2. Screws: 1/4" or greater, stainless steel masonry screws with flat or hex head. Length to embed into base substrate a minimum of 1-1/2".

PART 3 – EXECUTION

3.1 INSPECTION

- A. Contractor shall inspect substrates to receive rough carpentry, and ensure substrates are in satisfactory condition prior to installation of rough carpentry.
- B. Contractor shall inspect all new and existing rough carpentry including fasteners for material condition before proceeding with installation. Deteriorated, rotted, damaged, split, warped, twisted, or wet materials shall be removed and replaced with specified materials. Refer to Section 01 22 00-Unit Prices.
- C. Contractor shall remove old cants, tapered edge strips, debris, old fasteners, etc. that interfere with the installation of new rough carpentry.
- D. Contractor shall notify Engineer in writing of unsatisfactory conditions.
- E. Commencement of work signifies Contractor's acceptance of substrates. Any defects in roofing work resulting from such accepted substrates shall be corrected at no additional expense to the Owner.

3.2 PREPARATION

- A. Steel/Metal Substrates:
 - 1. Any pressure treated wood to contact steel or metal shall have the steel/metal coated with a heavy coating of asphalt primer.
- B. Roof Deck and Structure:
 - 1. Roof deck and structure shall be dried and broomed and/or vacuumed clean of debris and foreign matter prior to installation of the new rough carpentry.
 - 2. Contractor shall adjust substrates to receive rough carpentry to ensure completed rough carpentry installation is acceptable for roofing and sheet metal flashings.
 - 3. Steel decking shall be coated with a uniform, heavy application of asphalt primer, or separated by membrane or other acceptable means to prevent contact between steel and treated wood products.
 - 4. Treated lumber shall not make direct contact with light gage steel decking.

3.3 INSTALLATION

- A. Remove existing damaged or deteriorated wood blocking, nailers, and curbs and replace with new material of same dimensions.
- B. Re-secure all existing wood nailers at roof edges that are to remain. Fastener type and spacing shall comply with this specification.
- C. Install new wood blocking, nailers, and curbs to achieve a minimum eight-inch flashing height above the roof membrane. Wood nailers at perimeter roof edges and expansion

joints shall be installed to match insulation height. Maintain constant nailer height at perimeter edges.

- D. Wood blocking and nailers shall be installed concurrently with roof system installation. Removal of insulation and/or folding back of roof membrane to install wood blocking and nailers at a later date is not acceptable.
- E. Set rough carpentry to required levels and lines, with members plumb, true to line, material cut to fit, and braced to hold work in proper position. Use a belt sander to remove any obtrusive surface irregularities. Drive nails and spikes home; and pull bolt nuts tight with heads and washers in close contact with the wood
- F. Fit rough carpentry to other construction, scribe and cope for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction. AU joints between wood shall be installed for a smooth transition.
- G. Attachment:

- 1. The Contractor shall consult the fastener manufacturer's published literature and follow the recommended requirements for pre-drilling, cleaning, placement, and compatibility of substrates. Follow manufacturer's requirements for fasteners spacing, substrate preparation and substrate embedment where not specified.
- 2. Rough carpentry attachment shall meet the requirements herein and that of the current FM Loss Prevention Data Sheet 1-49, Perimeter Flashing.
- 3. Install bolts flush with the top surface of nailers where possible to avoid countersinking. Bolt bottom nailers then fasten upper nailers where possible. Countersink bolts, nuts and screws flush with wood surfaces only as detailed.
- 4. Install fasteners without splitting wood. Pre-drill where necessary. Split or damaged wood shall be removed or repaired and/or re-secured to provide acceptable conditions.
- 5. For anchors, pre-drill concrete and masonry units to prevent damage or cracking of the masonry. Consult fastener manufacturer's published guides. Damaged masonry shall be repaired, and fasteners shall be removed and re-installed in an acceptable location.
- 6. Fastener spacing: Fasteners shall be staggered $\frac{1}{3}$ the board width and installed within 6" of each end.
 - a. Screws securing wood to wood shall be installed 12 inches apart, staggered, with two screws installed within 6 inches of each end of nailer lengths to prevent wood from twisting at board joints.
 - b. Self-drilling, and/or pre-drilled self-tapping screws securing wood to structural steel shall be spaced 12 inches apart, staggered, with one screw within 6 inches

of each end of nailer lengths to prevent wood from twisting at board joints.

- c. Nails securing wood to wood shall be spaced 12 inches apart, staggered, with two nails installed within 6 inches of each end of nailer lengths to prevent wood from twisting at board joints.
 - H. Select fasteners of size and length that will not be exposed from the building interior and/or from the ground, or remove protruding fasteners, paint or finish to eliminate exposure.
 - I. Thickness of wood nailers shall be flush with adjacent insulation and other materials. Additional fasteners shall be installed to ensure nailers are flush.
 - J. Unless otherwise detailed, plywood used as blocking or shim shall be installed below dimensional lumber such that the fastener head terminates at the dimensional lumber surface.
 - K. Wood nailers at roof perimeters, expansion joints, roof area dividers, etc. shall not be less than 3 feet long.
 - L. When multiple nailers are installed stacked two high or more, offset nailers no less than 12" such that joints at nailer end do not line-up vertically.
 - M. Each end of nailers shall be fastened with additional fasteners to ensure a smooth transition at butted joints, and to prevent warping and/or twisting.
 - N. Shims:
 - 1. The Contractor shall add plywood and lumber shims as required for the specified height and thickness.
 - 2. Shims shall make full contact with stacked rough carpentry. Partial shim contact, and small shim pieces spaced apart are not acceptable.
 - 3. Plywood used as blocking or shim shall be installed below dimensional lumber such that the fastener head terminates at the dimensional lumber surface.
 - O. Curbs:
 - 1. Adjust wood curbs to support rooftop piping, ducts, equipment, etc.
 - 2. Raise equipment to provide required flashing height for roofing.
- 3.4 CLEAN-UP
- A. The Contractor shall ensure the site and building are cleaned to meet pre-construction conditions, as accepted by the Owner.
 - B. The site and building shall be free of saw dust from pressure treated lumber, fasteners and other debris.

- C. Damages to the building, grounds, equipment, and site shall be repaired or replaced by the Contractor to meet pre-construction conditions, as accepted by the Owner.

END OF SECTION 06 10 00

SECTION 07 24 00
INSULATION & FINISH SYSTEM (EIFS)

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Manufacturer's requirements for the proper design, use, and installation of an Exterior Insulation and Finish System.

1.2 REFERENCES

- A. ASTM B117 Test Method for Salt Spray (Fog) Testing
- B. ASTM C203 Standard Test Method for Breaking Load and Flexural Properties of Block-Type Thermal Insulation
- C. ASTM C1135 Test Method for Determining Tensile Adhesion Properties of Structural Sealants
- D. ASTM D968 Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
- E. ASTM D1037 Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials
- F. ASTM D2247 Practice for Testing Water Resistance of Coatings in 100 Percent Relative Humidity
- G. ASTM D2294 Standard Test Method for Creep Properties of Adhesives in Shear by Tension Loading (Metal-to-Metal).
- H. ASTM D2794 Standard Test Method for Resistance of Organic Coatings to the Effects of Rapid Deformation (Impact)
- I. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
- J. ASTM E84 Test Method for Surface Burning Characteristics of Building Materials.
- K. ASTM E108 Standard Test Methods for Fire Tests of Roof Coverings
- L. ASTM E119 Standard Test Method for Fire Tests of Building Construction and Materials.
- M. ASTM E330 Test Method for Structural Performance by Uniform Static Air Pressure Difference.
- N. ASTM E331 Test Method for Water Penetration by Uniform Static Air Pressure Difference.
- O. ASTM E695 Method for Measuring Relative Resistance to Impact Loading.

- P. ASTM E2134 Standard Test Method for Evaluating the Tensile-Adhesion Performance of an Exterior Insulation and Finish System (EIFS)
- Q. ASTM E2273 Standard Test Method for Determining the Drainage Efficiency of Exterior Insulation and Finish Systems (EIFS) Clad Wall Assemblies
- R. ASTM E2430 Standard Specification For Expanded Polystyrene (“EPS”) Thermal Insulation Boards For Use In Exterior Insulation and Finish Systems (“EIFS”)
- S. ASTM E2485 Standard Test Method for Freeze/Thaw Resistance of Exterior Insulation and Finish Systems (EIFS) and Water Resistive Barrier Coatings
- T. ASTM E2486 Standard Test Method for Impact Resistance of Class PB and PI Exterior Insulation and Finish Systems (EIFS)
- U. ASTM E2568 Standard Specification for Exterior Insulation and Finish Systems
- V. ASTM G155/ G153 Accelerated Weathering for Exposure of Nonmetallic Materials.
- W. Fed. Spec. Coating, Textured (For Interior and Exterior Masonry Surfaces) TT-C-555B
- X. MIL STD 810B Military Standard, Environmental Test Methods

1.3 ACTION SUBMITTALS

- A. Product Data: For each EIFS component, trim, and accessory.
- B. Samples: For each exposed product and for each color and texture specified.

1.4 INFORMATION SUBMITTALS

- A. Manufacturer certificates.
- B. Product certificates.
- C. Product test reports.
- D. Field quality-control reports.
- E. Sample warranty.

1.5 ASSEMBLY DESCRIPTION

A. Standard

An Exterior Insulation and Finish System (EIFS) consisting of three dimensional drainage mat, Expanded Polystyrene Insulation (EPS) Board, Mechanical Fasteners, Base Coat with embedded Reinforcing Fabric Mesh, Primer, and Finish Coat. This system is installed over a code compliant water resistive barrier.

General:

- a. Insulation Board: At system termination, completely encapsulate insulation board edges by mesh reinforced base coat, substrate or drainage track (limited to terminations at foundation). The use of and maximum thickness of insulation board shall be in accordance with applicable building codes and EIFS manufacturer’s requirements.

- b. Flashing: Flashing shall be continuous and watertight. Flashing shall be designed and installed to prevent water infiltration behind the cladding.
 - c. The configuration of the water resistive barrier, drainage plane and flashing must allow for the egress of incidental moisture.
 - d. Inclined surfaces shall follow the guidelines listed below:
 - (1) Minimum slope: 6 in (152 mm) of vertical rise in 12 in (305 mm) of horizontal run.
 - (2) For sloped surfaces, run of slope shall be a maximum of 12 in (305 mm).
 - (3) Usage not meeting above criteria shall be approved in writing prior to installation.
2. Performance Requirements
- a. System to meet the performance and testing requirements of the International Code Council Acceptance Criteria AC 219
 - b. Shall meet the testing requirements of the Product Performance Sheet.
3. Substrate Systems:
- a. Shall be engineered to withstand applicable design loads including required safety factor.
 - b. Maximum deflection of substrate system under positive or negative design loads shall not exceed L/240 of span.
 - c. Substrate dimensional tolerance: Flat within 1/4 in (6.4 mm) in any 4 ft (122 cm) radius.
 - d. Surface irregularities: Sheathing not over 1/8 in (3 mm); masonry not over 3/16 in (4.8 mm).
4. Impact Resistance Classification:
- a. Standard Impact Resistance, 25-49 in-lbs (2.8 – 5.6 J) Impact Range
5. Expansion Joints: Continuous expansion joints shall be installed at the following locations in accordance with manufacturer's recommendations:
- a. At building expansion joints.
 - a. At substrate expansion joints.
 - b. At floor lines in wood frame construction.
 - c. Where EIFS panels abut one another.
 - d. Where EIFS abuts other materials.
 - e. Where significant structural movement occurs, such as at
 - (1) Changes in roof line.
 - (2) Changes in building shape and/or structural system.
 - g. Where substrate changes

- h. Substrate movement and expansion and contraction of EIFS and adjacent materials shall be taken into account in design of expansion joints, with proper consideration given to sealant properties, installation conditions, temperature range, coefficients of expansion of materials, joint width to depth ratios, and other material factors. Minimum width of expansion joints shall be as follows:
 - (1) 1/2 in (12.7 mm) where EIFS abuts other materials.
 - (2) 3/4 in (19 mm) when EIFS abuts the EIFS.
 - (3) Matching existing locations of expansion joints.
- 6. Manufacturer's Detail:
 - a. EIFS latest published information shall be followed for standard detail treatments.
 - b. Non-standard detail treatments shall be as recommended by manufacturer, approved by Project Designer and be part of the Contract Documents.
- 7. Building Code Conformance: EIFS shall be acceptable for use on this project under building code having jurisdiction.

1.6 QUALITY ASSURANCE

- A. Products manufactured under ISO 9001:2000 Quality System.
- B. Qualifications:
 - 1. All EIFS assembly materials must be manufactured or sold by a single-source manufacturer and must be purchased direct from the manufacturer or its authorized distributor.
 - 2. Applicator:
 - a. Must have attended manufacturer's Educational Seminar.
 - b. Must possess a current manufacturer's certificate of education.
 - c. Must be experienced and competent in installation of plaster-like materials.
- C. Regulatory Requirements:
 - 1. Insulation Board: Shall be produced and labeled under a third-party quality program as required by applicable building code.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver materials in original packaging with manufacturer's identification.
- B. Storage: Store materials in a cool, dry location, out of sunlight, protected from weather and other harmful environment, and at a temperature above 40°F (4°C) and below 110°F (43°C) in accordance with manufacturer's instructions.

1.8 PROJECT / SITE CONDITIONS

- A. Installation Ambient Air Temperature: Minimum of 40°F (4°C) and rising and remain so for 24 hours thereafter.
- B. Substrate Temperature: Do not apply materials to substrates whose temperature are below 40°F (4°C) or contain frost or ice.
- C. Inclement Weather: Do not apply materials during inclement weather unless appropriate protection is employed.
- D. Sunlight Exposure: Avoid, when possible, installation of the materials in direct sunlight. Application of Acrylic Finishes in direct sunlight in hot weather may adversely affect aesthetics.
- E. Materials shall not be applied if ambient temperature exceeds 120°F (49°C) or falls below 40°F (4°C) within 24 hours of application. Protect materials from uneven and excessive evaporation during hot, dry weather.
- F. Prior to installation, the substrate shall be inspected for surface contamination, or other defects that may adversely affect the performance of the materials and shall be free of residual moisture.

1.7 COORDINATION AND SCHEDULING:

- A. Coordination: Coordinate water-resistive membrane & air barrier coating materials installation with other construction operations.

1.9 WARRANTY

- A. Warranty: At completion of installation, provide manufacturer's Standard Limited Warranty.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following manufacturers or equal:
 - 1. Dryvit Systems, Inc.
 - 2. Finestone, a Sika brand.
 - 3. Master Wall Inc.
 - 4. Parex, a Sika brand.
 - 5. Stuc-O-Flex International, Inc.
 - 6. Total Wall, Inc.

2.2 MATERIALS

- A. Secondary Water-Resistive Barrier
 - 1. Code Compliant Water Resistive Barrier.
 - 2. Flashing Membrane: Cold applied, Self-sealing, Polyester faced, rubberized asphalt membrane, 30 mils (0.76 mm) thick, and primer; EIFS manufacturer's standard or product recommended in writing by EIFS manufacturer.
- B. Insulation Board: In compliance with manufacturer's requirements for Standard System EIFS.
 - 1. Produced and labeled under a third-party quality program as required by applicable building code.
 - 2. Shall conform to ASTM C578 and ASTM E2430, for Molded Expanded Polystyrene Insulation board.
 - 3. Maximum size shall be 2 ft x 4 ft (610 mm x 1219 mm).
 - 4. Thickness: 1.5 in, minimum (38 mm) or matching existing after rasping.
- C. Base Coats:
 - 1. 121 Base Coat: 100% acrylic polymer base, requiring the addition of Portland cement.
 - 2. 121 Dry Base Coat: Copolymer based, factory blend of cement and proprietary ingredients requiring addition of water.
 - 3. 302 ABC-N1 Base Coat & Adhesive: 100% acrylic polymer base, ready to use, applied without the addition of cement.
 - 4. 121 Dry HI: High Impact basecoat & adhesive. Copolymer based, blend of cement and proprietary ingredients, requires the addition of water.
 - 5. 121 Cool Base: White basecoat & adhesive. Copolymer based, blend of cement and proprietary ingredients, requires the addition of water.
- D. Reinforcing Mesh:
 - 1. Standard Mesh: Weight 4.5 oz. per sq. yd. (153 g/sq m); coated for protection against alkali.
 - 2. Short Detail Mesh: Reinforcing mesh used for back wrapping and details.
 - 3. Self-Adhesive Detail Mesh: Reinforcing mesh used for complex details.
- E. Primer:
 - 1. 100% acrylic-based coating to prepare surfaces for acrylic or elastomeric finishes.
- F. Finish
 - 1. 100% acrylic polymer-based finish, enhanced DPR acrylic finish with hydrophobic and photocatalytic properties, repels water, reflects UV rays, and

reduces smog particles near the finish surface. Finish type, texture and color as selected by Project Designer

- G. Water: Clean, cool, potable water
- H. Portland Cement: ASTM C150, Type I or Type I-II.

2.2 RELATED MATERIALS AND ACCESSORIES

A. Substrate Materials:

1. Glass mat gypsum sheathing conforming to ASTM C1177.
2. Cement Fiber Sheathing conforming to ASTM C1186
3. Gypsum Sheathing: Minimum 1/2 in (13 mm) thick, core-treated, weather-resistant, exterior gypsum sheathing complying with ASTM C79.
4. Plywood: Minimum 7/16 in (8 mm) thick exterior grade or PS 1, Exposure 1, minimum 7/16 in thick, C veneer facing out, panels gapped 1/8 in at all edges.
5. Other approved by manufacturer writing prior to the project.

B. Drainage Mat: 3-dimensional Drainage

C. Mechanical fasteners and washers:

1. Fasteners, non-thermal bridging polypropylene plastic plates and corrosion-resistant screws.
2. Washer, 2" diameter, polypropylene plastic plates with appropriate fasteners for framing.
3. 2" diameter, polypropylene plastic plates with appropriate fasteners for framing.
4. Lock Washer, 2" -3" diameter, polypropylene plastic plates with appropriate fasteners for framing.

E. Sealant System:

1. Sealant for expansion joints between panelized EIFS sections shall be ultra-low modulus designed for minimum 100% elongation and minimum 50% compression and as selected by Project Designer.
2. Sealant for perimeter seals around window and door frames and other wall penetrations shall be low modulus, designed for minimum 50% elongation and minimum 25% compression, and as selected by Project Designer.
3. Sealants shall conform to ASTM C 920, Grade NS.
4. Expansion joints between sections of EIFS shall have a minimum width of 3/4 in (19 mm) or match existing expansion joint.

5. Perimeter seal joints shall be a minimum width of 1/2 in (12.7 mm) or match existing expansion joint.
6. Sealant backer rod shall be closed-cell polyethylene foam.
7. Apply sealant to tracks or base coat of EIFS.
8. Refer to EIFS manufacturer's current bulletin for listing of sealants which have been tested and have been found to be compatible with EIFS materials.
9. Color shall be as selected by Project Designer.
10. Joint design, surface preparation, and sealant primer shall be based on sealant manufacturer's recommendations and project conditions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify project site conditions.
- B. Compliance: Comply with manufacturer's instructions for installation.
- C. Substrate Examination: Examine prior to installation of EIFS assembly materials as follows:
 1. Substrate shall be of a type approved by manufacturer. Plywood and OSB substrates shall be gapped 1/8 in (3.2 mm) at all edges.
 2. Substrate shall be examined for soundness, and other harmful conditions.
 3. Substrate shall be free of dust, dirt, laitance, efflorescence, and other harmful contaminants.
 4. Substrate construction in accordance with substrate material manufacturer's specifications and applicable building codes.
 5. Maximum deflection of the substrate shall be limited to L/240.
- D. Sealants and Backer Rod: To be installed, where required, in accordance with the sealant manufacturer's specifications and published literature, and using the sealant manufacturer's recommended primers.
- E. Advise Contractor of discrepancies preventing proper installation of the EIFS materials. Do not proceed with the work until unsatisfactory conditions are corrected.

3.2 PREPARATION

- A. Protection: Protect surrounding material surfaces and areas during installation of system.
- B. Clean surfaces thoroughly prior to installation.

- C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 MIXING

- A. Mix materials in accordance with manufacturer's instructions.

3.4 APPLICATION

- A. General: Installation shall conform to this specification and manufacturer's written instructions.
- B. Drainage Accessories and Water Resistive Barrier
 1. Install drainage tracks (limited to terminations at foundations), back-wrap mesh, or edge-wrap mesh at system terminations.
 2. Flash all rough openings with water-resistive barrier and embedded Sheathing Tape or Peel and Stick Flashing Membrane
 3. Install water resistive barrier in accordance with manufacturer's instructions making all laps weatherboard fashion to provide continuity of water shedding.
 4. Install drainage mat with temporary fasteners to hold in place until insulation board is mechanically fastened.
- C. Insulation Board
 1. Install Wind-lock fasteners to secure insulation board to the wall in accordance instructions. Minimum eight (8) fasteners per 2' x 4' (610 mm x 1219 mm) piece of insulation board.
 2. Install insulation board without gaps in a running bond pattern and interlocked at corners.
 3. Rasp irregularities off insulation board.
- D. Apply primer to base coat after drying. Primer may be omitted if it is not required by the manufacturer's product data sheets for the specified finish coat or otherwise specified for the project.
- E. Finish Coat: Apply finish coat to match specified finish type, texture, and color. Do not apply finish coat to surfaces to receive sealant. Keep finish out of sealant joint gaps.

3.5 CLEAN-UP

- A. Removal: Remove and legally dispose of EIFS materials from job site.
- B. Clean surfaces and work area of foreign materials resulting from material installation.

3.6 PROTECTION

- A. Provide protection of installed materials from water infiltration into or behind them.

- B. Provide protection of installed materials from dust, dirt, precipitation, and freezing during installation, and continuous high humidity until fully cured and dry.
- C. Clean exposed surfaces using materials and methods recommended by the manufacturer of the material or product being cleaned. Remove and replace work that cannot be cleaned to the satisfaction of the Project Designer/Owner.

END OF SECTION 07 24 00

SECTION 07 52 16.11
COLD APPLIED MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes thermoplastic membranes for the following applications:
1. Roof Membranes: SBS modified bituminous membrane roofing
 - a. Field Membrane
 - b. Flashing Membrane
- B. Related Sections:
1. Section 06 10 00 "Rough Carpentry" for wood nailers, curbs, and blocking, and for wood-based, structural-use roof deck panels.
 2. Section 07 62 00 "Sheet Metal Flashing and Trim" for premanufactured metal copings, roof edge fascia, gravel stops, reglets, roof edge flashings, and counter flashings.

1.3 REFERENCES

- A. References in these specifications to standards, test methods and codes, are implied to mean the latest edition of each such standard adopted. The following is an abbreviated list of associations, institutions, and societies which may be used as references throughout this specification section.
1. ASTM: American Society for Testing and Materials
 2. FM: Factory Mutual Engineering and Research
 3. NRCA: National Roofing Contractors Association
 4. OSHA: Occupational Safety and Health Administration
 5. SMACNA: Sheet Metal and Air Conditioning Contractors National Association
 6. UL: Underwriters Laboratories

1.4 PREINSTALLATION MEETINGS

- A. Pre-installation Roofing Conference at Jobsite: Hold a meeting with the Owner, Construction Manager, Architect, Roofing Contractor, Roofing Manufacturer's Representative, and other applicable trades to discuss the means and methods related to roofing installation. The Roofing Contractor shall examine the substrate that will receive the specified roofing materials and confirm its suitability for attachment of the specified roofing system.

1.5 ACTION SUBMITTALS

- A. Product Data: For each thermoplastic product indicated.
- B. Product Certificates: For each type of modified bitumen membrane and accessory.
- C. Modified Bitumen Membrane Schedule: Include the following information:
 - 1. Membrane application.
 - 2. Membrane manufacturer and product name.

1.6 INFORMATIONAL SUBMITTALS

- A. Manufacturers Contractor Certification Certificate, manufacturer's literature, and materials list for proposed roof assembly.
- B. MSDS sheets are required for all materials and products to be used during the performance of the work. MSDS sheets are to be submitted with the submittals.
- C. The Contractor shall submit in writing on the form provided, that all materials to be used on the project do not contain asbestos.
- D. System shall be designed to meet a minimum wind uplift rating of 90# per square foot as tested and listed by FM Global or Underwriters Laboratories with corner and perimeter enhancements.
- E. System shall have a class A fire resistance rating per UL.

1.7 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Submit the manufacturer's care and maintenance guide.
- B. Executed Guarantee: Provide the Owner with an executed version of the specified guarantee.

1.8 QUALITY ASSURANCE

- A. The roofing system shall be applied only by a Roofing Applicator authorized by one or more of the membrane manufacturers listed in the product section of the specifications.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.
- B. Storage: Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing manufacturer.
 - 1. Protect stored liquid material from direct sunlight, heat, open fire, ignition sources, oxidizing agents, strong acids, and strong alkalis.
 - 2. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protection: Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Comply with the insulation manufacturer's written instructions for handling, storing, and protecting materials during installation.
- D. Handling: Handle and place roofing materials and equipment in a manner to avoid permanent deflection of deck.

1.10 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing to be installed in accordance with manufacturer's written instructions and warranty requirements.
- B. Membrane Protection: Provide protection against staining and mechanical damage for newly applied roofing and adjacent surfaces throughout this project.
- C. Debris Removal: Remove all debris daily from the project site and take to a legal dumping area authorized to receive such materials.
- D. Site Condition: Complete, to the owner's satisfaction, all job site clean-up including building interior, exterior and landscaping where affected by the construction.
- E. Torch Safety: Crew members handling torches shall be trained by an Authorized Certified Roofing Torch Applicator (CERTA) Trainer, be certified according to CERTA torch safety guidelines as published by the National Roofing Contractors Association (NRCA), and follow torch safety practices as required by the contractor's insurance carrier. Designate one person on each crew to perform a daily fire watch. The designated crew member shall watch for fires or smoldering materials on all areas

during roof construction activity, and for the minimum period required by CERTA guidelines after roofing material application has been suspended for the day.

1.11 GUARANTEE

- A. Manufacturer's Guarantee: Provides that the Manufacturer will repair leaks through the covered roofing materials due to material or workmanship defects, subject to certain exclusions, during the specified time period. Refer to guarantee for complete coverage and restrictions.
 - 1. The Guarantee shall provide coverage for the roofing membrane and base flashings. The Guarantee shall be non-prorated and contain no deductibles or limitations on coverage amount.
 - 2. Guarantee Period: 20 years from date of Substantial Completion.
- B. Special Project Warranty: Submit roofing contractor's warranty signed by the Installer, including all components of the roofing and insulation system for the following warranty period:
 - 1. Warranty Period: 5 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturer: A roof system by the following manufacturer is approved for application.
 - 1. Siplast, Inc.
 - 2. Tremco
 - 3. Derbigum
 - 4. Soprema

2.2 ROOFING MEMBRANE SHEET MATERIALS

- A. Base Ply: An ASTM D6163, Type I, Grade S homogenous membrane with a reinforcing mat impregnated/saturated and coated each side with SBS modified bitumen blend and dusted with a fine silica parting agent on both sides. The cross sectional area of the sheet material shall contain no oxidized or non-SBS modified bitumen. The base ply shall possess waterproofing capability, such that a phased roof application can be achieved for prolonged periods of time without detriment to the watertight integrity of the entire roof system and possess the following physical/mechanical properties.

B. Base Ply: An ASTM D6163, Type I, Grade S homogenous membrane with a glass-fiber reinforcing mat impregnated/saturated and coated each side with SBS modified bitumen blend and dusted with a fine silica parting agent on both sides. The cross sectional area of the sheet material shall contain no oxidized or non-SBS modified bitumen. The base ply shall possess waterproofing capability, such that a phased roof application can be achieved for prolonged periods of time without detriment to the watertight integrity of the entire roof system and possess the following physical/mechanical properties.

1. Thickness (avg): 91 mils (2.3 mm) (ASTM D5147)
2. Thickness (min): 87 mils (2.2 mm) (ASTM D5147)
3. Weight (min per 100 ft² of coverage): 62 lb (3.0 kg/m²)
4. Peak filler content in elastomeric blend - 35% by weight
5. Low temperature flexibility @ -15°F (-26°C): PASS (ASTM D5147)
6. Peak Load (avg) @ 73°F (23°C): 30 lbf/inch (5.3 kN/m) (ASTM D5147)
7. Peak Load (avg) @ 0°F (-18°C): 70 lbf/inch (12.3 kN/m) (ASTM D5147)
8. Ultimate Elongation (avg.) @ 73°F (23°C): 50% (ASTM D5147)
9. Compound Stability (max): 0.1% (ASTM D5147)
10. High Temperature Stability (min): 250°F (121°C) (ASTM D5147)

- a. Siplast, Inc. : Paradiene 20
- b. Tremco: POWERply Heavy Duty Base Sheet
- c. Derbigum: Deribase Ultra
- d. Soprema; Elastophene Sanded 2.2

B. Finish Ply: An ASTM D6163, Type I, Grade G homogenous membrane with a reinforcing mat impregnated/saturated and coated each side with SBS modified bitumen blend and dusted with a fine silica parting agent on bottom surface and a coarse mineral-granule top surfacing. The cross sectional area of the sheet material shall contain no oxidized or non-SBS modified bitumen.

Approvals: UL Class listed, FM Approved (products shall bear seals of approval)
Reinforcement: fiberglass mat or other meeting the performance and Compound stability criteria

1. Thickness (avg): 130 mils (3.3 mm) (ASTM D5147)
2. Thickness at selvage (coating thickness) (avg): 98 mils (2.5 mm) (ASTM D5147)
3. Thickness at selvage (coating thickness) (min): 94 mils (2.4 mm) (ASTM D5147)
4. Weight (min per 100 ft² of coverage): 90 lb (4.4 kg/m²)
5. Peak filler content in elastomeric blend: 35% by weight
6. Low temperature flexibility @ -15° F (-26° C): PASS (ASTM D5147)

7. Peak Load (avg) @ 73°F (23°C): 30 lbf/inch (5.3 kN/m) (ASTM D5147)
8. Peak Load (avg) @ 0°F (-18°C): 75 lbf/inch (13.2 kN/m) (ASTM D5147)
9. Ultimate Elongation (avg.) @ 73°F (23°C): 55% (ASTM D5147)
10. Compound Stability (max): 0.1% (ASTM D5147)
11. High Temperature Stability (min): 250°F (121° C) (ASTM D5147)
12. Granule Embedment (max loss): 2.0 grams per sample (ASTM D5147)
13. Approvals: UL Class listed, FM Approved (products shall bear seals of approval)
14. Reinforcement: fiberglass mat or other meeting the performance and Compound stability criteria
15. Surfacing: ceramic granules
 - a. Siplast, Inc. : Paradiene 30 FR
 - b. Tremco: POWERply Standard FR
 - c. Derbigum: Derbicolor GPFR
 - d. Elastophene® LS FR GR

2.3 BASE FLASHING SHEET MATERIALS

- A. Flashing Reinforcing Ply and Cant Backer: An ASTM D6163, Type I, Grade S homogenous membrane with a reinforcing mat impregnated/saturated and coated each side with SBS modified bitumen blend with a factory applied polymer modified asphalt self-adhesive on the back surface of the sheet to provide full adhesion to the total surface area of the substrate. The back side of the base ply shall be surfaced with a removable film.
 - a. Siplast, Inc. : Paradiene 20
 - b. Tremco: POWERply Heavy Duty Base Sheet
 - c. Derbigum: Deribase Ultra
 - d. Soprema; Sopralene 180 Sanded 2.2

- B. Granule-Surfaced Flashing Sheet: An ASTM D6162, Type II Grade G homogenous membrane with a fiberglass scrim/polyester reinforcing mat composite impregnated/saturated and coated each side with the SBS modified bitumen blend and dusted with a fine silica parting agent on bottom surface and a coarse mineral-granule top surfacing. The cross sectional area of the sheet material shall contain no oxidized or non-SBS modified bitumen.
 - a. Siplast, Inc. : Paradiene 30 FR / Parafor 30
 - b. Tremco: POWERply Standard FR
 - c. Derbigum: Derbicolor GPFR
 - d. Soprema; Sopralene 180 FRGR

2.4 PRIMERS

- A. Asphalt Primer: Primer shall meet ASTM D41 criteria.
 - 1. Coordinate primers with selected manufacturer's recommendation.
- B. Low VOC Asphalt Primer: Primer shall meet ASTM D41 criteria and South Coast Air Quality District and Ozone Transport Commission requirements.
- C. Primer for Self-Adhesive Membranes: Primer for self-adhesive membranes shall be a single component, water-based resinous primer formulated to condition masonry, wood, plywood, concrete, asphaltic, and gypsum surfaces to facilitate adhesion of self-adhesive membranes.
- D. Ultra low VOC under 32 grams of VOC.

2.5 AUXILIARY ROOFING MATERIALS

- A. Roofing Asphalt: ASTM D312, Type [III or IV].
 - 1. Siplast, PA-1021, PA-828
 - 2. Tremco, ELS
 - 3. Derbigum, Derbimastic S
 - 4. Soprema
- B. Cold-Applied Asphalt Adhesive: An asphalt, solvent blend conforming to ASTM D4479, Type II requirements.
- C. Membrane Adhesive: A single-component, moisture curing, low-odor adhesive designed for application of the specified roof membrane system.
- D. Asphalt Roofing Cement: An asphalt cutback mastic, reinforced with non-asbestos fibers, used as a base for setting metal flanges conforming to ASTM D4586 Type II requirements.
- E. Flashing Cement: A slump resistant, asphalt cutback flashing adhesive, reinforced with non-asbestos fibers, conforming to ASTM D4586 Type II requirements.
- F. Flashing Cement: A single-component, moisture curing, low-odor adhesive formulated in a grade for application of flashing materials.
- G. Sealant: A moisture-curing, self-leveling elastomeric sealant designed for roofing applications.
 - 1. All sealants and pitch pocket fillers must be coordinated with membrane manufacturer to meet requirements for specified NDL warranty.
- H. Ceramic Granules: No. 11 grade specification ceramic granules of color scheme matching the granule surfacing of the finish ply.

2.6 SUBSTRATE BOARD

- A. Substrate Board: A panel composed of a gypsum based, non-structural water resistant core material integrally bonded with fiberglass mats on both sides. Provide panels having a nominal thickness of five eighths inch (5/8"). Acceptable types are as follows:
1. Dens Deck as manufactured by Georgia Pacific or equal.
 2. Securock as manufactured by USG
 3. Dexcell as manufactured by National Gypsum Corporation and by Georgia Pacific Corporation

2.7 ROOF INSULATION

- A. General: Insulation shall be approved in writing by the insulation manufacturer for intended use and for use with the specified roof assembly. Maintain a maximum panel size of 4 feet by 4 feet where polyisocyanurate / fiberboard insulation is specified to be installed in insulation adhesive or hot asphalt. Install only as much insulation as can be made watertight during the same work day.
- B. Polyisocyanurate Board Insulation (organic paper facer): A closed cell, rigid polyisocyanurate foam core material, integrally laminated between glass fiber reinforced organic facers, and meeting the criteria established by ASTM C1289, Type II, Class 1, Grade 2. Panels shall have a nominal thickness of one and one-half inches. Acceptable types are as follows:
1. Sarnafil Sarnatherm
 2. Fibertite FTR Value
 3. Tremco Trisotech
 4. Carlisle Secure Shield
 5. Siplast Paratherm
 6. Duro-Guard polyisocyanurate

2.8 INSULATION COVER PANEL

- A. Gypsum Sheathing Panel: A panel composed of a gypsum based, non-structural water resistant core material integrally bonded with fiberglass mats on both sides having a nominal thickness of one-quarter inch (1/4"). The panel surface shall be factory primed with a non-asphaltic primer. Acceptable types are as follows:
1. 1/4" Dens Deck Prime as manufactured by Georgia Pacific or equal.
 2. 1/4" Securock as manufactured by USG
 3. 1/4" Dexcell as manufactured by National Gypsum Corporation.

2.9 INSULATION ACCESSORIES

- A. Insulation Fasteners: The insulation fasteners shall provide attachment required to meet the specified uplift performance and to restrain the insulation panels against the potential for ridging.
- B. Threaded Fasteners-All threaded fasteners used to secure the insulation, roof system or accessory components shall be approved by the membrane manufacturer. Contractor's submittal shall include complete listing of fasteners to be used for this installation.
- C. Insulation Adhesive:
 - 1. Membrane Adhesive:
All membrane adhesives must be coordinated with membrane manufacturer to meet requirements for specified NDL warranty.
 - 2. Insulation Board Adhesive
All insulation board adhesives must be coordinated with membrane manufacturer to meet requirements for specified NDL warranty.
- D. Insulation Cant Strips: A cant strip composed of expanded volcanic minerals combined with waterproofing binders, meeting ASTM C728 criteria. The top surface shall be pre-treated with an asphalt based coating. The face of the cant shall have a nominal 4 inch dimension.
- E. Tapered Edge Strips: A tapered panel composed of expanded volcanic minerals combined with waterproofing binders. The top surface shall be pre-treated with an asphalt based coating. The panels shall have a dimension sufficient to provide for a smooth transition and provide proper support for the membrane layer or subsequent layer of insulation when there are transitions of 1/4 inch or greater.

2.10 WALKWAYS

- A. Walktread: A granule-surfaced polymer modified bitumen sheet material reinforced with a prefabricated, puncture resistant polyester core, having a thickness of 0.217 in (5.5 mm) and a width of 30 inches (76.2 cm).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Substrate Qualification: The installing contractor shall examine all substrates where the specified roofing and flashing system will be applied and confirm their suitability to receive the specified roofing materials.

3.2 PREPARATION

- A. Sweep or vacuum all surfaces, removing all loose aggregate and foreign substances prior to commencement of roofing.
- B. Remove all of the following existing conditions:
 - 1. Surface gravel
 - 2. Roof membrane
 - 3. Insulation
 - 4. Base flashings
 - 5. Edge metal
 - 6. Flanged metal flashings
 - 7. Cants
 - 8. Walkways
 - 9. Nonfunctional penetrations/curbs
 - 10. Drain assemblies
 - 11. Vapor retarder
 - 12. Metal trim, counter flashing
- C. Primer for Self-Adhesive Flashing Reinforcing Ply: Apply the specified tacky primer by roller or spray in an even film. Refer to the manufacturer's literature for the approved rate of application over various substrate types. Allow the primer to dry until it leaves a slightly sticky surface without transfer when touched. Cutting or alteration of the primer is not permitted.
- D. Asphaltic Primer: Prime metal and concrete and masonry surfaces with a uniform coating of the specified asphalt primer according to the manufacturer's published application rate. Cutting or alteration of the primer is not permitted.

3.3 INSTALLATION OF ROOFING, GENERAL GUIDLEINES

- A. Adhesive Application: Apply membrane cold adhesive by roller, squeegee or spray unit in a smooth, even, continuous layer without breaks or voids. Utilize an application rate for each ply as published by the roof membrane manufacturer. Double the adhesive application rate at the end laps of granule surfaced sheets. Where solvent-based adhesive is applied, refer to the manufacturer's inter-ply flashing detail at the locations that are to receive the specified catalyzed acrylic resin primer/flashing system. Cutting or alteration of the adhesive is not permitted.
- B. General Appearance: Ensure that the finished roofing application has an aesthetically pleasing overall appearance and is acceptable to the Owner.

3.4 INSTALLATION OF SUBSTRATE BOARD

- A. Install substrate panels with end joints offset and edges in moderate contact in accordance with the panel manufacturer's requirements. Install only as many panels as can be made watertight within the same workday.

3.5 INSTALLATION OF INSULATION AND COVERBOARD

- A. Install insulation panels with end joints offset with edges in moderate contact in accordance with the insulation manufacturer's requirements. Where insulation is installed in two or more layers, stagger joints between layers. Maintain a maximum panel size of 4 feet by 4 feet for polyisocyanurate / fiberboard insulation applied in insulation adhesive or hot asphalt. Install only as much insulation as can be made watertight within the same work day.
- B. Crickets: Construct crickets of tapered insulation panels in a layout as indicated on the roof plan.
- C. Tapered Edge at Transitions: Field-cut, shape and install tapered edge strip at transitions of 1/4 inch or greater between substrate components to provide a smooth transition and proper support for the subsequent insulation layer or membrane/flashing system components.

3.6 APPLICATION OF BITUMINOUS ROOFING MEMBRANE

- A. Apply all layers of roofing with side laps running perpendicular to the direction of the slope. Exert sufficient pressure on the roll during application to ensure prevention of air pockets, wrinkles, creases or fishmouths. Refer to the manufacturer's guidelines for maximum sheet lengths and special fastening of the head laps where the roof deck slope exceeds 1/2 inch per foot.
- B. Fully bond the base ply to the prepared substrate, utilizing minimum 3 inch side and end laps. Apply each sheet directly behind the cold adhesive applicator. Cut a dog ear angle at the end laps on overlapping selvage edges. Using a clean trowel, apply top pressure to top seal T-laps immediately following sheet application. Stagger end laps a minimum of 3 feet.
- C. Fully bond the finish ply to the base ply, utilizing minimum 3 inch side and end laps. Apply each sheet directly behind the cold adhesive applicator. Stagger end laps of the finish ply a minimum 3 feet. Cut a dog ear angle at the end laps on overlapping selvage edges. Using a clean trowel, apply top pressure to top seal T-laps immediately following sheet application. Stagger side laps of the finish ply a minimum 12 inches from side laps in the underlying base ply. Stagger end laps of the finish ply a minimum 3 feet from end laps in the underlying base ply.

3.7 APPLICATION OF FLASHING AND STRIPPING

- A. Modified Bitumen Flashing System: Apply the specified base flashing materials in accordance with the manufacturer's standard details. Notify the design team immediately of any flashing heights below 8 inches. For torch applied base flashings, apply a 12-inch self-adhesive cant backing sheet extending 6 inches onto the field of the roof area and a minimum of 6 inches up the vertical surface utilizing minimum 3 inch laps. Set the non-combustible cant into place dry prior to installation of the roof membrane base ply and subsequent flashing system. Flash walls and curbs using the reinforcing sheet and flashing membrane. Exert pressure on the flashing sheet during application to ensure complete contact with the vertical/horizontal surfaces, preventing air pockets. Check and seal all loose laps and edges. Nail the top edge of the flashing on 9 inch centers. (See the manufacturer's schematic for visual interpretation).
- B. Liquid Flashing System: Install the specified liquid-applied flashing system in accordance with the membrane system manufacturer's printed installer's guidelines and other applicable written recommendations as provided by the manufacturer.

3.8 APPLICATION OF SEALANT

- A. Apply a smooth continuous bead of the specified sealant at the exposed finish ply edge transition to metal flashings incorporated into the roof system.

3.9 APPLICATION OF WALKTREAD

- A. Cut the specified walktread into maximum 5 foot lengths and allow to relax until flat. Adhere the sheet using the specified plastic cement. Apply the specified cement in a 3/8 inch thickness to the back of the product in 5 inch by 5 inch spots in accordance with the pattern as supplied by the walktread manufacturer. Walk-in each sheet after application to ensure proper adhesion. Use a minimum spacing of 2 inches between sheets to allow for proper drainage.

3.10 FIELD QUALITY CONTROL

- A. Notify the manufacturer of job completion in order to schedule a final inspection date. Hold a meeting at the completion of the project, attended by all parties that were present at the pre-job conference. A punch list of items required for completion shall be compiled by the manufacturer's representative. Complete, sign, and send the punch list form to the manufacturer's headquarters.
- B. Leave all areas around job site free of debris, roofing materials, equipment and related items after completion of job.
- C. Complete all post installation procedures and meet the manufacturer's requirements for issuance of the specified guarantee.

END OF SECTION 07 52 16

SECTION 07 54 19
THERMOPLASTIC (PVC) MEMBRANE ROOFING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes thermoplastic membranes for the following applications:
 - 1. Roof membranes:
 - a. Field Membrane
 - b. Flashing membrane.

1.3 ACTION SUBMITTALS

- A. Product Data: For each thermoplastic product indicated.
- B. Product Certificates: For each type of thermoplastic membrane and accessory.
- C. Thermoplastic Membrane Schedule: Include the following information:
 - 1. Membrane application.
 - 2. Membrane manufacturer and product name.

1.4 INFORMATIONAL SUBMITTALS

- A. Manufacturers Contractor Certification Certificate, manufacturer's literature, and materials list for proposed roof assembly.
- B. MSDS sheets are required for all materials and products to be used during the performance of the work. MSDS sheets are to be submitted with the submittals.
- C. The Contractor shall submit in writing on the form provided, that all materials to be used on the project do not contain asbestos.
- D. System shall be designed to meet a minimum wind uplift rating of 90# per square foot as tested and listed by FM Global or Underwriters Laboratories with corner and perimeter enhancements.

- E. System shall have a class A fire resistance rating per UL.

1.5 QUALITY ASSURANCE

- A. The roofing system shall be applied only by a Roofing Applicator authorized by one or more of the membrane manufacturers listed in the product section of the specifications.

1.6 WARRANTY

- A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

- 1. Warranty Period: Two years from date of Substantial Completion.

- B. Special Manufacturer's Warranty: A Manufacturer's NDL Warranty for the roofing materials shall be part of this contract and paid for by this contractor as part of the base bid and delivered to the Owner at the completion of the Project. The warranty shall start after the acceptance of the owner.

- 1. Warranty Period: Twenty years from date of Substantial Completion/acceptance of owner.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

Materials shall be delivered to the job site dry and undamaged. Materials shall be stored in van trailers and/or completely covered with waterproof tarpaulin coverings (lightweight tarpaulins will be acceptable when properly secured) Vinyl or polyethylene sheets or insulation shipping wrappers are not suitable covering and material so stored will be marked, rejected, and removed from the site. Materials shall remain on the original shipping pallets or placed on raised platforms to keep them off the ground or storage surface. All rolled goods shall be stored on pallets or raised platforms ON END and not laid flat on the storage surface. Damaged or "flattened" rolls will be rejected and removed from the job site. Materials shall be brought to the roof as needed for a day's application.

The Base Bid is open to any of the following or an owner approved equal.

A. SINGLE PLY PVC ROOFING MEMBRANE

- 1. Fibertite (SM-FB), 45 MIL SM-FB
- 2. Sarnafil (G410 Feltback), 60 MIL

3. Tremco 60MIL Tremply KEE FB
4. Carlisle Syntec 60 MIL Fleece Back
5. Siplast Parasolo PVC KEE Fleece Back 60 MIL
6. Durolast DFC60 Fleece Back 60 MIL

B. INSULATION/RIGID BOARD INSULATION

1. Sarnafil Sarnatherm
2. Fibertite FTR Value
3. Tremco Trisotech
4. Carlisle Secure Shield
5. Siplast Paratherm
6. Duro-Guard polyisocyanurate

C. INSULATION/OVERLAYMENT/RECOVER BOARD

¼" Silicone Impregnated Fiberglass Faced Gypsum Board shall be overlay board per manufacturer acceptance.

1. ¼" Dens Deck Prime as manufactured by Georgia Pacific or equal.
2. ¼" Securock as manufactured by USG
3. ¼" Dexcell as manufactured by National Gypsum C.

D. ADHESIVES:

1. Membrane Adhesive:
All membrane adhesives must be coordinated with membrane manufacturer to meet requirements for specified NDL warranty.
2. Insulation Board Adhesive
All insulation board adhesives must be coordinated with membrane manufacturer to meet requirements for specified NDL warranty.

E. WALKWAY MATERIAL

All walkway surface, pads, or sheets must be coordinated with membrane manufacturer to meet requirements for specified NDL warranty.

F. SEALANTS AND PITCH POCKET FILLERS

All sealants and pitch pocket fillers must be coordinated with membrane manufacturer to meet requirements for specified NDL warranty.

2.2 MISCELLANEOUS MATERIALS

- A. Wood Nailer - Fire treated wood nailers shall be installed at the perimeter of the entire roof and around such other roof projections and penetrations as specified on Project Drawings. Thickness of nailers must match the insulation

thickness to achieve a smooth transition. Wood nailers shall be treated for fire and rot resistance (wolmanized or osmose treated) and be #2 quality or better lumber. Creosote or asphalt-treated wood is not acceptable. Wood nailers shall conform to Factory Mutual Loss Prevention Data Sheet 1-49. All wood shall have a maximum moisture content of 19 percent by weight on a dry-weight basis.

- B. Plywood- When bonding directly to plywood, a minimum $\frac{3}{4}$ " inch (12 mm) CDX (C side out), smooth-surfaced exterior grade plywood with exterior grade glue shall be used. Plywood shall have a maximum moisture content of 19 percent by weight on a dry weight basis.
- C. Tapered edge strips shall be fabricated from wood fiber insulation material complying with ASTM Specification C—208 cut to taper from 0" to 1-1/2" in the 12" or 18" dimension.
- D. Cant strips shall be fabricated from wood fiber insulation and shall comply with ASTM Specification C-208. Cant shall be cut to fit at 45 degrees. Cant strip will be a maximum of four inches (4").
- E. MECHANICAL FASTNERS
 - 1. Capped Nails-Simplex Large (round) Head Felt Nails, 1-1/2"
 - 2. Threaded Fasteners-All threaded fasteners used to secure the insulation, roof system or accessory components shall be approved by the membrane manufacturer. Contractor's submittal shall include complete listing of fasteners to be used for this installation.
 - 3. Masonry Expansion Fasteners: Hilti Metal Hit-Anchor (lead base), $\frac{1}{4}$ " X 1-1/4" minimum, longer fasteners may be required for some applications.
 - 4. Simplex Hardened Masonry Nails, 1-1/2"
 - 5. Nail Manufacturers
 - a. Maze Nails
 - b. Simplex
 - c. Hilti
 - d. Cobra
 - e. Red Head
- F. TERMINATION BAR
 - 1" x 1/8" Aluminum termination bar pre-punched 6" O.C.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for

compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Remove laitance and form-release agents from concrete.
3. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Glazed surfaces of ceramic tile.

- B. Joint Priming: Prime joint substrates were recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint- sealant bond; do not allow spillage or migration onto adjoining surfaces.

- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193

for use of joint sealants as applicable to materials, applications, and conditions indicated.

- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

3.2 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.3 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 07 54 00

SECTION 07 62 00
SHEET METAL FLASHING & TRIM

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the contract, including General and Supplementary Conditions and Division 1 Specifications Sections, apply to this Section.

1.2 SUMMARY

- A. Fabrication and installation of sheet metal materials, both shop and field manufactured.

1.3 REFERENCES

- A. Refer to the following references for specification compliance:
 - 1. 2018 North Carolina Building Code
 - 2. American Society for Testing and Materials (ASTM)
 - 3. National Roofing Contractors Association (NRCA)
 - 4. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

1.4 DEFINITIONS

- A. Flashing: In shop fabrication of metal flashing, followed by installation.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated. Include material descriptions, product data sheets, material safety data sheets and literature verifying physical properties and available colors of materials.
- B. Pre-finished sheet metal and sealant color chart
- C. Shop drawings for any transitions and/or terminations not depicted in Contract Drawings.
- D. Warranties: Sample of any special warranties.

1.6 QUALITY ASSURANCE

- A. Obtain metal from a single source manufacturer to the greatest extent possible.

- B. Installation shall comply with the contract drawings and SMACNA Architectural Sheet Metal Manual.
- C. Contractor to check the availability of the selected color in both 24 and 22 gage.
- D. Ensure work is free of leaks in all weather conditions.
- E. Workmanship shall be first-class in every respect. The sheet metal work shall be assembled and secured in accordance with these specifications, the manufacturer's requirements and referenced standards.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Deliver to site the fabricated items in timely manner.
- B. Storage: Store materials within areas designated or approved by the Owner. Ensure materials remain dry, covered and not in contact with the ground.
- C. Handling: Handle materials in such a manner as to preclude damage and contamination.

1.8 PROJECT CONDITIONS

- A. Install all items in strict accordance with all published safety, weather, or applicable regulations of the manufacturer and local, state, and federal agencies which have jurisdiction.
- B. Always protect the building and its components from the elements.
- C. Coordinate all phases of work.

1.9 WARRANTY

- A. A Two-Year Contractors Warranty for sealant application in which the contractor agrees to repair work sections that fail due to workmanship within specified warranty period.
- B. Pre-finished sheet metal manufacturer's thirty (30) year finish warranty from the date of substantial completion.

PART 2 – PRODUCTS

2.1 PRE-FINISHED STEEL

- A. ASTM A 653, AISI G90 zinc coated sheets, commercial steel, extra smooth, primed and finished on one side with Kynar/Hylar based fluoropolymer coating of 1.0 mil total dry film thickness, and on the reverse side, with a wash coat of 0.3 to 0.4 mil dry film thickness. A strippable plastic film should protect the finish during fabrication and installation. Manufacturer's standard color to be selected by owner.

1. 24 gauge

- a. Flashing
- b. Counter flashing
- c. Collector head
- d. Downspout
- e. Flush Panels
- f. Batten Panels

2.2 GALVANIZED STEEL

- A. ASTM, A 653, AISI G90 galvanized steel, mill finish.

2.3 STAINLESS STEEL

- A. 18-gauge, Type 304 as tested in accordance with ATSM A 167.

1. ZEE

2.4 FASTENERS

- A. Roofing Nails: 11-gauge stainless steel ring shank roofing nails with diamond point, minimum 3/8" diameter head and 1¼" length.
- B. Screws: #12 stainless steel hex or pan head screws with length to penetrate substrate a minimum of 1½".
- C. Concrete and Masonry Anchors: ¼" diameter metal-based expansion anchor with stainless steel pin of length to penetrate substrate a minimum of 1½".
- D. Washers: Shall be stainless steel with neoprene gasket backing. Shall be 9/16" diameter for use with #12 screws and 5/8" diameter for use with ¼" diameter concrete and masonry anchors.
- E. Rivets: #44 stainless steel rivets with stainless steel mandrel. Length of rivet to properly fasten sheet metal components. Rivets shall be factory painted to match adjacent sheet metal.

2.5 RELATED MATERIALS

- A. Self-adhering Membrane: 40-mil minimum thickness sheet; slip-resistant surfacing, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; suitable for high temperature applications up to 250 degrees. Acceptable products include:
 - 1. Mid-States Asphalt Quik-Stick HT Pro
 - 2. Grace Ice and Water Shield HT
 - 3. TAMKO: Moisture guard plus

- B. Polyurethane Sealant: One-component elastomeric gun grade polyurethane sealant conforming to ASTM C 920, Type S, Grade NS, Class 25, and use NT, M, A, G or O As required by substrate conditions. Color to match adjacent materials.
- C. Silicon Sealant: Shall be a one-component, non-sag, 20-year warranty, neutral cure, low-modulus, UV resistant, high performance silicone sealant. Shall meet ASTM C 920, Type S, Grade NS, Class 100, Use M, G, A or O. Color to match adjacent materials.
- D. Sealant Tape: Minimum ½" wide non-skinning butyl sealant tape.
- E. Solder: 20-80 tin-lead alloy conforming to ASTM B32.
- F. Flux: Muriatic acid killed with zinc, or an accepted brand of commercial soldering flux designed for use with 20-80 solder.

PART 3 – EXECUTION

3.1 GENERAL:

- A. All metal flashings and accessories are to be installed as noted in the drawings or specifications.
- B. Metal flashings and accessories shall not be face fastened unless specified and/or approved in writing prior to installation of fasteners through metal faces. If face fastening is stipulated, only screw or expansion type fasteners will be acceptable.
- C. Any deviation from these specifications and drawings must be approved prior to installation. Shop drawings of alternate details shall be submitted to the Owner and approved, or the materials installed shall be removed and replaced in accordance with the drawings/specifications at the discretion of the Owner.
- D. Metal counterflashing, gravel stop and closures extending over or across expansion joints in the roof or walls shall be interrupted and metal closures installed to accommodate anticipated movement of structural sections.
- E. Use fasteners of the same base metal as the accessory metal to be secured or when this is not possible, cover the exposed portion of the fastener with caulking material to eliminate galvanic response between the metals. Fasteners fabricated from compatible metals will be acceptable (stainless steel screws/bolts with aluminum, brass fasteners with copper).
- F. All exposed edges of metal flashings and accessories shall be hemmed to a minimum of 3/8". Exposed ends of metal flashings and accessories shall be closed by fabricating a watertight metal closure to cover the exposed end of metal components and mechanically attached to adjacent metal components.

- G. Prior to installation of the metal flashing seal the area around the penetration with plastic roofing cement, one-part urethane foam or cement mortar. If the hole around the penetration is excessively large, cut, and fit No. 15 asphalt saturated organic felt around the penetration prior to the application of sealant material.

3.2 COUNTERFLASHING:

- A. The tops of all membrane base flashings not protected by waterproofing membranes or other closures shall be closed with metal counterflashing in accordance with the specifications and drawings. Metal counterflashing shall lap over tops of membrane base flashing a minimum of three (3") inches at all locations.
- B. New metal counterflashing to be installed into existing or new reglets and shall be fabricated with a ½" wide hemmed metal flange to fit into the receiver, a 1-1/2" wide vertical securement flange and a spring-lock metal section to overlap tops of membrane flashings a minimum of three (3") inches. Counterflashing shall be secured by screw or expansion type fasteners installed through the securement flange spaced nine (9") inches on center. The reglet opening shall be caulked using caulking material specified herein.
- C. Inside and outside corners of counterflashing's shall be field fabricated with metal lapped a minimum of one (1") inch at the corner juncture secured by sealant and pop rivets installed one (1") inch on center with horizontal legs extending away from the corner a maximum of eighteen (18") inches.
- D. Metal sections shall be lapped and interlocked three (3") inches with a bead of caulk applied at the center of the lap between metal sections at joints.
- E. Configuration of metal counterflashing shall be "spring-lock" unless existing conditions prevent installation of metal of such configuration.
- F. Surface mounted counterflashing shall be installed ONLY at locations indicated on drawings or as approved in writing prior to installation. Surface mounted counterflashing shall be installed only to flush, smooth surfaces at areas where the roof surface varies in elevation along perimeter walls.
- G. Surface mounted counterflashing shall be fabricated in a spring lock configuration with a caulk receiver along the top edge a minimum of ½" wide, hemmed to eliminate raw metal edges and formed to allow a minimum ¼" bead of caulk between the outer edge of the metal receiver and the wall surface. The vertical securement flange shall be 1 ½" wide with holes pre-punched nine (9") inches on center. Width shall be sufficient to allow installation/securement of the securement flange over the top of membrane flashings and to overlap tops of membrane flashings a minimum of three (3") inches.
- H. Surface mounted counterflashing shall be installed with the vertical securement flange set over a solid ¼" diameter bead of polysulfide base caulk, secured with screw or

expansion type fasteners installed through pre-punched holes. The top caulk receiver shall be immediately caulked so that the caulk provides a positive slope to the exterior face of the counterflashing.

3.3 METAL FLANGE FLASHING:

- A. All metal flanges to be stripped to the roofing membrane shall be primed with asphalt primer and allowed to dry prior to application of stripping plies. Metal flanges shall be set on top of the roofing membrane in a continuous 1/8" thick application of asphalt flashing cement (ASTM D-2822 type II). Strip the flanges to the roof membrane using modified bituminous flashing materials. Stripping plies shall be set in one piece as much as possible. When stripping plies must be installed in two pieces, lap the modified bituminous membrane at a center overlap a minimum of three (3") inches. Stripping material shall extend onto the roof surface a minimum of four (4") inches.
- B. Modified bituminous stripping shall be set in the manufacturer's approved adhesive. Fuse bonding of modified bituminous stripping will be permissible only when approved in writing by the Owner.

3.4 METAL EDGE ASSEMBLIES:

- A. Install metal edge assemblies in ten (10') feet lengths with a minimum number of pieces in each run. Inside and outside corners shall be field, or shop fabricated with horizontal legs extending from corner junctures a maximum eighteen (18") inches. The horizontal flange on inside corners shall be filled with a fill section of metal to form a continuous three (3") inch wide stripping flange at the corner juncture area. Metal sections shall be "broken" at expansion joints and building control joints to allow for structural expansion/contraction without displacement of accessory metal. Perimeter metal edging shall be secured on the face side with a continuous metal cleat (hook strip) fabricated from metal at least one gage heavier than the accessory metal and in general compliance with recommendations for hook strips listed in Factory Mutual Loss Prevention Data Bulletin 1-49. Intermittent cleats will be acceptable if existing conditions do not permit the use of continuous cleats. The decision will be made by the Owner's representative on the site.
- B. Gravel Stops/Eave Strips shall be fabricated in the configuration depicted on the drawings. Horizontal metal flanges shall be a minimum of three (3") inches wide or 1/2" narrower than the width of the wood nailer to which it is to be attached.
- C. Metal section ends shall be butted with a 1/4" wide gap between sections and the joints closed using six (6") inch wide joint covers set into a solid bed of plastic roofing cement (excepting at gutters and rake edges where sections shall be lapped three (3") inches and sealed between lapped metal sections with plastic roofing cement). At gutters, metal sections shall be lapped three (3") inches with a liberal application of plastic roofing cement between metal contact surfaces at the overlap.

3.5 PITCH PANS:

- A. Install pitch pans in the areas indicated on the drawings. Vertical flanges shall be a minimum of four (4") inches high with top edges hemmed a minimum of ½". Corners of flanges shall be filled with metal sections soldered to adjacent metal to form a continuous flange around the pitch pan base. The vertical open joint shall be secured with a minimum of two (2) No. 8 X ½" pan head sheet metal screws and where possible the joint shall be soldered after installation. All pitch pans installed around singular penetrations shall be covered with weather caps attached and sealed to the penetration a maximum of three (3") inches above the pitch pan top edge or closed with metal form closures.
- B. Fill the pitch pan approximately ½ full of non-shrink cementitious grout. Fill the balance of the pitch pan with pourable sealer. Install weather caps or top closures over pitch pans.

3.6 WEATHERCAPS:

- A. Weather caps shall be installed over all penetration flashings except at plumbing vents or other like conditions where flashing metal is turned into the tops of pipes, or the penetration is otherwise integrally secure against water entry. Weather caps/storm collars shall be mechanically secured to penetrations as shown in the drawings. Securement of the weather cap to the penetration by sealant or caulk alone will not be acceptable. Weather caps shall be fabricated from the same base metal as the penetration to which it is to be attached.
- B. Where installation of weather caps is impractical or impossible, the Contractor shall fabricate and install a two-part metal closure over the pitch pan or penetration flashing. The juncture of the closure sections shall be caulked and secured with screws or pop rivets. The closure shall be fabricated from the same type of metal as the pitch pan/penetration flashing and shall be mechanically secured to the vertical sides of the flashing.

3.7 METAL BASE FLASHING AT STACKS:

- A. Metal base flashing for stacks/chimneys shall be fabricated from stainless steel with a conical shape closure for the penetration. The top of the metal base flashing shall extend a minimum of eight (8") inches above the roof surface. The horizontal metal flange shall be round, minimum three (3") inches wide and be soldered and sealed to the conical vertical section to form a watertight closure.

3.8 SOIL STACK/VENT PIPE FLASHING:

- A. Soil stacks/vent pipes shall be sealed and flashed using pre-formed 16 oz. copper flashings of the appropriate size for the pipe extension. The roofing membrane shall be run tightly around the pipe penetration and the penetration juncture sealed with plastic roofing cement prior to installation of the flashing.

- B. Set the copper flashing over the pipe extending through the roofing membrane with the horizontal flashing flange set into a solid 1/8" thick layer of plastic roofing cement. Apply a thin continuous layer of plastic roofing cement over the top surface of the copper flange. Strip the flange to the roofing membrane using modified bituminous flashing materials fuse bonded to the metal and to the top surface of the adjacent roofing membrane. The stripping ply shall extend a minimum of six (6") inches beyond the metal onto the roof surface. Trim the top of the copper flashing so that it extends approximately one (1") inch above the top of the pipe and bend the copper into the pipe opening to form a complete watershed into the pipe.
- C. If soil stacks/vent pipes are too long to close with standard flashing, cut the pipe to allow proper installation of the pre-formed copper flashing or shop fabricate top closures for the copper flashing to extend into the pipe opening one (1") inch and extend down over the outer surface of the flashing a minimum of three (3") inches. If local ordinances or job conditions prohibit shortening of the soil stack/vent pipes, the pipes shall be flashed using shop fabricated 16 oz copper metal flashings formed in two pieces—a soldered and sealed base sized to fit each individual pipe size twelve (12") inches high with a minimum twelve (12") inch diameter round stripping flange and a watertight sleeve top closure extending into the pipe opening two (2") inches and down over the metal base flashing a minimum of three (3") inches. Horizontal metal flanges shall be stripped to the roofing membrane in accordance with the requirements of this section of the specifications.

3.9 METAL COPING:

- A. Metal coping shall be installed in the areas indicated on the roof plan. A continuous waterproofing membrane shall be installed under all metal coping to waterproof tops of walls prior to installation of coping sections. Metal coping shall be fabricated from the specified metal of a configuration in general compliance with the drawings. Provision shall be made to insure positive slope of the metal coping section top surfaces toward the roof side. Standing metal seam joints shall be made at every joint.
- B. Vertical faces (front and rear) of the coping metal shall extend below the top of the wall a minimum of two inches. Metal coping sections shall be maximum ten feet in length unless otherwise agreed upon in writing.
- C. Standing seam joint ends shall be fabricated to form a mitered corner. Corner joints shall be standing seam with a minimum one-inch overlap on vertical faces. The overlap shall be sealed with caulk and secured by pop rivets installed one inch on center. Corner sections shall not extend more than 24" from the corner in either direction.
- D. Metal coping sections shall be secured on the face side by a continuous metal cleat secured to the wood nailer. Cleat (Hook Strip) requirements shall be as established in Factory Mutual Loss Prevention Data Bulletin 1-49, allowing for face dimension of the cleat, or as indicated on the drawings.

- E. Inside vertical surfaces of coping sections shall be secured to the wood nailers installed on the wall top using #8 stainless steel screws of appropriate length with inherent steel and neoprene washers installed through elongated, pre-punched holes spaced twelve inches on center.

3.10 CAULKING/SEALANTS:

- A. Counterflashing receivers, metal junctures, closures and masonry shall be caulked with the material specified in the material section herein. Caulking and/or sealants shall be of a color to most closely match the surface to which they are to be applied.
- B. All joints and surfaces to receive caulking/sealant shall be completely clean and free of foreign material and debris prior to application of caulk/sealant. Rake existing caulking from joints so that no weathered caulk remains on any surface to which new caulk is to come in contact. Surfaces with protective coatings with which new caulking/sealant will come in contact shall be cleaned with Xylol or an appropriate solvent cleaner to remove protective films and/or oils. Where joints are deeper than $\frac{1}{2}$ " , polyethylene joint backing shall be installed in the joint to within $\frac{1}{2}$ " of the joint surface. Joint backing shall be of a size to allow for a minimum of 30% compression of the backing when installed in the joint. Joints $\frac{1}{2}$ " to $\frac{3}{4}$ " wide shall receive backing so that the depth of the joint to receive caulking does not exceed $\frac{1}{2}$ ". Sealant shall be applied with an appropriate caulking gun through a nozzle opening of such diameter to allow complete filling of the joint with a uniform bead of sealant. All beads shall be tooled immediately after application to insure firm contact with the inner surfaces of the joint. Excess material is to be "struck-off" with a tooling stick or knife. Finished sealant bead is to be flush with adjacent surfaces.
- C. Joint openings more than one (1") inch in width shall be sealed by closure. Do not attempt to caulk joints where the backer rod is not wide enough to be properly compressed in the joint opening.
- D. Contractor shall follow manufacturer's instructions.

3.11 COLLECTOR HEADS / DOWNSPOUTS:

- A. New collector heads and downspouts shall be fabricated and installed in accordance with the attached drawings and roof plan(s).
- B. Downspout sections shall be fabricated from ten-foot stock metal with a minimum of joints in any given run. Where pre-finished metal downspouts are specified, all joints and connections shall be made by sealing all surfaces with epoxy sealant and mechanically secured using $\frac{1}{8}$ " pop rivets 2" on center or minimum one per side or plane of the surfaces connected. Where stainless steel or galvanized steel is specified, all joints and connections shall be soldered solid.

- C. Downspouts shall be secured to the vertical wall/surface, five feet on center, with hangers fabricated two inches wide and secured to the wall with two mechanical fasteners. Downspouts shall be one inch smaller than the bottom section of the collector head.

3.12 FIELD QUALITY CONTROL AND INSPECTIONS

- A. Site Condition: Leave all areas around job site free of debris, roofing materials, equipment, and related items after completion of job.
- B. Notification of Completion: Notify the manufacturer by means of manufacturer's printed Notification of Completion form of job completion to schedule a final inspection date.
- C. Final Inspection/Post-Installation Meeting: Hold a meeting at the completion of the project, attended by all parties that were present at the pre-job conference. A punch list of items required for completion shall be compiled by the Contractor and the manufacturer's representative. Complete, sign, and mail the punch list form to the manufacturer's headquarters.
- D. Issuance of the Guarantee: Complete all post installation procedures and meet the manufacturer's final endorsement for issuance of the specified guarantee

3.13 CLEANING AND PROTECTION

- A. General:
 - 1. Contractor to remove protective film after installation.
 - 2. Clean any material off the metal according to the instructions from the manufacturer.
 - 3. All joints shall be neat and without any openings.

END OF SECTION 07 62 00

SECTION 09 91 13
EXTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Scope: Finish exterior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated, including the following:
 - 1. Roof Ladders

1.02 SUBMITTALS

- A. Product Data: Provide complete list of products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
 - 2. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
- B. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches in size, illustrating range of colors available for each finishing product specified.
 - 1. Where sheen is specified, submit samples in only that sheen.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Provide paints and finishes using Sherwin William as basis of design.

2.02 PAINTS AND FINISHES - GENERAL

- A. Paints and Finishes: Ready-mixed, unless required to be a field-catalyzed paint.
 - 1. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
 - 2. Supply each paint material in quantity required to complete entire project's work from a single production run.
 - 3. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is described explicitly in manufacturer's product instructions.

2.03 PAINT SYSTEMS - EXTERIOR

- A. Paint – Exterior Surfaces to be Painted, Unless Otherwise Indicated: Including primed metal
 - 1. Two top coats with primer.
 - 2. Top Coat(s): Exterior Acrylic Latex paint resistant to mold and mildew.
 - 3. Top Coat Sheen:
 - a. Semi Gloss: use this sheen at all locations.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:

3.02 PREPARATION

- A. Clean surfaces thoroughly and correct defects prior to application.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 APPLICATION

- A. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".
- B. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

END OF SECTION

SECTION 09 97 23
CONCRETE AND MASONRY COATINGS

PART 1 GENERAL

1.01 SUBMITTALS

- A. Product Data: Provide data indicating coating materials.

1.02 WARRANTY

- A. Correct defective Work within a five-year period after Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

2.02 MATERIALS

- A. Coatings - General: Provide complete systems formulated and recommended by manufacturer for the applications indicated, in the thicknesses indicated.
- B. Water Based Super-Hydrophobic Coating: Single component acrylic coating, color pigments and acrylic polymer. Sheen is flat. The color should closely match existing.
 - 1. Dry Film Thickness: 2.5 mils minimum, per coat.
 - 2. Accelerated Weathering: Tested in accordance with ASTM G155; 2,000 hours with no deleterious effects.
 - 3. Wind Driven Rain Resistance: No water penetration when tested according to ASTM D6904.

PART 3 EXECUTION

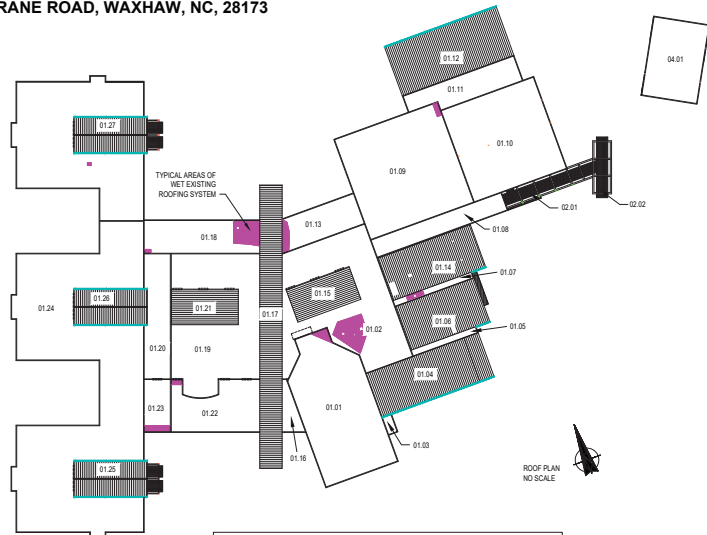
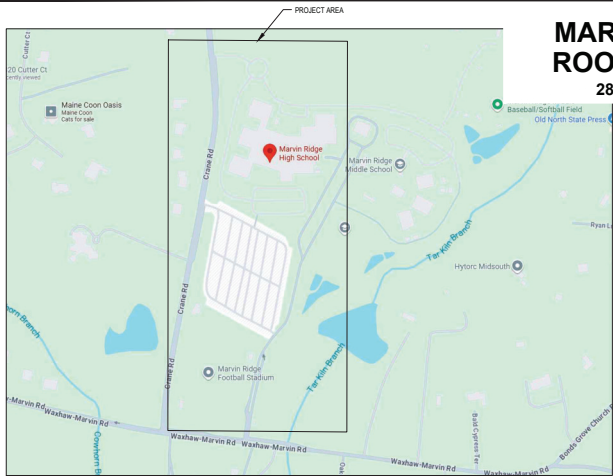
3.01 COATING APPLICATION

- A. Apply coatings in accordance with manufacturer's instructions, to thicknesses specified.
- B. Inspect surfaces which will receive masonry sealer to make sure they are clean and properly prepared, free of moisture, dirt debris, or other contaminates.
- C. Apply in uniform thickness coats, without runs, drips, pinholes, brush marks, or variations in color, texture, or finish. Finish edges, crevices, corners, and other changes in dimension with full coating thickness.

END OF SECTION

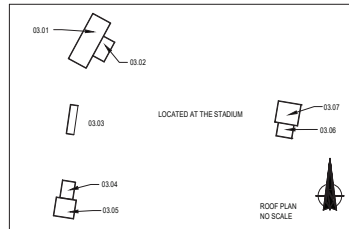
MARVIN RIDGE HIGH SCHOOL ROOF RENOVATION PROJECT

2825 CRANE ROAD, WAXHAW, NC, 28173



LIST OF DRAWINGS

- 001 COVER
- AP-1 APPENDIX 'B'
- AP-2 APPENDIX 'B'
- RP01 ROOF PLAN
- DP01 DETAIL PLAN
- DP02 DETAIL PLAN
- DP03 DETAIL PLAN
- DP04 DETAIL PLAN
- C-1 ELEVATIONS
- C-2 ELEVATIONS
- C-3 ELEVATIONS
- C-4 ELEVATIONS
- C-5 ELEVATIONS
- R-1 ROOF DETAILS
- R-2 ROOF DETAILS
- R-3 ROOF DETAILS
- R-4 ROOF DETAILS
- R-5 ROOF DETAILS
- R-6 ROOF DETAILS
- R-7 ROOF DETAILS
- TP01 TAPER PLAN
- TP02 TAPER PLAN
- TP03 TAPER PLAN
- TP04 TAPER PLAN
- T-01 THERMAL PLAN
- T-02 THERMAL PLAN
- T-03 THERMAL PLAN
- RA-1 ROOF ACCESSORIES
- RA-2 ROOF ACCESSORIES
- RA-3 ROOF ACCESSORIES
- WU-01 WIND UPLIFT PLAN
- WU-02 WIND UPLIFT PLAN
- WU-03 WIND UPLIFT PLAN
- WU-04 WIND UPLIFT PLAN



LINETYPE LEGEND

- CS CONDENSATION LINE
- GAS GAS LINE
- GUTTER GUTTER
- ELECTRICAL CONDUIT ELECTRICAL CONDUIT
- EXPANSION JOINT EXPANSION JOINT
- PVC PIPE PVC PIPE

LEGEND

- VENT
- SOIL VENT
- CLUB FAN
- DOWN SPOUT
- LAZAR
- ROOF DRAIN
- HOT STACK
- SLEEPER
- PENETRATION
- SCUTLE
- CURB
- COLLECTOR HD
- SCUPPER
- SPLASH PAN
- SAMPLE
- REMOVE
- DETAIL SHEET
- DETAIL TARGET



1001 LANCASTER AVE.
MONROE, NC 28112
704-662-0626



UNION COUNTY
PUBLIC SCHOOLS
400 N. CHURCH ST.
MONROE, NC 28112

OWNER

MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT
2825 CRANE ROAD,
WAXHAW, NC, 28173

MAP	DATE	DESCRIPTION
1	01-24-2024	ISS. REVIEW

SOL. DRG. FILE

COVER
C01

FOR CONSTRUCTION

Roof Area... 01.08

EXISTING ROOF SYSTEM			
MATERIAL	PRODUCT	WEIGHT (psf)	R-VALUE
Interior Air Film	Interior Air Film	N/A	0.61
Rat Joint	Steel	0.98	
Deck	Metal Deck	2.30	0.00
Insulation	Isocyanurate	1.30	34.20
Membrane	TPO	0.29	0.24
Exterior Air Film	Exterior Air Film	N/A	0.17
TOTAL		4.87	35.23

NOTE: ADDITIONAL LOAD FROM PLATFORM HAS BEEN ANALYZED AND EXISTING STRUCTURE IS DETERMINED TO BE ADEQUATE TO BEAR NEW WEIGHT

Roof Area... 01.08

PROPOSED ROOF SYSTEM			
MATERIAL	PRODUCT	WEIGHT (psf)	R-VALUE
Interior Air Film	Interior Air Film	N/A	0.61
Rat Joint	Steel	0.98	
Deck	Metal Deck	2.30	0.00
Insulation	Isocyanurate	1.30	34.20
Insulation	Isocyanurate	0.56	14.82
Cover Board	1/4" Silicon Impregnated Fiberglass		
Membrane	2 ply Modified Bitumen	1.00	0.28
Exterior Air Film	Exterior Air Film	N/A	0.17
TOTAL		8.14	50.23

NOTE: WEIGHT CHANGE HAS BEEN ANALYZED AND EXISTING STRUCTURE IS DETERMINED TO BE ADEQUATE TO BEAR NEW WEIGHT

Roof Area... 03.01, 03.02, 03.03, 03.04, 03.05, 03.06, 03.07, 04.01

EXISTING ROOF SYSTEM			
MATERIAL	PRODUCT	WEIGHT (psf)	R-VALUE
Interior Air Film	Interior Air Film	N/A	0.61
Rat Joint	Steel	0.98	
Deck	Metal Deck	2.30	0.00
Insulation	Isocyanurate	0.56	14.82
Membrane	TPO	0.29	0.24
Exterior Air Film	Exterior Air Film	N/A	0.17
TOTAL		3.15	15.84

Roof Area... 03.01, 03.02, 03.03, 03.04, 03.05, 03.06, 03.07, 04.01

PROPOSED ROOF SYSTEM			
MATERIAL	PRODUCT	WEIGHT (psf)	R-VALUE
Interior Air Film	Interior Air Film	N/A	0.61
Rat Joint	Steel	0.98	
Deck	Metal Deck	2.30	0.00
Insulation	Isocyanurate	0.56	14.82
Cover Board	1/4" Silicon Impregnated Fiberglass		
Membrane	2 ply Modified Bitumen	1.00	0.28
Exterior Air Film	Exterior Air Film	N/A	0.17
TOTAL		5.86	16.03

NOTE: WEIGHT CHANGE HAS BEEN ANALYZED AND EXISTING STRUCTURE IS DETERMINED TO BE ADEQUATE TO BEAR NEW WEIGHT

Roof Area... 01.10

EXISTING ROOF SYSTEM			
MATERIAL	PRODUCT	WEIGHT (psf)	R-VALUE
Interior Air Film	Interior Air Film	N/A	0.61
Rat Joint	Steel	1.30	
Deck	Metal Deck	2.30	0.00
Insulation	Fiberglass	0.89	5.86
Insulation	Isocyanurate	0.54	14.25
Membrane	TPO	0.29	0.24
Exterior Air Film	Exterior Air Film	N/A	0.17
TOTAL		5.32	21.15

Roof Area... 01.10

PROPOSED ROOF SYSTEM			
MATERIAL	PRODUCT	WEIGHT (psf)	R-VALUE
Interior Air Film	Interior Air Film	N/A	0.61
Rat Joint	Steel	1.30	
Deck	Metal Deck	2.30	0.00
Insulation	Fiberglass	0.89	5.86
Insulation	Isocyanurate	0.54	14.25
Insulation	Isocyanurate	0.56	14.82
Cover Board	1/4" Silicon Impregnated Fiberglass		
Membrane	2 ply Modified Bitumen	1.00	0.28
Exterior Air Film	Exterior Air Film	N/A	0.17
TOTAL		8.89	36.16

NOTE: WEIGHT CHANGE HAS BEEN ANALYZED AND EXISTING STRUCTURE IS DETERMINED TO BE ADEQUATE TO BEAR NEW WEIGHT



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PUBLIC SCHOOLS
400 N. CHURCH ST.
MONROE, NC 28112

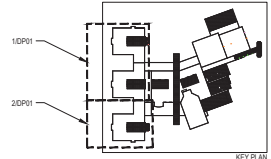
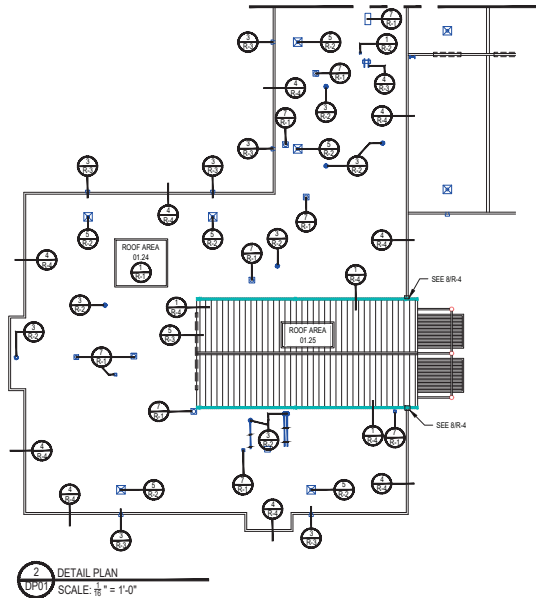
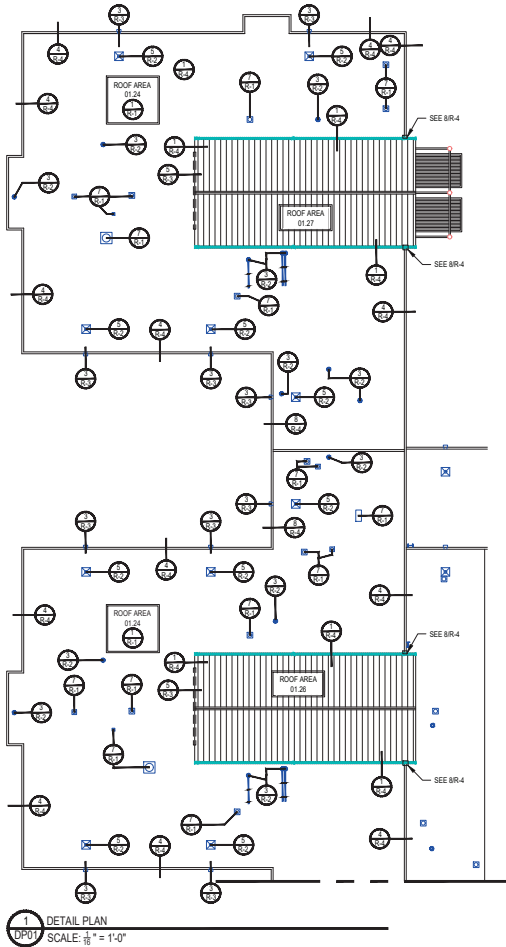
MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT
2825 CRANE ROAD,
WAXHAW, NC, 28173

DATE	DESCRIPTION
01-24-2024	SPL REVIEW

NO. PROJ. FILE:
OWNER: UN
SHEET NO.:
DATE: 01-24-2024
APPENDIX B

APPENDIX B
SHEET NO. **AP-2**

FOR CONSTRUCTION



NOTE: THE METAL ROOF WORK ON ROOFS 01.25, 01.26, 01.27 ARE INCLUDED AS AN ALTERNATE.

FOR CONSTRUCTION

WOLF TRAIL ENGINEERING
 P-187
 1001 LANCASTER AVE.
 MONROE, NC 28112
 704-662-0629

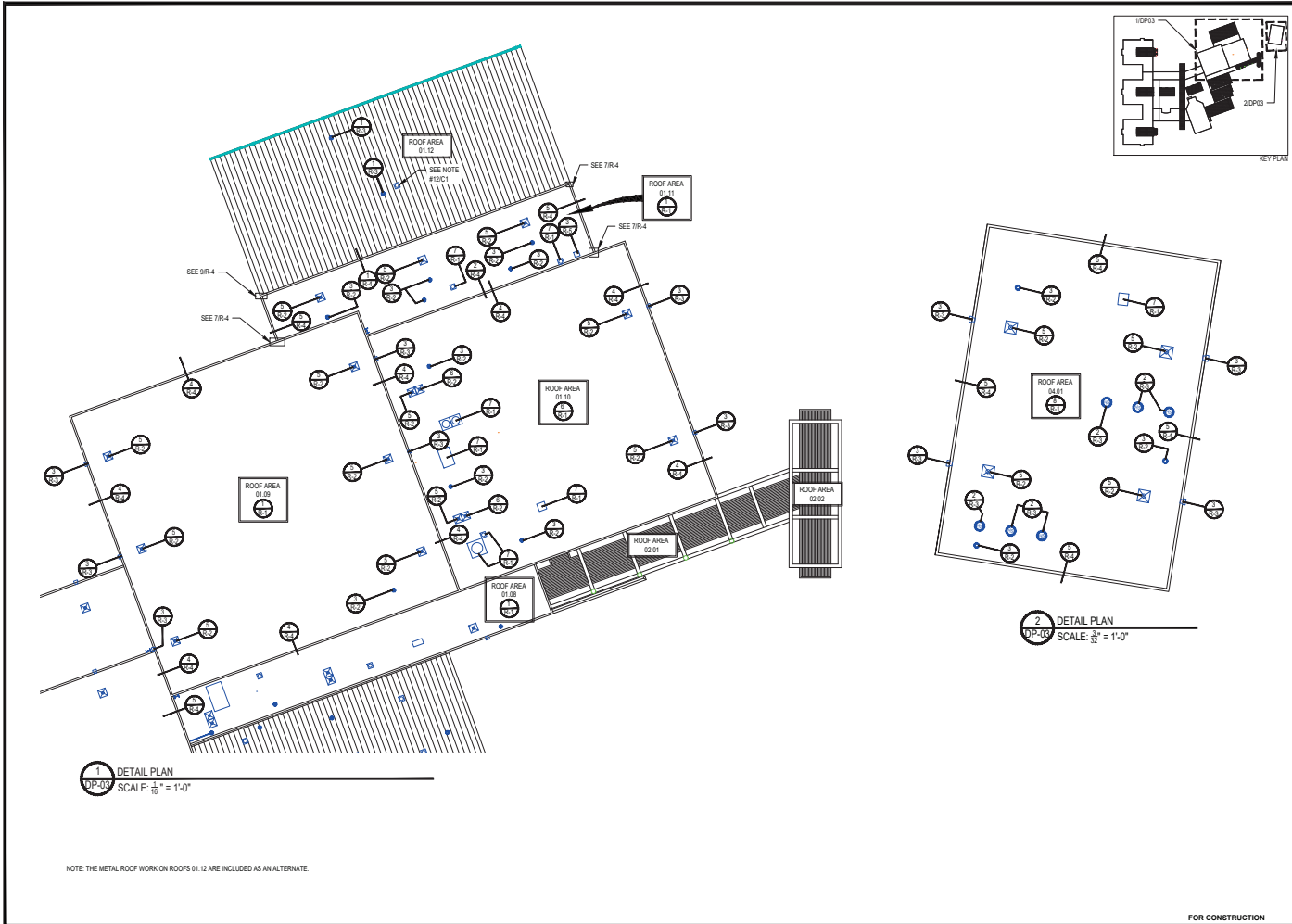
UNION COUNTY PUBLIC SCHOOLS
 400 N. CHURCH ST.
 MONROE, NC 28112

MARVIN RIDGE HIGH SCHOOL ROOF RENOVATION PROJECT
 2825 CRANE ROAD,
 WAXHAW, NC, 28173

DATE	DESCRIPTION
01-24-2024	REV. REVIEW

SO. ING. FILE:
 DRAWN BY: MS
 CHECKED BY:
 DATE: 01-24-2024
 PROJECT:

DETAIL PLAN
 DP01



WOLF TRAIL ENGINEERING
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 1001 LANCASTER AVE.
 MONROE, NC 28112
 704-662-0626

UNION COUNTY PUBLIC SCHOOLS
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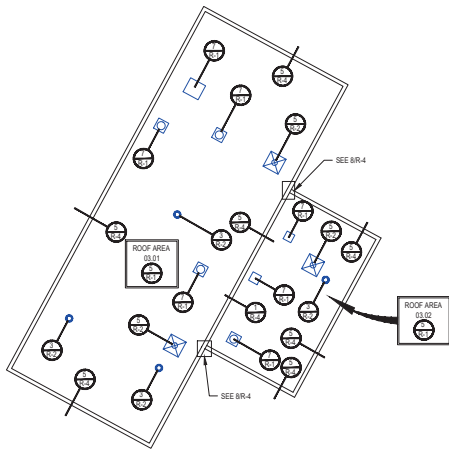
**MARVIN RIDGE HIGH SCHOOL
 ROOF RENOVATION PROJECT**
 2825 CRANE ROAD,
 WAXHAW, NC, 28173

DATE	DESCRIPTION
01-24-2024	ISS. REVIEW

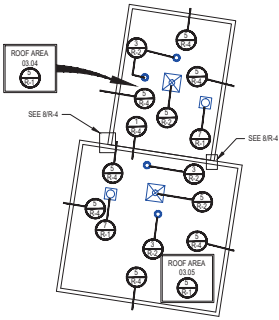
OWNER

DETAIL PLAN
 DP03

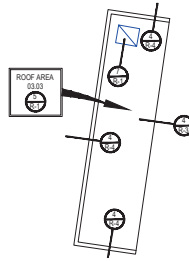
FOR CONSTRUCTION



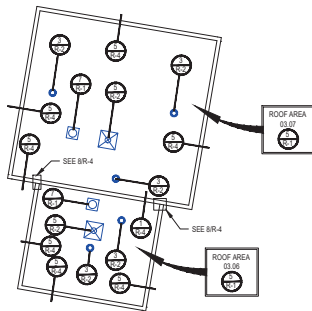
1 DETAIL PLAN
DP-01 SCALE: 1/8" = 1'-0"



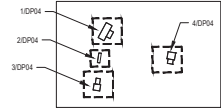
3 DETAIL PLAN
DP-03 SCALE: 1/8" = 1'-0"



2 DETAIL PLAN
DP-02 SCALE: 1/8" = 1'-0"



4 DETAIL PLAN
DP-04 SCALE: 1/8" = 1'-0"



KEY PLAN



UNION COUNTY
PUBLIC SCHOOLS
400 N. CHURCH ST.
MONROE, NC 28112

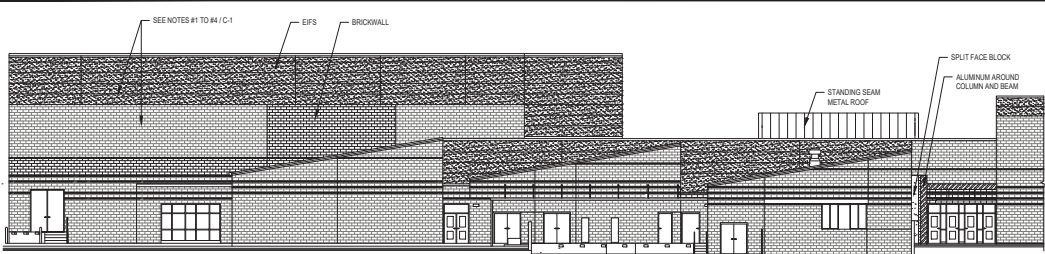
MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT
2825 CRANE ROAD,
WAXHAW, NC, 28173

DATE	BY	DESCRIPTION
01-24-2024	SPR	REVIEW

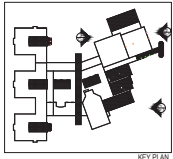
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DRAWN BY: MS
CHECKED BY:
DATE: 01-24-2024
APPROVED:

DETAIL PLAN
DP04

FOR CONSTRUCTION



1 EAST ELEVATION
SCALE: $\frac{1}{8}'' = 1'-0''$

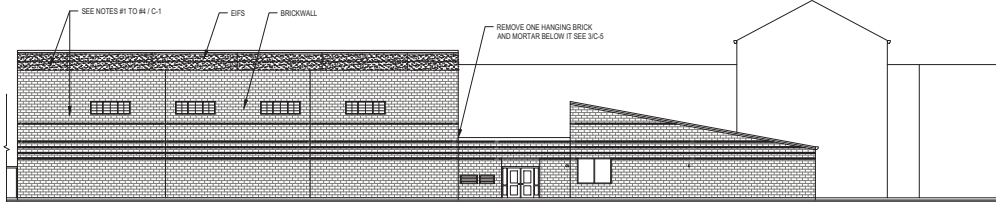


WOLF TRAIL
ENGINEERING

F-1817
1001 LANCASTER AVE.
MONROE, NC 28112
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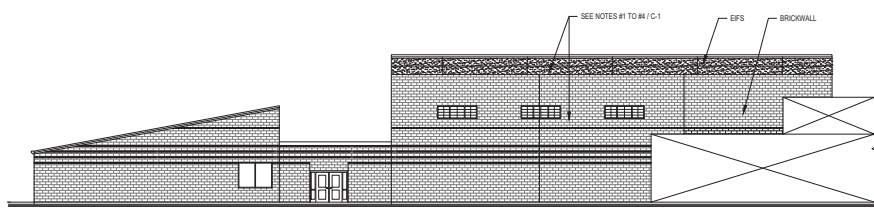
UNION COUNTY
PUBLIC SCHOOLS
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MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT
2825 CRANE ROAD,
WAXHAW, NC, 28173



2 EAST ELEVATION
SCALE: $\frac{1}{8}'' = 1'-0''$

- NOTE**
1. PRESSURE WASH ALL CONCRETE AND EFS WALLS AS INDICATED.
 - 1.1. THE CONTRACTOR SHALL UTILIZE A SUB-CONTRACTOR THAT HAS FIVE YEARS OR MORE EXPERIENCE PRESSURE WASHING FACILITIES.
 - 1.2. THE PRESSURE SHALL BE 1,500 PSI AT THE TIP OF THE PRESSURE WASHER.
 - 1.3. THE FLOW AMOUNT SHALL BE A MINIMUM OF 4 GPM.
 - 1.4. THE CHEMICAL TO BE USED AS PART OF THE PRESSURE WASHING SHALL BE ENVIRONMENTALLY FRIENDLY FOR EXAMPLE, SIMPLY GREEN OXY-SOLVE HOUSE AND SIDING.
 - 1.5. CLEAN THE EXTERIOR OF ANY WINDOWS THAT MAY HAVE OVER-SPRAY. ALL EFS IS TO BE PRESSURE WASHED AND COATED.
 2. CUT CRACKED EFS AREA AND APPLY NEW SCRATCH COAT / FINISH COAT
 3. CUT EFS 1/2 INCHES UP OR TO THE CLOSEST CONTROL JOINT, NOT EXCEEDING 2 FEET.
 4. CONTRACTOR TO VERIFY EXTENT OF WORK TO BE DONE ON EFS AND RE-PPLY COLORS TO MATCH EXISTING (VERIFY WITH OWNER).
 5. APPLY ACRYLIC COATING / SEALER OVER ALL SPLIT FACE BLOCK.
 6. CONTRACTOR TO EMPLOY A LICENSED AND BONDED MECHANICAL/REFRIGERATION/ELECTRICAL CONTRACTOR TO CUT LOOSE AND RECONNECT REFRIGERANT LINES, ELECTRICAL LINES, AND GAS LINES, AS REQUIRED.
 7. ALL ELECTRICAL CONDUIT TO BE SUPPORTED BY CONDUIT BASE STRUT. CONDUIT BASE DESIGNED TO SUPPORT CONDUIT (BANGED) CABLE TRAYS OR OTHER MECHANICAL PIPING. EVEN LOADS REQUIRED. MAXIMUM LOAD IS 172 LBS. (MAX LOAD BASED ON 3.0 PSI TO THE ROOF DECK). RECOMMENDED SPACING IS NOT TO EXCEED 10' CENTERS. MAKE CERTAIN EACH SUPPORT IS PROPERLY ELEVATED TO EVENLY DISTRIBUTE WEIGHT AT ALL SUPPORT LOCATIONS. SEE DETAILS 18R-5 AND 21R-5.
 8. RE-COVER SLEEPERS AS SHOWN IN DETAIL 4R-3.
 9. ADJUST THROUGH WALL SCUPPER AND OVERFLOW POSITIONS TO MATCH NEW ROOF ELEVATION AND RETAIN ORIGINAL SIZES.
 10. CLEAN GUTTERS AND DOWNSPOUTS ON METAL ROOFS. REPAIR THE DAMAGED GUTTERS AND DOWNSPOUTS AS NEEDED.
 11. SPLASH PANS MUST BE ADDED TO OPEN ENDED DOWNSPOUTS.
 12. ON METAL ROOFS, REMOVE AND REPLACE EXISTING FASTENERS WITH NEW NO. 14 SELF-DRILLING FASTENERS WITH SEALING NEOPRENE WASHERS. FASTENER LENGTH SHALL BE AS REQUIRED TO FULLY PENETRATE THE METAL SUBSTRATE, BUT SHALL NOT BE LESS THAN 1 INCH. NEW FASTENERS SHALL BE ONE SIZE LARGER THAN THE EXISTING FASTENERS. (THE ALTERNATE).
 13. REPLACE BACKER RODS AND RECAULK ALL AREAS AROUND LOUVERS.
 14. REPAIR ALL ROOF LADDERS AND REPLACE ANY MISSING FASTENERS.
 - 14.1. WIRE BRUSH EXISTING LADDER FRAME TO REMOVE ANY LOOSE PAINT AND RUST. AREAS WITH EXTENSIVE CORROSION AND/OR STEEL SECTION LOSS SHALL BE REPORTED TO THE ENGINEER.
 - 14.2. THE STEEL SHALL BE COATED WITH 2 H 1 WATER-BASED RUST CONVERTER.
 - 14.3. PAINT THE STRUCTURAL STEEL WITH SEMI-GLOSS WATER-BASED INTERIOREXTERIOR, 100% ACRYLIC, SEMI-GLOSS MILD AND MILDLY-RESISTANT FINISH (BASES OF DESIGN) - 2 COATS WITH PRIMER, 375 SQ. FT. PER GALLON. THE OWNER SHALL PICK THE COLOR.
 15. FOR TRANSLUCENT WINDOW, FLASHING HEIGHT SHALL BE MINIMUM OF 8 INCHES, AND CONSTRUCTED ACCORDING TO DETAIL 21R-3. DO NOT USE BRACKET ON THE WINDOW WHEN PLACING FASTENERS.
 16. A 3/16 INCHES DEEP REGLET SHALL BE USED FOR FLASHING BRICKS AND BLOCKS MARKED BRICKWALL.
 17. THE METAL ROOF WORK FOR THIS PROJECT IS INCLUDED AS AN ALTERNATE.



3 NORTH EAST INNER ELEVATION
SCALE: $\frac{1}{8}'' = 1'-0''$

NO.	DATE	DESCRIPTION
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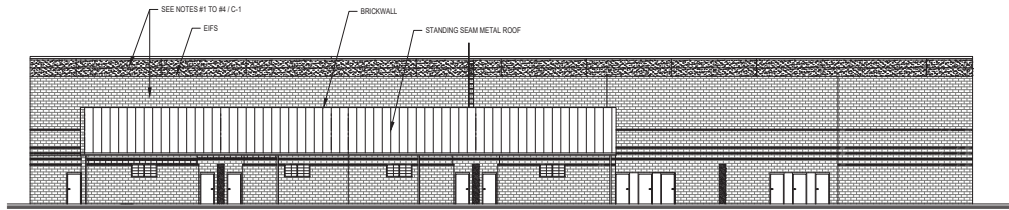
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CHECK BY: E	
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APPROVED:	

ELEVATIONS

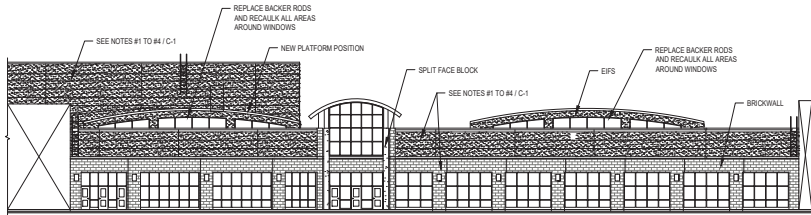
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C-1

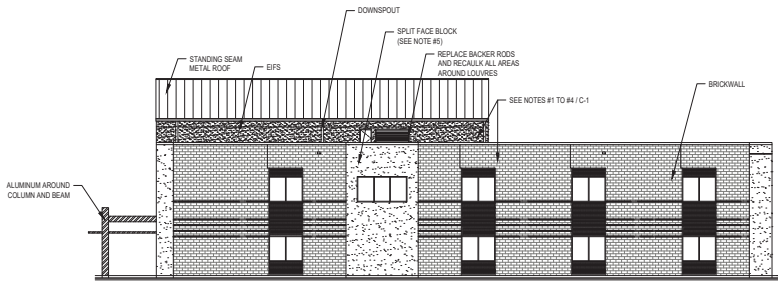
FOR CONSTRUCTION



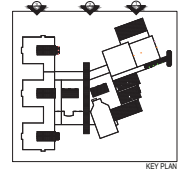
1 NORTH ELEVATION
C-2 SCALE: $\frac{1}{32}'' = 1'-0''$



2 NORTH ELEVATION
C-2 SCALE: $\frac{1}{32}'' = 1'-0''$



3 NORTH ELEVATION
C-2 SCALE: $\frac{1}{32}'' = 1'-0''$



WOLF TRAIL
ENGINEERING

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UNION COUNTY
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MONROE, NC 28112

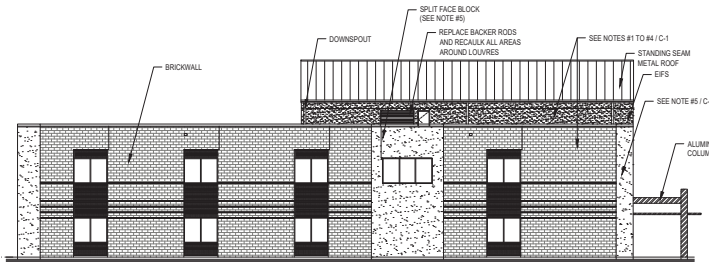
MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT
2825 CRANE ROAD,
WAXHAW, NC, 28173

DATE	DESCRIPTION
01-24-2024	SPL REVIEW

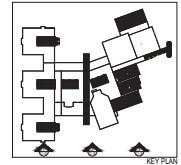
NO. REV.	DATE	DESCRIPTION

ELEVATIONS
C-2

FOR CONSTRUCTION



1 SOUTH ELEVATION
SCALE: $\frac{1}{8}'' = 1'-0''$

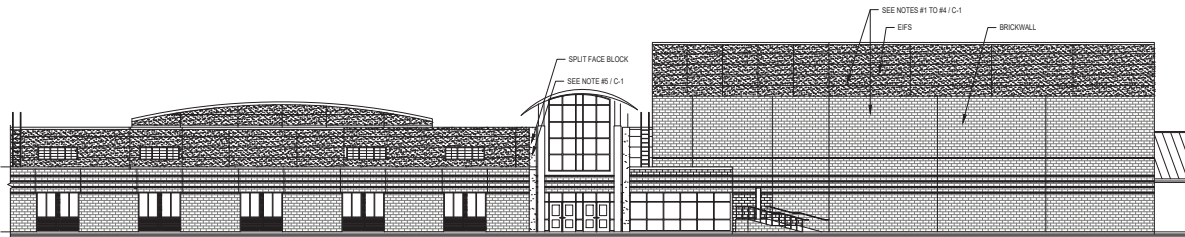


WOLF TRAIL
ENGINEERING

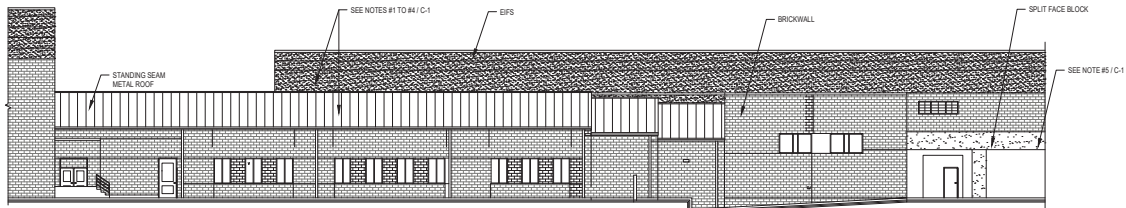
P-187
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MONROE, NC 28112
704-662-6626

01/2023

SEA



2 SOUTH ELEVATION
SCALE: $\frac{1}{8}'' = 1'-0''$



3 SOUTH ELEVATION
SCALE: $\frac{1}{8}'' = 1'-0''$

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MONROE, NC 28112

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MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT
2825 CRANE ROAD,
WAXHAW, NC, 28173

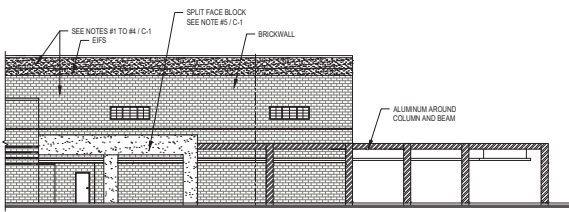
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SCALE	
DATE	

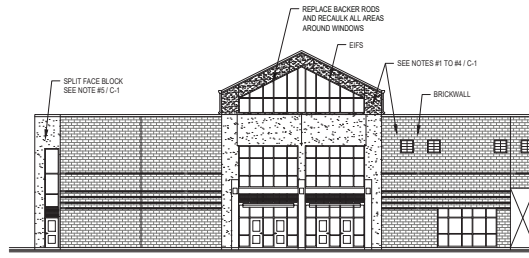
ELEVATIONS

C-3

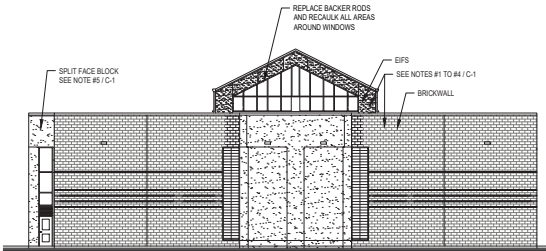
FOR CONSTRUCTION



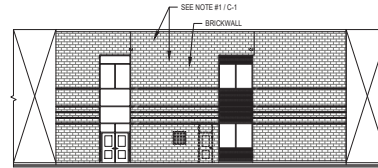
1 SOUTH EAST ELEVATION
SCALE: $\frac{1}{32}'' = 1'-0''$



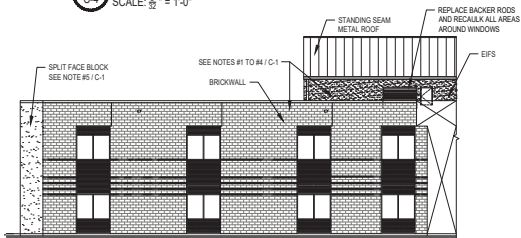
2 NORTH WEST INNER ELEVATION
SCALE: $\frac{1}{32}'' = 1'-0''$



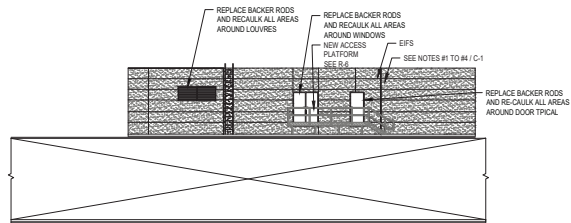
3 WEST ELEVATION
SCALE: $\frac{1}{32}'' = 1'-0''$



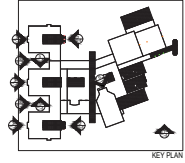
4 WEST ELEVATION
SCALE: $\frac{1}{32}'' = 1'-0''$



5 WEST INNER ELEVATION
SCALE: $\frac{1}{32}'' = 1'-0''$



6 EAST INNER ELEVATION
SCALE: $\frac{1}{32}'' = 1'-0''$



WOLF TRAIL
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UNION COUNTY
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MONROE, NC 28112

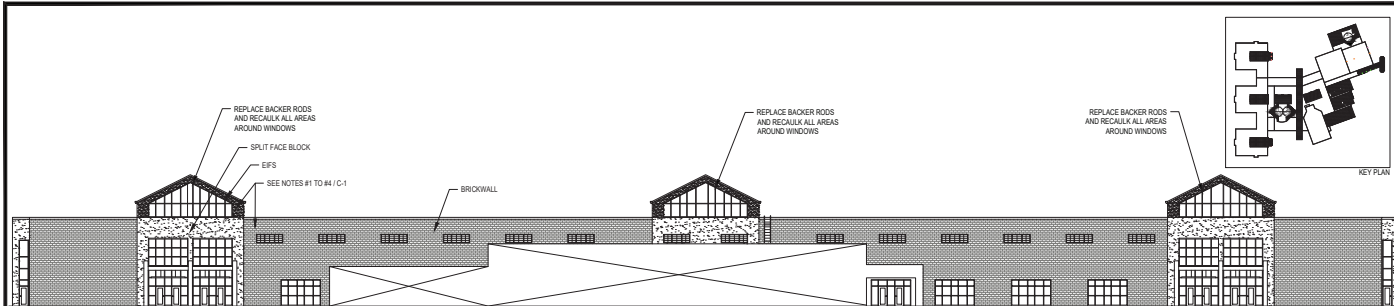
MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT
2825 CRANE ROAD,
WAXHAW, NC, 28173

DATE	DESCRIPTION
01-24-2008	ISS. REVIEW

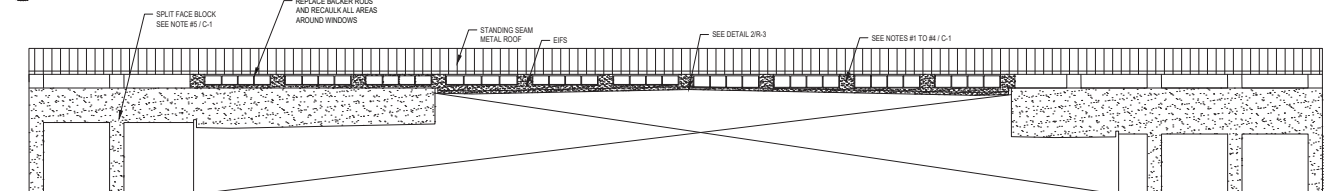
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ELEVATIONS
C-4

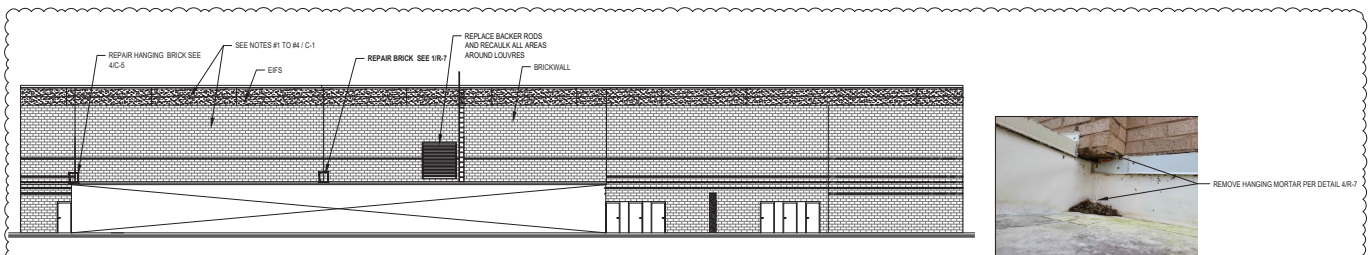
FOR CONSTRUCTION



1 EAST ELEVATION
SCALE: 1/8" = 1'-0"



2 EAST ELEVATION
SCALE: 1/8" = 1'-0"



3 EAST ELEVATION
SCALE: 1/8" = 1'-0"

4 BRICK REPAIR
SCALE: NTS

FOR CONSTRUCTION

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704-332-0629

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400 N. CHURCH ST.
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MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT
2825 CRANE ROAD,
WAXHAW, NC, 28173

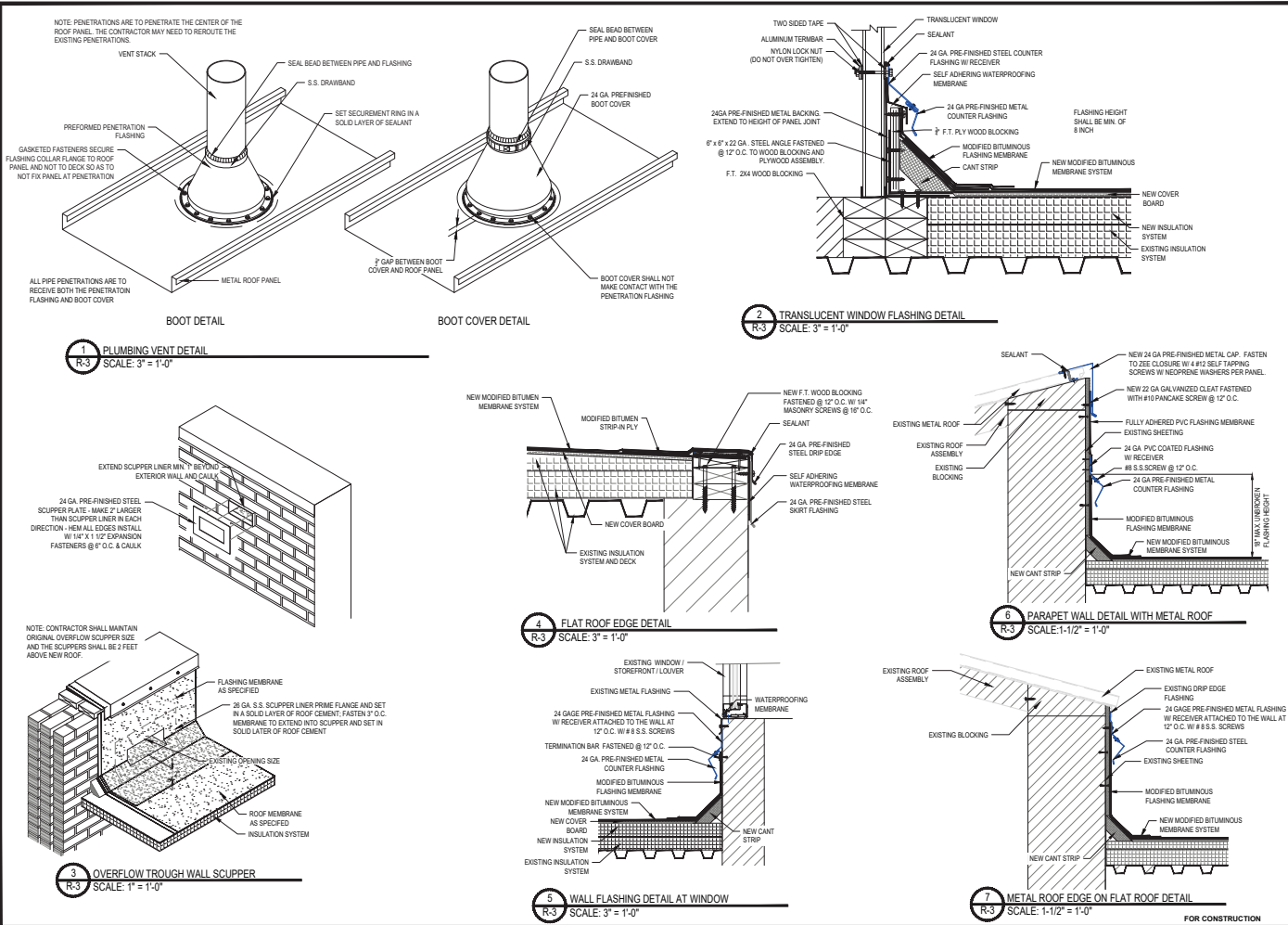
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SO. ING. FILE
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DATE: 01-24-2024
APPROVED:

ELEVATIONS

1/24/24

C-5



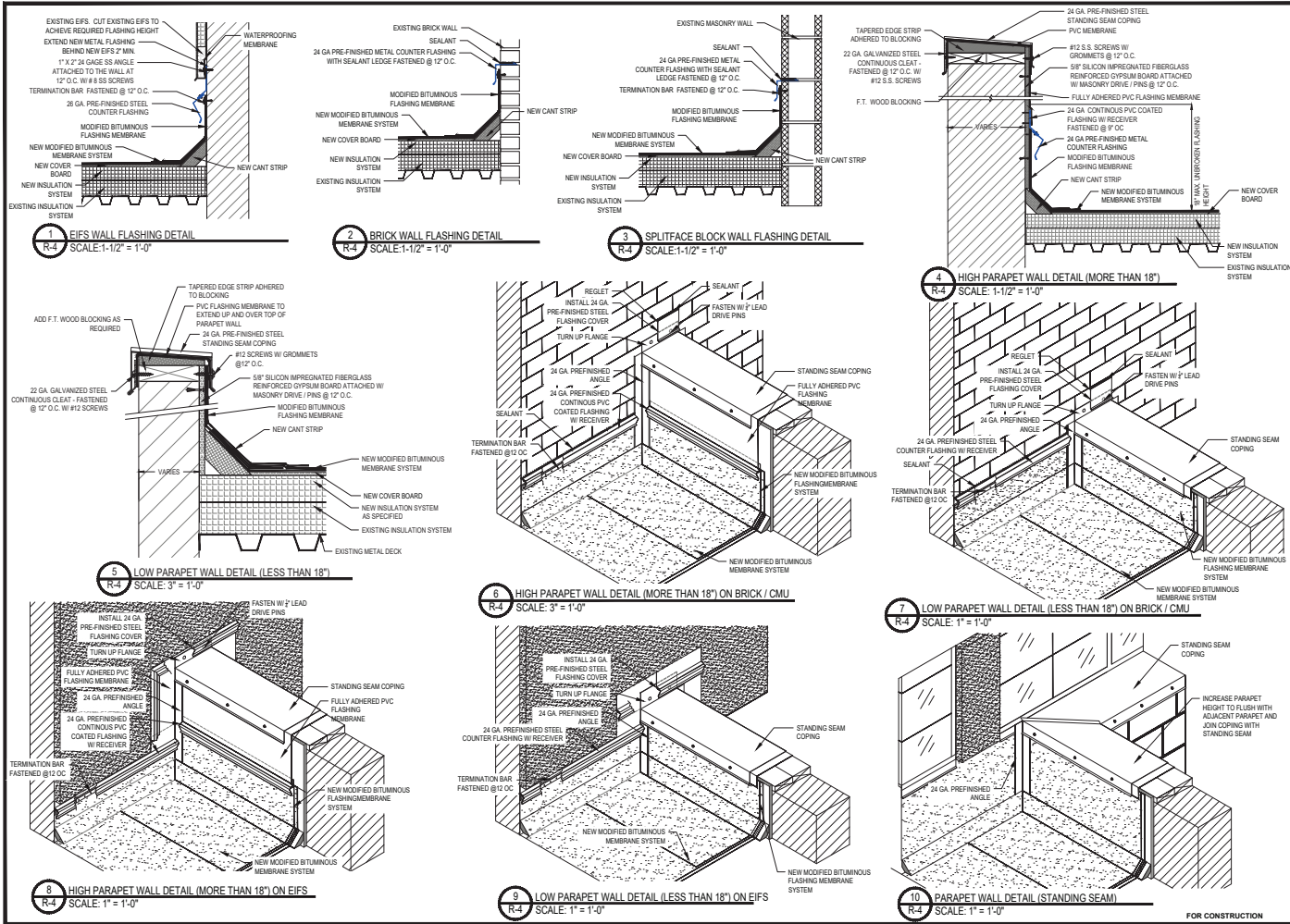
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MONROE, NC 28112
104-32-0628

UNION COUNTY PUBLIC SCHOOLS
MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT
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NO.	DATE	DESCRIPTION
1	01-24-2024	SUB REVIEW

FOR CONSTRUCTION

R-3



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 ROOF RENOVATION PROJECT
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NO.	DATE	DESCRIPTION
1	01-24-2024	REV. REVIEW

SCALE: 1" = 1'-0"

FOR CONSTRUCTION

1 PIPE LINE SUPPORT DETAIL
SCALE: NOT TO SCALE

2 CONDUIT SUPPORT DETAIL
SCALE: NOT TO SCALE

4 CURB DETAIL INTO EIFS WALL
SCALE: 1-1/2" = 1'-0"

3 VENT EXTENSION / SUPPORT DETAIL
SCALE: NOT TO SCALE

4 SIDE VIEW
THE VENT EXTENSION SUPPORT IS TO BE FIELD FITTED BY THE FABRICATOR AND WELDED OFFSITE.

5 PLAN VIEW

6 EXISTING HOT VENT HEIGHT 2FT MATCH EXISTING MATERIAL

WOLF TRAIL ENGINEERING

P.O. BOX 1817
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400 N. CHURCH ST.
MONROE, NC 28112

OWNER

MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT
2825 CRANE ROAD,
WAXHAW, NC 28173

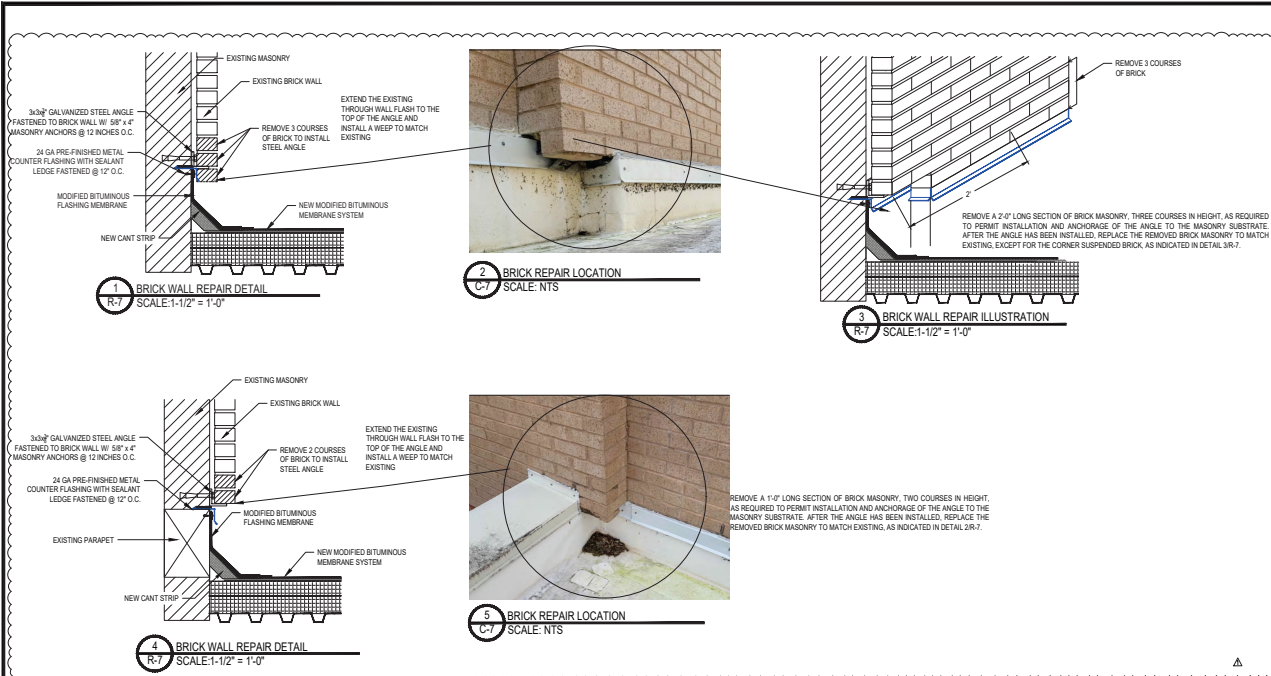
DATE	DESCRIPTION
01-24-2024	SPL REVIEW

ROOF DETAILS

ROOF DETAIL

R-5

FOR CONSTRUCTION



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ROOF RENOVATION PROJECT
2825 CRANE ROAD,
WAXHAW, NC, 28173

DATE	DESCRIPTION
01-24-2024	REV. REVIEW

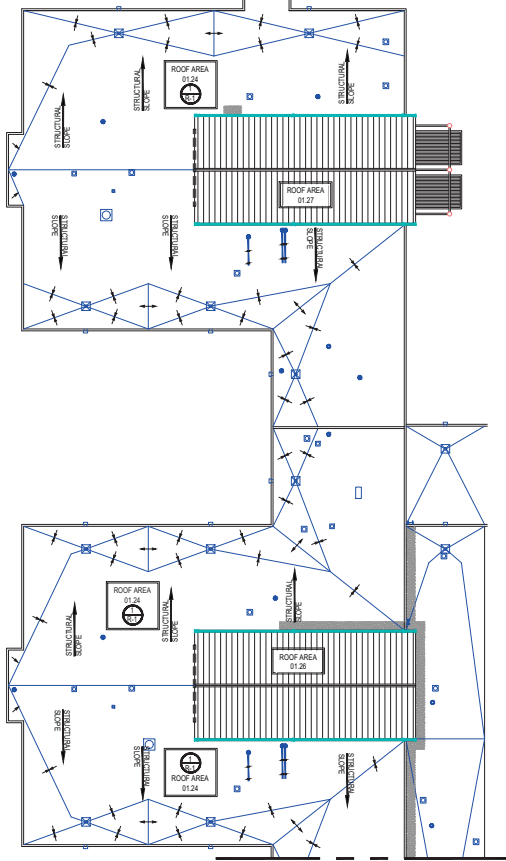
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DATE: 01-24-2024
APPROVED:

ROOF DETAILS

HEET NO. **R-7**

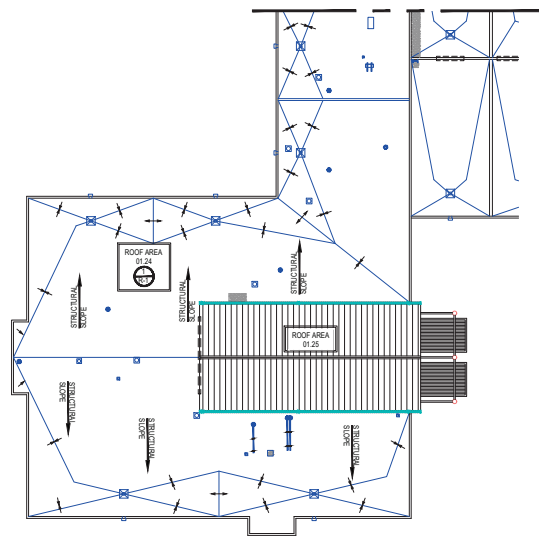
FOR CONSTRUCTION

THE NUMBER

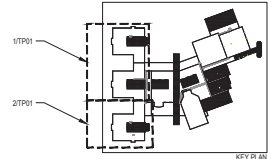


1 TAPER PLAN
 TP01 SCALE: 1/8" = 1'-0"

NOTE:
 ALL STRUCTURAL SLOPES: 1/8" PER FOOT
 ALL TAPER SLOPES: 1/8" PER FOOT



2 TAPER PLAN
 TP02 SCALE: 1/8" = 1'-0"



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SEAL
 UNION COUNTY
 PUBLIC SCHOOLS
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 MONROE, NC 28112

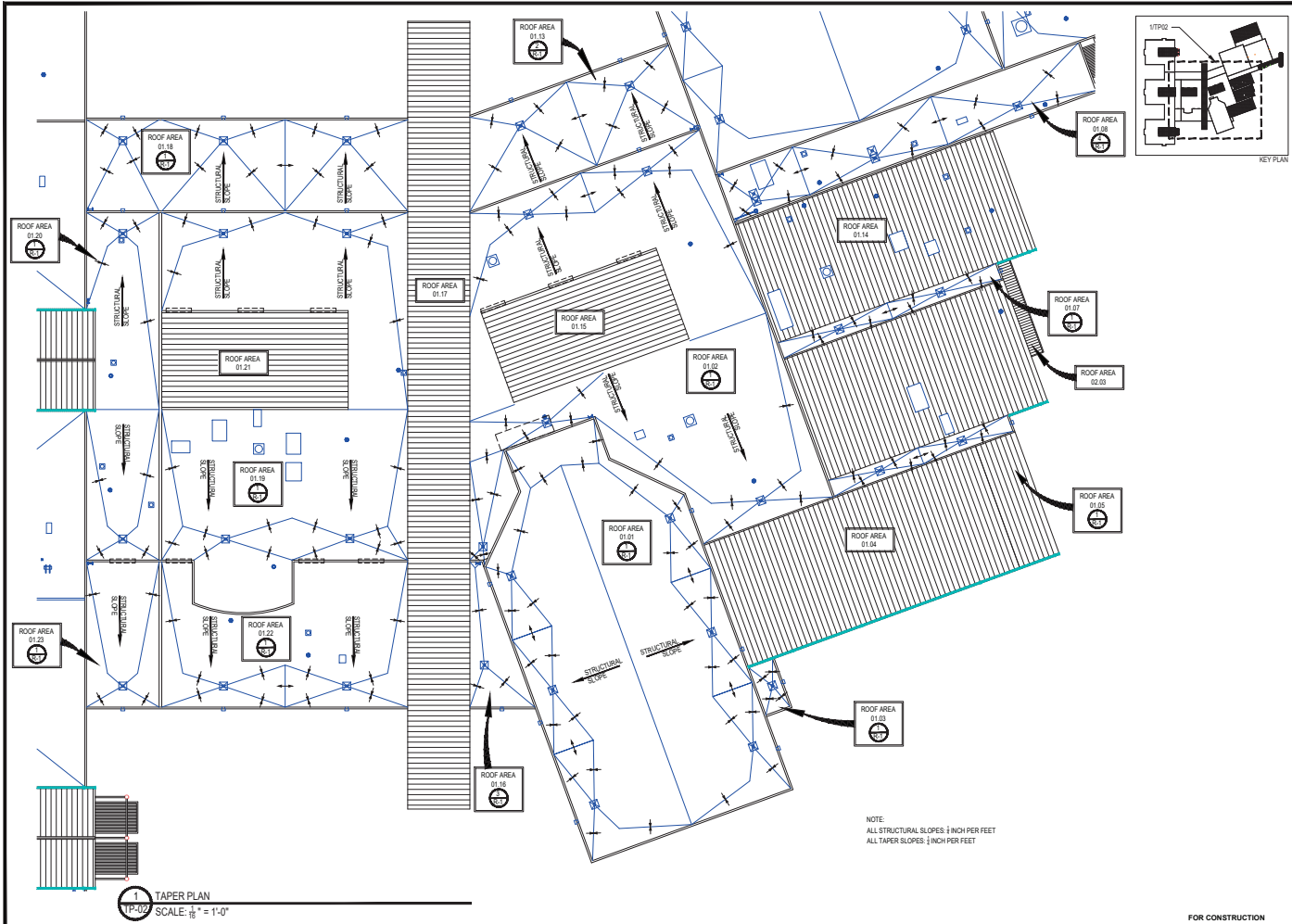
OWNER
 MARVIN RIDGE HIGH SCHOOL
 ROOF RENOVATION PROJECT
 2825 CRANE ROAD,
 WAXHAW, NC, 28173

DATE	DESCRIPTION
01-24-2024	REV. REVIEW

SUB. PROJ. FILE:
 DRAW. BY: M
 CHECK BY:
 DATE PLOTTED:
 COPYRIGHT:

TAPER PLAN
 SHEET NO. 14
TP01

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UNION COUNTY
PUBLIC SCHOOLS
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OWNER

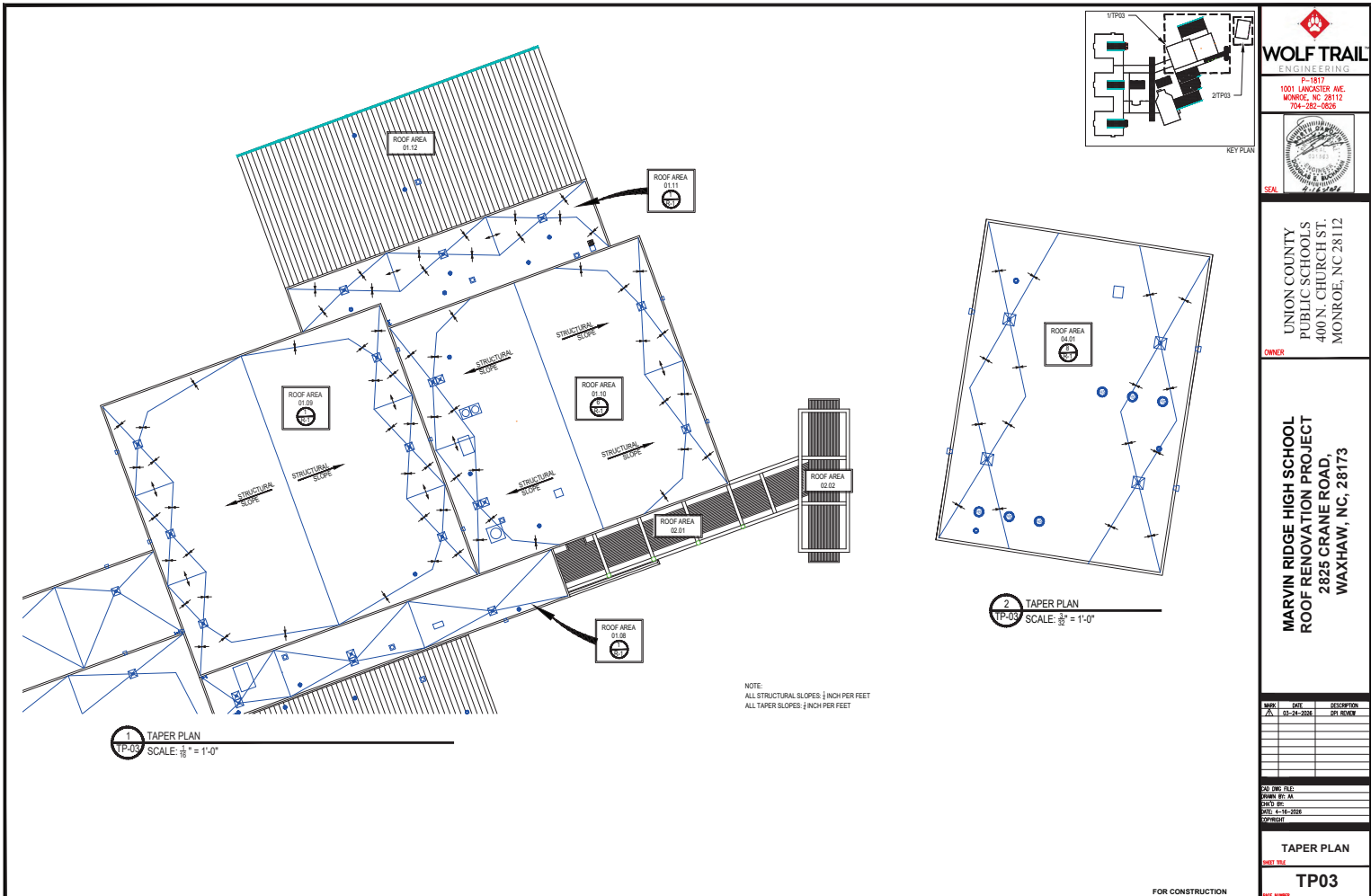
**MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT**
2825 CRANE ROAD,
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DATE	DESCRIPTION
01-24-2024	REV. REVIEW

TAPER PLAN

TP02

FOR CONSTRUCTION



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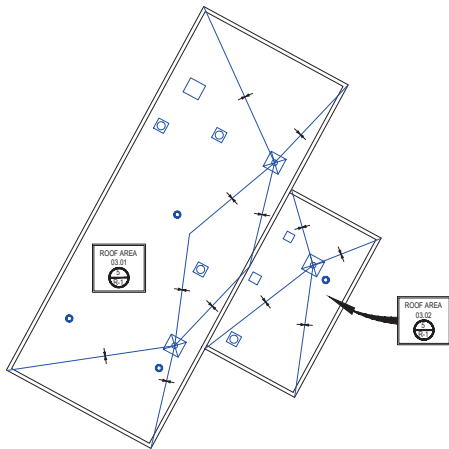
OWNER

**MARVIN RIDGE HIGH SCHOOL
 ROOF RENOVATION PROJECT**
 2825 CRANE ROAD,
 WAXHAW, NC, 28173

DATE	DESCRIPTION
01-24-2018	SPL REVIEW

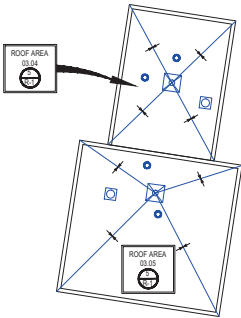
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CHECKED BY: MS	
DATE: 01-24-2018	
APPROVED:	

TAPER PLAN
 TP03



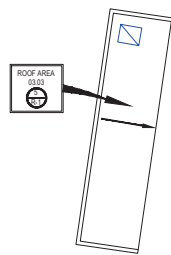
1 TAPER PLAN
TP-01 SCALE: $\frac{1}{8}'' = 1'-0''$

NOTE:
ALL STRUCTURAL SLOPES: $\frac{1}{2}$ INCH PER FOOT
ALL TAPER SLOPES: $\frac{1}{2}$ INCH PER FOOT

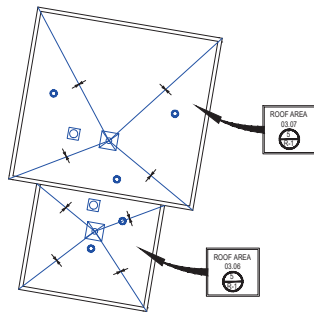


3 TAPER PLAN
TP-03 SCALE: $\frac{1}{8}'' = 1'-0''$

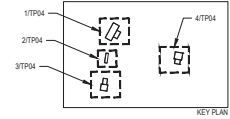
NOTE:
ALL STRUCTURAL SLOPES: $\frac{1}{2}$ INCH PER FOOT
ALL TAPER SLOPES: $\frac{1}{2}$ INCH PER FOOT



2 TAPER PLAN
TP-02 SCALE: $\frac{1}{8}'' = 1'-0''$



4 TAPER PLAN
TP-04 SCALE: $\frac{1}{8}'' = 1'-0''$



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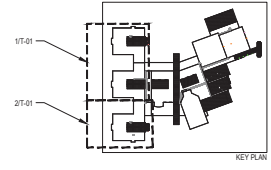
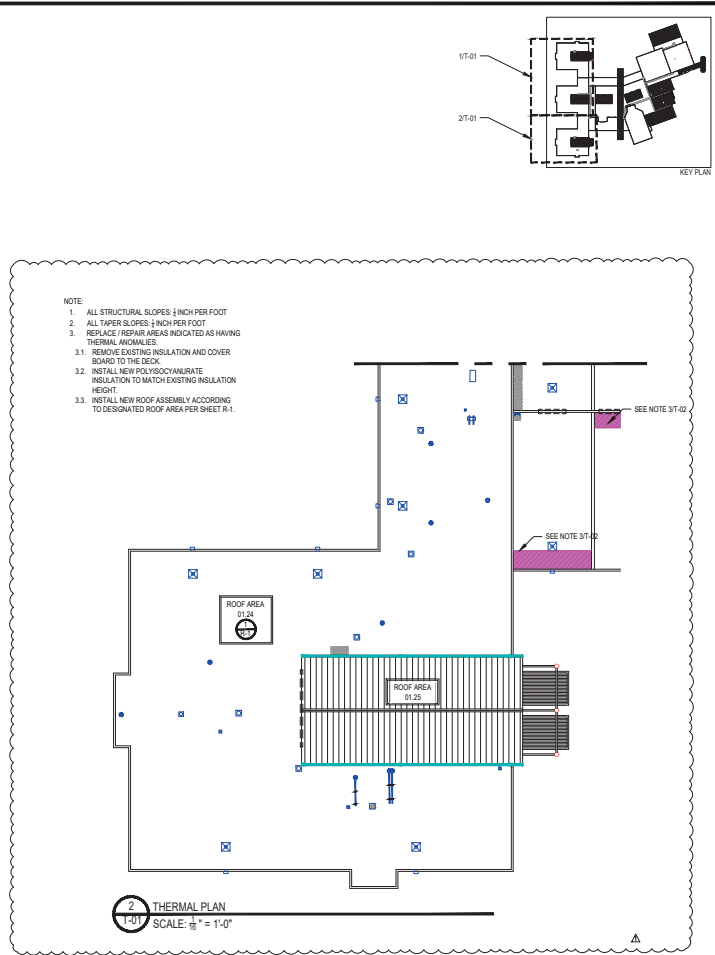
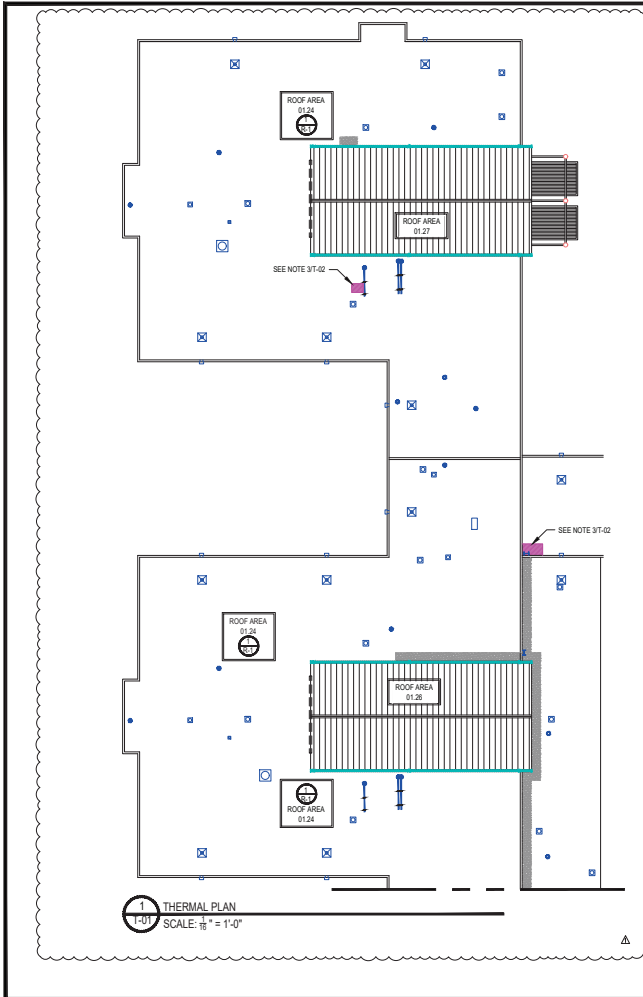
MARVIN RIDGE HIGH SCHOOL
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DATE	DESCRIPTION
01-24-2024	REV. REVIEW

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DATE OF REVISION	

TAPER PLAN
TP04

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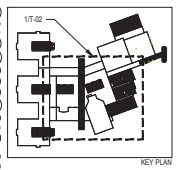
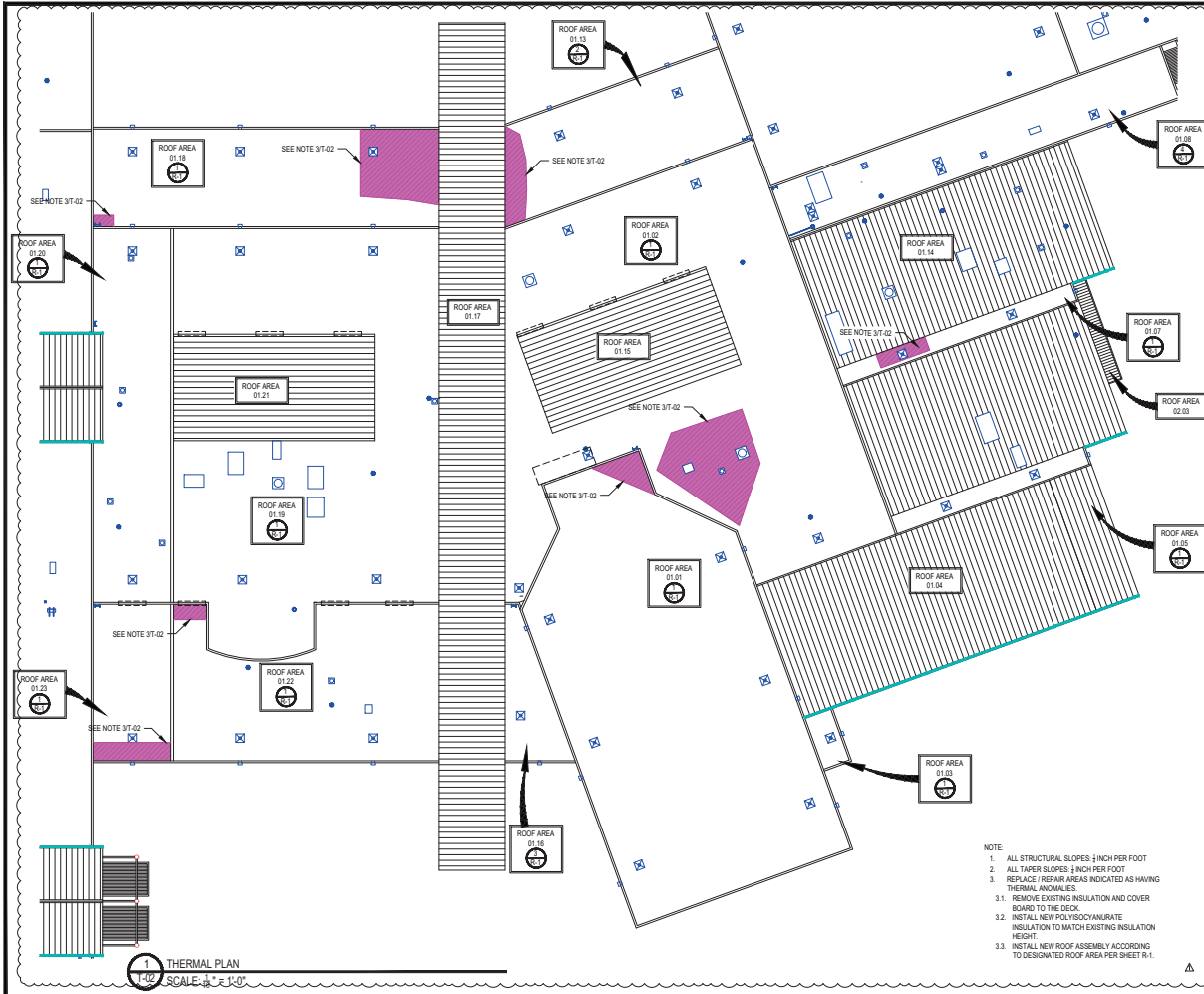
MARVIN RIDGE HIGH SCHOOL
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DATE	DESCRIPTION
01-24-2024	ISS. REVIEW

SO. ING. REG.
 EXPIRES 01-31-2028
 STATE OF NC
 EXPIRES 01-31-2028
 EXPIRES 01-31-2028

THERMAL PLAN
 T-01

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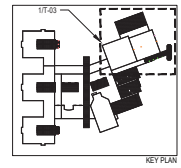
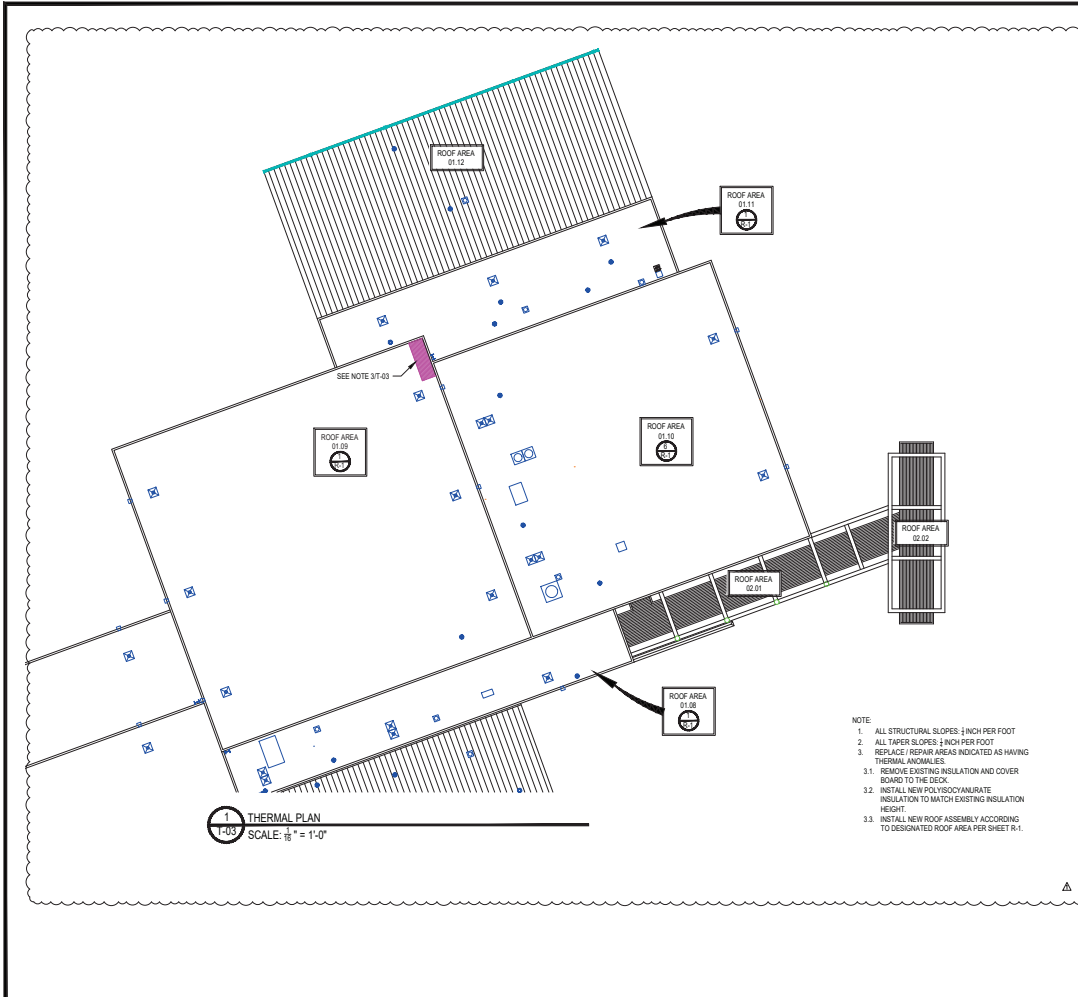
**MARVIN RIDGE HIGH SCHOOL
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DATE	DESCRIPTION
01-24-2024	REV. REVIEW

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THERMAL PLAN
T-02

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UNION COUNTY
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MONROE, NC 28112

OWNER

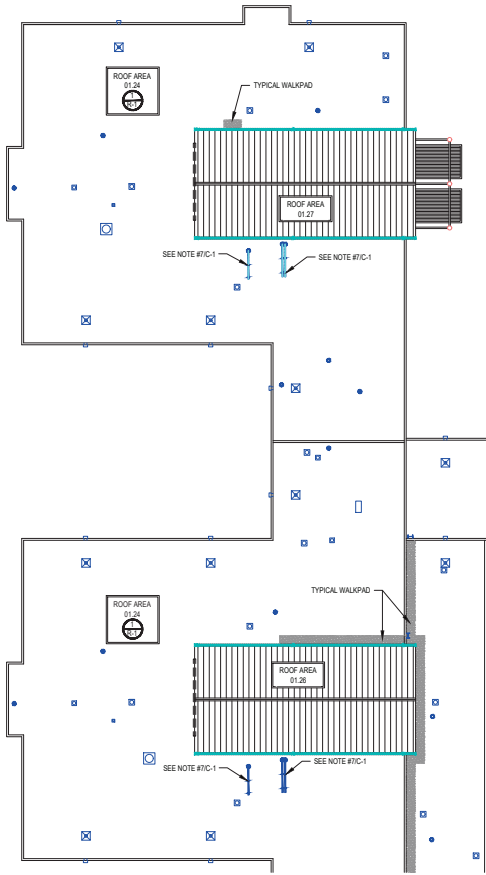
**MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT**
2825 CRANE ROAD,
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NO.	DATE	DESCRIPTION
1	01-26-2024	SPL REVIEW

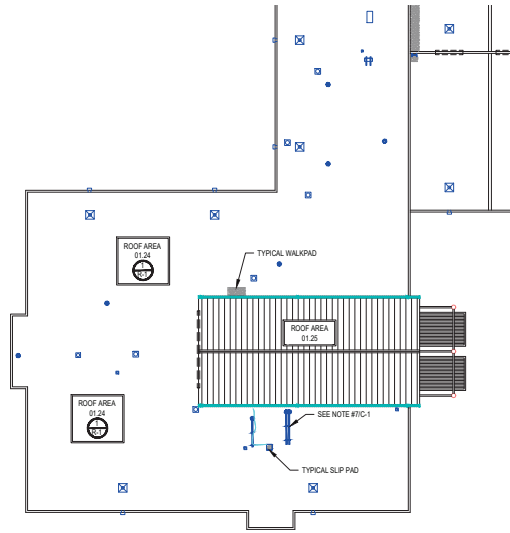
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THERMAL PLAN
T-03

FOR CONSTRUCTION



1 DETAIL PLAN
 DP01 SCALE: $\frac{1}{16}'' = 1'-0''$



2 DETAIL PLAN
 DP02 SCALE: $\frac{1}{16}'' = 1'-0''$



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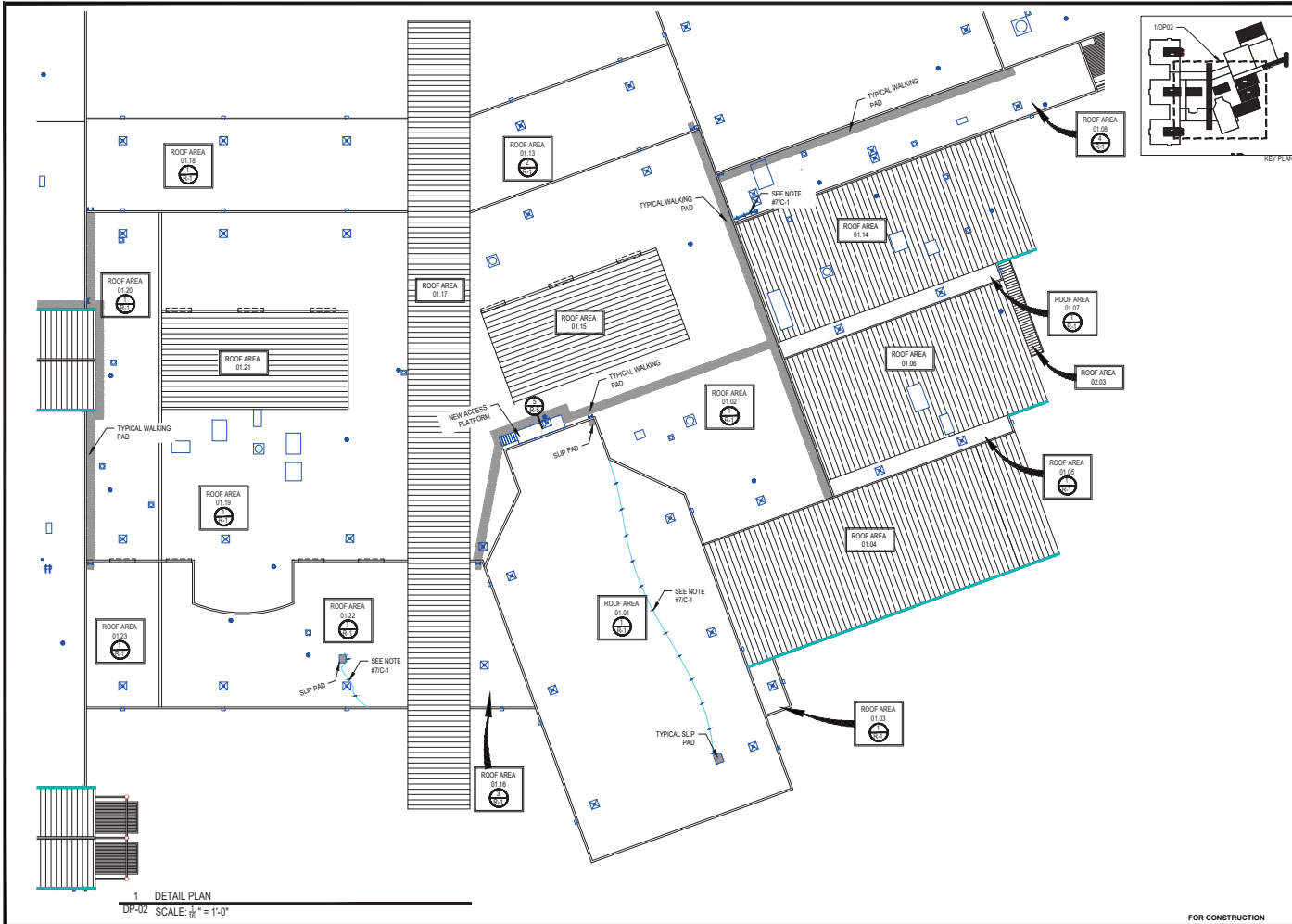
MARVIN RIDGE HIGH SCHOOL
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DATE	DESCRIPTION
01-24-2024	REV. REVIEW

SUB. PROJ. FILE:
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 CHECKED BY:
 DATE: 01-24-2024
 APPROVED:

ROOF
 ACCESSORIES
 SHEET NO. RA-1

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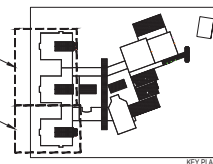
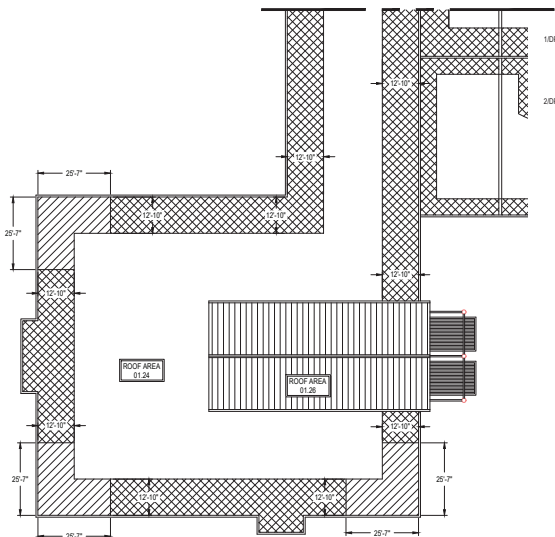
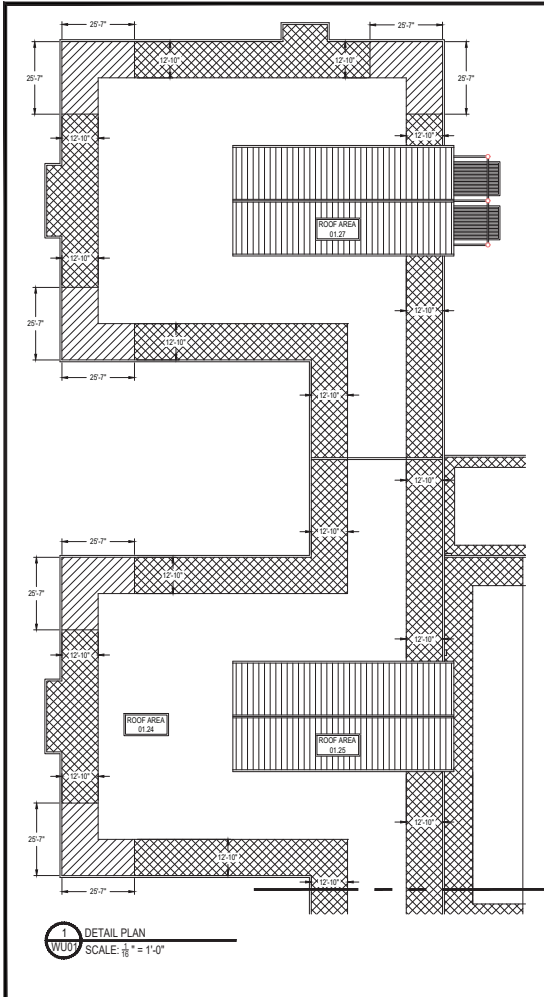
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MARVIN RIDGE HIGH SCHOOL
 ROOF RENOVATION PROJECT
 2825 CRANE ROAD,
 WAXHAW, NC, 28173

DATE	DESCRIPTION
01-24-2024	SPL REVIEW

FOR CONSTRUCTION

RA-2



WIND UPLIFT TABLE

ROOF AREA	HEIGHT (FT)	ZONE 1 (PSF)	ZONE 2 (PSF)	ZONE 3 (PSF)	KEY
01.02	45	-37.1	-58.1	-	Zone 1
01.02	25	-28.1	-45.9	-	Zone 1
01.03	15	-37	-53.5	61.0	Zone 2
01.05	44	-	-41.4	-	Zone 1
01.07	44	-	-42.1	-	Zone 1
01.08	25	-28.1	-45.9	-	Zone 1
01.07	35	-35.1	-55.1	-72.1	Zone 2
01.10	35	-35.1	-55.1	-73.4	Zone 2
01.11	35	-25.1	-46.2	-	Zone 1
01.11	17	-30.2	-47.3	-	Zone 1
01.10	16	-30.4	-48.1	-	Zone 1
01.18	17	-30.2	-47.3	-	Zone 1
01.19 & 01.20	25	-28.4	-45.9	-	Zone 1
01.22 & 01.23	16	-22.8	-46.6	-76.5	Zone 2
01.24	33	-34.5	-54.1	-73.9	Zone 2
01.02	15	-25.1	-40.7	-62.6	Zone 1
01.02	12	-24.5	-40.7	-62.6	Zone 1
01.03	15	-31.3	-49.6	-	Zone 2
01.04	12	-32.2	-41.7	-61.6	Zone 1
01.05	15	-25.1	-50.8	-73.7	Zone 1
01.06	12	-23.5	-42.1	-61.8	Zone 1
01.07	15	-25.4	-50.2	-73.7	Zone 1
01.02	20	-31.8	-49.1	-67.8	Zone 1

INTERNAL PRESSURE COEFFICIENT (ICP) = +0.18, -0.18

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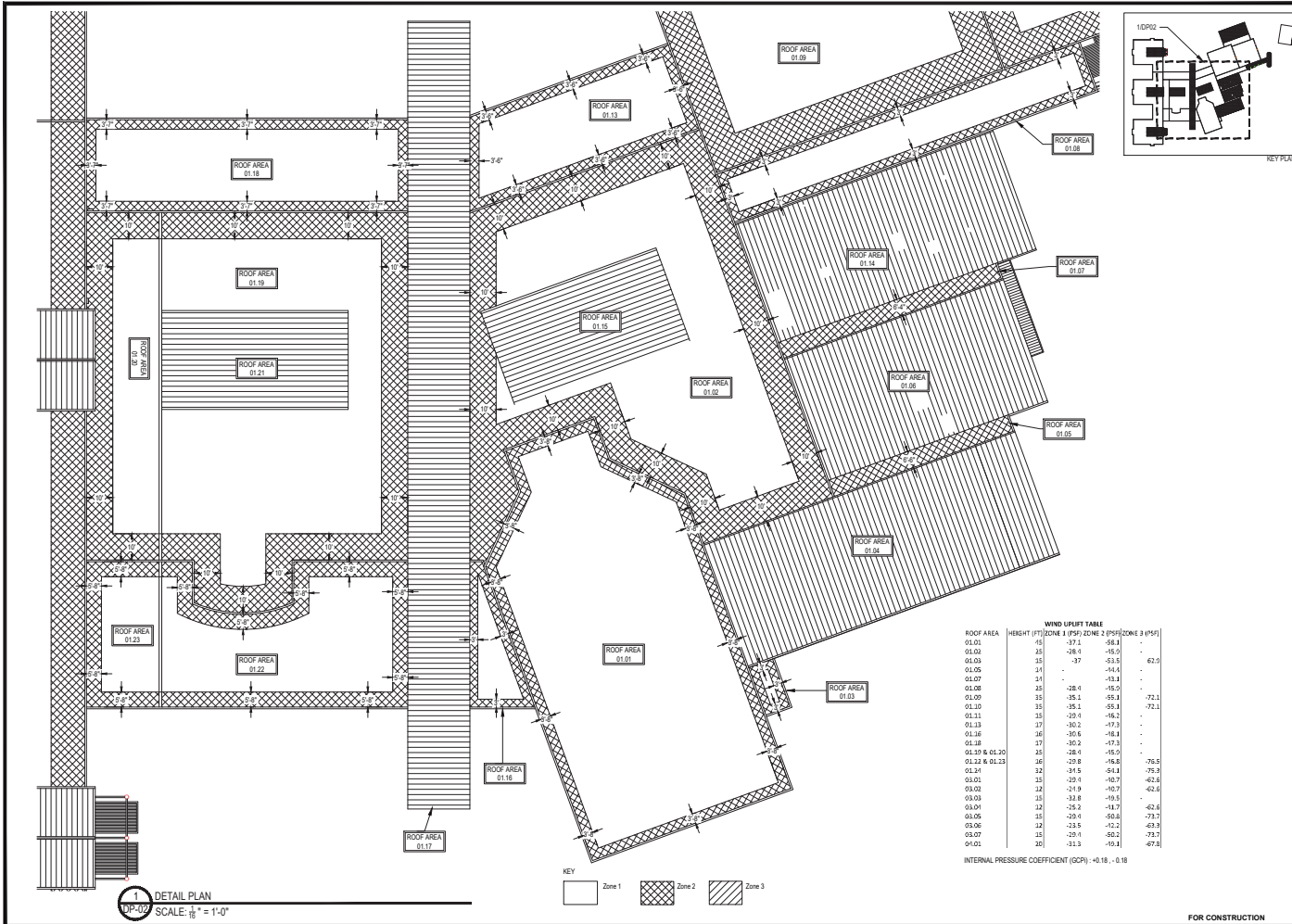
MARVIN RIDGE HIGH SCHOOL ROOF RENOVATION PROJECT
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APP.	DATE	DESCRIPTION
AS	01-24-2024	SPL REVIEW

50 IMP. FILE:
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 CHECK BY: M
 DATE: 01-24-2024
 PROJECT: WIND UPLIFT

WIND UPLIFT PLAN
 WU01

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 SEAL

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 OWNER

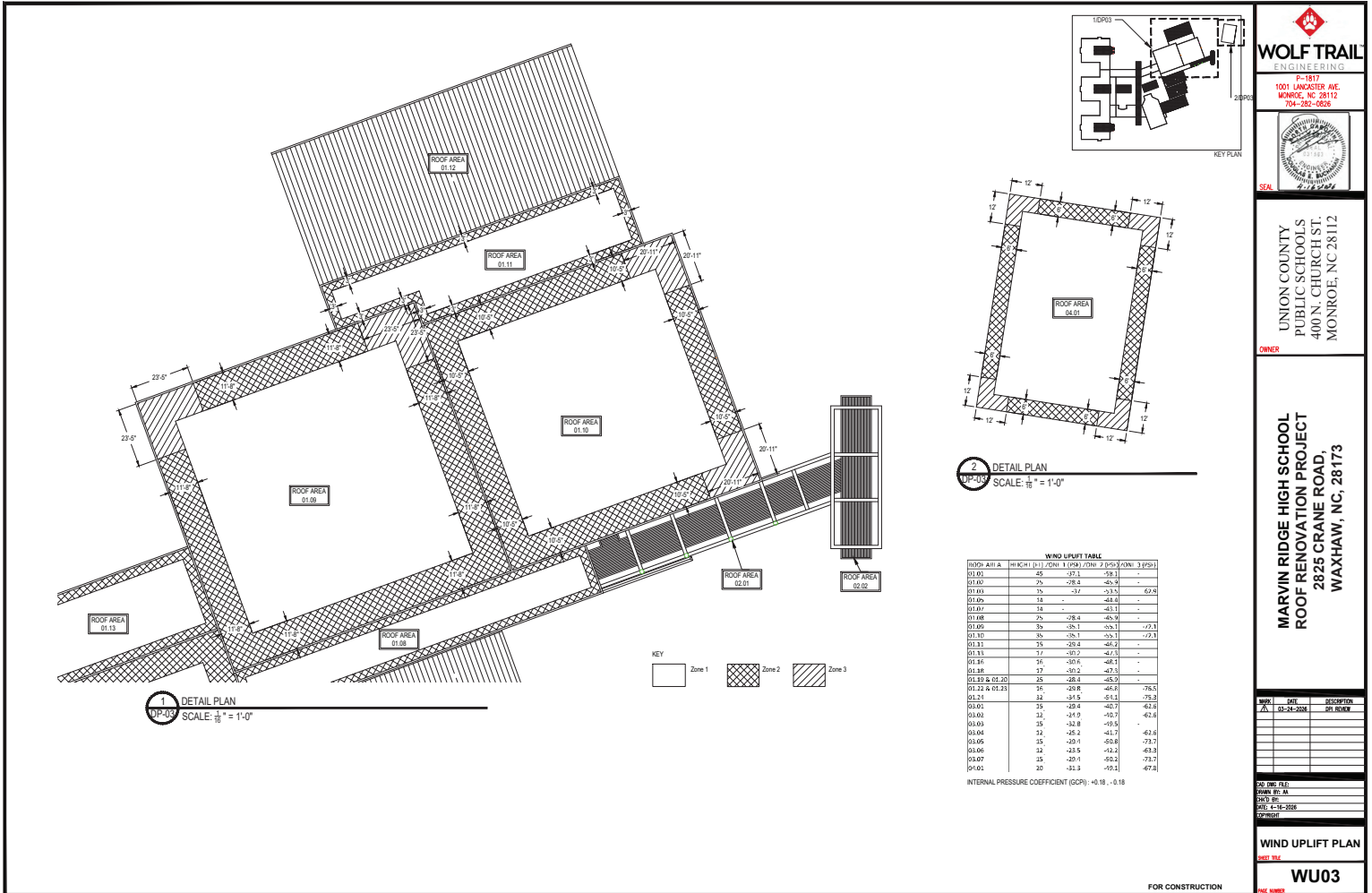
**MARVIN RIDGE HIGH SCHOOL
 ROOF RENOVATION PROJECT**
 2825 CRANE ROAD,
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NO.	DATE	DESCRIPTION
1	01-24-2008	SPL REVIEW

SOL. DRG. FILE:
 DRAWN BY: MS
 CHECK BY: MS
 DATE: 04-14-2008
 APPROVED:

WIND UPLIFT PLAN
 SHEET NO. **WU02**
 THE HUBBARD

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UNION COUNTY
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OWNER

**MARVIN RIDGE HIGH SCHOOL
ROOF RENOVATION PROJECT**
2825 CRANE ROAD,
WAXHAW, NC, 28173

NO.	DATE	DESCRIPTION
1	01-24-2008	SPL REVIEW

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DATE: 04-14-2008
APPROVED:

WIND UPLIFT PLAN
WU03

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