PROJECT MANUAL

FOR

ADMINISTRATIVE SERVICES
AREA D2 ROOF REPLACEMENT

175 BINGHAM ROAD, ASHEVILLE, NORTH CAROLINA 28806

APRIL 13, 2016

REI PROJECT NO. 016CLT-046

NC ENGINEERS LICENSE # C-1520

REI ENGINEERS

1927 J.N. PEASE PLACE, SUITE 201, CHARLOTTE, NC 28262

PHONE 704.596.0331 FAX 704.596.0533

ROOFING, WATERPROOFING AND BUILDING ENVELOPE ENGINEERS AND CONSULTANTS

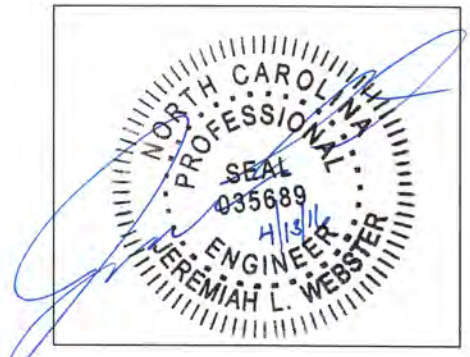
www.reiengineers.com

AN EMPLOYEE-OWNED COMPANY

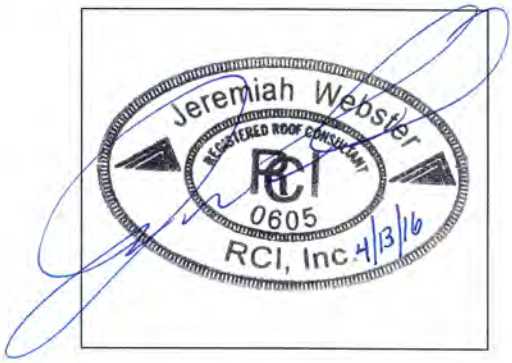
SECTION 00 01 07

SEALS PAGE

PROFESSIONAL ENGINEER



REGISTERED ROOF CONSULTANT



END OF SECTION 00 01 07

SECTION 00 01 10

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CONTRACT DRAWINGS

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SECTION 00 01 15

LIST OF DRAWINGS

PART 1 GENERAL

The following drawings and details are included as part of the Contract Documents:

Drawing	**Description**	**Date**
A.	Site Plan	02-19-2016
B.	Roof Plan	02-19-2016
C1.	Roof System	02-19-2016
C2.	Roof System	02-19-2016
D.	Foam Adhesive Pattern	02-19-2016
E.	Steel Deck Re-securement	02-19-2016
Detail	**Description**	**Date**
1.	Roof Drain	02-19-2016
2.	Parapet Wall	02-19-2016
3.	Overflow Scupper	02-19-2016
4.	Tubular Daylighting Device	02-19-2016
5.	Area Divider	02-19-2016
6.	Soil Pipe	02-19-2016
7.	Pipe Penetration	02-19-2016
8.	Mechanical Curb	02-19-2016
9.	HVAC Unit	02-19-2016
10.	Mechanical Support Curb	02-19-2016
11.	High Heat Penetration	02-19-2016
12.	High Heat Curb	02-19-2016
13.	Expansion Joint	02-19-2016
14.	Roof System Transition	02-19-2016

END OF SECTION 00 01 15

NOTICE TO BIDDERS

Sealed proposals from bidders will be received by The Buncombe County Board of Education in the Executive Conference Room of the Office of The Buncombe County Board of Education, 175 Bingham Road, Asheville, North Carolina no later than 3:00 pm EST, May 4, 2016 for single prime contracts for the furnishing of labor, materials, and equipment entering into the construction of Administrative Services Area D2 Roof Replacement.

A pre-bid meeting will be held at Administrative Services Building located at 175 Bingham Road, Asheville, NC at 10:00 AM on April 20, 2016.

In accordance with NC General Statutes 143-128, this project will be bid using the single prime system. All proposals shall be lump sum.

Bidders who wish to mail their proposals shall address them to Mr. Ron Venturella, Purchasing Officer, Buncombe County Schools, 175 Bingham Road, Asheville, North Carolina 28806. To prevent accidental opening, all mailed bids should be clearly marked on the mailer to indicate the project bid, "BID FOR: ADMINISTRATIVE SERVICES AREA D2 ROOF REPLACEMENT. DO NOT OPEN UNTIL 3:00 PM EST, MAY 4, 2016."

The budget for this project is below the formal range of $300,000. A bid bond is not required. If the winning bid is $150,000 or greater, the bidder will be required to provide a performance and payment bond before the contract is awarded.

Complete plans and specifications for this project can be obtained from Buncombe County Schools, 175 Bingham Road, Asheville, North Carolina 28806, by contacting Mr. Ron Venturella at (828) 255-5891 during normal office hours after April 13, 2016. Qualified Bidders may obtain a full set of digital plans and specifications files in PDF format at no charge upon written request.

All Bidders are hereby notified that they must have proper license under the laws of the State of North Carolina, and that the requirements of Chapter 87 of the General Statutes of North Carolina will be observed.
Bids shall include all taxes and, in particular, North Carolina and local sales and use taxes. Payment will be made on the basis of ninety-five (95%) of monthly estimates and final payment made upon completion and acceptance of work.

No bid may be withdrawn after the scheduled closing time for the receipt of bids for a period of sixty (60) days.

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

By: The Buncombe County Board of Education
Ann Franklin, Chairman

STATE OF NORTH CAROLINA/BUNCOMBE COUNTY SCHOOLS
REQUEST FOR PROPOSAL

PROJECT: **ADMINISTRATIVE SERVICES**
AREA D2 ROOF REPLACEMENT
RFP# 11-16

PROJECT DESIGNER: **Mary Beth Kingston, AIA, Assistant Director of Facilities**

USING AGENCY: **Buncombe County Schools** **ISSUE DATE: April 13, 2016**

Sealed proposals from bidders subject to the conditions made a part hereof will be received until **3:00 PM on May 4, 2016** for furnishing all labor, materials, equipment, and services incidental and implied, for completion of the project described herein.

PREBID CONFERENCE: A pre-bid conference is scheduled for **10:00 AM on April 20, 2016** at the facility, 175 Bingham Road, Asheville, NC 28806

SEND ALL PROPOSALS DIRECTLY TO THE ADDRESS AS SHOWN BELOW:

Buncombe County Schools, Purchasing Division
175 Bingham Road
Asheville, NC 28806

NOTE: Indicate firm name and RFP number on the front of each sealed proposal envelope or package, along with the date for receipt of proposals specified above.

Direct inquiries concerning this RFP to: Mary Beth Kingston, Asst. Director Phone: 828-255-5916
Ron Venturella, Purchasing Officer Phone: 828-255-5891

THE PROCUREMENT PROCESS

The following is a general description of the process by which a firm will be selected to provide services.

1. Request for Proposals (RFP) is issued to prospective contractors.

2. A preproposal conference and/or deadline for written questions is five days prior to due date.

3. Proposals in one original will be received from each offeror in a sealed envelope or package. Each original shall be signed and dated by an official authorized to bind the firm. Unsigned proposals will not be considered. Bid bond should be included in a separate sealed envelope.

4. All proposals must be received by the issuing agency not later than the date and time specified on the cover sheet of this RFP.

5. At that date and time the proposals from each responding firm will be opened. Interested parties are cautioned that these costs and their components are subject to further evaluation for completeness and correctness and therefore may not be an exact indicator of an offeror's pricing position. Informal proposals (less than $ 300,000) are confidential until such time that award has been made. Thereafter, the purchasing division will furnish bid tabs upon request.

6. At their option, the evaluators may request oral presentations or discussion with any or all offerors for the purpose of clarification or to amplify the materials presented in any part of the proposal. However, offerors are cautioned that the evaluators are not required to request clarification; therefore, all proposals should be complete and reflect the most favorable terms available from the offeror.

7. Proposals will be evaluated according to completeness, content, experience with similar projects, ability of the offeror and its staff, and cost. Award of a contract to one offeror does not mean that the other proposals lacked merit, but that, all factors considered, the selected proposal was deemed most advantageous to the State.

8. Offerors are cautioned that this is a request for offers, not a request to contract, and the State/Buncombe County Schools reserves the unqualified right to reject any and all offers when such rejection is deemed to be in the best interest of the State.

(NOTE: THIS FORM MUST BE FULLY EXECUTED AND RETURNED FOR CONSIDERATION OF PROPOSAL)

PROPOSAL FORM
ADMINISTRATIVE SERVICES
AREA D2 ROOF REPLACEMENT
RFP #11-16
DUE DATE: MAY 4, 2016 by 3:00 PM

By submitting this proposal, the potential contractor certifies the following:

** This proposal is signed by an authorized representative of the firm.
** It can obtain and submit to the Owner insurance certificates as required within 5 calendar days after notice of award.
** 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, have been determined and included in the proposed cost.
** All taxes have been determined and included in the proposed cost.
** The offeror has attended the conference *(if applicable*) or conducted a site visit and is aware of prevailing conditions associated with performing these services.
** The potential contractor has read and understands the conditions set forth in this RFP and agrees to them with no exceptions.

Therefore, in compliance with this Request for Proposals, and subject to all conditions herein, the undersigned offers and agrees, if this proposal is accepted within 45 days (normally less) from the date of the opening, to furnish the subject services for a cost not to exceed:

Base Bid:

$_____ dollars and _____/100 $ _____

CONTINGENCY ALLOWANCE INCLUDED:
It is to be understood that the above base bid amount includes a project contingency allowance of $5,000.00. This contingency allowance is to be governed as per the terms and conditions specified in Section 01 21 00 of the Project Manual.

QUANTITY ALLOWANCES INCLUDED:
It is to be understood that the above base bid amount includes the below listed quantity allowances. These quantity allowances are to be governed as per the terms and conditions specified in Section 01 21 00 of the Project Manual.

QA-1: Repair 1,500 sq. ft. of Steel Deck with Coating ..... $ _____
QA-2: Overlay 100 sq. ft. of Damaged or Deteriorated Steel Deck..... $ _____
QA-3: Replace 150 bd. ft. of Damaged or Deteriorated Wood Blocking..... $ _____

UNIT PRICES:
United prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the scope of the work all in accordance with the contract documents.

UP-1: Repair Steel Deck with Coating..... $ _____ /SF
UP-2: Overlay Damaged or Deteriorated Steel Deck ..... $ _____ /SF
UP-3: Replace Damaged or Deteriorated Wood Blocking..... $ _____ /BF

MANUFACTURERS:
Base bid shall utilize TPO materials manufactured by _____ .
(One manufacturer only)

SCHEDULE OF COMPLETION:
The undersigned hereby agrees commence work on this project no sooner than June 10, 2016 with all work being substantially complete by August 12, 2016. Contractor is subject to liquidated damages in the amount of $250.00 per calendar day for each day in excess of the substantial completion deadline. Final completion all work shall be obtained by August 26, 2016. Contractor is subject to liquidated damages in the amount of $250.00 per calendar day for each day in excess of the final completion.

SUBCONTRACTORS:
If subcontractors are to be utilized, the General Contractor shall fill out all blanks on the list below. All subcontractors shall be listed. The general contractor shall identify work by the general, subcontractor or not applicable. Do not list suppliers. All blanks must be filled in. Failure to do so may result in bid being declared non-responsive. If there is more than one subcontractor per trade identified below, list all. If no subcontractors are to be utilized, indicate by signing at the appropriate place at the bottom of this page.

Trade: _____ Company _____
Trade: _____ Company _____
Trade: _____ Company _____
Trade: _____ Company _____
Trade: _____ Company _____
Trade: _____ Company _____

We do not plan to use subcontract forces: _____
Contractor Signature (sign if applicable)

Attended Pre-Bid Mtg: YES/NO _____

Addendums received and used in computing bid: YES/NO_____ Number of Addendums received: _____

OFFEROR: _____

ADDRESS: _____

CITY, STATE, ZIP: _____

TELEPHONE NUMBER: _____ FAX: _____

FED ID No: _____ Type & License #: _____

E-MAIL: _____ MBE Status: _____

Principal Place of Business if different from above (See General Information on Submitting Proposals, Item 18.):_____

BY: (Signature) _____ TITLE: _____

DATE: _____ (Typed or printed name) _____

End of Proposal Form

If the winning bid is $150,000 or greater, the bidder will be required to provide a performance and payment bond before the contract is awarded. Bond forms are included with the RFP. A bid bond is not required for this proposal.

GENERAL INFORMATION ON SUBMITTING PROPOSALS

1. **EXCEPTIONS:** All proposals are subject to the terms and conditions outlined herein. All responses shall be controlled by such terms and conditions and the submission of other terms and conditions, price lists, catalogs, and/or other documents as part of an offeror's response will be waived and have no effect either on this Request for Proposals or on any contract that may be awarded resulting from this solicitation. Offeror specifically agrees to the conditions set forth in the above paragraph by signature to the proposal.

2. **CERTIFICATION:** By executing the proposal, the signer certifies that this proposal is submitted competitively and without collusion (G.S. 143-54), that none of our officers, directors, or owners of an unincorporated business entity has been convicted of any violations of Chapter 78A of the General Statutes, the Securities Act of 1933, or the Securities Exchange Act of 1934 (G.S. 143-59.2), and that we are not an ineligible vendor as set forth in G.S. 143-59.1. False certification is a Class I felony.

3. **ORAL EXPLANATIONS:** The State/Buncombe County Schools shall not be bound by oral explanations or instructions given at any time during the competitive process or after award.

4. **REFERENCE TO OTHER DATA:** Only information which is received in response to this RFP will be evaluated; reference to information previously submitted shall not be evaluated.

5. **ELABORATE PROPOSALS:** Elaborate proposals in the form of brochures or other presentations beyond that necessary to present a complete and effective proposal are not desired.

   In an effort to support the sustainability efforts of the State of North Carolina we solicit your cooperation in this effort.
   It is desirable that all responses meet the following requirements:

- All copies are printed **double sided**.
- All submittals and copies are printed on **recycled paper with a minimum post-consumer content of 30%** and indicate this information accordingly on the response.
- Unless absolutely necessary, all proposals and copies should **minimize or eliminate use of non-recyclable or non re-usable materials** such as plastic report covers, plastic dividers, vinyl sleeves, and GBC binding. Three-ringed binders, glued materials, paper clips, and staples are acceptable.
- Materials should be submitted in a format which allows for **easy removal and recycling** of paper materials.

6. **COST FOR PROPOSAL PREPARATION:** Any costs incurred by offerors in preparing or submitting offers are the offerors' sole responsibility; the State of North Carolina/Buncombe County Schools will not reimburse any offeror for any costs incurred.

7. **TIME FOR ACCEPTANCE:** Each proposal shall state that it is a firm offer which may be accepted within a period of 45 days. Although the contract is expected to be awarded prior to that time, the 45 day period is requested to allow for unforeseen delays.

8. **TITLES:** Titles and headings in this RFP and any subsequent contract are for convenience only and shall have no binding force or effect.

9. **CONFIDENTIALITY OF PROPOSALS:** In submitting its proposal the offeror agrees not to discuss or otherwise reveal the contents of the proposal to any source outside of the using or issuing agency, government or private, until after the award of the contract. Offerors not in compliance with this provision may be disqualified, at the option of the State/Buncombe County Schools, from contract award. Only discussions authorized by the issuing agency are exempt from this provision.

10. **RIGHT TO SUBMITTED MATERIAL:** All responses, inquiries, or correspondence relating to or in reference to the RFP, and all other reports, charts, displays, schedules, exhibits, and other documentation submitted by the offerors shall become the property of the State/Buncombe County Schools when received.

11. **OFFEROR'S REPRESENTATIVE:** Each offeror shall submit with its proposal the name, address, and telephone number of the person(s) with authority to bind the firm and answer questions or provide clarification concerning the firm's proposal.

12. **SUBCONTRACTING:** Offerors may propose to subcontract portions of the work provided that their proposals clearly indicate what work they plan to subcontract and to whom and that all information required about the prime contractor is also included for each proposed subcontractor.

13. **PROPRIETARY INFORMATION:** Trade secrets or similar proprietary data which the offeror does not wish disclosed to other than personnel involved in the evaluation or contract administration will be kept confidential to the extent permitted by NCAC T01:05B.1501 and G.S. 132-1.3 if identified as follows: Each page shall be identified in boldface at the top and bottom as "CONFIDENTIAL". Any section of the proposal which is to remain confidential shall also be so marked in boldface on the title page of that section. Cost information may not be deemed confidential. In spite of what is labeled as confidential, the determination as to whether or not it is shall be determined by North Carolina law.

14. **HISTORICALLY UNDERUTILIZED BUSINESSES:** Pursuant to General Statute 143-48 and Executive Order #150, Buncombe County Schools invites and encourages participation in this procurement process by businesses owned by minorities, women, disabled, disabled business enterprises and non-profit work centers for the blind and severely disabled.

    The Contractor agrees in particular to maintain open hiring and employment practices and to receive applications for employment in compliance with all requirements of applicable federal, state and local laws and regulations issued pursuant thereto relating to nondiscriminatory hiring and employment practices. Each Prime Contractor shall undertake an affirmative action program to ensure that no person shall be excluded from participation in any employment activities because of age, sex, race, religion, color, national origin or handicap.

15. **PROTEST PROCEDURES**: If an offeror wants to protest a contract awarded pursuant to this solicitation, they must submit a written request to the Purchasing Officer, Buncombe County Schools, 175 Bingham Road, or PO Box 16771, Asheville, NC 28806. This request must be received by the Purchasing Division within thirty (30) consecutive calendar days from the date of the contract award, and must contain specific sound reasons and any supporting documentation for the protest. NOTE: Contract award notices are sent only to those actually awarded contracts, and not to every person or firm responding to this solicitation. Contract status and award notices are available through the purchasing division or the project designer with contact information as shown on the first page of this solicitation. Offeror's may call to obtain a verbal status of contract award. All protests will be handled pursuant to the North Carolina Administrative Code, Title 1, Department of Administration, Chapter 5, Purchase and Contract, Section 5B.1519.

16. **TABULATIONS:** Offeror's may call the purchasing division to obtain a verbal status of contract award.

17. **VENDOR REGISTRATION AND SOLICITATION NOTIFICATION SYSTEM:** Vendor Link NC allows vendors to electronically register free with the State to receive electronic notification of current procurement opportunities for goods and services available on the Interactive Purchasing System. Online registration and other purchasing information are available on the Internet web site: http://www.state.nc.us/pandc/.

18. **RECIPROCAL PREFERENCE:** G.S. 143-59 establishes a reciprocal preference law to discourage other states from applying in-state preferences against North Carolina's resident offerors. The "Principal Place of Business" is defined as the principal place from which the trade or business of the offeror is directed or managed.

NORTH CAROLINA GENERAL CONTRACT TERMS AND CONDITIONS
(Contractual and Consultant Services)

1. **GOVERNING LAW:** This contract is made under and shall be governed and construed in accordance with the laws of the State of North Carolina.

2. **SITUS:** The place of this contract, its situs and forum, shall be North Carolina , where all matters, whether sounding in contract or tort, relating to is validity, construction, interpretation and enforcement shall be determined

3. **INDEPENDENT CONTRACTOR:** The Contractor shall be considered to be an independent contractor and as such shall be wholly responsible for the work to be performed and for the supervision of its employees. The Contractor represents that it has, or will secure at its own expense, all personnel required in performing the services under this agreement. Such employees shall not be employees of, or have any individual contractual relationship with the Agency.

4. **KEY PERSONNEL:** The Contractor shall not substitute key personnel assigned to the performance of this contract without prior written approval by the Agency's Contract Administrator. The individuals designated as key personnel for purposes of this contract are those specified in the Contractor's proposal.

5. **SUBCONTRACTING:** Work proposed to be performed under this contract by the Contractor or its employees shall not be subcontracted without prior written approval of the Agency's Contract Administrator/Project Designer. Acceptance of an offeror's proposal shall include any subcontractor(s) specified therein.

6. **PERFORMANCE AND DEFAULT:** If, through any cause, the Contractor shall fail to fulfill in timely and proper manner the obligations under this agreement, the Agency shall thereupon have the right to terminate this contract by giving written notice to the Contractor and specifying the effective date thereof. In that event, all finished or unfinished deliverable items under this contract prepared by the Contractor shall, at the option of the Agency, become its property, and the Contractor shall be entitled to receive just and equitable compensation for any satisfactory work completed on such materials. Notwithstanding, the Contractor shall not be relieved of liability to the Agency for damages sustained by the Agency by virtue of any breach of this agreement, and the Agency may withhold any payment due the Contractor for the purpose of setoff until such time as the exact amount of damages due the Agency from such breach can be determined.
   In case of default by the Contractor, the State may procure the services from other sources and hold the Contractor responsible for any excess cost occasioned thereby. The State reserves the right to require performance bond or other acceptable alternative guarantees from successful offeror without expense to the State.

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

   Neither party shall be deemed to be in default of its obligations hereunder if and so long as it is prevented from performing such obligations by any act of war, hostile foreign action, nuclear explosion, riot, strikes, civil insurrection, earthquake, hurricane, tornado, or other catastrophic natural event or act of God.

7. **TERMINATION:** The Agency may terminate this agreement at any time by *15 days* notice in writing from the Agency to the Contractor. In that event, all finished or unfinished deliverable items prepared by the Contractor under this contract shall, at the option of the Agency, become its property. If the contract is terminated by the Agency as provided herein, the Contractor shall be paid for services satisfactorily completed, less payment or compensation previously made.

8. **AVAILABILITY OF FUNDS:** Any and all payments to the Contractor are dependent upon and subject to the availability of funds to the Agency for the purpose set forth in this agreement.

9. **CONFIDENTIALITY:** Any information, data, instruments, documents, studies or reports given to or prepared or assembled by the Contractor under this agreement shall be kept as confidential and not divulged or made available to any individual or organization without the prior written approval of the Agency.

10. **CARE OF PROPERTY:** The Contractor agrees that it shall be responsible for the proper custody and care of any property furnished it for use in connection with the performance of this contract or purchased by it for this contract and will reimburse the State for loss of damage of such property.

11. **COPYRIGHT:** No deliverable items produced in whole or in part under this agreement shall be the subject of an application for copyright by or on behalf of the Contractor.

12. **ACCESS TO PERSONS AND RECORDS:** The State Auditor shall have access to persons and records as a result of all contracts or grants entered into by State agencies or political subdivisions in accordance with General Statute 147-64.7. The Contractor shall retain all records for a period of three years following completion of the contract.

13. **ASSIGNMENT:** No assignment of the Contractor's obligations nor the Contractor's right to receive payment hereunder shall be permitted. However, upon written request approved by the issuing purchasing authority , the State may:
    a. Forward the contractor's payment check(s) directly to any person or entity designated by the Contractor, or

b. Include any person or entity designated by Contractor as a joint payee on the Contractor's payment check(s).

In no event shall such approval and action obligate the State to anyone other than the Contractor and the Contractor shall remain responsible for fulfillment of all contract obligations.

14. **COMPLIANCE WITH LAWS:** The Contractor shall comply with all laws, ordinances, codes, rules, regulations, and licensing requirements (permits) that are applicable to the conduct of its business, including those of federal, state, and local agencies having jurisdiction and/or authority.

15. **AFFIRMATIVE ACTION:** The Contractor shall take affirmative action in complying with all Federal and State requirements concerning fair employment and employment of people with disabilities, and concerning the treatment of all employees without regard to discrimination by reason of race, color, religion, sex, national origin, or disability.

16. **INSURANCE:** During the term of the contract, the contractor at its sole cost and expense shall provide commercial insurance of such type and with such terms and limits as may be reasonably associated with the contract. As a minimum, the contractor shall provide and maintain the following coverage and limits:

    a. Worker's Compensation - The contractor shall provide and maintain Worker's Compensation Insurance, as required by the laws of North Carolina, as well as employer's liability coverage with minimum limits of $150,000.00, covering all of Contractor's employees who are engaged in any work under the contract. If any work is subcontracted, the contractor shall require the subcontractor to provide the same coverage for any of its employees engaged in any work under the contract.

    b. Commercial General Liability - General Liability Coverage on a Comprehensive Broad Form on an occurrence basis in the minimum amount of $2,000,000.00 Combined Single Limit. (Defense cost shall be in excess of the limit of liability.

    c. Automobile - Automobile Liability Insurance, to include liability coverage, covering all owned, hired and non-owned vehicles, used in connection with the contract. The minimum combined single limit shall be $500,000.00 bodily injury and property damage; $500,000.00 uninsured/under insured motorist; and $100,000.00 medical payment.

    Providing and maintaining adequate insurance coverage is a material obligation of the contractor and is of the essence of this contract. All such insurance shall meet all laws of the State of North Carolina. Such insurance coverage shall be obtained from companies that are authorized to provide such coverage and that are authorized by the Commissioner of Insurance to do business in North Carolina. The contractor shall at all times comply with the terms of such insurance policies, and all requirements of the insurer under any such insurance policies, except as they may conflict with existing North Carolina laws or this contract. The limits of coverage under each insurance policy maintained by the contractor shall not be interpreted as limiting the contractor's liability and obligations under the contract.

    The Contractor shall furnish a Certificate of Insurance as proof of the above coverages. Certificate will contain provision that the insurance coverages cannot be canceled, reduced in amount or coverage eliminated without 30 days written notice to the Buncombe County Board of Education. Owner's Protective insurance must list the Buncombe County Board of Education as a "Named Insured" as it's interest may appear. Owner's approval of Certificate of Insurance does not decrease or relieve the contractor's responsibility for maintaining insurance coverage as required in this Request for Proposal.

17. **ADVERTISING:** Contractor agrees not to use the existence of this contract, the name of the agency, or the name of the State of North Carolina as part of any commercial advertising.

18. **ENTIRE AGREEMENT:** This contract and any documents incorporated specifically by reference represent the entire agreement between the parties and supersede all prior oral or written statements or agreements. This Request for Proposals, any addenda thereto, and the offeror's proposal are incorporated herein by reference as though set forth verbatim.

    All promises, requirements, terms, conditions, provisions, representations, guarantees, and warranties contained herein shall survive the contract expiration or termination date unless specifically provided otherwise herein, or unless superseded by applicable Federal or State statutes of limitation.

19. **AMENDMENTS:** This contract may be amended only by written amendments duly executed by the Agency and the Contractor.

20. **TAXES:** G.S. 143-59.1 bars the Secretary of Administration from entering into contracts with vendors if the vendor or its affiliates meet one of the conditions of G. S. 105-164.8(b) and refuse to collect use tax on sales of tangible personal property to purchasers in North Carolina. Conditions under G. S. 105-164.8(b) include: (1) Maintenance of a retail establishment or office, (2) Presence of representatives in the State that solicit sales or transact business on behalf of the vendor and (3) Systematic exploitation of the market by media-assisted, media-facilitated, or media-solicited means. By execution of the bid document the vendor certifies that it and all of its affiliates, (if it has affiliates), collect(s) the appropriate taxes.

21. **GENERAL INDEMNITY:** The contractor shall hold and save the State/Buncombe County Schools, its officers, agents, and employees, harmless from liability of any kind, including all claims and losses, with the exception of consequential damages, accruing or resulting to any other person, firm, or corporation furnishing or supplying work, services, materials, or supplies in connection with the performance of this contract, and from any and all claims and losses accruing or resulting to any person, firm, or corporation that may be injured or damaged by the contractor in the performance of this contract and that are attributable to the negligence or intentionally tortious acts of the contractor provided that the contractor is notified in writing within 30 days that the State/Buncombe County Schools has knowledge of such claims. The contractor represents and warrants that it shall make no claim of any kind or nature against the State's agents who are involved in the delivery or processing of contractor goods to the State. The representation and warranty in the preceding sentence shall survive the termination or expiration of this contract.

CONTRACTOR'S SALES TAX REPORT

Buncombe County Schools

NC State and Local Sales Taxes Paid

CONTRACTOR:_____ **PO#/RFP#** _____

Address: _____**For Period:** _____

Invoice Date	Invoice #	Type of Property	NC Tax 4.75%	County Tax 2.25%	Name of County
		TOTAL	**$**	**$**	

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

_____
Print or Type Name of Above & Title

My Commission Expires: _____

Seal

NOTE:
This certified statement may be subject to audit.

The North Carolina General Assembly has amended the Statute to provide refunds of sales and use tax to local school units in accordance with the provisions of G.S. 105-164. 14(c) effective with tax paid on or after July 1, 1998.

These refunds are to include the “sales and use taxes paid by contractors on building materials, supplies, fixtures and equipment that become a part of or annexed to a building or structure that is owned or leased by the governmental entity and is being erected, altered or repaired for use by the governmental entity (G.S. 1O5-164.14).”

Sales and Use Tax Technical Bulletin Section 18-2F specifies: “To substantiate a refund claim for sales or use taxes paid on purchases of building materials, supplies. fixtures and equipment by its contractor, the claimant must secure from such contractor certified statements setting forth all of the following information:

a. the date the property was purchased;
b. the type of property purchased :
c. the project for which the property was used:
d. if the property was purchased in this State, the county in which it was purchased;
e. if the property was not purchased in this State, the county in which the property was used; and
f. the amount of sales and use taxes paid.

In the event the contractor makes several purchases from the same vendor, such certified statement must indicate the invoice numbers, the inclusive dates of the invoices, the total amount of the invoices and the State and local sales and use taxes paid thereon. Such statement must also include the cost of any tangible personal property withdrawn from the contractor's warehouse stock and the amount of sales and use tax paid thereon by the contractor. Similar certified statements by his subcontractors must be obtained by the general contractor and furnished to the claimant. Any local sales or use taxes must be shown separately from the State sales or use taxes. The contractor’s statements must not contain sales or use taxes paid on purchases of tangible personal property purchased by such contractors for use in performing the contract which does not annex to, affix to or in some manner become a part of the building or structure that is owned or leased by a governmental agency and is being erected, altered or repaired for use by a governmental entity as defined by G.S. 105-164.14(c). Examples of property on which sales or use tax has been paid by the contractor and which shall not be included in the contractor's statement are scaffolding, forms for concrete, fuel for the operation of machinery and equipment, tools, repair parts and equipment rentals.

Please read entire specification package. You will be held accountable for all information. NO payment shall be made if specifications are not followed.

Scope: Work shall consist of furnishing all labor, materials, equipment and services, incidental for the completion of work as described herein. All items not specifically mentioned in the specifications, but which obviously are required to make the job complete, shall be included automatically.

Project Description: The work consists of Area D2 Roof Replacement at Administrative Services as specified.

Qualifications: All bidders must furnish a list of North Carolina Contractor Licenses, which they hold.

Contractor's Responsibility: The Contractor shall be responsible for the construction site during the performance of the work. The Contractor shall be responsible for any and all damages to persons and property during the performance of the work and shall further provide all necessary safety measures and shall fully comply with all federal state and local laws, building rules, rules and regulations to prevent accidents or injury to persons or property on or about the location of the work site. This is to include OSHA 1910, General Construction, or those regulations mandated by these specifications. Special attention will be made to proper barricading of the work areas due to the work progressing within an actively operating office atmosphere.

Safety Regulations: The Contractor shall adhere to the rules, regulations and interpretations of the North Carolina Department of Labor relating to Occupational Safety and Health Standards for the Construction Industry (Title 29, Code of Federal Regulations, Part 1926, published in Volume 39, Number 122, Part II, June 24, 1974 Federal Register) which is hereby incorporated in these specifications.

Codes: All work shall be done in accordance with the specifications and shall comply with North Carolina Building Code, Underwriters' Rules and Regulations and Federal, State and Local Regulations covering work of this nature. Whenever drawings or specifications are in excess of such laws, codes and regulations, the specifications shall hold. All equipment shall have U. L. labels attached.

Permits: The Contractor must secure all permits required for the job completion, obtain and deliver to Owner, all certification of inspection issued by the authorities having jurisdiction, with Contractor paying cost of same. Permitting is through the Permitting Division of Buncombe County and Western North Carolina (WNC) Regional Air Quality Agency. **All final certificates must be delivered to owner prior to request for final payment.**

Workers on Job: All employees of the Contractor shall, while on Buncombe County Board of Education property, act in a professional and courteous manner. All workers shall be expected to wear long pants and shirts while on Board property. Also, all employees of the Contractor must "sign in" in the main office upon entering the facility and must "sign out" upon leaving the property. Any employee of the Contractor may be told to leave the property by either the Principal or the Assistant Director, if they do not follow the above procedure. The employee shall be replaced with another at no additional cost to the Buncombe County Board of Education.

In accordance with G.S. 14-208.18, all persons who (1) are required to register under the Sex Offender and Public Protection Program AND (2) have been convicted of certain sexually violent offenses or any offense where the victim was under the age of 16 years at the time of the offense are expressly forbidden to knowingly be present on any property owned or operated by the school system, including school buildings, athletic fields, playgrounds, parking lots, school buses, activity buses or other property of any kind for any reason, including attendance at sporting events or other school related functions, whether before, during or after school hours. It is the responsibility of the contractor or vendor that their employees and sub-contractors are in accordance with G.S. 14-208.18.

E-Verify: Contractor shall comply with E-Verify, the federal E-Verify program operated by the United States Department of Homeland Security and other federal agencies, or any successor or equivalent program used to verify the work authorization of newly hired employees pursuant to federal law and as in accordance with N.C.G.S. §64-25 et seq. In addition, to the best of Contractor's knowledge, any subcontractor employed by Contractor as a part of this contract shall be in compliance with the requirements of E-Verify and N.C.G.S. §64-25 et seq.

Iran Divestment Act: North Carolina Local Government Units may not enter into contracts with any entity or individual found on the State Treasurer's Iran Final Divestment List N.C.G.S. 143C-6A. By bidding on this project the bidder certifies it is not listed on the Final Divestment List created by the State Treasurer.

Equipment and Tools: The Contractor shall use no equipment or tools that are owned by the Buncombe County Board of Education. Also, no employees of the Buncombe County Board of Education shall be utilized by the Contractor except for opening locked doors and giving directions.

Materials: No materials shall be stored on site and the Buncombe County Board of Education is not responsible for any materials, equipment or tools lost or stolen from the site.

Change in the Work: Changes in the work after execution of the purchase order shall be based upon written agreement by the Owner and the Contractor.

When unforeseen site conditions are identified that require time sensitive changes in the work, the Owner may authorize the Contractor to perform the work, who shall document the time and materials spent to perform the work. The contractor shall provide a lump sum itemized and supported by sufficient substantiating data to permit evaluation, including timesheets, digital photos, material lists and invoices as requested.

For all Change Orders, Overhead, Profit and General Conditions combined, in the total cost to the Owner, shall not exceed the following:
<u>For additive change order work (lump sum):</u>
1. For a Prime Contractor, for any Work performed by its own forces, twenty percent (20%) of the cost.
2. For a Prime Contractor, for Work performed by its subcontractor, ten percent (10%) of the amount due the subcontractor.
3. For each subcontractor included, for any Work performed by the subcontractor's own forces, fifteen percent (15%) of the cost.
<u>Deductive change order work (lump sum)</u>
The Prime Contractor shall include a deduction of at least ten percent (10%) profit. No deduction is required for overhead.
<u>Additive or Deductive Change Order work (unit price)</u>
Overhead, Profit and General Conditions are included in unit prices. Unit Prices are to be added to or deducted from the purchase order as a net amount.

Clean Up: The area of work shall be cleaned daily so that the Buncombe County Board of Education shall not incur any additional costs to make the area suitable for the work process. Also, the Contractor shall utilize no trash receptacles or dumpsters owned by the Buncombe County Board of Education. All trash and removed materials shall be properly disposed of off the property.

Performance of Work: All work shall be performed at the highest level of quality. The Owner shall be responsible for determining the quality of work, and may notify the Contractor of same. **ANY WORK COMPLETED THAT IS NOT SUITABLE TO THE OWNER SHALL BE REPEATED BY THE CONTRACTOR AT NO COST TO THE OWNER.** Any damage to existing area or utilities will be the responsibility of the Contractor. **NO EXCEPTIONS**.

Bonds: A bid bond is not required. If the winning bid is $150,000 or greater, the bidder will be required to provide a performance and payment bond before the contract is awarded. Bond forms are included with the RFP.

The Buncombe County Board of Education reserves the right to reject any or all bids for any or no reason, and to waive informalities**.**

SECTION 00 31 23

EXISTING ASBESTOS INFORMATION

EMSL Analytical, Inc.
376 Crompton Street, Charlotte, NC 28273
Phone/Fax: (704) 525-2205 / (704) 525-2382
http://www.EMSL.com charlottelab@emsl.com

EMSL Order:	411402701
CustomerID:	REIE25
CustomerPO:	
ProjectID:	

Attn: **Jeremiah Webster**
REI Engineers
1927 JN Pease Place
Suite 201
Charlotte, NC 28262

Phone:	(704) 596-0331
Fax:	(704) 596-0533
Received:	05/12/14 11:00 AM
Analysis Date:	5/17/2014
Collected:	5/8/2014

Project: **Buncombe County Schools, Administration Services Building**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**		**% Type**
TC1-Tar *411402701-0001*	Field Membrane Area D2	Black Non-Fibrous Homogeneous	<1%	Cellulose	100%	Non-fibrous (other)	**None Detected**
TC1-Cellulose Layer *411402701-0001A*	Field Membrane Area D2	Black Fibrous Homogeneous	20%	Cellulose	80%	Non-fibrous (other)	**None Detected**
TC1-Insulation *411402701-0001B*	Field Membrane Area D2	Tan Fibrous Heterogeneous	60%	Cellulose	10% 30%	Perlite Non-fibrous (other)	**None Detected**
TC2-Tar *411402701-0002*	Field Membrane Area D2	Black Non-Fibrous Homogeneous			100%	Non-fibrous (other)	**None Detected**
TC2-Cellulose Layer *411402701-0002A*	Field Membrane Area D2	Black Fibrous Homogeneous	20%	Cellulose	80%	Non-fibrous (other)	**None Detected**
TC2-Insulation *411402701-0002B*	Field Membrane Area D2	Brown Fibrous Homogeneous	75%	Cellulose	10% 15%	Perlite Non-fibrous (other)	**None Detected**
TC3-Tar *411402701-0003*	Field Membrane Area H	Black Non-Fibrous Homogeneous	<1%	Cellulose	100%	Non-fibrous (other)	**None Detected**
TC3-Cellulose Layer *411402701-0003A*	Field Membrane Area H	Black Non-Fibrous Homogeneous	25%	Cellulose	75%	Non-fibrous (other)	**None Detected**

Analyst(s)

Christopher Estes (6)
Eric Loomis (6)

Lee Plumley, Laboratory Manager
or other approved signatory

Initial report from 05/19/2014 09:04:28

EMSL Analytical, Inc.
376 Crompton Street, Charlotte, NC 28273
Phone/Fax: (704) 525-2205 / (704) 525-2382
http://www.EMSL.com charlottelab@emsl.com

EMSL Order:	411402701
CustomerID:	REIE25
CustomerPO:	
ProjectID:	

Attn: **Jeremiah Webster**
REI Engineers
1927 JN Pease Place
Suite 201
Charlotte, NC 28262

Phone:	(704) 596-0331
Fax:	(704) 596-0533
Received:	05/12/14 11:00 AM
Analysis Date:	5/17/2014
Collected:	5/8/2014

Project: **Buncombe County Schools, Administration Services Building**

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos				Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**		**% Non-Fibrous**		**% Type**
TC3-Insulation *411402701-0003B*	Field Membrane Area H	Tan Fibrous Heterogeneous	60%	Cellulose	10% 30%	Perlite Non-fibrous (other)	**None Detected**
TC4-Tar *411402701-0004*	Field Membrane Area H	Black Non-Fibrous Homogeneous	<1%	Cellulose	100%	Non-fibrous (other)	**None Detected**
TC4-Cellulose Layer *411402701-0004A*	Field Membrane Area H	Black Fibrous Homogeneous	20%	Cellulose	80%	Non-fibrous (other)	**None Detected**
TC4-Insulation *411402701-0004B*	Field Membrane Area H	Brown Fibrous Homogeneous	75%	Cellulose	10% 15%	Perlite Non-fibrous (other)	**None Detected**

Analyst(s)

Christopher Estes (6)
Eric Loomis (6)

Lee Plumley, Laboratory Manager
or other approved signatory

Initial report from 05/19/2014 09:04:28

SECTION 00 60 00

PROJECT FORMS

PART 1 GENERAL

1.01 GENERAL

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

1. Performance Bond Form - Section 00 61 13.13
2. Payment Bond Form - Section 00 61 13.16
3. Roof Manufacturer's Acknowledgement - Section 00 62 33
4. Request for Interpretation - Section 00 63 13
5. Substitution Request Form - Section 00 63 25
6. Change Proposal Form - Section 00 63 55
7. Contractors Two Year Warranty - Section 00 65 36
8. Roofing Close-out Checklist - Section 00 66 00

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 00 60 00

PERFORMANCE BOND

Date of Execution
of this Bond: _____

Name and Address of
Principal (Contractor): _____

_____

Name and Address
of Surety: _____

_____

Name and Address of
Contracting Body: THE BUNCOMBE COUNTY BOARD OF EDUCATION, a body corporate of the State of North Carolina, 175 Bingham Road, Asheville, NC 28806.

Amount of Bond: _____

Contract: That certain contract by and between the Principal and the Contracting Body above named, 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 successors, 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, as identified and 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 to the Surety, and during the life of any guaranty required under the contract, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of any and all duly authorized modifications of said 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.

PFB 1

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

_____
Principal (Name of individual, individual and trade name, partnership, corporation or joint venture)

WITNESS:

_____ BY:_____(SEAL)
(Proprietorship of Partnership)

TITLE:_____
(Owner, partner, office held in corporation, joint venture)

(Corporate Seal)

ATTEST: (Corporation)

BY: _____

TITLE:_____
(Corporate Secretary of Assistant Secretary only)

_____
Surety (Name of Surety Company)

WITNESS:

_____ BY:_____

TITLE: Attorney-in-Fact

(Corporate Seal of Surety)

_____
(Address of Attorney-in-Fact)

COUNTERSIGNED:

_____

_____
N.C. Licensed Resident Agent

PFB 2

PAYMENT BOND:

Date of Execution of this Bond: _____

Name and Address of Principal (Contractor): _____

_____

Name and Address of Surety: _____

_____

Name and Address of Contracting Body: THE BUNCOMBE COUNTY BOARD OF EDUCATION, a body corporate of the State of North Carolina, 175 Bingham Road, Asheville, NC 28806.

Amount of Bond: _____

Contract: That certain contract by and between the Principal and the Contracting Body above named, 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 successors, 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, as identified and 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 that may hereafter be made, notice of which modifications and extensions 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.

PYB 1

Section 61 13.16

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

_____

Principal (Name of individual, individual and trade name, partnership, corporation or joint venture)

WITNESS:

_____ BY:_____(SEAL)

(Proprietorship of Partnership)

TITLE:_____

(Owner, partner, office held in corporation, joint venture)

(Corporate Seal)

ATTEST: (Corporation)

BY: _____

TITLE:_____

(Corporate Secretary of Assistant Secretary only)

_____

Surety (Name of Surety Company)

WITNESS:

_____ BY:_____

TITLE: Attorney-in-Fact

(Corporate Seal of Surety)

_____

(Address of Attorney-in-Fact)

COUNTERSIGNED:

_____

_____

N.C. Licensed Resident Agent

PYB 2

SECTION 00 62 33

ROOF MANUFACTURER'S ACKNOWLEDGMENT

Owner: Buncombe County Schools

Project Name: Administrative Services Area D2 Roof Replacement

Project Address: 175 Bingham Road, Asheville, North Carolina 28806

Roofing Contractor: _____

Address: _____

Telephone: _____

Facsimile: _____

This is to advise the Owner that having reviewed the Specifications and Drawings contained within the Project Manual dated April 13, 2016 for the above-titled project, we acknowledge that the roof system(s) and flashing system(s) are suitable for use on this project as specified. Additionally, we will comply with the specified requirements for on-site technical support. Additionally, roof system manufacturer certifies that the installer is approved, authorized, or licensed by manufacturer to install specified roof system and is eligible to receive the specified manufacturer's warranty:

_____ 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 63 13

REQUEST FOR INTERPRETATION

Project: _____ RFI Number:_____

From:_____ Date: _____

A/E:_____ A/E Project No.: _____

Contract For:_____ Contract Date:_____

Specification Section: Paragraph: Drawing Reference: Detail:

Request:

Signed By:

Response:

☐ Attachments

Response From: _____ To: _____Date Rec'd: _____Date Ret'd: _____

Signed By: _____Date: _____

Copies: ☐ Owner ☐ Contractor ☐ A/E ☐ Other

SECTION 00 63 25

SUBSTITUTION REQUEST FORM

Project _____
Date: _____ Bid Opening Date:_____
Product and/or Fabrication Method: _____
Specification Section: _____
Related Drawings:_____

Criteria or Specified Product	Included
Product Data	_____
Fabrication Drawings	_____
Samples Where Applicable	_____
List of changes or Modifications Needed to Work as Noted in Spec	_____

Criteria or Specified Product	Included
Product Data	_____
Fabrication Drawings	_____
Samples Where Applicable	_____
List of changes or Modifications Needed to Work as Noted in Spec	_____

The substitution proposed is equal-to or better in every respect to that required by the Contract Documents, and it will perform equal or superior to product specified in the application indicated. The Contractor waives right to additional payment or time, that may subsequently become necessary because of the failure of the substitution to perform adequately.

Signed: _____

END OF SECTION 00 63 25

SECTION 00 63 55

CHANGE PROPOSAL FORM

Project: _____ **Project No.:** _____
Contractor: _____ **Change Order No.:** _____

Description of change:

				SUBTOTALS
Materials	(Attach list with Quantity, Unit $, Unit mh, Total mh, OT mh, Total $)			
1	Total direct cost of materials			$
2	Overhead & profit on Item 1 (15% maximum, includes small tools & consumables)			$
3	Sales tax			$
4	Shipping & transportation			$
5	Total Materials (1 + 2 + 3 + 4)			$
Labor				
6	Total manhours:	_____ MH @	$ _____ / hr	$
7	Overhead & profit on Item 6 (15% maximum on straight cost, not premium portion; includes supervisor's time)			$
8	Payroll taxes and insurance	_____ %		$
9	Total Labor (6 + 7 + 8)			$
Equipment Rental (Include quotes)				
10	Equipment rental			$
11	Overhead & profit on Item 10 (6% maximum)			$
12	Total Equipment Rental (10 + 11 + 12)			$
Subcontractors (Include quotes with material & equipment backup)				
13	Subcontractors			$
14	Overhead & profit on Item 13 (6% maximum)			$
15	Total Subcontractors (13 + 14)			$
16	Subtotal of Proposal (5 + 9 + 12 + 15)			$
17	Bonds (% of subtotal of proposal)	_____ %		$
	TOTAL OF CHANGE PROPOSAL (16 + 17)			$

Time Extension Request: _____ calendar day(s)

The Contractor agrees to perform the work outlined in this change proposal for the amount specified above in accordance with the Contract Documents if the work is authorized by the Owner.

Contractor's Signature _____ Date: _____

Approval Recommended by the Engineer: _____ Date: _____

Owner's Representative Approval: _____ Date: _____

SECTION 00 65 36

CONTRACTOR'S TWO-YEAR WARRANTY

Know all men by these presents, that we, (Contractor) _____ , having installed roofing system, flashings and sheet metal on the Administrative Services Area D2 Roof Replacement under contract between Buncombe County Schools (Owner) and Contractor, warrant to the Owner with respect to said work that for a period of two (2) years from date of substantial completion**,** the work shall be absolutely watertight and free from any and all leaks, provided however the following are excluded from this Warranty:

a. Defects or failures resulting from abuse by the Owner.
b. Defect 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, Contractor, agree that should any leaks occur in the work we will perform emergency repairs within 24 hours notice and perform permanent repairs within a reasonable time in a manner to restore the work to a watertight condition by methods compatible to the system and acceptable under industry standards and general practice, all at no expense to the Owner.

We, Contractor, further agree that for a period of two (2) years from date of substantial completion referred to above, we will make repairs at no expense to the Owner to any defects which may develop in the work in a manner compatible to the system and acceptable under industry standards and general practice as established by the Engineer.

Signature: _____ Title: _____

_____ Carolina
_____ County

I, _____, a Notary Public for _____ County, _____ Carolina, do hereby certify that _____ personally appeared before me this day and acknowledged the due execution of the foregoing instrument.

Witness my hand and official seal, this _____ day of_____, 20_____.

_____ (OFFICIAL SEAL)
Notary Public

My commission expires_____, 20____.

END OF SECTION 00 65 36

Buncombe County Schools Facilities Department
Re-Roofing Administrative & Close Out Requirements

Pre-Construction Administrative Requirements **Received**

1. Approved Submittals _____
2. Roof Manufacturer's Acknowledgement Form _____
3. Permits _____

Project Close Out

1. Punch List Inspection Report _____
2. Resolution of Allowances & Change Orders
   prepared by Contractor & approved by Owner _____
3. Accepted warranties
   a. Manufacturer's 20 year Roof System Warranty, as specified _____
   b. Contractor's 2 year warranty _____
4. Documentation of acceptance from Authorities Having Jurisdiction (AHJ) _____
5. Final invoice _____

NOTES:

SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.01 RELATED DOCUMENTS

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

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Name: Administrative Services Area D2 Roof Replacement

B. Project Address: 175 Bingham Road, Asheville, North Carolina 28806

C. Owner: Buncombe County Schools

D. Engineer: The Contract Documents, dated April 13, 2016, were prepared by REI Engineers.

E. This work includes the provision of all labor, material, equipment, supervision and administration to integrate the work outlined in this project manual into the total building system such that no leakage into the system occurs. In general, the scope of work in the **Base Bid** will include:

1. Roof Area D2 (Approximately 18,815 square feet): Remove existing roof systems down to the existing steel deck; re-secure steel deck to structural framing members; provide two layers of 2.5” roof insulation; provide tapered insulation crickets between roof drains; preliminarily secure cover board; mechanically attach 60-mil TPO, single ply roof membrane; provide 60-mil TPO flashings and accessories and provide new sheet metal flashings and trim to provide a complete, watertight, 20-year warrantable roof assembly.

    a. Provide fully adhered roof system where and as shown in Contract Drawings. Over properly prepared and secured steel deck, fully adhere base layer of 2.5" roof insulation in foam adhesive; adhere second layer of 2.5" roof insulation in ribbons of foam adhesive; adhere tapered insulation crickets in ribbons of foam adhesive between roof drains; adhere cover board in ribbons of foam adhesive; fully adhere 80-mil TPO, single ply roof membrane; provide flashings, accessories and sheet metal trim as described above.

2. Survey building interior to properly locate conduit on the underside of the steel deck prior to mechanical attachment and/or termination of roof membrane at penetrations or any installation of fasteners penetrating steel deck.

F. Asbestos Containing Roofing Materials (ACRM):

1. No Asbestos Containing Roofing Materials (ACRM) have been detected in test samples of the roof areas in contract.
2. It is the intention of these specifications that no asbestos bearing materials be incorporated into the work. In the event the contractor should determine unanticipated asbestos bearing materials to be present in the existing building

components, Contractor is to stop all work in the affected area, notify the Engineer and Owner, and provide temporary protection as required. Costs incurred, if any, due to the presence of hidden and/or unanticipated asbestos bearing materials will be authorized by Change Order to this contract.

G. The contractor is responsible for all electrical, plumbing, mechanical, and other related trade work necessary to facilitate project operations. Contractor is responsible for re-locating any and all conduit, HVAC equipment, curbs, and/or plumbing necessary to comply with the requirements of these documents. All work shall conform to the requirements of the current Building Code approved in the State of the project location.

H. General requirements and specific recommendations of the material manufacturers are included as part of these specifications. The manufacturers' specifications are the minimum standards required for the completed systems. Specific items listed herein may improve the standards required by the manufacturers and will take precedence where their compliance will not affect the manufacturers' guarantee or warranty provisions.

1.03 CONTRACT

A. Project will be constructed under a single prime general construction contract.

1.04 TIME FOR COMPLETION

A. Contractor shall commence work on this project no sooner than June 10, 2016 with all work being substantially complete by August 12, 2016. Contractor is subject to liquidated damages in the amount of $250.00 per calendar day for each day in excess of the substantial completion deadline.

B. Final completion all work shall be obtained by August 26, 2016. Contractor is subject to liquidated damages in the amount of $250.00 per calendar day for each day in excess of the final completion.

C. Inclement Weather:

1. The construction duration includes a total of fifteen (15) inclement weather days.
2. Inclement Weather is defined as follows:

    a. Temperature less than 39 degrees and rising.
    b. Percent change of rain greater than 30% for more than four hours of the work day. Forecast utilized for determination shall be no sooner than the day before.
    c. Wind speed greater than 15 MPH.

3. Claims for additional Contract Time shall be submitted to the Engineer and Owner for review. Claims will only be considered for review for weekdays and if the Critical Path schedule for the project is affected by the inclement weather.

1.05 SITE INVESTIGATION

A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the Work, the general and local conditions, particularly those bearing upon transportation, disposal, handling and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, ground water table or similar physical conditions at the site, the conformation and condition of the ground, the character, quality and quantity of surface and subsurface materials to be encountered, the character of equipment and facilities needed prior to and during the prosecution of the Work and all other matters

which can in any way affect the Work or the cost thereof under this Contract. Any failure by the Contractor to acquaint himself with all the available information concerning these conditions will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work. Field measurements shall be taken at the site by the Contractor to verify all data and conditions affected by the Work.

1.06 WORK UNDER OTHER CONTRACTS

A. Separate Contract: Owner may award a separate contract for performance of certain construction operations at Project site.

B. Contractor shall cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying Work under this Contract.

1.07 SPECIFICATION FORMATS AND CONVENTIONS

A. Specification Format: The Specifications are organized into Divisions and Sections using the 49-division format and CSI/CSC's "MasterFormat" numbering system.

1. Section Identification: The Specifications use section numbers and titles to cross-reference 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.

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

1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. 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.
2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.

    a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 11 00

SECTION 01 14 00

WORK RESTRICTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Administrative and procedural requirements for work sequence, work restrictions, occupancy requirements and use of premises.

1.02 RELATED DOCUMENTS

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

1.03 WORK SEQUENCE

A. The Work shall be conducted in the following sequences unless construction phases are otherwise specified.

1. Construct Work in phases to accommodate the Owner's use; if applicable, of the premises during the construction period; coordinate the construction schedule and operations with the Owner and Engineer.
2. Construct the Work in phases to provide for public convenience. Do not close off public use of facility until completion of one phase of construction will provide alternative usage.
3. Construction shall be scheduled in such a manner that once work has commenced on one facility, the Contractor's work force shall remain at that facility continuously each work day through final completion at that facility.

1.04 WORK RESTRICTIONS

A. Work hours shall generally be performed during normal business hours. Should the Contractor elect to work outside of normal business hours, notification to the Owner and Engineer at least 48 hours in advance shall be required. No work shall be scheduled without prior notification and authorization.

B. **Due to activities scheduled in the building, work on the fully adhered roof system (NOC Area) as shown in Drawing C2 shall not commence until July 18, 2016.**

1. **Contractor shall provide a minimum one-day notice prior to tear-off of this area so that technology staff can be available to monitor the building interior below the area of tear-off.**
2. **Materials shall not be stored on roof over the NOC area. Contractor shall not traffic over the NOC area while working on roof.**

1.05 OCCUPANCY REQUIREMENTS

A. Owner Occupancy

1. Owner will occupy the premises during the entire period of construction to conduct his normal operations. Cooperate with Owner in all construction operations to minimize conflict, and to facilitate Owner usage.
2. Contractor shall at all times conduct his operations as to ensure the least inconvenience and the greatest amount of safety and security for the Owner, his

staff, and the general public.

3. Control noise from operations so that building occupants are not affected.

1.06 USE OF PREMISES

A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.

1. Limits: Confine constructions operations to areas of work being renovated as approved by Engineer and Owner.
2. 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.

3. Move any stored materials and equipment that interfere with operations of the Owner.

B. Use of Existing Building

1. Maintain existing building in a weathertight condition throughout construction period.
2. Take every precaution against injuries to persons or damage to property.
3. Protect building, its contents, and its occupants during construction period.
4. The Contractor shall not overload or permit any part of the structure to be loaded with such weights as will endanger its safety or to cause excessive deflection. Materials placed on the roof prior to installation shall be equally distributed over the roof area.
5. Protect any existing surface improvements, such as pavements, curbs, sidewalks, lawn and landscaped areas, utilities, etc.
6. Repair to the Owner and Engineer's satisfaction, or to restore to a condition equal to that existing at the time of award of Contract, or to make restitution acceptable to the Owner, any and all damages to the building, its contents, or surface improvements resulting from, or attributable to, the work operation.

C. Transportation Facilities

1. Truck and equipment access:

    a. Avoid traffic conflict with vehicles of the Owner’s employees and customers, and avoid over-loading of street and driveways elsewhere on the Owner’s property, limit the access of trucks and equipment to the designated areas.
    b. Provide adequate protection for curbs and sidewalks over which trucks and equipment pass to reach the job site.

2. Contractor’s vehicles:

    a. Require contractor’s vehicles, vehicles belonging to employees of the contractor, and all other vehicles entering the Owner’s property in performance of the work the contract, to use only the designated access route.
    b. Do not permit such vehicles to park on any street or other area of the Owner’s

property except in the designated area.

1.07 OWNER POLICIES

A. Tobacco Policy

1. The Owner has adopted a Tobacco Free Policy which applies to all school property. This is a total ban on all tobacco products including cigarettes, cigars, pipes, chewing tobacco, snuff, etc. Contractor is responsible for employee's actions while they are on school property. Failure to follow this policy shall constitute a breach of contract and said contract may be terminated without penalty to the school system.

B. Weapons and Explosives Policy

1. Excluding law enforcement, all persons are prohibited from possessing, carrying, using or threatening to use, or encouraging another person to possess, carry, use or threaten to use, weapons or explosives on school property or while attending curricular or extracurricular activities sponsored by the school. This policy applies to weapons or explosives carried openly or concealed. For purposes of this policy, a weapon includes, but is not limited to, any gun, rifle, pistol or other firearm of any kind; or any BB gun, stun gun, air rifle, air pistol, bowie knife, dirk, dagger, slingshot, leaded cane, switchblade knife, blackjack, metallic knuckles, razors and razor blades (except solely for personal shaving), fireworks, or any sharp-pointed or edged instrument except instructional supplies, unaltered nail files and clips and tools used solely for preparation of food, instruction and/or maintenance on educational property. For purposes of this policy, an explosive includes, but is not limited to and dynamite cartridge, bomb, mine or powerful explosive as defined in N.C. G.S. 14-284.1. For purposes of this policy, school property is any school building or bus, school campus, grounds, recreational area, athletic field, or other property owned, used or operated by The Board of Education. This policy shall not apply to: 1) a weapon or explosive used solely for educational or school sanctioned ceremonial purposes, or used in a school approved program conducted under the supervision of an adult whose supervision has been approved by the school authority, or 2) firefighters, emergency personnel, North Carolina Forest Service personnel, and any private police employed by the School Board, when acting in the discharge or their official duties.

C. Criminal Record Investigation – Contractor Agreement

1. When requested by Owner, the successful bidder shall obtain a county, state and national criminal history covering the past ten years on any contractor applicant or contractor employee, hereafter called prospective worker, providing services to Owner. As a minimum, criminal information sources will include State and National access to the SBI/DCI Criminal History Record Information for the prospective worker's residence(s), past ten years and fingerprints shall be forwarded to the Federal Bureau of Investigation for the search. Previously conducted criminal histories more than one year old must be updated. The Contractor shall provide a Criminal Histories Report two weeks prior to arriving "on-site" and said report will be updated monthly for all new hires. Prospective workers who refuse to provide fingerprints and/or consent to the Criminal Background checks or who have been convicted of sexual deviance, sexual crime, domestic violence, violence against another human being, larceny, alcohol/drug trafficking, alcohol/drug abuse or any other disqualifying offense as determined by the Owner Superintendent, will not be allowed on the property.

D. Conduct Policy

1. The conduct of all contractor employees during any project shall be exemplary; at no time shall profanity, drinking, lewd or suggestive comments or gestures or other acts of this nature be tolerated.

E. Drug Free Policy

1. Owner conforms to a drug free policy. Any contractor employee must be tested upon request of Owner and results provided to Owner. If the employee is found to have been under the influence or using drugs, it shall constitute a breach of contract and said contract may be terminated without penalty to the school system.

F. Dress Code Policy

1. Shirts and shoes are required at all times, as well as long pants. Identification of employees, vehicles, uniforms, etc. may be required when indicated.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 14 00

SECTION 01 21 00

ALLOWANCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Administrative and procedural requirements governing allowances.

1.02 RELATED DOCUMENTS

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

1.03 CONTINGENCY ALLOWANCE

A. A $5,000.00 contingency allowance shall be included in the base bid.

B. Any unused portion remaining at the completion of the contract shall be credited back to the Owner as a credit.

C. The Owner reserves the right to modify the contingency allowance prior to award of Contract.

1.04 QUANTITY ALLOWANCES

A. Quantity allowance for the items indicated below shall be included in the base bid. The unit price submitted on the Bid Form shall be used to compute the quantity allowances. The quantities indicated are estimated quantities only for the purpose of comparing bids. The Contractor will be compensated at the unit price bid for the exact quantity of work performed under each unit price item. Deductive amounts of unit price work included in the Contract Sum will be calculated at 100% of the quoted add unit price.

1. QA-1: Repair 1,500 sq. ft. of Steel Deck with Coating
2. QA-2: Overlay 100 sq. ft. of Damaged or Deteriorated Steel Deck
3. QA-3: Replace 150 bd. ft. of Damaged or Deteriorated Wood Blocking

END OF SECTION 01 21 00

SECTION 01 22 00

UNIT PRICES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Administrative and procedural requirements for unit prices.

1.02 RELATED DOCUMENTS

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

1.03 DEFINITION

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.

1.04 UNIT PRICE MEASUREMENT

A. Prior to performing any work under a unit price as specified herein, the Contractor shall notify the Engineer to allow for measurement of the actual quantities of work. Any work performed under these items without prior approval and measurement shall be at the Contractor's expense.

B. The Contractor shall maintain a daily log including visual documentation (i.e. digital photographs) showing dates, location and exact quantities of unit price work.

C. Owner and Engineer reserve 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 party.

1.05 UNIT PRICE PAYMENT

A. Unit prices shall include all costs associated with performing the unit price work including but not limited to labor, material, equipment, insurance, applicable taxes, overhead and profit, etc.

1.06 UNIT PRICE PERFORMANCE

A. Unit price work shall be installed in accordance with the applicable specification section(s) and Contract Drawings for the project.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SCHEDULE OF UNIT PRICES

A. Unit prices for the items indicated below shall be provided on the Bid Form.

1. UP-1: Repair Steel Deck with Coating . Refer to Section 05 31 23.

   a. Unit of Measurement: Square Foot (SF)

2. UP-2: Overlay Damaged or Deteriorated Steel Deck. Refer to Section 05 31 23.

   a. Unit of Measurement: Square Foot (SF)

3. UP-3: Replace Damaged or Deteriorated Wood Blocking. Refer to Section 06 10 00.

   a. Unit of Measurement: Board Foot (BF)

END OF SECTION 01 22 00

SECTION 01 25 00

PRODUCT SUBSTITUTIONS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section specifies administrative and procedural requirements for handling requests for substitutions prior to the Owner's receipt of bids.

1.02 RELATED DOCUMENTS

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

1.03 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 14 days prior to bid opening submittal period.
2. Revisions to Contract Documents requested by the Owner or Engineer.
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.

1.04 SUBMITTALS – PRIOR TO BID

A. Substitution Request Submittal: Written requests for substitution from prime bidders will be considered if received by the Engineer fourteen (14) calendar days prior to the bid opening.

1. Submit each request for substitution on the form contained in Section 00 61 12- Substitution Request Form for consideration in accordance with procedures required below.
2. Identify the product or the fabrication or installation method to be replaced in each request. Include related specification sections and drawing 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 needed to other parts of the Work and to construction performed by the

Owner and separate Contractors that will become necessary to accommodate the proposed substitution.

4. Certification by the Contractor or manufacturer that the substitution proposed is equal-to or better in every respect to that required by the Contract Documents, and that it will perform equal or superior to product specified in the application indicated. The Contractor waives any right to additional payment or time, which may subsequently become necessary because of the failure of the substitution to perform adequately.
5. Engineer's Action: The Engineer may request additional information or documentation necessary for evaluation of the request. The Engineer will notify the Contractors of acceptance of the proposed substitution by means of an addendum to the bid documents. If the proposed substitute is accepted through an addendum use the product specified by name.

B. Engineer's Substitution Approval during bidding and subsequent addendums does not void the Contractor's responsibility to submit the required shop drawings and comply with the other contract documents and requirements.

1.05 SUBMITTALS – AFTER AWARD OF CONTRACT

A. After award, requests for approval of equivalent items shall be submitted in writing to the Engineer for approval within seven (7) calendar days after Notice to Proceed.

B. Submit each request in writing for substitution for consideration in accordance with procedures required below.

C. Requests for approval of equivalent items shall be accompanied by information sufficient for the Engineer to make a determination as to the equivalency of a product. The determination of the Engineer of the equivalency of a product shall be final. The Engineer reserves the right to request information or documentation for evaluation including but not limited to the following:

1. Statement indicating why specified product cannot be provided.
2. Coordination of information, including a list of modifications needed to other parts of the work that will be necessary to accommodate proposed substitution.
3. Product data including drawings, descriptions, and fabrication/installation procedures.
4. Samples where applicable.
5. Material test reports from a qualified testing agency indicating the interpreting test results for compliance with requirements.
6. Contractor's certification that proposed substitution complies with requirements in the contract documents and is appropriate for applications indicated.
7. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
8. If requesting product substitution after bid award, Contractor shall provide cost information including proposal of change, if any, in the contract sum.

PART 2 PRODUCTS

2.01 SUBSTITUTIONS – PRIOR TO BID

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.

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.

2.02 SUBSTITUTIONS – AFTER AWARD OF CONTRACT

A. Substitutions after award are solely for the convenience of the Contractor and will be considered and approved by Change Order which is accompanied by a credit to the Owner. The Contractor shall be required to bear any additional costs related to making the substituted material or system work, such as extra engineering, material or system modifications, or any time considerations relating to material or system installation requirements.

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 25 00

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Administrative and procedural requirements for handling and processing Contract modifications.

1.02 RELATED DOCUMENTS

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

1.03 PROPOSAL REQUESTS

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

1. Proposal Requests issued by Engineer are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
2. Within 5 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

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

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.

5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 1 if the proposed change requires substitution of one product or system for product or system specified.

C. Proposal Request Approval:

1. The form of Change Order shall be AIA Document G701 submitted by the Engineer to be signed by the Contractor and Owner.
2. The Contractor shall not commence work or purchase materials for such change orders until written approval is received from the Owner in the form of an executed Change Order.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 26 00

SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.02 RELATED DOCUMENTS

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

1.03 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.

1.04 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Submittals.

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

    a. Application for Payment Forms with Continuation Sheets
    b. Submittals Schedule
    c. Contractor's Construction Schedule

2. Submit the Schedule of Values to Consultant along with Submittals.
3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

B. Format and Content: Use the sample Continuation Sheet contained in the Project Manual as a guide to establish line items for the Schedule of Values. Provide one line item for labor and one line item for material for each Specification Section.

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

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

2. Submit draft of AIA Document G703 Continuation Sheets.
3. Arrange the Schedule of Values in tabular form with separate columns to indicate

the following for each item listed:

a. Related Specification Section or Division.
b. Description of the Work.
c. Change Orders (numbers) that affect value.
d. Dollar value.

i. Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

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

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

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

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

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

1.05 APPLICATION FOR PAYMENT

A. The Contractor shall submit three originals of applications for payment on AIA Document G702 and G703, current editions.

1. The date for each progress payment shall be indicated in the Agreement between Owner and Contractor. The period of Work covered by each application is the period indicated in the Agreement
2. All copies shall be on original AIA forms.
3. The application for payment shall be complete, notarized and executed by a person authorized to legally sign documents on behalf of the Contractor.
4. A complete breakdown of the work showing separate labor and material amounts

shall be shown on Document G703 in accordance with the approved Schedule of Values.

5. Each application shall be consistent with previous applications and payments as certified by Engineer and paid for by Owner.
6. Engineer shall return incomplete applications without action.

B. Within forty-five (45) days of receipt of engineer-approved request, Owner shall make a progress payment to the Contractor on the basis of a duly certified and approved estimate of the work performed during the preceding calendar month under this Contract.

C. Retainage: To ensure the proper performance of this Contract the Owner shall retain five percent (5%) of the amount of any periodic payment due to a Contractor. 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, engineer or owner has been corrected by the contractor and accepted by the Engineer, engineer or owner. If the owner 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 five 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. 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: (i) the owner receives a certificate of substantial completion for 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. Entries shall match data on the schedule of values and Contractor's construction schedule. Include amounts of change orders issued before last day of construction period covered by the application.

E. The Engineer reserves the right to contact material manufacturers directly, without contractor consent, to verify material invoices. Material invoices shall be made available to the Engineer upon his request from the contractor or material manufacturer.

F. When requesting payment for materials stored on site, the Contractor shall submit with his request an invoice for the materials and a certificate of insurance showing proof of coverage for the materials stored on site. Payment will be made only for stored materials. No payment will be made for anticipated overhead and/or profit.

G. Prior to initial application for payment, the following items must precede or coincide with submittal:

1. List of subcontractors
2. Schedule of values

H. With each application for payment, the Contractor shall also submit the following:

1. County/State Sales/Use Tax Statement: The Contractor shall submit with each pay request an original notarized statement (Refer to Section 00 62 76.13) provided by the Owner showing all taxes paid on the project. It shall list any payments made directly to each supplier indicating the supplier name, invoice date, invoice amount before taxes, taxes paid indicating state and county, and total invoice amount. If no sales taxes have been paid, indicate "NONE" on the statement form and submit accordingly.
2. Unit Price Daily Logs: Copies of any unit price daily logs and appropriate change order forms shall be submitted with each application for payment unless no unit price work was accomplished during the period covered by the application.
3. Owner's M/W/SBE Program Forms
4. AIA Document G706, Contractor's Affidavit of Payment of Debts and Claims
5. AIA Document G706A, Contractor's Affidavit of Release of Liens

I. At substantial completion, submit an application for payment showing one hundred percent completion for portion of the work claimed as substantially complete. Include documentation supporting claim that the work is substantially complete.

J. At final completion, submit final application for payment with releases and supporting documentation not previously submitted and accepted, including but not limited to the following. Final payment shall not become due until all required documents have been submitted.

1. Project Closeout Submittals
2. Final County/State Sales/Use Tax Statement
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

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 29 00

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 SECTION INCLUDES

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

1. General project coordination procedures.
2. Coordination.
3. Administrative and supervisory personnel.
4. Project meetings.

1.02 RELATED DOCUMENTS

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

1.03 COORDINATION

A. Coordinate construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. The Contractor shall coordinate its operations with those included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Contact Progress Reporting: The scheduling and sequence of all operations shall be carefully coordinated with the Owner and Engineer.

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

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

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

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.

5. Progress meetings.
6. Pre-Construction conference.
7. Pre-installation conferences.
8. Project closeout activities.

1.04 DAILY SITE REPORTING

A. Upon arrival daily, Contractor's lead employee shall report to the facilities office or department where they are working and shall inform the staff that they have arrived, their reasons for being there, and the number of personnel working. "Log/Sign In" as directed by the staff, and show a photo I.D. with company logo.

1.05 PROJECT MEETINGS

A. Pre-Construction Meeting

1. A Pre-Construction Meeting will be scheduled as soon as possible after the award of the contract. The Engineer's Representative will compile minutes of the meeting, and will furnish a copy of the minutes to the Contractor and each person present. The Contractor may make and distribute such other copies as he wishes.
2. Attendance: Contractor Project Manager, Job Superintendent and Job Foreman, Owner, Engineer's Representative, manufacturer's representatives, installers of related work and all other persons concerned with the installation and performance. The Contractor shall also provide three (3) local telephone numbers, which may be used to contact the Contractor or his authorized representative in the event of an emergency after normal business hours.
3. Minimum Agenda: Organizational arrangement of Contractor's forces and personnel, and those of subcontractors, materials suppliers, and the Project Manager; channels and procedures for communication; construction schedule, including sequence of critical work; contract documents, including distribution of required copies of Drawings and revisions; processing of Shop Drawings and other data submitted to the Project Manager for review; rules and regulations governing performance of the work and procedures for safety, first aid, security, quality control, housekeeping and related matters.

B. Progress Meetings

1. The Contractor shall attend monthly progress meetings for the purpose of informing the Owner and the Engineer regarding the status of the project. The Engineer will compile minutes of the meeting, and will furnish a copy of the minutes to the Contractor and each person present. The Contractor may make and distribute such other copies as he wishes.
2. Attendance: Owner, Engineer, Contractor, Job Superintendent, material Supplier, and Subcontractors, as appropriate. Each representative shall be thoroughly familiar with the status of the project and shall be prepared to discuss and act upon any situations, which may arise. The time, date and location of these meetings will be established during pre-construction conference. The Contractor shall provide an updated job progress schedule at each weekly meeting.
3. Minimum Agenda: Review of work progress; field observations, problems, and decisions; identification of problems which impede planned progress; maintenance of progress schedule; corrective measures to regain projected schedules; planned progress during succeeding work period; coordination of projected progress; maintenance of quality and work standards; processing of field decisions and Change Orders; effect of proposed changes on progress, schedule, and coor-

dination; other business relating to work.

C. Punch List Inspection Meeting

1. Scheduled by Owner and Engineer upon written notification of substantial completion of work from the Contractor.
2. Attendance: Owner, Engineer, Contractor, material manufacturer.
3. Minimum Agenda: Walkover inspection; verification of substantial completion; identification of punch list items; identification of problems, which may impede issuance of warranties.
4. Refer to Section 01 77 00 for other requirements.

D. Final Inspection Meeting

1. Scheduled by Owner and Engineer upon written notification of final completion of work from the Contractor.
2. Attendance: Owner, Engineer, Contractor, material manufacturer.
3. Minimum Agenda: Walkover inspection; verification of final completion including the completion of the punch list items.
4. Refer to Section 01 77 00 for other requirements.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 31 00

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.

1.02 RELATED DOCUMENTS

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

1.03 SUBMITTAL PROCEDURE

A. General: The Contractor is responsible for providing the submittals to the Engineer. Each submittal must be accepted in writing prior to commencement of work. One original copy of the submittals must be submitted to the Engineer for review. The submittals will then be returned to the Contractor with comments. Final submittals will require written responses to all Construction Document submittal comments. The submittals shall then be submitted in quadruplicate in one complete package. Partial or incomplete Submittals will be returned to the Contractor. Each of the four copies shall be bound in a three ring binder with tabs for each submittal item.

B. 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 work days for initial review of submittals.
2. Allow 7 work days 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.

C. Identification: Submit in a labeled three ring binder with tabs for each identification number.

D. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals and provide 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: Package submittals appropriately for transmittal and handling using a transmittal form. 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.

1.04 SCHEDULE OF SUBMITTALS

A. The following submittal items shall be submitted in a three ring binder with tabs for each submittal item to meet the requirements specified herein:

1. Emergency contact list including pager, mobile and home numbers of key Contractor and Subcontractor personnel, and office and mobile numbers of key Owner and REI personnel.
2. Work schedule indicating start date, crew size, production rate, completion date, etc.
3. 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:

    a. An Application for Payment on AIA G702.
    b. 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.

4. Copy of Contractor's Certificate of Insurance
5. Copy of Performance and Payment Bonds
6. Copy of Construction Permits
7. Copy of all warranties indicated in Section 01 77 00 to meet the requirements of their respective specification section
8. 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.
9. Shop drawings or letter stating that the contractor will install materials as detailed in the Contract Drawings unless properly authorized by the Engineer.
10. Steel Deck Repair/Securement (Section 05 31 23)
11. Rough Carpentry (Section 06 10 00)
12. Roof Insulation (Section 07 22 16)
13. Thermoplastic Polyolefin Roofing (Section 07 54 23)
14. Sheet Metal Flashing and Trim (Section 07 62 00)
15. Manufactured Gravel Stops and Fascias (Section 07 71 19)
16. 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.
17. Complete list of materials with Material Safety Data Sheets (MSDS)

PART 2 PRODUCTS

2.01 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 are 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. Manufacturer's catalog cuts.
    e. Wiring diagrams showing factory-installed wiring.
    f. Printed performance curves.
    g. Operational range diagrams.
    h. Compliance with recognized trade association standards.
    i. Compliance with recognized testing agency standards.

C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Include the following information, as applicable:

    a. Dimensions.
    b. Identification of products.
    c. Fabrication and installation drawings.
    d. Roughing-in and setting diagrams.
    e. Shopwork manufacturing instructions.
    f. Templates and patterns.
    g. Schedules.
    h. Notation of coordination requirements.
    i. Notation of dimensions established by field measurement.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 42 inches.

D. Samples: Prepare physical units of materials or products, including the following:

1. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from the same material to be used for the Work, cured and finished in manner specified, and physically identical with the product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
2. Submit three sets of Samples. Engineer will retain two Sample sets; remainder will be returned.
3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Engineer's sample where so indicated. Attach label on unexposed side.
4. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.

5. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

E. Contractor's Construction Schedule: Comply with requirements in Division 01.

F. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of engineers and owners, and other information specified.

G. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.

H. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.

I. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.

J. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.

K. 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.

L. 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.

M. Design Data: Prepare written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

N. 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.

O. 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

3.01 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.

3.02 ENGINEER'S ACTION

A. Submittals: Engineer will review each submittal, make marks to indicate corrections or modifications required, and return it. Engineer will stamp each submittal item with an action stamp and will mark stamp appropriately to indicate action taken, as follows:

1. Accepted
2. Accepted as noted
3. Rejected/Resubmit
4. Not Subject to Review

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

1.01 SECTION INCLUDES

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

1.02 RELATED DOCUMENTS

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

1.03 DEFINITIONS

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

B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction comply with requirements. Services do not include contract enforcement activities performed by Engineer.

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

1.04 DELEGATED DESIGN

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

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

1.05 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.

1.06 QUALITY ASSURANCE

A. 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.

B. All contractors shall cooperate in the execution of their work and shall plan their work in such manners as to avoid conflicting schedules or delay 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 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. 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 to advise the Owner sufficiently in advance of operations to allow for assignment of personnel.

C. 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.

D. All materials shall be new, all materials and workmanship shall be in every respect in accordance with the best modern practice.

E. 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. Contractor shall notify the Engineer prior to such material's delivery.

F. The Contractor’s Foreman or Superintendent to maintain one complete set of the contract documents and approved submittals on the job site.

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

1. Acceptable Contractor:

   a. Be certified in writing for a minimum of two years by the roofing materials manufacturer to install the primary roofing products.
   b. Have a minimum of five (5) years experience in installing the same or similar materials specified under the same firm name as that submitting the bid. If requested, submit a copy of firm’s Articles of Incorporation to verify years in business. Also all crew workers on site are to be experienced and have a working knowledge of the system being installed.
   c. Principals of the firm to have a minimum of ten (10) years experience in the estimating, supervision, management and administration of a contracting firm engaged in the application of building envelope involving removal of the existing building envelope systems.
   d. Licensed by state work is occurring in for the type and dollar amount of work contemplated by these Contract Documents.

e. 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.

f. 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:

i. 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.

ii. The superintendent shall be in attendance at 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.

iii. 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, 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.

iv. Decision making authority and ability.

v. Able to demonstrate knowledge of work being installed.

vi. Fluent in the English language (i.e. reading, writing and speaking).

vii. In possession of mobile telephone at all times.

viii. Employed by the Contractor at least six months prior to project commencement.

ix. Owner and Engineer/Engineer approval.

x. No later than ten days prior to the pre-construction conference, Contractor shall provide the Owner, in writing, the names of the proposed project manager, job superintendent, and foreman for approval. If he so determines, the Owner, without giving cause, may request an additional name, or names, be submitted for approval. The Owner will notify the Contractor of his acceptance at least 48 hours prior to the pre-construction conference.

xi. Once approved, the superintendent will not be changed except with the consent of the Owner unless either prove to be unsatisfactory to the Owner or Contractor, or cease to be in the Contractor's employment.

xii. Promotion, transfer, or reorganization within the company will not be an acceptable cause for reassignment of the superintendent.

xiii. The superintendent shall have had a minimum of five (5) years continuous experience as a job superintendent.

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

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

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

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

1.07 QUALITY CONTROL

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

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

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

C. 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 protect carefully its work and materials against damage or injury from weather. If, in the opinion of the Engineer, any work or materials have been dam-

aged 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 no later than 9:00 AM 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. If Contractor does not inspect the facility by 9:00 AM on days of inclement weather and there is one or more leaks attributable to the Work, at 9:15 AM the Owner shall exercise his right to contact an outside contractor to perform temporary repairs as necessary to prevent damage to the building, its contents and to minimize disruption. The Contractor shall reimburse the outside contractor an equitable amount as determined solely by the outside contractor. If the Contractor arrives at the project site after the outside contractor has been contacted, but before temporary repairs are made, the outside contractor shall be reimbursed the fixed amount of $500.00, each occasion, for mobilization and/or travel expenses.

d. 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. The Owner shall be compensated for providing personnel for the service on an hourly rate basis as determined solely by the Owner.

D. 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. Manufacturer's final inspections shall be performed only with REI personnel in attendance. A minimum of seven days' written notice is required. Any manufacturer's final inspection conducted without REI personnel in attendance will be repeated at no additional cost to the Owner.
5. Any violation of this requirement will result in the removal of that manufacturer for a period of not less than one year from the Engineer's accepted materials list.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 REPAIR AND PROTECTION

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

1. Comply with the Contract Document requirements for Section 01 73 00-Cutting and Patching.

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

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

END OF SECTION 01 40 00

SECTION 01 42 00

REFERENCES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements relating to Referenced Standards.

1.02 RELATED DOCUMENTS

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

1.03 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.

1.04 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.

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

1.05 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.

AA	Aluminum Association, Inc. (The) www.aluminum.org
ACI	American Concrete Institute/ACI International www.aci-int.org
ACPA	American Concrete Pipe Association www.concrete-pipe.org
AGC	Associated General Contractors of America (The) www.agc.org
AHA	American Hardboard Association www.ahardbd.org
AI	Asphalt Institute www.asphaltinstitute.org
AIA	American Institute of Architects (The) www.aia.org
AIE	American Institute of Engineers www.aieonline.org
AISC	American Institute of Steel Construction www.aisc.org
AISI	American Iron and Steel Institute www.steel.org
AITC	American Institute of Timber Construction www.aitc-glulam.org
ALCA	Associated Landscape Contractors of America www.alca.org
ALSC	American Lumber Standard Committee www.alsc.org
ANLA	American Nursery & Landscape Association www.anla.org
ANSI	American National Standards Institute www.ansi.org
APA	APA - The Engineered Wood Association www.apawood.org
APA	Architectural Precast Association www.archprecast.org
ASCE	American Society of Civil Engineers www.asce.org
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers www.ashrae.org
ASME	ASME International (The American Society of Mechanical Engineers International) www.asme.org
ASTM	American Society for Testing and Materials www.astm.org
AWI	Architectural Woodwork Institute www.awinet.org
AWPA	American Wood-Preservers' Association www.awpa.com
AWS	American Welding Society www.aws.org
BHMA	Builders Hardware Manufacturers Association

	www.buildershardware.com
BIA	Brick Industry Association (The) www.bia.org
CCFSS	Center for Cold-Formed Steel Structures www.umr.edu/~ccfss
CDA	Copper Development Association Inc. www.copper.org
CIMA	Cellulose Insulation Manufacturers Association www.cellulose.org
CISCA	Ceilings & Interior Systems Construction Association www.cisca.org
CISPI	Cast Iron Soil Pipe Institute www.cispi.org
CLFMI	Chain Link Fence Manufacturers Institute www.chainlinkinfo.org
CPA	Composite Panel Association (Formerly: National Particleboard Association) www.pbmdf.com
CPPA	Corrugated Polyethylene Pipe Association www.cppa-info.org
CRSI	Concrete Reinforcing Steel Institute www.crsi.org
CSI	Construction Specifications Institute (The) www.csinet.org
DHI	Door and Hardware Institute www.dhi.org
EIMA	EIFS Industry Members Association www.eifsfacts.com
EJMA	Expansion Joint Manufacturers Association, Inc. www.ejma.org
FMG (FM)	FM Global (Formerly: FM - Factory Mutual System) www.fmglobal.com
GA	Gypsum Association www.gypsum.org
GANA	Glass Association of North America (Formerly: FGMA - Flat Glass Marketing Association) www.glasswebsite.com/gana
HPVA	Hardwood Plywood & Veneer Association www.hpva.org
IGCC	Insulating Glass Certification Council www.igcc.org
LGSI	Light Gage Structural Institute www.loseke.com
MBMA	Metal Building Manufacturers Association www.mbma.com
MCA	Metal Construction Association www.metalconstruction.org
MFMA	Metal Framing Manufacturers Association
MIA	Marble Institute of America www.marble-institute.com
NAAMM	National Association of Architectural Metal Manufacturers www.naamm.org
NAIMA	North American Insulation Manufacturers Association (The)

	www.naima.org
NCMA	National Concrete Masonry Association www.ncma.org
NCPI	National Clay Pipe Institute www.ncpi.org
NECA	National Electrical Contractors Association www.necanet.org
NEMA	National Electrical Manufacturers Association www.nema.org
NETA	InterNational Electrical Testing Association www.netaworld.org
NFPA	National Fire Protection Association www.nfpa.org
NFRC	National Fenestration Rating Council www.nfrc.org
NGA	National Glass Association www.glass.org
NHLA	National Hardwood Lumber Association www.natlhardwood.org
NLGA	National Lumber Grades Authority www.nlga.org
NPA	National Particleboard Association (See CPA)
NRCA	National Roofing Contractors Association www.nrca.net
NRMCA	National Ready Mixed Concrete Association www.nrmca.org
NSA	National Stone Association www.aggregates.org
NTMA	National Terrazzo and Mosaic Association, Inc. www.ntma.com
NWWDA	National Wood Window and Door Association (See WDMA)
PCI	Precast/Prestressed Concrete Institute www.pci.org
PDCA	Painting and Decorating Contractors of America www.pdca.com
PDI	Plumbing & Drainage Institute www.pdionline.org
RCSC	Research Council on Structural Connections www.boltcouncil.org
RMA	Rubber Manufacturers Association www.rma.org
SDI	Steel Deck Institute www.sdi.org
SDI	Steel Door Institute www.steeldoor.org
SGCC	Safety Glazing Certification Council www.sgcc.org
SIGMA	Sealed Insulating Glass Manufacturers Association www.sigmaonline.org/sigma
SJI	Steel Joist Institute www.steeljoist.org

SMACNA	Sheet Metal and Air Conditioning Contractors' National Association www.smacna.org
SPFA	Spray Polyurethane Foam Alliance (Formerly: SPI/SPFD - The Society of the Plastics Industry, Inc.; Spray Polyurethane Foam Division) www.sprayfoam.org
SPI	The Society of the Plastics Industry www.plasticsindustry.org
SPIB	Southern Pine Inspection Bureau (The) www.spib.org
SPRI	SPRI (Single Ply Roofing Institute) www.spri.org
SSINA	Specialty Steel Industry of North America www.ssina.com
SSMA	Steel Stud Manufacturers Association (Formerly: ML/SFA - Metal Lath/Steel Framing Association) www.ssma.com
SSPC	SSPC: The Society for Protective Coatings www.sspc.org
SWI	Steel Window Institute www.steelwindows.com
TCA	Tile Council of America, Inc. www.tileusa.com
TPI	Truss Plate Institute
UL	Underwriters Laboratories Inc. www.ul.com
WDMA	Window & Door Manufacturers Association (Formerly: NWWDA - National Wood Window and
	Door Association) www.wdma.com
WMMPA	Wood Moulding & Millwork Producers Association www.wmmpa.com
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.

BOCA	BOCA International, Inc. www.bocai.org
IAPMO	International Association of Plumbing and Mechanical Officials (The) www.iapmo.org
ICBO	International Conference of Building Officials www.icbo.org
ICC	International Code Council (Formerly: CABO - Council of American Building Officials) www.intlcode.org
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.

CPSC	Consumer Product Safety Commission www.cpsc.gov
EPA	Environmental Protection Agency www.epa.gov
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

1.01 SECTION INCLUDES

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

1.02 RELATED DOCUMENTS

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

1.03 USE CHARGES

A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Engineer and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, occupants of testing and inspecting agencies and personnel of authorities having jurisdiction.

1.04 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.

1.05 PROJECT CONDITIONS

A. Conditions of Use: The following conditions apply to 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

2.01 MATERIALS/EQUIPMENT

A. General: Provide new materials. Undamaged, previously used materials in serviceable

condition may be used if approved by 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: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

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

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

3.02 TEMPORARY UTILITY INSTALLATION

A. General: Engage appropriate local utility company to install temporary service if service is not available from Owner. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.

1. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
2. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.

B. Water Service: Water for construction purposes will be available from the Owner at no charge. Contractor shall operate exterior hose bids only with properly fitted handles which shall be removed at the end of each work day. Any damage to hose bids or hose bib stems shall be repaired by Contractor. Hose bibs shall not be operated with pliers.

C. 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.

D. Electrical Power Service: Contractor shall provide portable generators for all electrical power requirements.

E. 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.

3.03 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 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 0174 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.

3.04 SECURITY AND PROTECTION FACILITIES INSTALLATION

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. 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.

C. 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.

D. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
2. Vertical Openings: Close openings of 25 sq. ft. or less with plywood or similar materials.
3. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction.
4. Install tarpaulins securely using fire-retardant-treated wood framing and other materials.
5. Seal joints and perimeter. Equip partitions with dustproof doors and security locks.
6. Protect air-handling equipment.
7. Weatherstrip openings.

E. 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.

3.05 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.

1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
2. Prevent water-filled piping from freezing. Maintain markers for underground lines. Protect from damage during excavation operations.

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. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged

Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Final Acceptance, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 73 29

CUTTING AND PATCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section includes procedural requirements for cutting and patching.

1.02 RELATED DOCUMENTS

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

1.03 DEFINITIONS

A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.

B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.04 QUALITY ASSURANCE

A. Engineer's Approval: Obtain approval of cutting and patching before cutting and patching. Approval does not waive right to later require removal and replacement of unsatisfactory work.

B. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio. Where cutting and patching involve adding reinforcement to structural elements, submit details and engineering calculations sealed by a licensed Engineer in the state of the project showing integration of reinforcement with original structure.

C. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that result in increased maintenance or decreased operational life or safety.

D. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity that results in reducing their capacity to perform as intended, or that result in increased maintenance or decreased operational life or safety.

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

F. Cutting and Patching Conference: If extensive cutting and patching is required, before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

1.05 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 PRODUCTS

2.01 MATERIALS

A. General: Comply with requirements specified in other Sections of these Specifications.

B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.

1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.02 PREPARATION

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

B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Existing Services: Where existing services are required to be removed, relocated, or abandoned, bypass such services before cutting to minimize interruption of services to occupied areas.

3.03 PERFORMANCE

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

1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and

similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete or Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
5. Proceed with patching after construction operations requiring cutting are complete.

C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
3. Floors and Walls: Where walls or partitions that are removed extend from one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather tight condition.
5. Ceilings: Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.

D. Cleaning: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty and similar materials.

END OF SECTION 01 73 29

SECTION 01 74 00

CLEANING AND WASTE MANAGEMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. The Owner has established that this Project shall include proactive measures for waste management participation by all parties to the contract.

1. The purpose of this program is to ensure that during the course of the Project all diligent means are employed to pursue practical and economically feasible waste management and recycling options.
2. Upon award, each subcontractor shall be required to furnish documentation from suppliers or manufacturers regarding waste management and recycling options for those products and procedures furnished.
3. Waste disposal to landfills shall be minimized.

1.02 RELATED DOCUMENTS

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

1.03 DEFINITIONS

A. Waste: Any material that has reached the end of its intended use. Waste includes salvageable, returnable, recyclable and reusable material.

B. Construction waste: Solid wastes including, but not limited to, building materials, packaging materials, debris and trash resulting from construction operations.

C. Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.

D. Hazardous waste: Any material or byproduct of construction that is regulated by the Environmental Protection Agency and that may not be disposed in any landfill or other waste end-source without adherence to applicable laws.

E. Trash: Any product or material unable to be returned, reused, recycled or salvaged.

F. Landfill: Any public or private business involved in the practice of trash disposal.

G. Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site.

PART 2 PRODUCTS

2.01 MATERIALS

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

PART 3 EXECUTION

3.01 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials in a legal manner.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

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: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Final Acceptance.

G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.

1. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

I. 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 Final Acceptance.

J. 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.

K. Limiting Exposures: Supervise construction operations to assure that no part of the construction completed or in progress, is subject to harmful, dangerous, damaging, or

otherwise deleterious exposure during the construction period.

3.02 CONSTRUCTION WASTE MANAGEMENT PLAN

A. Waste Management Plan shall include the following:

1. Solid Waste Disposal and Diversion document.

    a. Identification of materials recycled.
    b. Identification of materials landfill.
    c. Identification of hazardous wastes and disposal.

2. Locations of sorting and waste storage facilities on Site Plan of project.
3. Final documentation of subcontractor/supplier waste management/recycling data.
4. Final documentation of hazardous waste disposal plan.

B. Construction Waste Management Plan Implementation:

1. The Contractor shall designate an on-site party (or parties) responsible for instructing workers and overseeing and documenting the Waste Management Plan.
2. The "Summary of Construction Waste/Recycling" shall be completed each month and submitted as part of Application for Payment.

    a. All materials identified in the Summary shall be reported by weight.
    b. Where weight is not applicable, Contractor shall report materials by units applicable to material recipient.
    c. Contractor shall procure receipts or other validation of waste management procedures and include them as part of the submittal.

3. The Contractor shall distribute copies of the "Summary of Construction Waste/Recycling" to the Consultant, Owner and each subcontractor involved in the plan.
4. The Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse and return methods to be used by all parties at appropriate stages of the Work.
5. Separation facilities:

    a. Contractor shall define specific areas to facilitate separation of materials for recycling, salvage, re-use or return.
    b. Recycle and waste bin areas are to be maintained in an orderly manner and clearly marked to avoid contamination of materials.
    c. Do not mix recyclable materials.
    d. Store hazardous wastes in secure areas.

6. Hazardous wastes:

    a. Hazardous wastes shall be separated, stored and disposed of in accordance with local and EPA regulations and additional criteria listed below:

        i. Building products manufactured with PVC or containing chlorinated compounds shall not be incinerated.
        ii. Disposal of fluorescent tubes to open containers is not permitted.
        iii. Unused fertilizers shall not be co-mingled with construction waste.

C. Program profits:

1. All profits from recycling of construction waste shall be granted to the Contractor.

3.03 FINAL CLEANING

A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Final Acceptance.

a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including, waste material, litter, and other foreign substances.
b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
c. Remove tools, construction equipment, machinery, and surplus material from Project site.
d. 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.
e. Remove debris and surface dust from roofs and walls.
f. Clean transparent materials and glass in windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
g. Remove labels that are not permanent.
h. 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.
i. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess foreign substances.
j. Replace parts subject to unusual operating conditions.
k. Leave Project clean and ready for occupancy.

C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 01 74 00

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Inspection Procedures.
2. Project Record Documents.
3. Warranties.

1.02 RELATED DOCUMENTS

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

1.03 SUBSTANTIAL COMPLETION

A. The Contractor shall submit written certification to the Engineer that the Project is substantially complete along with the following:

1. Prepare a list of items to be completed and corrected (Contractor's punch list), the value of items on the list, and reasons why the Work is not complete.
2. Advise Owner of pending insurance changeover requirements.
3. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
4. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
5. Advise Owner of changeover in heat and other utilities.
6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
7. Complete final cleaning requirements, including touchup painting.
8. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Substantial Completion Inspection: On receipt of written substantial completion certification, the Engineer will make a substantial completion inspection within seven (7) days after receipt of certification.

1. Should the Engineer consider the Work not substantially complete, he will immediately notify the Contractor, in writing, stating the reasons. The Contractor shall complete the Work and send a second written notice to the Engineer, certifying the Project is substantially complete, at which time the Engineer will re-inspect the work.
2. Should the Engineer consider the Work substantially complete, he will prepare and issue a Certificate of Substantial Completion (AIA G704) accompanied by the list of items to be completed or corrected (Punch List).
3. A punch list of items will be prepared for correction and completion before the Final Inspection. The Contractor shall complete the punch list items within fif-

teen (15) days of the punch list inspection. If the Contractor fails to complete the punch list within this period, the Owner will have the right to impose liquidated damages in the amount of five hundred ($500.00) dollars for each consecutive day until all of the items are completed.

1.04 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 01.
2. Submit signed copy of Engineer's inspection list of items to be completed or corrected (punch list). The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. Final Inspection: The submission of the signed punch list constitutes as written request for final inspection for acceptance. On receipt of request, Engineer along with the Owner's Representative will conduct a final inspection within seven (7) days of receipt of certification.

1. Should the Engineer consider that the Work is finally complete in accordance with requirements of the Contract Documents, he will request the Contractor to make Project Closeout Submittals.
2. Should the Engineer consider that the Work is not finally complete, he will notify the Contractor, in writing, stating the reasons.
3. The Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written notice to the Engineer certifying that the Work is complete, at which time the Engineer will re-inspect the Work.

1.05 PROJECT RECORD DOCUMENTS

A. General: Do not use Project Record Documents for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Engineer's reference during normal working hours.

1. The Contractor shall submit all required record documents and warranties within thirty (30) days of the punch list inspection. If the Contractor fails to properly submit all required items within this period, the Owner will have the right to impose liquidated damages in the amount of five hundred ($500.00) dollars for each consecutive day until all of the items are properly submitted.

B. Record Drawings: Maintain and submit one set of blue- or black-line white prints of Contract Drawings and Shop Drawings.

1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.

    a. Give particular attention to information on concealed elements that can-

not be readily identified and recorded later.

b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.

2. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
3. Note Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.
4. Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

C. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Note related Change Orders and Record Drawings, where applicable.

D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference. The following items shall be submitted, not limited to:

1. Completed and signed Engineer’s Punch List
2. Copy of Manufacturer’s Final Inspection Report
3. Certificate of Occupancy from AHJ

1.06 WARRANTIES

A. Thermoplastic Polyolefin Single Ply Roofing System warranty as outlined in Section 07 54 23.

B. Contractor’s two (2) year warranty on their company letterhead using sample contained in the Project Manual.

1. 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.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 77 00

SECTION 05 31 23

STEEL ROOF DECK REPAIR/SECUREMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Inspection, evaluation and remediation of existing steel roof deck. Remediation shall consist of the following:

1. Repair of surface rust and through holes in steel decking.
2. Overlayment of damaged or deteriorated steel decking.
3. **Paint underside of replacement steel decking and steel plates Sherwin Williams Naval in Flat finish in accordance with Specification Section 09 91 13.**

B. Installation of new mechanical fasteners to secure steel decking to steel framing and to secure deck side and end laps.

1.01 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.	Rough Carpentry	Section 06 10 00
2.	Preparation for Reroofing	Section 07 01 50
3.	Roof Insulation	Section 07 22 16
4.	Thermoplastic Polyolefin Roofing	Section 07 54 23
5.	Exterior Paint	Section 09 91 13

1.02 REFERENCES

A. American Iron and Steel Institute (AISI) Standard- North American Specification for the Design of Cold-Formed Steel Structural Members, 2001 Edition with Supplement 2004.

B. Steel Deck Institute, Inc. (SDI) Design Manual for Composite Decks, Form Decks, and Roof Decks (No. 31, 2007).

C. American Institute of Steel Construction (AISC) Steel Construction Manual, 14th Edition.

D. FM Global Data Sheet 1-28 Wind Loads to Roof Systems (Revised January 2000).

E. American Welding Society (ANSI/AWS) D1.3 Structural Welding Code/Sheet Steel – 98 Structural Welding Code – Sheet Steel.

F. American Society for Testing and Materials (ASTM) Specifications.

1. A653 (A653M)-06 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy - Coated (Galvannealed) by the Hot-Dip Process.
2. A924 (A924M)-06 Standard Specification for General Requirements for Steel Sheet, Metallic Coated by the Hot-Dip Process.
3. E936-98(2004) Standard Practice for Roof System Assemblies Employing Steel Deck, Preformed Roof Insulation, and Bituminous Built-up Roofing.
4. A 108-07 Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished.

1.03 SUBMITTALS

A. Refer to Section 01 33 00-Submittal Procedures.

B. Manufacturer's Product Data Sheets for all materials specified certifying material complies with all specified requirements.

C. Latest edition of the Manufacturer's current material specifications and installation instructions.

1.04 QUALITY ASSURANCE

A. Meticulous attention to the detail of installation and workmanship shall be provided to ensure the assemblage of products in the highest grade of excellence by skilled craftsmen of the trade.

PART 2 PRODUCTS

2.01 MATERIALS

A. Roof deck replacement/repair: Products specified are for establishing the type, design, and quality required.

1. Roof Deck: FM Approved or UL listed 22 gauge minimum; galvanized steel profile to conform to existing deck profile at end and side laps.
2. Roof Deck Fasteners:

    a. Deck-to-structural steel: Fasteners shall be FM Approved, self-drilling deck fasteners of length and type as required by fastener manufacturer for thickness of structural steel. Acceptable manufacturer's include:

        i. ITW Buildex Corp. 12-24 Tek 5
        ii. SFS Stadler, Inc. SX 14 - Self Drill
        iii. Blazer 1/4-20 DP5

    b. Deck-to-deck side lap fasteners: Fasteners shall be FM Approved self-drilling deck side lap fasteners of length and type as required by fastener manufacturer for thickness of steel deck. Acceptable manufacturer's include:

        i. ITW Buildex Corp. 10-16 Tek 3
        ii. SFS Stadler, Inc. SL2 Free Spin Lap Self Drill
        iii. Blazer #10-16 DP3

3. Deck Repair Coating: Shall be high solids, low VOC, self-priming epoxy coating for use on steel structures such as:

    a. Amerlock 400 as manufactured by Ameron International
    b. Bar-Rust 231 as manufactured by Devoe
    c. High Build Epoxy Mastic as manufactured by Duron
    d. M45 Epoxy Mastic Coating as manufactured by Benjamin Moore & Co.

4. Deck Repair Plates: Shall be galvanized steel plates of thickness indicated. Plates shall be sized to extend a min. 8" beyond the through hole in existing decking on all sides with plate edges resting completely on a rib.

PART 3 EXECUTION

3.01 INSPECTION

A. Contractor shall inspect roof deck in work areas noted on roof plan. Notify engineer of additional damaged decking, or damaged structural elements.

B. Before removing decking, cutting decking or fastening decking, the Contractor shall inspect interior conditions under the deck to prevent cutting or damaging the joists, electrical conduit, sprinkler piping, fixtures and utilities. The Contractor shall ensure conditions are satisfactory before proceeding with the work, and continuously monitor interior and exterior work conditions during demolition and construction operations.

C. Commencement of work signifies Contractor's acceptance of conditions. Any defects in roofing work resulting from such accepted conditions shall be corrected to Engineer's satisfaction at no additional expense.

D. The following descriptions indicate roof deck corrosion levels by degree. All roof deck areas are to be inspected and assessed a roof deck corrosion level of 1 through 5. Following the assessment, the appropriate Remediation Methods shall be conducted. Remediation methods shall follow the deck corrosion level descriptions. Refer to Section 01 22 00 - Unit Prices.

1. Degree #1

    a. Red rust on top flange.
    b. Dark brown rust scaling on top flange.
    c. Dark brown rust scale removed by scraping/wire brushing to indicate minor pitting of the metal surface.
    d. Deck flutes discolored.

2. Degree #2

    a. Red rust present on any of the deck surface.
    b. Dark brown rust scale present on any of the deck surface.
    c. Entire deck sections (flanges and flutes) have been or can be readily removed during examination or areas of decking are missing, up to 8" in any one direction.

3. Degree #3

    a. Red rust present on any of the deck surface.
    b. Dark brown rust scale present on any of the deck surface.
    c. Entire deck sections (flanges and/or flutes) have been or can be readily removed during examination or areas of decking are missing, from 8" to 13" in any one dimension.

4. Degree #4

    a. Red rust present on any of the deck surface.
    b. Dark brown rust scale present on any of the deck surface.
    c. Entire deck sections (flanges and/or flutes) have been or can be readily removed during examination or areas of decking are missing, from 13" to 24" in any one dimension.

5. Degree #5

    a. Red rust present on any of the deck surface.
    b. Dark brown rust scale present on any of the deck surface.
    c. Entire deck sections (flanges and/or flutes) have been or can be readily removed during examination or areas of decking are missing, 24" or greater in any one dimension.

3.02 PREPARATION

A. Completely remove and/or vacuum debris from deck surface and ribs to allow for inspection of existing deck, and to fasten existing and new decking.

B. Remove and properly dispose of all damaged decking (Corrosion Degree Level 5) and back-out/remove deck fasteners in the repair area.

C. Contractor shall take all necessary precautions to prevent debris from entering building space, and coordinate operations with Engineer and Owner.

D. Contractor shall provide temporary protection of building interior and contents to prevent damage.

3.03 STEEL DECK REMEDIATION

A. Corrosion Degree 1:

1. Remove all loose dirt, rust, moisture, grease or other contaminants from the surface with a power wire brush.
2. Vacuum the roof deck surface clean.
3. Properly mix deck repair coating according to manufacturer's recommendations.
4. Do not mix more material than can be used in the materials expected pot life.
5. Material should be from 50˚ F to 90˚ F for optimum application.
6. Brush or roller apply deck repair coating as recommended by manufacturer.
7. Allow coating to dry a minimum of 30 minutes. Coating shall be dry to touch before roof insulation is installed.

B. Corrosion Degree 2:

1. Remove all loose dirt, rust, moisture, grease or other contaminants from the surface with a power wire brush.
2. Vacuum the roof deck surface clean.
3. Mechanically attach 18-ga deck repair plate to deck ribs with deck to side lap fasteners 8" on center maximum or a minimum of 2 screws per side.
4. Properly mix deck repair coating according to manufacturer's recommendations.
5. Do not mix more material than can be used in the materials expected pot life.
6. Material should be from 50˚ F to 90˚ F for optimum application.
7. Brush or roller apply deck repair coating as recommended by manufacturer.
8. Allow coating to dry a minimum of 30 minutes. Coating shall be dry to touch before roof insulation is installed.

C. Corrosion Degree 3:

1. Remove all loose dirt, rust, moisture, grease or other contaminants from the surface with a power wire brush.
2. Vacuum the roof deck surface clean.

3. Mechanically attach 16-ga. deck repair plate to deck ribs with deck to side lap fasteners 8” on center maximum or a minimum of 2 screws per side.
4. Properly mix deck repair coating according to manufacturer’s recommendations.
5. Do not mix more material than can be used in the materials expected pot life.
6. Material should be from 50˚ F to 90˚ F for optimum application.
7. Brush or roller apply deck repair coating as recommended by manufacturer.
8. Allow coating to dry a minimum of 30 minutes. Coating shall be dry to touch before roof insulation is installed.

D. Corrosion Degree 4:

1. Remove all loose dirt, rust, moisture, grease or other contaminants from the surface with a power wire brush.
2. Vacuum the roof deck surface clean.
3. Properly mix deck repair coating according to manufacturer’s recommendations.
4. Do not mix more material than can be used in the materials expected pot life.
5. Material should be from 50˚ F to 90˚ F for optimum application.
6. Brush or roller apply deck repair coating as recommended by manufacturer.
7. Allow coating to dry a minimum of 30 minutes.
8. Nest new steel deck within existing spanning at least two supports.
9. Mechanically attach deck to deck ribs with deck to side lap fasteners 8” on center maximum or a minimum of 2 screws per side.

E. Corrosion Degree 5:

1. Examine underside of steel deck for any conduit located directly below the deck surface, anything suspended or fastened to the deck surface, etc. If necessary, detach all objects from the bottom side of the deck to be removed.
2. Any deck meeting Corrosion Degree 5 shall be removed in its entirety.
3. Overlap all deck end laps no less than 6" and as required to secure through both panels and into the structural steel. Lap ends only over structural framing. Deck fasteners shall penetrate deck panels no less than 2" from the edge of the panel.
4. Overlap all deck side laps to nest flush into neighboring deck panel. Install a minimum of two deck side lap fasteners.
5. Workers shall apply their weight over the area being fastened to prevent deck deflection and ensure complete contact between fasteners, deck and/or structural steel.
6. Follow deck Manufacturer’s instructions and the latest edition of the Steel Deck Institute (SDI) Specifications and Commentary.
7. **Where steel deck is replaced, paint underside of new steel deck Sherwin Williams Naval in flat finish.**

3.04 STEEL DECK SECUREMENT

A. Fasten all steel deck panels to steel framing and steel deck side laps as indicated in the contract drawings.

1. Field of Roof: Fasten deck to joists 12" on centers, one fastener in every other deck rib.
2. Perimeter of Roof: Fasten deck to joists 6" on centers, one fastener in every deck rib.
3. Deck Side-Lap Fastening:

    a. Install two (2) deck panel side-lap fasteners between joists. Equally space the fasteners no greater than 30” apart.

4. Fastener position/location:

   a. Deck fasteners shall be driven in the center of the bottom of the deck rib. The fasteners shall be driven within +/- 1/4" of the center of the structural steel bearing surface. The fasteners shall be driven along the center of the structural steel member, not near the edge of the structural steel.
   b. Deck side lap fasteners shall be driven into the deck rib such that both panels are penetrated. The side lap fastener shall be located along the center of the bottom of the rib.

5. Workers shall apply their weight over the area being fastened to prevent deck deflection and ensure complete contact between fasteners, deck and/or structural steel.

3.05 MISCELLANEOUS

A. Contractor shall monitor the inside of the building at all times during removal and replacement of damaged steel decking to prevent damage to building, equipment and occupancy.

B. Contractor shall monitor all hot work operations in strict accordance with the Owners requirements and local Code. These operations include, but are not limited to, cutting, welding, soldering, brazing, grinding, etc. and any and all other spark or flame producing operations.

END OF SECTION 05 31 23

SECTION 06 10 00

ROUGH CARPENTRY

PART 1 GENERAL

1.01 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.

1.02 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.	Steel Roof Deck Repair/Securement	Section 05 31 23
2.	Preparation for Reroofing	Section 07 01 50
3.	Roof Insulation	Section 07 22 16
4.	Thermoplastic Polyolefin Roofing	Section 07 54 23
5.	Sheet Metal Flashing and Trim	Section 07 62 00
6.	Manufactured Gravel Stops and Fascias	Section 07 71 19

1.03 REFERENCES

A. Refer to the following references, current edition for specification compliance:

1. 2012 North Carolina State 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)

1.04 DEFINITIONS

A. Rough Carpentry includes carpentry work not specified as part of other Sections and generally not exposed.

B. KDAT: Kiln Dried After Treatment.

1.05 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.

1.06 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 AWPA Quality Mark, indicating compliance with the requirements of the AWPA 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.

1.07 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.

D. Do not store seasoned materials in wet or damp portions of building.

E. Protect sheet materials from corners breaking and damaging surfaces, while unloading.

PART 2 PRODUCTS

2.01 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. Wood Pressure Treatment: Alkaline Copper Quaternary (ACQ) pressure-treatment conforming to AWPA Standard C-2 (above ground) with 0.25 to 0.40 lbs per cubic foot retention rate.

2.02 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 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.

C. Wood to brick, concrete block, other masonry units, and solid concrete substrates:

1. Epoxy adhesive anchoring system: Minimum 1/2 inch diameter, corrosion resistant threaded rods supplied by the anchoring system manufacturer, length as required to provided minimum embedment as required by fastener manufacturer based upon substrate being secured. Screen for substrate provided by fastener manufacturer. Corrosion resistant nut and 1-1/2" diameter flat washer. Acceptable manufacturers include:

   a. Hilti Hit Hy-10 Plus
   b. Powers Fasteners, Inc. AC100 Anchoring System
   c. ITW Ramset Epcon C6 Fast Curing Epoxy
   d. Engineers accepted equivalent

PART 3 EXECUTION

3.01 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.

3.02 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.

C. Masonry Walls:

1. Adhesive anchors:

a. Contractor shall follow adhesive anchor manufacturer's published instructions for preparation and installation.
b. Pre-drill hole or clean-out existing gap/hole for adhesive anchors.
c. Use compressed air to blow-out all dust and moisture. Dust and moisture will result in failure of anchors and shall be removed before installing adhesive anchors.

3.03 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. 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.

E. 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. All joints between wood shall be installed for a smooth transition.

F. 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. Securely attach rough carpentry work to substrate with fasteners. Anchor to resist a minimum force of 300 lbs/lineal foot in any direction.
3. Rough carpentry attachment shall meet the requirements herein and that of the current FM Loss Prevention Data Sheet 1-49, Perimeter Flashing.

4. Fasteners heads for screws, anchors and bolts terminating at the surface of nailers shall be provided with a minimum 5/8 inch diameter, stainless steel or similar corrosion resistance flat washer provided by fastener manufacturer, unless washer is provided from factory as part of the fastener assembly.
5. 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.
6. 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.
7. 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.
8. Fastener spacing: Fasteners shall be staggered 1/3 the board width and installed within 6" of each end.

    a. Bolts, adhesive anchors, wedge and sleeve anchors, and machine bolts securing nailers shall be spaced 48 inches on center, staggered and an additional fastener within 6 inches of each end of nailer to prevent boards from twisting at board joints.
    b. 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.
    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.

G. 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.

H. Thickness of wood nailers shall be flush with adjacent insulation and other materials. Additional fasteners shall be installed to ensure nailers are flush.

I. 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.

J. Wood nailers at roof perimeters, expansion joints, roof area dividers, etc. shall not be less than 3 feet long.

K. 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.

L. 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.

M. 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.

N. Curbs:

1. Adjust wood curbs to support rooftop piping, ducts, equipment, etc.
2. Raise equipment to provide required flashing height for roofing.

3.04 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 01 50

PREPARATION FOR REROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preparatory work to be completed prior to roof installation including removal of existing roof assemblies down to the structural deck.

1. Survey building interior to properly locate conduit on the underside of the steel deck prior to mechanical termination of roof membrane at penetrations or any installation of fasteners penetrating steel deck.

1.02 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.	Steel Roof Deck Repair/Securement	Section 05 31 23
2.	Rough Carpentry	Section 06 10 00
3.	Roof Insulation	Section 07 22 16
4.	Thermoplastic Polyolefin Roofing	Section 07 54 23

1.03 DEFINITIONS

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

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

C. Material ownership: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain the Owner's property, demolished materials shall become the Contractor's property and shall be removed from the site.

1.04 EXISTING ROOF ASSEMBLIES*

A. Roof Area D2

1. Adhered EPDM roof membrane
2. 1/2" wood fiber (mechanically attached)
3. Aggregate surfacing
4. Built-up roof membrane
5. 1" perlite (hot asphalt)
6. 1" polyisocyanurate (hot asphalt)
7. 1" perlite (mechanically attached)
8. Steel deck

*Roof system composition is based on random sampling. Contractor is responsible for verification of roof system composition.

1.05 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.

1.06 QUALITY ASSURANCE

A. Qualifications: Previous experience removing existing roof systems.

B. Requirements: Contractor to comply with governing EPA regulations and hauling/disposal regulations of authorities having jurisdiction.

1.07 SCHEDULING

A. Conduct demolition so that Owner's operations will not be disrupted. Provide 72 hours notification to Owner of activities that will affect Owner’s operations.

1.08 WARRANTIES

A. Any damage to existing items under warranty shall be repaired/replaced with materials acceptable to the Warrantor.

PART 2 PRODUCTS

2.01 ROOF DECK REPAIR MATERIALS

A. Steel Deck

1. Refer to Specification Section 05 31 23.

PART 3 EXECUTION

3.01 EXAMINATION

A. Survey existing conditions to determine extent of demolition.

B. Record the conditions of items to be removed/reinstalled and items to be removed/salvaged.

C. Contractor shall not remove any element that may result in structural deficiency or collapse of any part of the structure or adjacent structures during demolition.

D. Contractor to inspect substrate for soundness and notify Engineer in writing of any deficiencies. Commencement of work signifies Contractor's acceptance of site conditions.

3.02 UTILITIES/SERVICES

A. Maintain existing utilities that are to remain in service and protect them against damage during selective site demolition unless authorized in writing by the Owner and authorities having jurisdiction.

1. Locate all conduits and equipment attached to the underside of the decking prior to reroofing. Insulation fastener locations are not to disturb existing conduits or

interior components/equipment.

2. If utilities serving occupied portions of the site must be shut down, temporary services shall be provided.
3. Provide 72 hours notice to Owner if shut down is required.
4. Where services are to be removed, relocated or abandoned, provide necessary bypass connections to remaining occupied buildings and areas.

3.03 PREPARATION

A. Do not begin demolition until utilities have been disconnected/sealed and have been verified as such in writing.

B. Do not close off or obstruct streets, walks or other adjacent occupied facilities without permission from Owner and authorities having jurisdiction.

C. Provide safe conditions for pedestrians. Erect temporary protection such as walkways, fences, railings and canopies as required by OSHA and other governing authorities.

D. Provide protection for adjacent building, appurtenances and landscaping to remain. Erect temporary fencing around trees to remain.

E. Provide temporary weather protection as required to prevent water leakage and damaged to exterior or interior of adjacent structures.

3.04 POLLUTION CONTROLS

A. Use water, mist, temporary enclosures and other suitable methods to limit the spread of dust and dirt. Comply with local EPA regulations.

1. Do not use water where damage may occur or where hazardous conditions would be created such as ice or flooding.

3.05 REMOVALS

A. Demolish and remove existing construction only to the extent required by new construction.

B. Remove all existing roofing, roof insulation, membrane and sheet metal and discard.

C. Remove or correct any obstruction which might interfere with the proper application of new materials.

D. Lift or remove all existing equipment so that existing flashings can be totally removed and new flashings installed.

E. Lift existing sheet metal flashings to remain to remove all existing materials. After installation of new materials, neatly bend flashing back into place.

F. Remove debris from existing materials to provide clean, dry substrate.

G. Demolish asphalt, concrete and masonry in small sections. Cut concrete and masonry at juncture with construction to remain using powered masonry saw, core drill or hand tools. Do not use powered impact tools.

H. Remove and transport debris in a manner that will prevent damage/spills to adjacent buildings and areas.

I. Dispose of demolished items and materials on a daily basis. On-site storage of removed items is not permitted.

J. Transport demolished materials off-site and dispose of materials in a legal manner.

K. Perform progress inspections to detect hazards resulting from demolition activities.

3.06 FLASHING HEIGHTS

A. Permanently raise roof top equipment as required to achieve 8" minimum flashing height.

B. Provide additional wood blocking to top of parapet walls and expansion joints to achieve minimum 8" flashing height.

C. Extend all existing sanitary vents to height required by the applicable Plumbing Code, but no less than 8 inches and no more than 12 inches above the finished roof system.

3.07 ROOF DRAINS AND LEADERS

A. Prior to commencement of any work on the project the Contractor shall inspect each existing roof drain for damage and water flow.

1. Each drain shall be cleaned of accumulated debris and loose gravel. Drain bowl and drain outlet shall be cleaned of bitumen build-up to bare metal by hand scraping.
2. A power vacuum shall be provided by the Contractor and utilized to vacuum debris, loose gravel, and bitumen scrapping. Vacuum hose shall be of sufficient length to reach the first elbow in the drain line in order to vacuum the line.
3. After cleaning bitumen from the drain bowl, Contractor shall inspect the bowl carefully for cracks, and the drain pipe connection for possible deterioration.
4. Each drain shall be water tested for proper flow utilizing a minimum 3/4-inch hose. Water shall flow into the drain line under maximum pressure available for a period of not less than 15 minutes.
5. Drain inspection and testing operation shall precede any roofing tear-off. If deficiencies or damages are observed, Contractor shall record the deficiency on a Roof Plan and forward to the Engineer. The Engineer will notify the Owner's Maintenance Department accordingly. Contractor shall allow 48 hours after notification for any corrective work by the Owner.
6. If no deficiencies or damages are reported to the Owner prior to commencement of work, Contractor shall assume full responsibility for the condition and operation of the drains.
7. Contractor shall install temporary drain plugs while performing any work at or near the roof drains. Drain plugs shall be removed at the end of each work day.

3.08 SCUPPER INSTALLATION

A. Locate bottom of overflow scupper 2" inches above surface of the roof system adjacent to the nearest roof drain (excluding sump).

B. Remove existing masonry and store for reuse if in good condition. Reinstall masonry units to extent possible. Provide new brick or concrete masonry units to match existing.

C. Extend opening through entire thickness of parapet. Take precautions to avoid damaging adjacent wall surfaces.

D. Provide finished openings as indicated.

E. Install veneer materials of same type, size and finish to match existing. Set units in full beds of mortar to match adjacent joints in thickness. Tool joints to match.

F. Repair exterior finish to match adjacent surfaces.

3.09 CLEANING

A. Inspect the site daily and clean up debris and hazards at the end of each day. Adjacent roads, drives and walkways shall remain in operation and free from construction materials debris.

B. Clean adjacent structures of dust dirt and debris. Return adjacent areas to original conditions to the satisfaction of the Owner.

END OF SECTION 07 01 50

SECTION 07 22 16

ROOF INSULATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Provide two layers of 2.5” roof insulation; provide tapered insulation crickets between roof drains; preliminarily secure cover board

1. At fully adhered roof system, fully adhere base layer of 2.5" roof insulation in foam adhesive; adhere second layer of 2.5" roof insulation in ribbons of foam adhesive; adhere tapered insulation crickets in ribbons of foam adhesive between roof drains; adhere cover board in ribbons of foam adhesive.
2. Provide watertight condition at roof system transition as shown in detail drawings.

1.02 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.	Steel Roof Deck Repair/Securement	Section 05 31 23
2.	Rough Carpentry	Section 06 10 00
3.	Preparation for Reroofing	Section 07 01 50
4.	Thermoplastic Polyolefin Roofing	Section 07 54 23

1.03 REFERENCES

A. Refer to the following references for specification compliance:

1. 2012 North Carolina State Building Code
2. National Roofing Contractors Association – NRCA
3. FM Global
4. Underwriters Laboratories, Inc. – UL
5. ASHRAE Standard 90.1

1.04 DESCRIPTION

A. R Value

1. The minimum continuous “R-value” for the above deck insulation system shall be 30 and in accordance with the current Energy Conservation Code and ASHRAE 90.1.
2. R value to be based on Long-Term Thermal Resistance (LTTR) for polyisocyanurate insulation and manufacturer’s published data for all other insulation components, as tested in accordance with ASTM C177, C236, C518 or C976.

1.05 SUBMITTALS

A. Refer to Section 01 33 00-Submittal Procedures for requirements.

B. Manufacturer’s Product Data Sheets for all materials specified certifying material complies with all specified requirements.

C. Tapered insulation plan from material supplier with minimum R-value for each roof area.

D. Latest edition of the Manufacturer’s current material specifications and installation instructions.

1.06 QUALITY ASSURANCE

A. Insulation to be installed in accordance with their respective manufacturer's requirements.

B. Insulation(s) not bearing UL label at point of delivery shall be rejected.

C. Insulation damaged or wetted before, during, or after installation shall be removed from the job site no later than the next working day from the day such damage or moisture contamination is noted.

D. Wind Design: Install insulation system to meet the required wind uplift pressures as specified in Section 07 54 23.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Material shall be delivered in the manufacturer's original sealed and labeled shrouds and in quantities to allow continuity application.

B. Storage: Materials shall be stored out of direct exposure to the elements on pallets or dunnage at least 4 inches above ground level at site location acceptable to Owner.

1. Utilize tarps that will completely cover materials to prevent moisture contamination. Remove or slit factory shrouds and/or visqueen; do not use these materials as tarps.
2. Install vapor retarders under material storage areas located on the ground.
3. Remove damaged or deteriorated materials from the job site.

C. Handling: Material shall be handled in such a manner to preclude damage and contamination with moisture or foreign matter.

1.08 PROJECT CONDITIONS

A. Insulation shall not be applied during precipitation. Contractor assumes all responsibility for starting installation in the event there is a probability of precipitation occurring during application.

B. Contractor will take necessary action to restrict dust, asphalt, and debris from entering the structure.

C. No more roofing will be removed than can be replaced with insulation, membrane and base flashings in the same day to create a watertight installation.

PART 2 PRODUCTS

2.01 MATERIALS

A. Insulation Boards:

1. Roof Insulation: Shall be rigid polyisocyanurate roof insulation board with factory applied coated polymer bonded glass fiber mat facers on the top and bottom. Boards to comply with ASTM C1289 Type II, Class 2, Grade 2 and meet the following requirements:

    a. Curing time shall be 24 hours minimum, plus an additional 24 hours minimum per inch thickness, at a minimum of 60 degrees F before shipment from the manufacturer.
    b. Dimensional stability shall be 2 percent maximum linear change when conditioned at 158 degrees F and 97 percent relative humidity for seven days.
    c. Maximum permissible insulation board size for mechanical attachment is 4’ x 8’ and for foam adhesive and hot asphalt attachment is 4’ x 4’. Field cutting of larger boards is not acceptable.
    d. Thickness shall be 2.5"

2. Tapered Insulation Crickets and Saddles: Shall be rigid polyisocyanurate roof insulation board with factory applied coated polymer bonded glass fiber mat facers on the top and bottom. Boards to comply with ASTM C1289 Type II, Class 2, Grade 2 and meet the following requirements:

    a. Curing time shall be 24 hours minimum, plus an additional 24 hours minimum per inch thickness, at a minimum of 60 degrees F before shipment from the manufacturer.
    b. Dimensional stability shall be 2 percent maximum linear change when conditioned at 158 degrees F and 97 percent relative humidity for seven days.
    c. Board size shall be 4 foot by 4 foot.
    d. Slope shall be 1/2” per foot and minimum thickness shall be 1/2".
    e. Fill Insulation: Shall be rigid polyisocyanurate meeting the above requirements with board size of 4 foot by 4 foot and thickness of 2”.

3. Cover Board: Shall be lightweight, high-density polyisocyanurate roof board with coated fiberglass facers; compressive strength shall be a minimum of 90 psi; R-value of 2.5 and thickness shall be 1/2".

B. Insulation Accessories

1. Asphalt impregnated wood fiber tapered edge strips be the sizes detailed or required by field conditions meeting ASTM C 208.

    a. Tapered Edge Strips

        i. Shall be installed at edges to make transitions as detailed in Contract Drawings.
        ii. Use 1.5" by 18" tapered edge strips to form crickets in front of curbs wider than 12” and to provide slope transition at the outside of drainage sumps.
        iii. Use 1/2" by 6" tapered edge strips in front of tapered insulation crickets to provide smooth transition.

C. Insulation Attachment Materials:

1. Steel Deck Mechanical Fasteners and Stress Plates: Shall be corrosion resistant 3” galvalume stress plate and corrosion resistant screw type fasteners for use with steel decks; approved by the insulation manufacturer for the insulation type, thickness and board size specified; fastener length as required by the fastener manufacturer for the insulation thickness specified, and to penetrate the deck a minimum of 3/4 inch and a maximum of 1 inch.

    a. Fasteners to be blue to match closely the exposed painted roof deck.

2. Foam Adhesive: Shall be a one or two part, VOC compliant, moisture-cured polyurethane foamable adhesive designed as roof insulation adhesive and approved by insulation manufacturer.

    a. Foam adhesive shall be approved for full spray application over steel deck for the base layer of 2.5" roof insulation and be approved for ribbon application for all subsequent insulation components.

D. NOC Roof System Transition Components

1. 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.
2. Pourable Sealer: Two-part pourable polyurethane sealant conforming to ASTM D 429, and designed to seal around penetrations.
3. Water Cut-off Mastic: Shall be gun grade, non-skinning, non-hardening, flexible blend of butyl rubber and polyisobutylene sealant.
4. Termination Bar: /8" X 1" aluminum or stainless steel flat bar with pre-drilled oversized or slotted holes 6" on center.
5. Termination Bar Fasteners: 1/4" x 7/8” carbon steel, self-drilling point, self-tapping, zinc alloy hex head screws with bonded EPDM tubular washer under head of fastener.

PART 3 EXECUTION

3.01 EXAMINATION

A. Contractor to inspect substrate for soundness and notify Engineer in writing of any deficiencies.

B. Commencement of work signifies Contractor's acceptance of substrate. Any defects in roofing work resulting from such accepted substrates shall be corrected to Owner's satisfaction at no additional expense.

3.02 PREPARATION

A. General

1. Roof deck to be dry and broomed clean of debris and foreign matter prior to installation of insulation system.

3.03 APPLICATION

A. General

1. Application shall be in accordance with the insulation/membrane manufacturer's instructions and these specifications.
2. All insulation to be in full sheets, carefully fitted and pushed against adjoining sheets to form tight joints. Gaps exceeding 1/4 inch will not be accepted.
3. Insulation and overlayment boards that must be cut to fit shall be saw cut or knife-cut in a straight line, not broken. Chalk lines shall be used to cut insulation. Uneven or broken edges are not acceptable.
4. Remove insulation dust and debris that develops during insulation cutting operations.
5. Joints between successive and adjacent layers of insulation to be offset a minimum of six (6") inches.
6. Stagger joints of gypsum overlayment/overlayment insulation one (1') foot (vertically and laterally) to ensure that joints do not coincide with joints from the previous or adjacent layer.
7. On steel decks, apply insulation boards with long dimension of units across deck ribs. Ends of insulation boards must be bearing on top flange of steel deck.
8. Crickets, saddles and tapered edge strips shall be installed before the overlayment insulation.
9. Adhere cant strips and tapered edge strips at transitions, terminations and/or penetrations as detailed or required in ribbons of foam adhesive or a full mopping of hot asphalt to ensure smooth transitions are provided for the roof membrane and flashings.
10. Provide necessary modifications to insulation system or nailers at roof edges as required to ensure a flush and smooth transition is provided for the roof membrane and flashing.
11. Field modifications of insulation, tapered insulation, tapered edge strips and cants shall be made by the Contractor where required to accommodate roof and flashing conditions, prevent water dams and ponding water. Ponding water at scuppers and cricket valleys shall not be accepted.
12. Provide necessary modifications to prevent standing water which is defined as 1/4" of water in a 4 square foot or larger area 24 hours or more after precipitation.

B. Tapered Insulation

1. Install tapered insulation system to provide positive slope for complete roof drainage.
2. Crickets shall be sized as shown in the Contract Drawings. Modifications shall be provided to ensure positive slope and prevent standing water along the cricket valley.

    a. Minimum length to width ratio shall be 2:1. Fabricate partial crickets with dimensions which would result in a minimum length to width ratio of 2:1 if they were extended to full size.
    b. Unless otherwise noted, fabricate all crickets from tapered stock as required to provide the specified minimum slope. For example, when roof slope is indicated as 1/4" per foot minimum, fabricate crickets with slope of 1/2" per foot minimum.
    c. Construct crickets on up slope side of all curbs to ensure positive drainage.
    d. Install tapered edge strips at cricket edges to provide a smooth transition between the cricket and insulation system below.

3. Insulation boards may require mechanical fasteners and stress plates at slope transition of crickets to minimize bridging.

C. Roof Drainage:

1. Drainage sumps shall be installed as detailed.
2. The Contractor shall be responsible for carefully laying out the tapered insulation, sumps, drain bowls and scuppers to ensure the finished roof provides complete drainage with no standing water.
3. Contractor shall fabricate miter-cut sumps at scuppers to provide smooth transitions between the insulation system and the drains/scuppers.
4. Sumps shall ensure complete roof drainage and prevent water dams.
5. Contractor shall adjust insulation, drains and scuppers to ensure complete roof drainage and satisfactory substrates for membrane and flashings.
6. Drain sump components shall be fastened to the deck using specified insulation fasteners or adhesives.
7. Circular sumps and sumps that do not provide smooth transition or that create standing water at the drains shall be rejected and shall require removal and replacement.

D. Insulation Mechanical Attachment

1. Fastener quantity and spacing shall be as indicated in the Contract Drawings.
2. Fasteners shall be installed using manufacturer's recommended equipment and in accordance with the manufacturer's requirements.
3. Fasteners and stress plates shall be set secure and tight against the insulation surface, and shall not be over-driven.
4. Fasteners shall engage the top flange of steel decks only.

E. Foam Adhesive Application

1. Adhesive beads shall be positioned and spaced at a minimum as indicated in the Contract Drawings. Comply with the requirements of the membrane manufacturer's tested assembly for adhesive spacing and positioning.
2. Adhesive beads shall be sized in accordance with the adhesive manufacturer's guidelines.
3. Insulation boards shall be placed onto the beads and immediately "walked" and/or "weighted" into place. Insulation boards must be placed into the adhesive in strict accordance with the adhesive manufacturer's guidelines.
4. Ensure full adhesion of all layers of insulation and take whatever steps necessary to achieve full adhesion, including but not limited to temporary ballasting of insulation until adhesive sets.
5. Contractor to survey underside of steel deck where adhesive is utilized over the deck and remove any foam adhesive expanded through holes, laps, etc. in the deck. Properly touch up paint on underside of steel deck.

END OF SECTION 07 22 16

SECTION 07 54 23

THERMOPLASTIC-POLYOLEFIN ROOFING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Install a fully adhered thermoplastic-polyolefin (TPO) membrane and flashings to provide a permanently watertight system.

1.02 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.	Steel Roof Deck Repair/Securement	Section 05 31 23
2.	Rough Carpentry	Section 06 10 00
3.	Preparation for Reroofing	Section 07 01 50
4.	Roof Insulation	Section 07 22 16
5.	Sheet Metal Flashing and Trim	Section 07 62 00
6.	Manufactured Gravel Stops and Fascias	Section 07 71 19

1.03 REFERENCES

A. Refer to the following references, current edition for specification compliance:

1. 2012 North Carolina State Building Code
2. American Society of Testing Materials (ASTM)
3. National Roofing Contractors Association (NRCA)
4. Underwriters Laboratory (UL)
5. FM Global
6. Single Ply Roofing Institute

1.04 SUBMITTALS

A. Refer to Section 01 33 00-Submittal Procedures for Submittals.

B. Latest edition of the Manufacturer’s current material specifications and installation instructions.

C. Manufacturer’s Product Data Sheets for all materials specified.

D. Certifications by manufacturers that all materials supplied comply with all requirements of the identified ASTM and other industry standards or practices.

E. Submit documentation of approved, tested roof system to meet the specified requirements for the following:

1. Wind uplift pressures
2. UL Fire Resistance Rating

1.05 DELIVERY, STORAGE AND HANDLING

A. All products delivered to the job site shall be in the original unopened containers or wrappings bearing all seals and approvals.

B. Handle all materials to prevent damage. Place all materials on pallets and fully protect from moisture.

C. Follow manufacturer's requirements for storing of membrane rolls. Membrane rolls shall be stored lying down on pallets and fully protected from the weather with clean canvas tarpaulins. Unvented polyethylene tarpaulins are not accepted due to the accumulation of moisture beneath the tarpaulin in certain weather conditions that may affect the ease of membrane weldability.

D. All adhesives shall be stored at temperatures required by the manufacturer.

E. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions outlined on containers or supplied by material manufacturer/ supplier.

F. All materials which are determined to be damaged by the Engineer, Owner's Representative or membrane manufacturer are to be removed from the job site and replaced at no cost to the Owner.

1.06 PROJECT CONDITIONS

A. Roofing shall not be applied during precipitation. Contractor assumes all responsibility for starting installation in the event there is a probability of precipitation occurring during application.

B. Only as much of the new roofing as can be made weathertight each day, including all flashing and detail work, shall be installed. All seams shall be cleaned and heat welded before leaving the job site that day.

C. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The existing building and its contents shall be protected against all risks.

D. All surfaces to receive new insulation, membrane or flashings shall be dry. Should surface moisture occur, the Applicator shall provide the necessary equipment to dry the surface prior to application.

E. All new and temporary construction, including equipment and accessories, shall be secured in such a manner as to preclude wind blow-off and subsequent roof or equipment damage.

F. Uninterrupted waterstops shall be installed at the end of each day's work and shall be completely removed before proceeding with the next day's work. Waterstops shall not emit dangerous or unsafe fumes and shall not remain in contact with the finished roof as the installation progresses. Contaminated membrane shall be replaced at no cost to the Owner.

G. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, the Applicator shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. A protection layer of plywood over insulation board shall be provided for all new and existing roof areas that receive rooftop traffic during construction.

H. Prior to and during application, all dirt, debris and dust shall be removed from surfaces, either by vacuuming, sweeping, blowing with compressed air and/or similar methods.

I. Contaminants, such as grease, fats, oils, and solvents, shall not be allowed to come into contact with the roofing membrane. All rooftop contamination that is anticipated or that is occurring shall be reported to the Engineer and membrane manufacturer to determine the corrective steps to be taken.

J. If any unusual or concealed condition is discovered, the contractor shall stop work, notify Engineer of such condition immediately, and in writing within 24 hours.

K. The roofing membrane shall not be installed under the following conditions without consulting the membrane manufacturer's technical department for precautionary steps:

1. The roof assembly permits interior air to pressurize the membrane underside.
2. Any exterior wall has 10% or more of the surface area comprised of opening doors or windows.
3. The wall/deck intersection permits air entry into the wall flashing area.

L. Precautions shall be taken when using membrane adhesives at or near rooftop vents or air intakes. Adhesive odors could enter the building. Coordinate the operation of vents and air intakes in such a manner as to avoid the intake of adhesive odor while ventilating the building. Keep lids on unused cans at all times.

1.07 QUALITY ASSURANCE

A. Manufacturer Requirements:

1. Manufacturer must have written contractor/installer approval program.
2. The product must have a continuous manufacturing history with the current product formulation of no less than ten (10) years in the United States of America.
3. Products manufactured by other manufacturers and private labeled are not acceptable.
4. See materials section for general product description and specified requirements.

B. Contractor Requirements:

1. This roofing system shall be applied only by a Contractor authorized by the membrane manufacturer prior to bid.
2. Application of the roofing system shall be accomplished by a primary roofing contractor, his roofing foreman, and sufficient applicator technicians who all have been trained and approved by the manufacturer of the single ply roofing system. Contractor to submit evidence of qualification from the manufacturer.

C. Upon completion of the installation an inspection shall be made by a representative of the membrane manufacturer to review the installed roof system and list all deficiencies.

D. There shall be no deviation made from the Contract Documents or the approved shop drawings without prior written approval by the Owner, the Owner's Representative and the membrane manufacturer.

E. All work shall be completed by personnel trained and authorized by the membrane manufacturer.

F. Contractor to provide manufacturer written verification indicating all seams have been probed and are watertight.

G. Install roofing system to meet UL 790 Class A Fire Rating.

H. Wind Design: Install roofing system to meet or exceed the requirements of the current adopted version of ASCE-7, and shall be an approved assembly tested to the wind uplift pressures listed below:

1. Field of Roof: - 28 psf.
2. Perimeter of Roof: - 47 psf.
3. Corner of Roof: - 71 psf.

1.08 WARRANTIES

A. Manufacturer's Guarantee: Manufacturer's standard form, non pro-rated, without monetary limitation or deductibles, in which manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period. Failure includes roof leaks or breaches in the primary roof membrane causing moisture to enter the substrate below (even if visible leaks are not observed inside the facility).

1. Warranty to include but not be limited to membrane, insulation, adhesives, fasteners, sealants, flashings, retrofit roof drains, polymer clad sheet metal, etc.
2. Warranty Period: Twenty years from date of Substantial Completion.
3. Warranty to remain in effect for wind speeds up to 72 mph.
4. Warranties requiring the Owner's signature will not be acceptable.
5. Manufacturer's Representative shall 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. Submit a written report within seven (7) days of this visit to the Engineer listing observations, conditions and any recommended repairs or remedial action.
6. Jurisdiction and venue for disputes and/or claims shall be in the courts of Buncombe County, North Carolina or the United States District Court, Asheville Division. (Buncombe County Schools only)

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Membrane materials shall be manufactured by the following:

1. Carlisle SynTec, Inc.
2. Firestone Building Products
3. Versico

2.02 MEMBRANE MATERIALS

A. Membrane and Components:

1. Membrane: Shall be a **80-mil** nominal thickness thermoplastic-polyolefin membrane with polyester reinforcement manufactured for mechanical attachment. Membrane shall conform to ASTM D 6878 with thickness measured in accordance with ASTM D 751 and thickness above reinforce tested in accordance with ASTM D 4637. **Color to be White**.
2. Adhesive: Shall be membrane manufacturer's solvent based reactivating-type

B. Flashing:

1. Reinforced **60 mil**. thick, TPO membrane for walls and curbs.
2. Unsupported **60 mil**. thick, TPO membrane shall be supplied for field-fabricated

vent stacks, pipes, drains and corners.

C. Attachment Components

1. Membrane Adhesive (for fully adhered area): Shall be membrane manufacturer's solvent based reactivating type adhesive.
2. Membrane Fasteners and Plates: Shall be approved and provided by membrane manufacturer for the deck type and membrane configuration.

a. Fastener shall be phillips head, carbon steel fastener with corrosion resistant coating designed for use with specified plate meeting the following minimum requirements:

i. Shank diameter: .21"
ii. Thread diameter: .26"
iii. Head diameter: .435"
iv. Thread density: 13 turns per inch.
v. Fasteners to be blue to match closely the exposed painted roof deck.

b. Plate shall be 18 gauge, 1-1/2 inch by 2-3/4 inch high strength, linear steel plate with an AZ 55 galvalume coating.

3. Coverstrip: Shall be 8" wide pre-cut polyester reinforced flashing strip.

2.03 RELATED MATERIALS

A. Flashing Adhesive: Shall be membrane manufacturer's solvent based reactivating-type adhesive.

B. T-joint Patch: Shall be membrane manufacturer's circular patch welded over T-joints formed by overlapping thick membranes.

C. Corner Flashing: Shall be membrane manufacturer's pre-formed inside and outside flashing corners that are heat-welded to membrane or polymer clad metal base flashings.

D. Termination Bar: Shall be manufacturer's 1/8" by 1" mill finish extruded aluminum bar with pre-punched slotted holes.

E. Sealant: Shall be manufacturer's multi-purpose sealant.

F. Fasteners:

1. Flashing Membrane Termination Screws: #12 stainless steel hex or pan head screws with length required to penetrate substrate a minimum of 1-1/2".

G. Primary Membrane Cleaner: Shall be a high quality solvent cleaner provided by membrane manufacturer and approved by engineer for use as a general membrane cleaner.

H. Pre-weld Cleaner: Shall be a high quality solvent based seam cleaner with moderate evaporation rate provided by membrane manufacturer.

I. Walkway Pad: Shall be walkway pad by manufacturer of membrane.

J. Retrofit Roof Drain: Shall be a prefabricated aluminum drain insert composed of 11

gauge spun aluminum drain body, TPO coated 17.5" diameter flange, cast aluminum clamping ring, cast aluminum strainer, watertight U-Flow seal and stem length and diameter as required by field conditions. Drain shall be approved by roof system manufacturer. Contractor shall field verify drain diameter and required stem length prior to ordering drains.

K. Polymer Clad Metal: Refer to Section 07 62 00-Sheet Metal Flashing and Trim.

PART 3 EXECUTION

3.01 SUBSTRATE PREPARATION

A. Verify that the substrate is dry, clean, smooth, and free of loose material, oil, grease, or other foreign matter. Sharp ridges and other projections and accumulations of bitumen shall be removed to ensure a smooth surface before roofing.

B. Asphalt roofing substrates shall be removed, covered or flashed using compatible, approved materials. PVC shall not come in contact with substrates containing asphalt materials.

C. Any deteriorated substrate shall be repaired.

D. Beginning installation means acceptance of prepared substrate.

E. Provide necessary protection from adhesive vapors to prevent interaction with foamed plastic insulation.

3.02 MEMBRANE INSTALLATION (MECHANICALLY ATTACHED)

A. General

1. Membrane is to be attached with membrane fasteners and plates according to membrane manufacturer's requirements.
2. Membrane overlaps shall be shingled with the flow of water.
3. Full-width rolls of membrane shall be fastened perpendicular to the direction of the steel deck flutes, wood planks, pre-cast concrete tees or cementitious wood fiber panels.
4. Tack welding of membrane rolls for purposes of temporary restraint during installation is not permitted.

B. Perimeter and Corner Areas

1. Over the properly installed and prepared substrate surface, half-width rolls (60" width) are to be installed either parallel or perpendicular to the entire perimeter edge. Membrane fasteners and plates are installed along the edge of the membrane on the fastening line twelve (12") inches on center. Plate is held back 1 inch from the outer edge of the membrane. The adjacent half-roll is positioned to overlap the fastened edge of the first half-roll by 5-1/2 inches in accordance with the overlap lines marked on the sheet's edge. The 5-1/2 inch overlap will allow the top membrane to extend 2-1/2 inches past the membrane fastener and plate for heat-welding. Fasteners shall clamp the membrane tightly to the substrate. In corner areas where perimeter half-rolls intersect, add rows spaced 54-1/2" on center of membrane fasteners and plates over the top of the half-rolls and weld a coverstrip above them for watertightness.
2. Refer to the Contract Drawings for perimeter and corner layout.
3. Hot-air weld overlaps according to membrane manufacturer's requirements. Seam

test cuts shall be taken at least 3 times per day.

C. Field Area

1. Over the properly installed and prepared substrate surface, full-width rolls (120") are to be installed perpendicular to the steel deck flutes. Membrane fasteners and plates are installed along the edge of the membrane on the fastening line twelve (12") inches on center. Plates are held-back 1 inch from the outer edge of the membrane. The adjacent full-roll is positioned to overlap the fastened edge of the first full-roll by 5-1/2 inches in accordance with the overlap lines marked on the sheet's edge. The 5-1/2 inch overlap will allow the top membrane to extend 2-1/2 inches past the membrane fastener and plate for heat-welding. Fasteners shall clamp the membrane tightly to the substrate.
2. Hot-air weld overlaps according to membrane manufacturer's recommendations. Seam test cuts shall be taken at least 3 times per day.

D. Membrane shall be terminated at twelve inches on center around perimeter of fully adhered area.

3.03 MEMBRANE INSTALLATION (FULLY ADHERED)

A. The surface of the insulation or substrate shall be inspected prior to installation of the roof membrane. The substrate shall be clean, dry, free from debris and smooth with no surface roughness or contamination. Broken, delaminated, wet or damaged insulation boards shall be removed and replaced.

B. Over the properly installed and prepared substrate, membrane adhesive shall be spread in accordance with the manufacturer's instructions and application rates utilizing equipment as required by the manufacturer.

1. Do not allow adhesive to skin-over or surface-dry prior to installation of roof membrane.
2. Water based membrane adhesive shall not be used if temperatures below 40º F (5º C) are expected during application or subsequent drying time.
3. Adhesive application rates shall comply with the manufacturer's published requirements.
4. The Applicator shall count the amount of pails of adhesive used per area per day to verify conformance to the specified adhesive rate.
5. No adhesive shall be applied in seam areas. All membrane shall be applied in the same manner.
6. Notched squeegees shall be replaced each day or as notches are reduced below ¼".

C. The roof membrane shall be unrolled into the adhesive. Adjacent rolls overlap previous rolls by 3 inches (75 mm). This process is repeated throughout the roof area. Immediately after placement of membrane, each roll shall be pressed firmly into place with the manufacturer's recommended roller by frequent rolling in two directions.

D. Weld membrane coverstrips at all fleeceback membrane seams without a factory selvage edge.

3.04 MEMBRANE TERMINATION

A. Terminate membrane at all walls as shown in the contract drawings.

1. Walls/Curbs: Membrane shall be mechanically terminated using approved screws and plates twelve (12) inches on center.

B. Terminate membrane at all penetrations as shown in the contract drawings.

1. Membrane shall be fastened six inches on center or a minimum of four (4) fasteners per penetration into the structural deck using fasteners and plates as approved by the membrane manufacturer for the deck substrate. Survey building interior to properly locate conduit on the underside of the steel deck prior to mechanical termination of roof membrane at penetrations or any installation of fasteners penetrating steel deck.

C. Membrane shall extend over roof edge a minimum of 2" below the perimeter wood blocking.

3.05 FLASHING INSTALLATION

A. General

1. **All flashings and details shall be installed concurrently with the roof membrane as the job progresses. This includes the roof system transition detail between the different roof systems.**
2. **No temporary flashings shall be allowed.**
3. **If any water is allowed to enter under the newly completed roofing, the affected area shall be removed and replaced at the Contractor's expense.**
4. **Seams shall not be "taped" as temporary measure but shall be fully completed before the end of each day.**
5. Flashing shall be adhered to compatible, dry, smooth, and solvent-resistant surfaces.
6. Where substrates are incompatible with adhesives and PVC materials, the Contractor shall remove the incompatible materials and replace it with a compatible substrate, or install compatible PVC flashing materials.
7. Use caution to ensure adhesive fumes are not drawn into the building.

B. Adhesive for Flashing Membrane

1. Over the properly installed and prepared flashing substrate, flashing adhesive shall be applied according to instructions found on the Product Data Sheet. The membrane adhesive shall be applied in smooth, even coats with no gaps, globs or similar inconsistencies.
2. Only an area which can be completely covered in the same day's operations shall be flashed. The bonded sheet shall be pressed firmly in place with a hand roller.
3. No adhesive shall be applied in seam areas that are to be welded. All panels of membrane shall be applied in the same manner, overlapping the edges of the panels required by welding techniques.

C. All flashings shall mechanically terminated a minimum of 8 inches above the finished roofing surface using approved fasteners and counterflashing bar unless otherwise indicated in the Contract Drawings. Flashing heights less than 8" shall be accepted in writing by the Manufacturer's Technical Department.

D. All flashing membranes shall be consistently adhered to substrates. All interior and exterior corners and miters shall be cut and hot-air welded into place. No bitumen shall be in contact with the (roof) membrane.

E. All flashings shall be hot-air welded at their joints and at their connections with the (roof) membrane.

F. All flashings that exceed 30 inches (0.75 m) in height shall receive additional securement. Consult Manufacturer's Technical Department for securement methods.

G. Corners shall be flashed using the membrane manufacturer's pre-formed corners.

H. Polymer Clad sheet metal incorporated into the roofing system shall be sealed off with a heat welded stripping ply. The stripping ply shall extend four inches beyond sheet metal onto roof membrane and fit closely to fit closely to edge of sheet metal.

I. Retrofit Roof Drain

1. Mechanically attach membrane 6" on center into structural deck around drain sump. Fully adhere flashing membrane and hot-air weld to membrane a minimum of 2 inches.
2. Flashing membrane shall be set in a full bed of sealant under the clamping ring.
3. Install retrofit roof drain according to manufacturer's installation instructions and provide stripping membrane hot-air welded to flange of retrofit roof drain extending onto flashing membrane.
4. Clamping rings shall be secured in place with all bolts at the end of each work day. Contractor shall water test roof drains after every instance the clamping ring is removed and reinstalled. The Contractor shall notify the Owner of the water test schedule.

J. Soil Pipe/Pipe Penetration:

1. Provide field wrapped pipe penetration flashing as shown in detail drawing.
2. Apply aluminum tape to penetration if asphalt contamination is present.
3. Extend existing pipe to obtain a minimum 8" finished flashing height.
4. Cut existing pipe to obtain a maximum 12" finished flashing height.
5. Horizontal flashing membrane shall be hot-air welded a minimum of four inches onto the membrane.
6. Vertical flashing membrane shall be fully adhered to pipe penetration and extend a minimum of 1.5" horizontal at the base of penetration. Hot-air weld vertical flashing membrane to horizontal flashing membrane.
7. Install stainless steel draw band and sealant or hot-air weld flashing cap to terminate top edge of pipe flashing.

3.06 HOT-AIR WELDING OF SEAM OVERLAPS

A. General

1. All seams shall be hot-air welded. Seam overlaps should be 3 inches (75 mm) wide when automatic machine-welding and 4 inches (100 mm) wide when hand-welding, except for certain details.
2. Welding equipment shall be provided by or approved by the membrane manufacturer. All mechanics intending to use the equipment shall have successfully completed a training course provided by a membrane manufacturer's technical representative prior to welding.
3. All membrane to be welded shall be clean and dry.

B. Hand-Welding

1. Hand-welded seams shall be completed in two stages. Hot-air welding equipment shall be allowed to warm up for at least one minute prior to welding.
2. The back edge of the seam shall be welded with a narrow but continuous weld to prevent loss of hot air during the final welding.

3. The nozzle shall be inserted into the seam at a 45 degree angle to the edge of the membrane. Once the proper welding temperature has been reached and the membrane begins to "flow," the hand roller is positioned perpendicular to the nozzle and pressed lightly. For straight seams, the 1½ inch (40 mm) wide nozzle is recommended for use. For corners and compound connections, the ¾ inch (20 mm) wide nozzle shall be used.

C. Machine Welding

1. Machine welded seams are achieved by the use of automatic welding equipment. When using this equipment, instructions from the manufacturer shall be followed and local codes for electric supply, grounding and over current protection observed. Dedicated circuit house power or a dedicated portable generator is recommended. No other equipment shall be operated off the generator.
2. Metal tracks may be used over the deck membrane and under the machine welder to minimize or eliminate wrinkles.

D. Quality Control of Welded Seams

1. The Applicator shall check all welded seams for continuity using a rounded screwdriver. Visible evidence that welding is proceeding correctly is smoke during the welding operation, shiny membrane surfaces, and an uninterrupted flow of dark grey material from the underside of the top membrane. On-site evaluation of welded seams shall be made daily by the Applicator to locations as directed by the Engineer or membrane manufacturer's representative. One inch (25 mm) wide cross-section samples of welded seams shall be taken at least three times a day. Correct welds display failure from shearing of the membrane prior to separation of the weld. Each test cut shall be patched by the Applicator at no extra cost to the Owner.

E. **Provide unreinforced cover strip over all cut edges of reinforced membrane after seam probing has been completed.**

F. Install T-joint patch at all T-seam locations.

3.07 WALKWAY PAD INSTALLATION

A. Roofing membrane to receive walkway pad shall be clean and dry.

B. Place chalk lines on deck sheet to indicate location of Walkway.

C. Apply a continuous coat of membrane adhesive to the deck sheet and the back of walkway pad in accordance with membrane manufacturer's technical requirements and press walkway pad into place with a water-filled, foam-covered lawn roller.

D. Clean the deck membrane in areas to be welded. Hot-air weld the entire perimeter of the walkway to the roofing membrane.

E. Check all welds with a rounded screwdriver. Re-weld any inconsistencies.

F. **Important:** Check all existing membrane seams that are to be covered by walkway with rounded screwdriver and re-weld any inconsistencies before walkway installation.

3.08 TEMPORARY CUT-OFF

A. All flashings shall be installed concurrently, with the membrane in order to maintain a

watertight condition as the work progresses.

B. When a break in the day's work occurs in the central area of the project install a temporary watertight seal. An 8" strip of flashing membrane shall be welded 4" to the new field membrane. The remaining 4" of flashing membrane shall be sealed to the deck and/or the substrate so that water will not be allowed to travel under the new or existing membrane. The edge of the membrane shall be sealed in a continuous heavy application of pourable sealer of 6 inch width. When work resumes, the contaminated membrane shall be removed and disposed of. None of these materials shall be reused in the new work.

C. If inclement weather occurs while a temporary water stop is in place, the Contractor shall provide the labor necessary to monitor the situation to maintain a watertight condition.

D. If any water is allowed to enter under the newly-completed system, the affected area shall be removed and replaced at the Contractor's expense.

3.09 CLEANING AND PROTECTION

A. The Contractor shall be responsible for protecting the roof from construction related damages during the Work.

B. The Contractor shall ensure trash and debris is removed from the roof daily.

C. Metal scraps, nails, screws and other sharp damaging debris shall be kept off of the roof membrane surface during construction.

D. The Contractor shall clean off/remove excess adhesive, sealant, stains and residue on the membrane and flashing surfaces.

E. The Contractor shall repair or remove and replace damaged membrane, flashings and other membrane components. Repairs shall be in accordance with the membrane manufacturers repair instruction to comply with the specified warranty.

F. The Contractor shall remove temporary coverings and masking protection from adjacent work areas upon completion. Remove construction debris from the project site on a planned and regular basis.

END OF SECTION 07 54 23

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.01 WORK INCLUDED

A. Fabrication and installation of new sheet metal flashings and trim to provide a permanently watertight condition.

1.02 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.	Rough Carpentry	Section 06 10 00
2.	Thermoplastic Polyolefin Roofing	Section 07 54 23
3.	Manufactured Gravel Stops and Fascias	Section 07 71 19
4.	Roof Accessories	Section 07 72 00

1.03 REFERENCES

A. Refer to the following references for specification compliance:

1. 2012 North Carolina State 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)
5. ANSI/SPRI ES-1

1.04 SUBMITTALS

A. Refer to Section 01 33 00-Product Submittals for Submittals.

B. Manufacturer’s Product Data Sheets for all materials specified certifying material complies with all specified requirements.

C. Pre-finished sheet metal and sealant color chart.

D. Shop Drawings for any transitions and/or terminations not depicted in Contract Drawings.

1.05 QUALITY ASSURANCE

A. Installation shall comply with the Contract Drawings and current SMACNA Architectural Sheet Metal Manual.

B. Ensure work is free of leaks in all weather conditions.

C. Fabricate metal edge (where no gutter is present) and coping in accordance with ANSI/SPRI ES-1 requirements.

D. 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.

1.06 DELIVERY, STORAGE AND HANDLING

A. Delivery: Deliver materials in the manufacturer's original sealed and labeled containers and in quantities required to allow continuity of application.

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 material in such manner as to preclude damage and contamination with moisture or foreign matter.

1.07 PROJECT CONDITIONS

A. Environmental: Protect building and its components from the elements at all times during the project.

B. Coordination and Scheduling: Coordinate all phases of work to allow continuity of work without delays.

1.08 WARRANTY

A. Contractor to provide the pre-finished sheet metal manufacturer's thirty (30) year finish warranty from the date of substantial completion

PART 2 PRODUCTS

2.01 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. Slip Flashing
    b. Equipment Support Curb
    c. Fascia Cover at Scuppers
    d. Scupper Face Plate
    e. Expansion Joint Cover and Cleat
    f. Area Divider Coping

2.02 STAINLESS STEEL

A. 26 gauge, Type 304 as tested in accordance with ASTM A 167.

1. Watertight Umbrella

2.03 POLYMER CLAD METAL (TPO)

A. Polymer Clad Metal – Heat-weldable, 24 gauge, AISI G90 galvanized steel sheet with a 20 mil unsupported thermoplastic membrane coating to match the flashing membrane composition laminated on one side. Polymer-Clad metal shall be manufactured by, and included in the warranty of, the single-ply membrane Manufacturer. Color shall be selected by Owner.

1. Flange/Sleeve
2. Scupper Liner

2.04 FASTENERS

A. Roofing Nails: 12-gauge stainless steel ring shank roofing nails with diamond point, minimum 3/8" diameter head and 1-1/4" length.

B. Screws: #12 stainless steel hex or pan head screws with length to penetrate substrate a minimum of 1-1/2".

C. Concrete and Masonry Anchors: 1/4" diameter metal based expansion anchor with stainless steel pin of length to penetrate substrate a minimum of 1-1/2".

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 1/4" diameter concrete and masonry anchors.

E. Rivets: #44 stainless steel rivets with stainless steel mandrel. Length of rivet to properly fasten particular sheet metal components. Rivets shall be factory painted to match adjacent sheet metal.

2.05 RELATED MATERIALS

A. PVC Flashing: 20 mil corrosion resistant, waterproof PVC flashing.

B. Compressible Insulation: Un-faced friction-fit fiberglass building insulation, cut to fit from 3-1/2"x 15"x48" batts.

C. Silicone Sealant: Shall be a one-component, non-sag, 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. Butyl Sealant: Shall be gun grade, non-skinning, non-hardening, flexible blend of butyl rubber and polyisobutylene sealant.

E. Sealant Tape: Minimum ½" wide non-skinning butyl sealant tape.

F. Aluminum Tape: Pressure-sensitive, 2" wide aluminum tape used as a separation layer between small areas of asphalt contamination and the membrane and as bond breaker under the metal edge cover plates.

G. Solder: 20-80 tin-lead alloy conforming to ASTM B32.

H. Flux: Muriatic acid killed with zinc or an accepted brand of commercial soldering flux designed for use with 20-80 solder.

PART 3 EXECUTION

3.01 EXAMINATION

A. Coordinate with other work for correct sequencing of items which make up the entire system.

B. Ensure substrates are installed, secured and modified to accommodate sheet metal flashings.

C. Deficiencies associated with the sheet metal substrates shall be reported to Engineer before beginning sheet metal work. All such deficiencies shall be corrected before installing sheet metal flashings.

3.02 INSTALLATION

A. General:

1. All joints to be locked and sealed or soldered.
2. Provide for thermal movement (expansion and contraction) of all exposed sheet metal.
3. Where dissimilar metals contact, galvanic action shall be prevented by means of heavy coat of asphalt paint.
4. All metal flanges shall be installed on top of membrane and adhered as indicated in detail drawings. Metal flanges connected to the roof shall be installed per membrane manufacturer's specifications and the requirements herein.
5. Various sheet metal sections shall be uniform with corners, joints and angles mitered, sealed and secured.
6. Exposed edges shall be returned (hemmed); both for strength and appearance, and sheet metal shall be fitted closely and neatly.
7. Provide cleats or stiffeners and other reinforcements to make all sections rigid and substantial.
8. Sheet metal shall be fabricated, supported, cleated, fastened and joined to prevent warping, "oil canning", and buckling.
9. All sheet metal details shall provide for redundancy including but not limited to sheet metal underlayment and/or sealants. This secondary protection shall be installed, sealed and lapped to ensure a redundant layer of protection will shed moisture infiltration in the sheet metal fails.

B. Fasteners: Shall be size and type required.

1. All fasteners to be rust resistant and compatible with materials to be joined.
2. All exposed fasteners shall be stainless steel screws with washers fastened through 5/16" predrilled oversized holes.
3. All exposed fasteners into concrete or masonry shall be metal based expansion anchor with stainless steel pin with washers fastened through 11/32" predrilled oversized holes.
4. All exposed fasteners shall have factory painted heads to match the sheet metal color.
5. Exposed horizontal surface fasteners are not acceptable.

C. Pipe Penetration

1. Fabricate flange/sleeve and umbrellas as shown in detail drawings. Refer to SMACNA Architectural Sheet Metal Manual Figure 4-15C.

2. Provide a 4" minimum flange attached and stripped in as indicated in the Contract Drawings.
3. Install watertight umbrella with stainless steel draw band and sealant properly tooled to ensure adhesion and slope to shed water.
4. Vertical leg of umbrella flashing shall extend a minimum of 2" below the sleeve top and be positioned as low as possible on the sleeve.
5. Clean and solder all seams.

D. Slip Flashing for Curbs

1. Fabricate slip flashing at curbs as shown in detail drawings in 10' lengths.
2. Slip flashing shall extend a minimum of 2 inches below base flashing termination and shall fit tightly against curb.
3. Secure slip flashing 12” on center of a minimum of two fasteners per side of the curb.
4. Notch and lap ends of adjoining sections not less than 4”; apply sealant tape between sections.
5. Lap miters at corners a minimum of 1 inch and apply sealant between laps. Rivet at 2” on center.

E. Equipment Support

1. Wrap top of equipment support with sheet metal underlayment to extend two inches below base flashing termination.
2. Fabricate equipment support cap at curbs as shown in detail drawings in one continuous piece of sheet metal and secure at eighteen inches on center.

F. Expansion Joint

1. Fabricate expansion joint cover and cleat as shown in detail drawing in 10' lengths. Refer to SMACNA Architectural Sheet Metal Manual Figure 5-5A.
2. Prior to installation of expansion joint cover, install compressible insulation in PVC flashing envelope.
3. Install flashing membrane up and over expansion joint extending a minimum of 2" down below the top of the expansion curb and hot-air welded to flashing membrane as indicated in detail drawings. Allow flashing membrane to dip into expansion cavity approximately to allow for expansion.
4. Provide continuous expansion joint cleat fastened to the expansion curb 8” on center.
5. Lock expansion joint cover onto cleat and fasten remaining vertical leg of cover to wood blocking 12” on center.
6. Notch and lap ends of adjoining expansion joint cleat sheet metal sections not less than 4”; apply sealant tape between sections.
7. Expansion Joint Cover Joints:

    a. Leave a 1/4" opening between sections.
    b. Center aluminum tape over entire joint opening.
    c. Hot-air weld 4” wide strip of stripping membrane over entire joint.
    d. Center 6” wide cover plate over joint.

8. Termination Expansion Joint Cover at parapet wall by turning up wall a minimum of 4". Seal top edge of turn up and secure to wall substrate at 6" on center. Strip in with minimum 8" width of stripping membrane.

G. Area Divider

1. Fabricate coping in 10' lengths. Refer to SMACNA Architectural Sheet Metal Manual Figure 3-4A.
2. Install flashing membrane up and over area divider.
3. Secure with screws through waterproof washers and oversized holes at 18 inches on center both sides of cover.
4. Area Divider Joints:

    a. Leave a 1/4" opening between sections.
    b. Center aluminum tape over entire joint opening.
    c. Hot-air weld 4” wide strip of stripping membrane over entire joint.
    d. Center 6” wide cover plate over joint.

5. Termination cover at parapet wall by turning up wall a minimum of 4". Seal top edge of turn up and secure to wall substrate at 6" on center. Strip in with minimum 8" width of stripping membrane.

H. Through-Wall Overflow Scupper

1. Fabricate thru-wall scupper flange, liner, and faceplate as shown in detail drawings. Scuppers dimensions shall be as indicated in the Contract Drawings.
2. Hot-air weld stripping membrane at seams of the flange and liner.
3. Install flashing membrane through scupper opening prior to installing new scupper to seal wall cavity.
4. Provide flange which extends a minimum of 4” on top and sides of scupper, and extends a minimum of 4” out onto the horizontal membrane. Mechanically fasten the horizontal flange into structural deck 8” on center or a minimum of two fasteners per scupper with approved fasteners.
5. Strip-in flange as specified in Contract Drawings.
6. Provide faceplate which extends 1.5" around the entire scupper and secure to wall substrate with four fasteners. Set faceplate in a bead of sealant.
7. Scupper Liner shall extend 1" beyond the exterior wall face and lock onto faceplate.

3.03 CLEANING AND PROTECTION

A. All sheet metal work shall be thoroughly cleaned of all asphalt, flux, scrapes and dust.

B. Scratches through the metal finish shall be replaced to the Owner’s satisfaction.

END OF SECTION 07 62 00

SECTION 07 71 19

MANUFACTURED GRAVEL STOPS AND FASCIAS

PART 1 GENERAL

1.01 WORK INCLUDED

A. Furnishing and installing factory fabricated and finished roof edging.

1.02 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.	Rough Carpentry	Section 06 10 00
2.	Thermoplastic Polyolefin Roofing	Section 07 54 23
3.	Sheet Metal Flashings and Trim	Section 07 62 00

1.03 REFERENCES

A. FM Global

B. SPRI Sheet Membrane & Component Suppliers to the Commercial Roofing Industry

1.04 SUBMITTALS:

A. Product Data: Provide manufacturer's product and complete installation data for all materials in this specification.

B. Shop drawings: Show profiles, joining method, location of accessory items, anchorage and flashing details, adjacent construction interface, and dimensions.

C. Samples: Available on request; sized to adequately represent material.

D. Contract Closeout: Submit Special Warranty and Manufacturer's performance certifications.

E. Installation Guide: The product manufacturer shall provide a written installation guide.

1.05 QUALITY ASSURANCE:

A. High performance roof edge shall be CERTIFIED by the manufacturer to comply with ANSI/SPRI Standard ES-1. Roof edge/gravelstop shall meet performance design criteria according to the following test standards: [select, if applicable]:

1. ANSI/SPRI ES-1 Test Method RE-1 Test for Roof Edge Termination of Single-ply Roofing Membranes: The fascia system shall be tested to secure the membrane to minimum 100 lbs/ft in accord with the ANSI/SPRI ES-1 Test Method RE-1. Use the current edition of ANSI/SPRI ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.
2. ANSI/SPRI ES-1 Test Method RE-2 Pull-Off Test for Fascia: The fascia system shall be tested in accord with the ANSI/SPRI ES-1 Test Method RE-2. Use the current edition of ANSI/SPRI ES-1 Wind Design Standard for Edge Systems Used with Low Slope Roofing Systems.

3. The roof edge product shall be UL Classified by Underwriters Laboratories, Inc. or other 3rd party verification of compliance with the ANSI/SPRI ES-1 Wind Design Standard.

1.06 PRODUCT HANDLING:

A. All materials shall be delivered in the manufacturer's original sealed, labeled containers.

B. Store materials in a dry, protected, well-vented area. The contractor shall report damaged material immediately to the delivering carrier and note such damage on the carrier's freight bill of lading.

C. Remove protective plastic surface film after installation.

1.07 JOB CONDITIONS:

A. Verify that other trades are complete before installing the roof edging.

B. Mounting surfaces shall be straight and secure; substrates shall be of proper width.

C. Refer to the construction documents, shop drawings and manufacturer's installation instructions.

D. Coordinate installation with roof membrane manufacturer's installation instructions.

E. Observe all appropriate OSHA safety guidelines for this work.

1.08 WARRANTY/GUARANTEE:

A. Manufacturer's Standard Warranty: Warranted materials shall be free of defects in material and workmanship for five years after shipment. If, after inspection, the manufacturer agrees that materials are defective, the manufacturer shall at their option repair or replace them. For decorative finish warranty, consult manufacturer.

B. Special 25-Year Category5SM Warranty: Manufacturer shall guarantee that a standard size roof edge system, when installed per manufacturer's instructions, will not blow off, leak, or cause membrane failure, even in wind conditions up to 155 mph, or the manufacturer shall replace or repair its materials.

PART 2 PRODUCTS

2.01 MANUFACTURER:

A. The following manufacturer's are approved for use:

1. W. P. Hickman Company
2. Metal Era
3. Engineer's accepted equivalent

2.02 ROOF EDGE:

A. Roof Edge: A two-part assembly with a rigid terminator base plate, and a decorative snap-on fascia cover for single-ply roofs with raised perimeter edges. The system shall have all concealed fasteners with no penetration on horizontal roof surface.

B. Retainer base plate: Shall be 20 gauge galvanized steel with 9/32” (7 mm) pre-punched holes for fasteners at 12” on center in 10'-0” standard lengths.

1. Install with field-applied waterproof sealant by roofing membrane manufacturer.

C. Exterior fascia cover:

1. Standard: 24 gauge galvanized steel in 10'-0” lengths for all sizes; concealed, matching 4” (102 mm) wide 24ga. joint splice plates.

D. Fasteners: Stainless steel hex head screw type provided by the manufacturer.

E. Exterior fascia finishes: Kynar-500 standard color from manufacturer’s standard colors.

2.03 ACCESSORIES:

A. Corners, end caps, fascia sumps, or spillouts, etc. shall be fabricated by the roof edging manufacturer. Factory fabricated mitered corners shall have 12” nominal leg lengths.

B. Provide matching ledgecaps, downspouts, or other special fabrications as detailed.

PART 3 EXECUTION

3.01 INSPECTION

A. Verify that the roof edging installation will not disrupt other trades. Verify that the substrate is dry, clean and free of foreign matter. Report and correct defects prior to any installation.

3.02 INSTALLATION

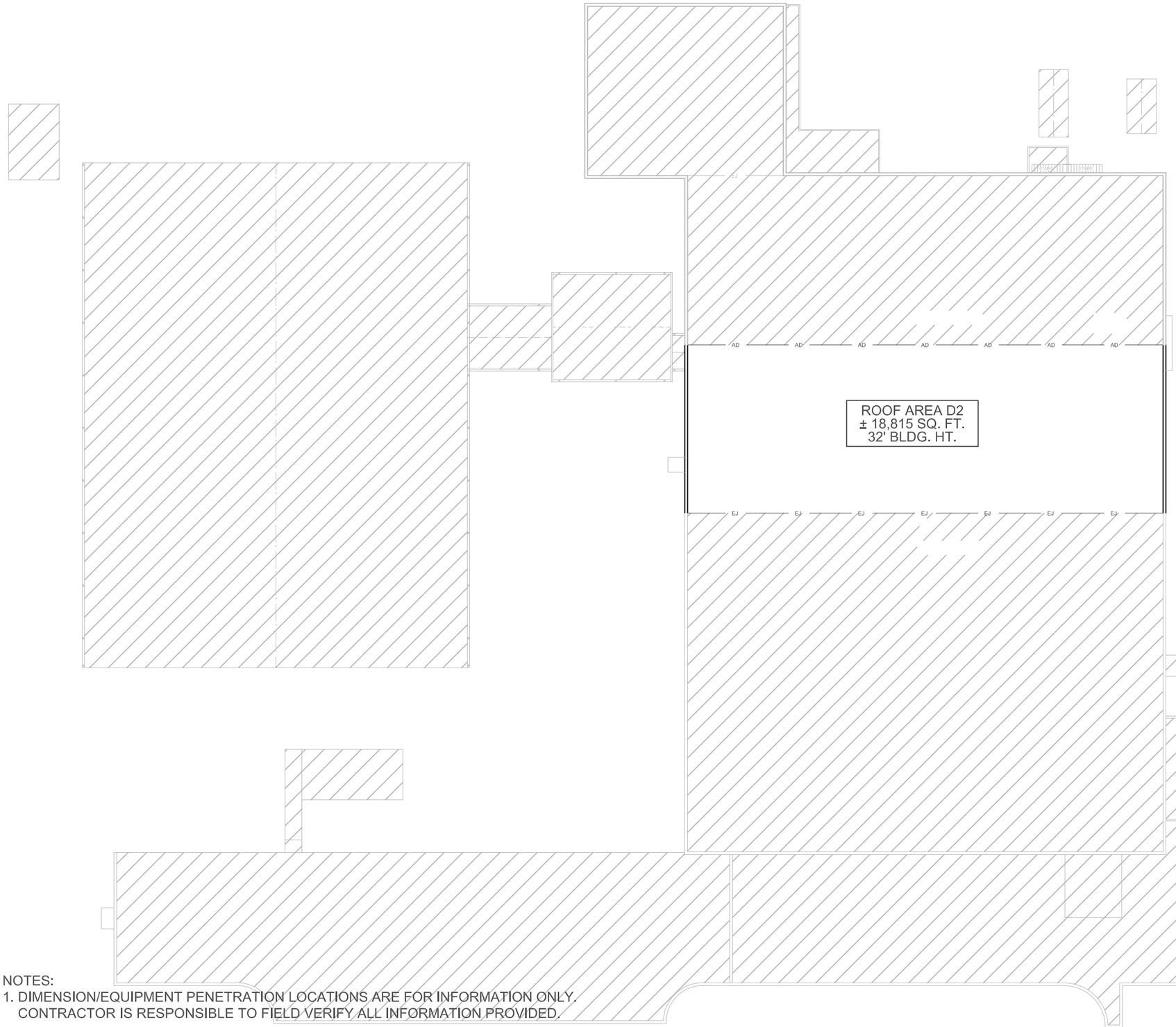
A. Submit design drawings for review and approval to Architect or Specifier before fabrication.

B. Installing contractor shall check as-built conditions and verify the manufacturer’s roof edging details for accuracy to fit the wall assembly prior to fabrication. The installer shall comply with the roof edging manufacturer’s installation guide when setting edging.

C. Installer shall use stainless steel screw type fasteners as provided by manufacturer, nominal 1-1/4” length, with minimum 240# pull-out resistance; suitable for the substrates to which being installed.

D. Install waterproof sealant to underside of retainer base plate as recommended and suppled by the roofing membrane manufacturer.

END OF SECTION 07 71 19



KEY

NOT IN CONTRACT

INCLUDED IN CONTRACT

NOTES:
1. DIMENSION/EQUIPMENT PENETRATION LOCATIONS ARE FOR INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL INFORMATION PROVIDED.

DRAWN BY: LBB

SCALE: 1" = 50'

REI PROJECT NO: 16CLT-046

DRAWING: A

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OVERALL ROOF PLAN
BUNCOMBE COUNTY SCHOOLS
ADMINISTRATIVE SERVICES BUILDING
AREA H & D2 ROOF REPLACEMENT

REVISIONS

NO.	DATE
1	
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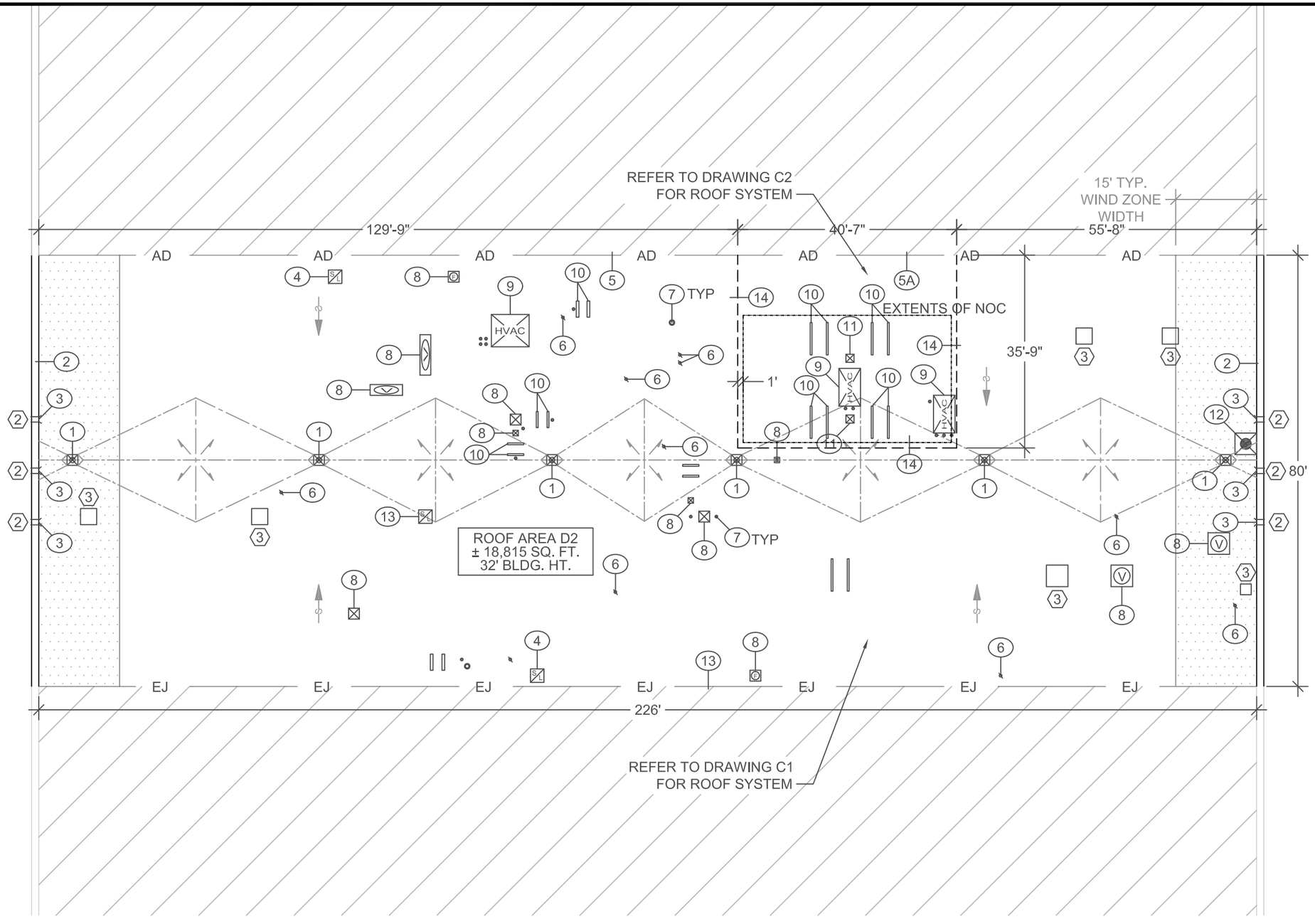
DATE: 02-19-2016



KEY

- PARAPET WALL
- EJ — EXPANSION JOINT
- AD — AREA DIVIDER
- ROOF DRAIN
- SOIL PIPE
- PIPE PENETRATION
- HIGH HEAT PENETRATION
- HIGH HEAT CURB
- OVERFLOW SCUPPER
- HVAC UNIT
- MECHANICAL CURB
- EXHAUST FAN
- GRAVITY VENT
- SKYLIGHT
- SLEEPER
- PITCH PAN
- ROOF LADDER
- TAPERED INSULATION
- STRUCTURAL SLOPE
- TAPERED INSULATION SLOPE
- CRICKET SLOPE
- ELEVATION CHANGE
- DETAIL NO.
- NOTE NO.

WIND ZONES

- ZONE 1 (FIELD)
- ZONE 2 (PERIMETER)

NOTES:

1. DIMENSIONS/EQUIPMENT PENETRATION LOCATIONS ARE FOR INFORMATION ONLY. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY ALL INFORMATION PROVIDED.
2. PROVIDE NEW OF MODIFY EXISTING OVERFLOW SCUPPER TO BE 4" HIGH BY 27" WIDE.
3. REMOVE ABANDONED PENETRATIONS AND PROPERLY REPAIR ROOF DECK. PAINT UNDERSIDE OR REPLACEMENT DECK PRIOR TO INSTALLATION.

DRAWN BY: LBB

SCALE: 1" = 20'

REI PROJECT NO: 16CLT-046

DRAWING: B

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ROOF PLAN
BUNCOMBE COUNTY SCHOOLS
ADMINISTRATIVE SERVICES BUILDING
AREA H & D2 ROOF REPLACEMENT

REVISIONS

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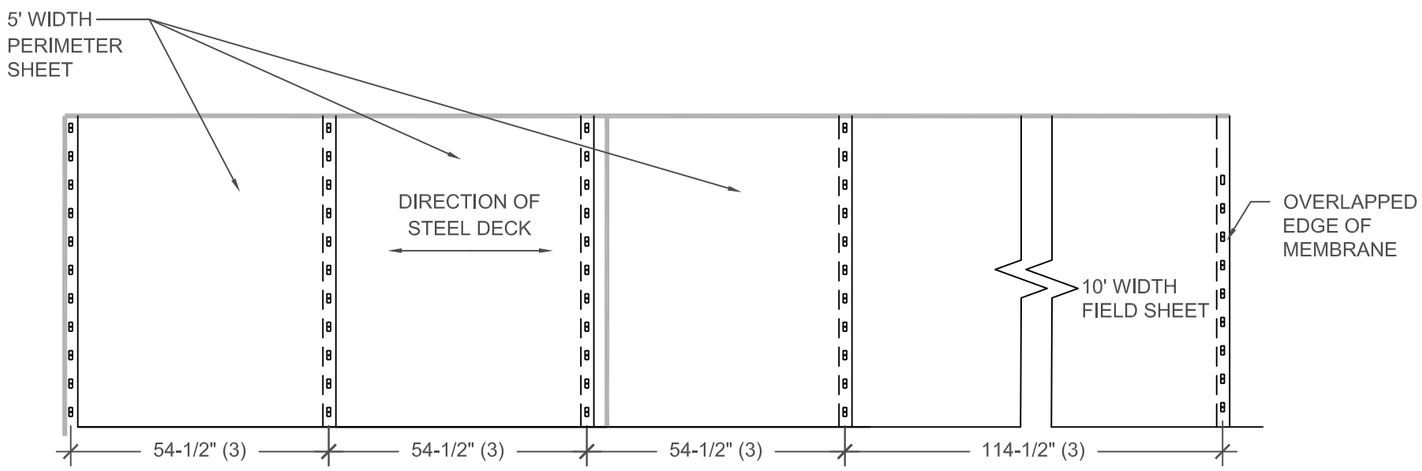
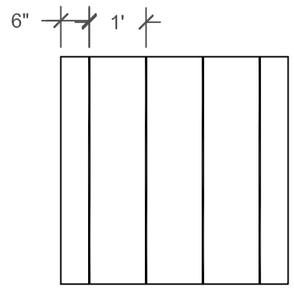
DATE: 02-19-2016

MEMBRANE FASTENING PATTERN
SCALE: 3/16" = 1'



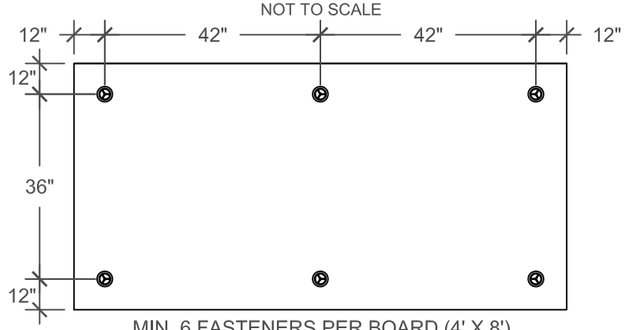
NOTES:
1. MEMBRANE FASTENERS AND PLATES ARE SPACED SIX INCHES (6") ON CENTER.
2. ROWS OF FASTENERS IN THE FIELD SHALL BE PERPINDICULAR TO THE DIRECTION OF THE STEEL DECK FLUTES.
3. MEMBRANE WIDTHS LISTED ARE MAXIMUM, SMALLER WIDTH SHEETS SHALL BE PROVIDED AS REQ'D BY THE ROOF SYSTEM MANUFACTURER TO MEET THE SPECIFIED WIND UPLIFT PRESSURES.

FOAM ADHESIVE ATTACHEMENT
(4' X 4' INSULATION BOARDS)



ZONE 1 (FIELD)
12" ON CENTER

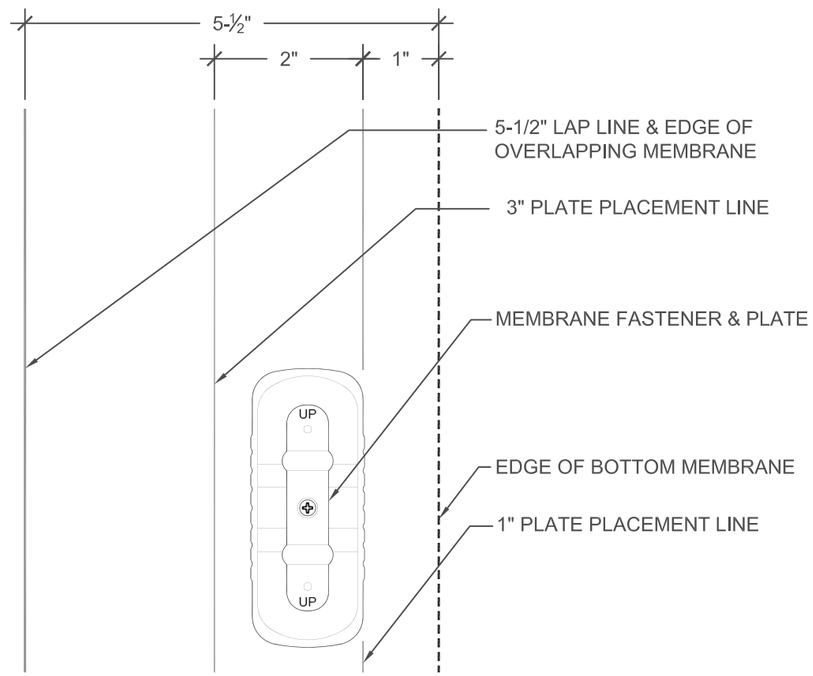
INSULATION PRELIMINARY SECUREMENT PATTERN
NOT TO SCALE



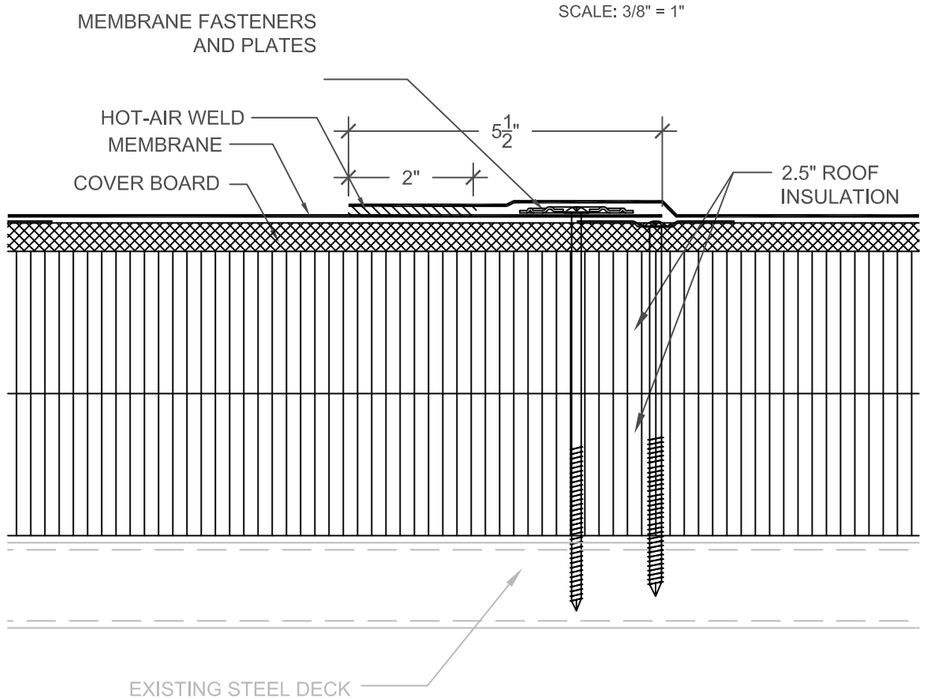
MIN. 6 FASTENERS PER BOARD (4' X 8')

DARK LINES - NEW
LIGHT LINES - EXISTING

MEMBRANE LAP SEAM CONFIGURATION
SCALE: 1/2" = 1"



ROOF SYSTEM
SCALE: 3/8" = 1"



DRAWN BY: LBB
SCALE: SEE DRAWING
REI PROJECT NO: 16CLT-046
DETAIL: C1

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ROOF SYSTEM
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

REVISIONS

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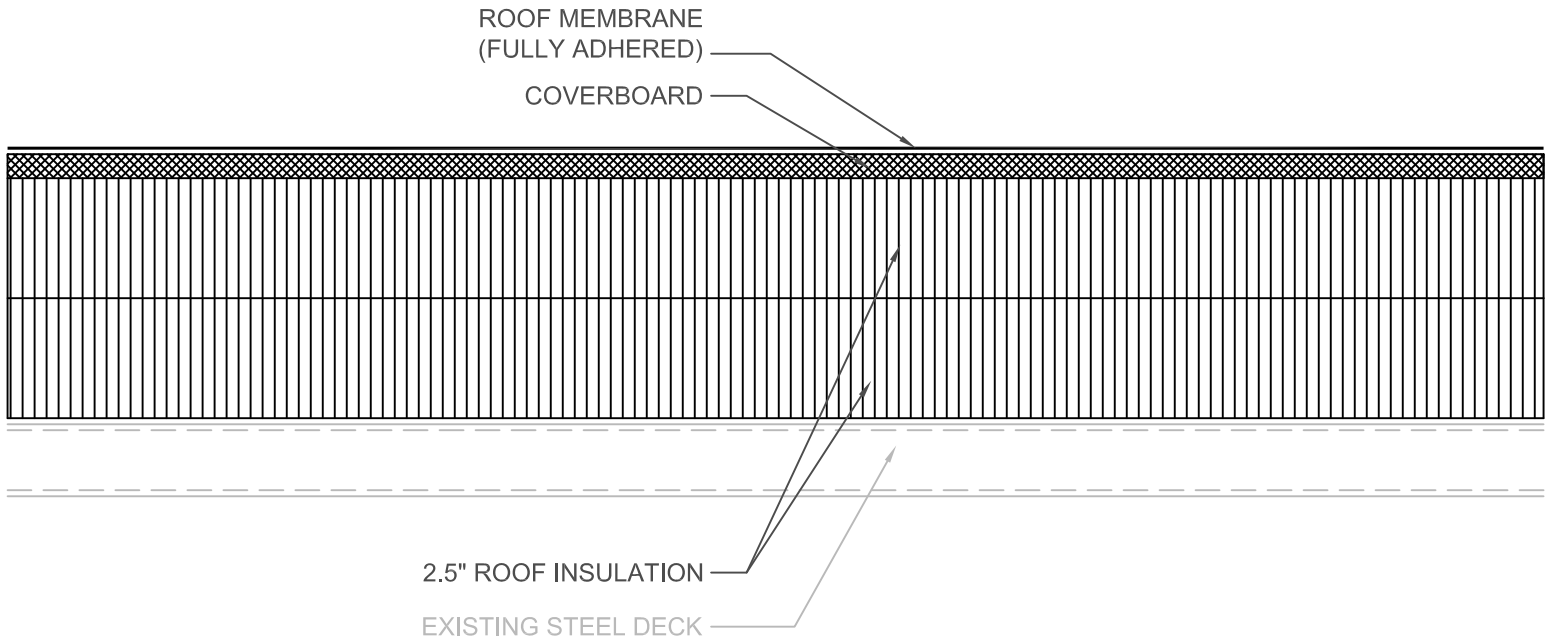
DATE: 02-19-2016



NOTE: BASE LAYER FULLY ADHERED IN FOAM ADHESIVE, TOP LAYER ADHERED IN RIBBONS OF FOAM ADHESIVE

DARK LINES - NEW
LIGHT LINES - EXISTING

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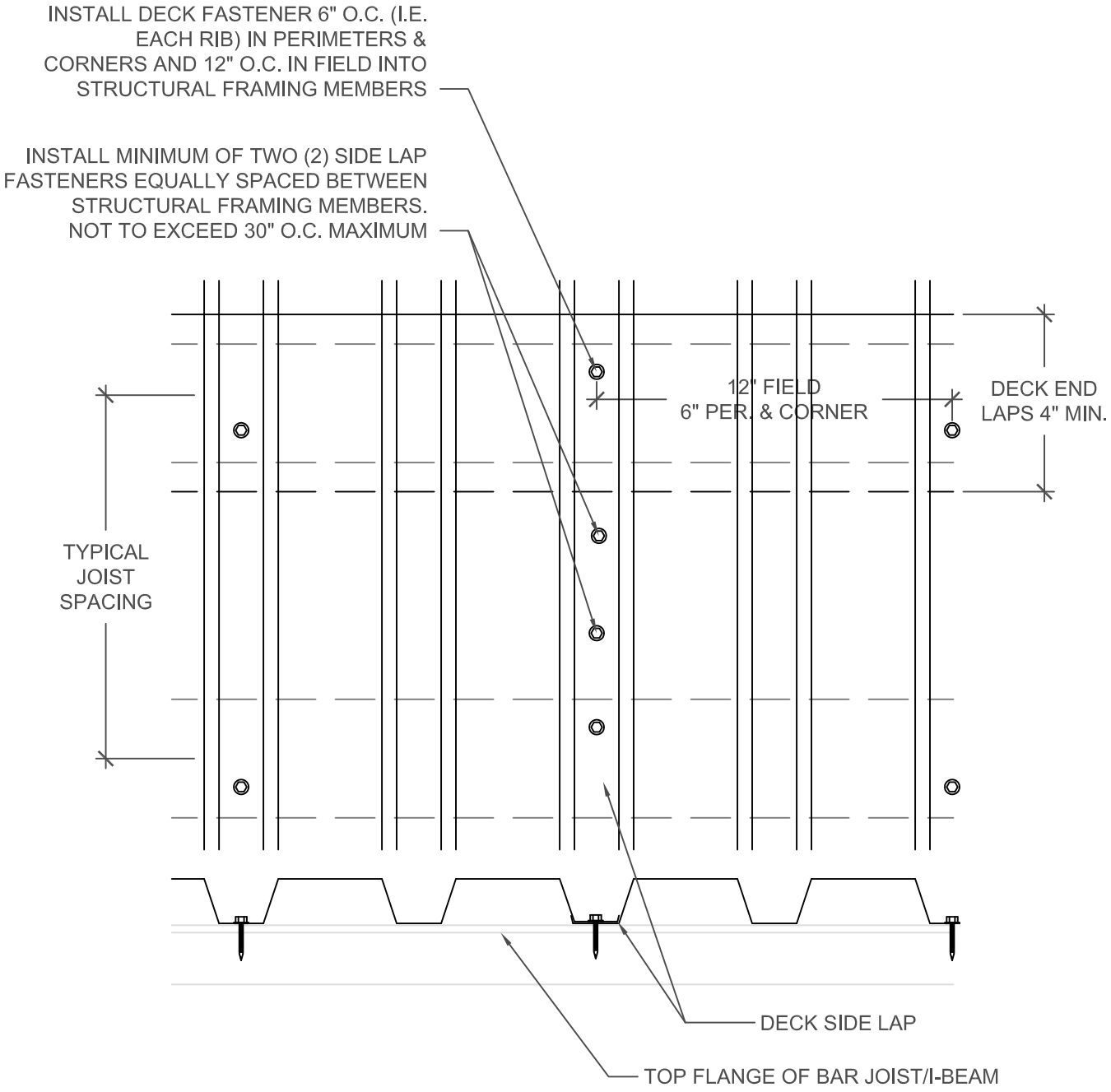
SCALE: 1/4" = 1"
DATE: 02-19-2016
REI PROJECT NO: 16CLT-046

ROOF SYSTEM
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

DETAIL: C2



NOTES:

1. **DO NOT RE-SECURE DECK AT FULLY ADHERED ROOF SYSTEM (DRAWING C2) AREAS.**
2. REFER TO ROOF PLAN FOR WIND ZONE (PERIMETER AND CORNER) DESIGNATION.

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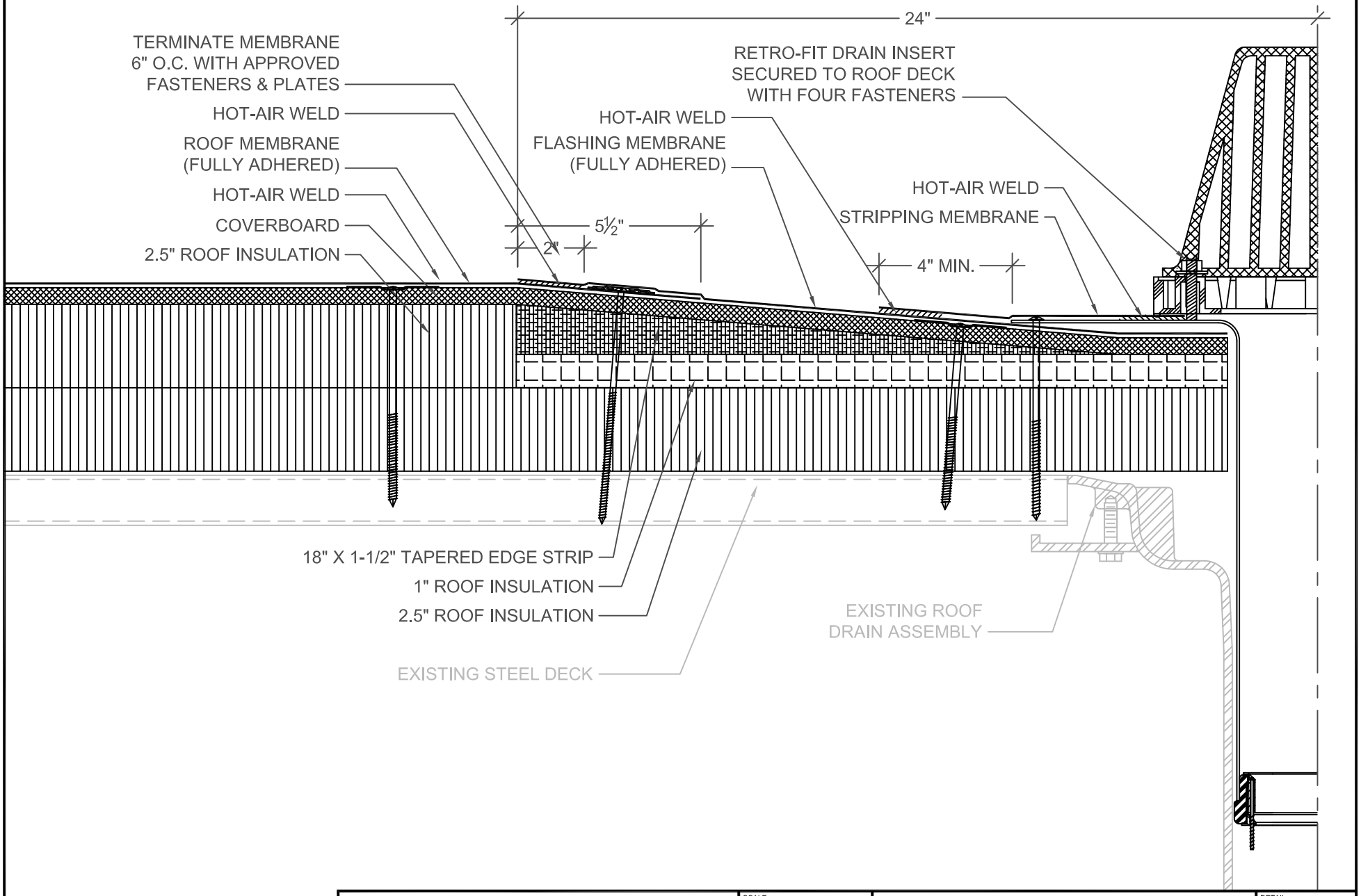
REI PROJECT NO: 16CLT-046

STEEL DECK RE-SECUREMENT
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

DETAIL: D



DARK LINES - NEW
LIGHT LINES - EXISTING

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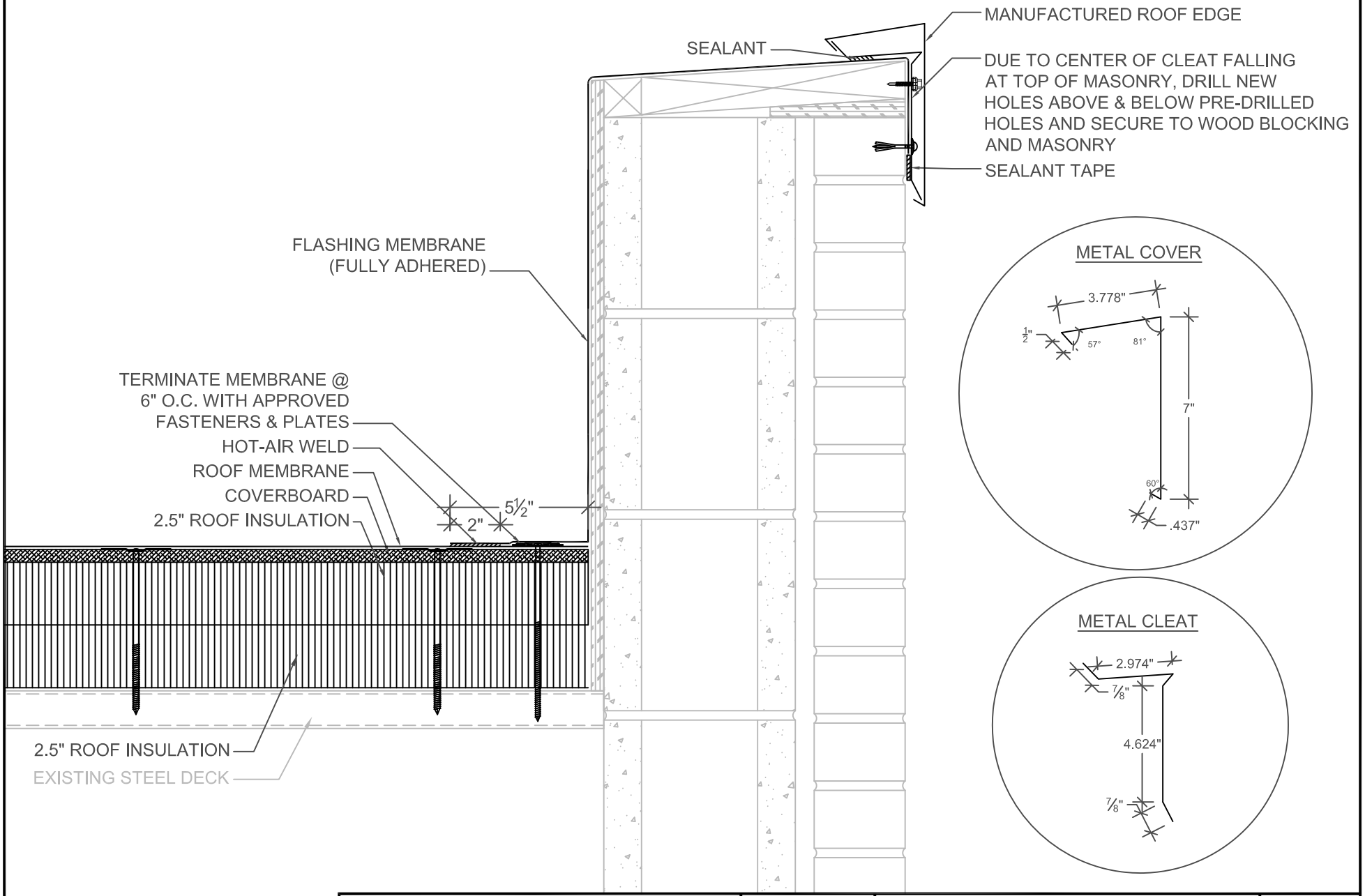
SCALE: 1/4" = 1"
DATE: 02-19-2016
REI PROJECT NO: 16CLT-046

ROOF DRAIN
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

DETAIL: 1



DARK LINES - NEW
LIGHT LINES - EXISTING

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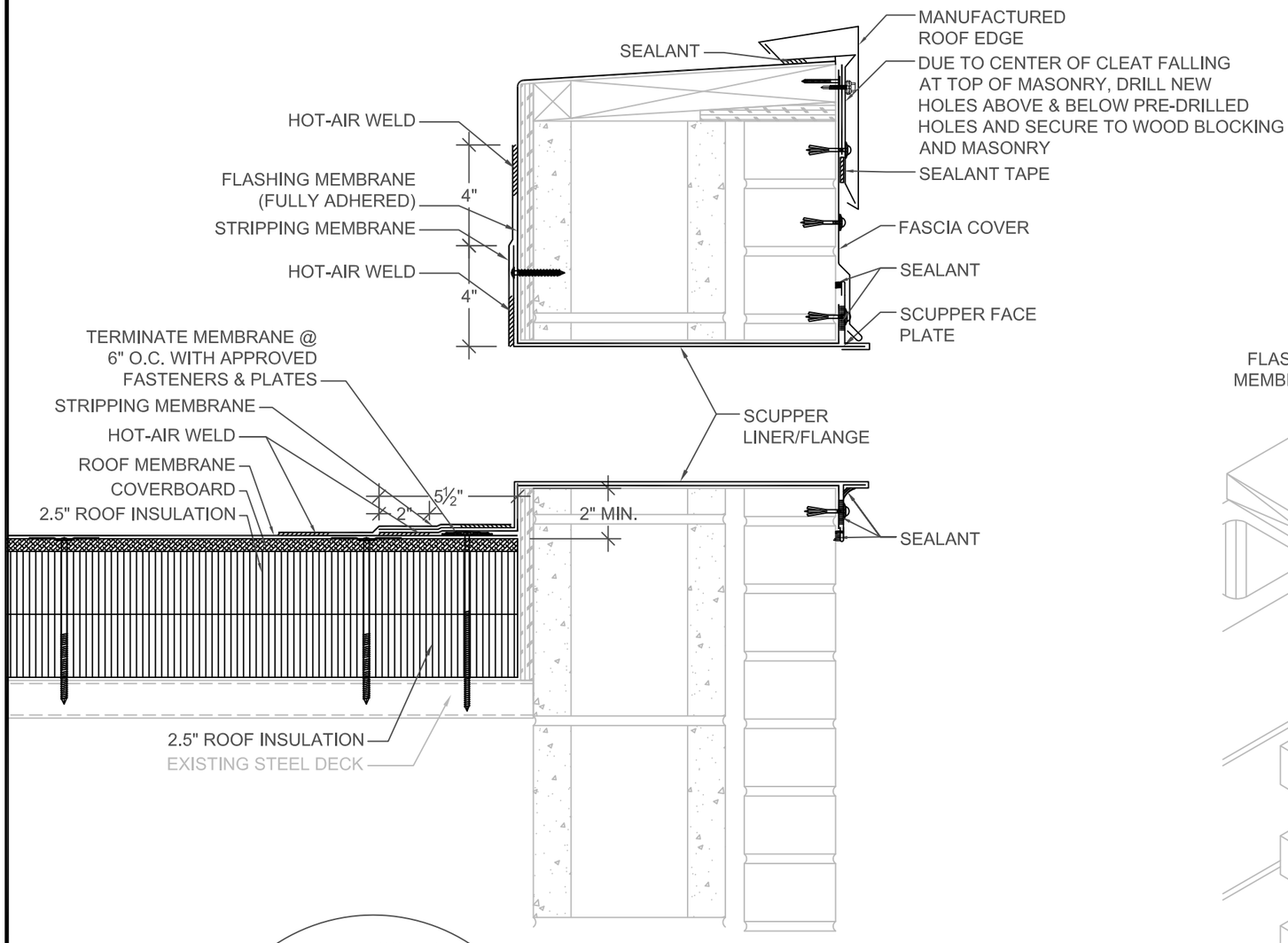
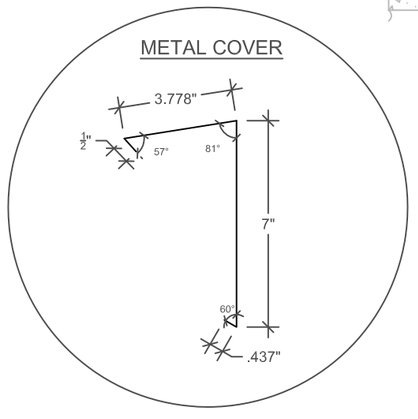
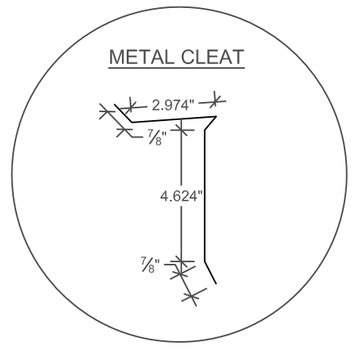
SCALE: 3/16" = 1"
DATE: 02-19-2016
REI PROJECT NO: 16CLT-046

PARAPET WALL
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

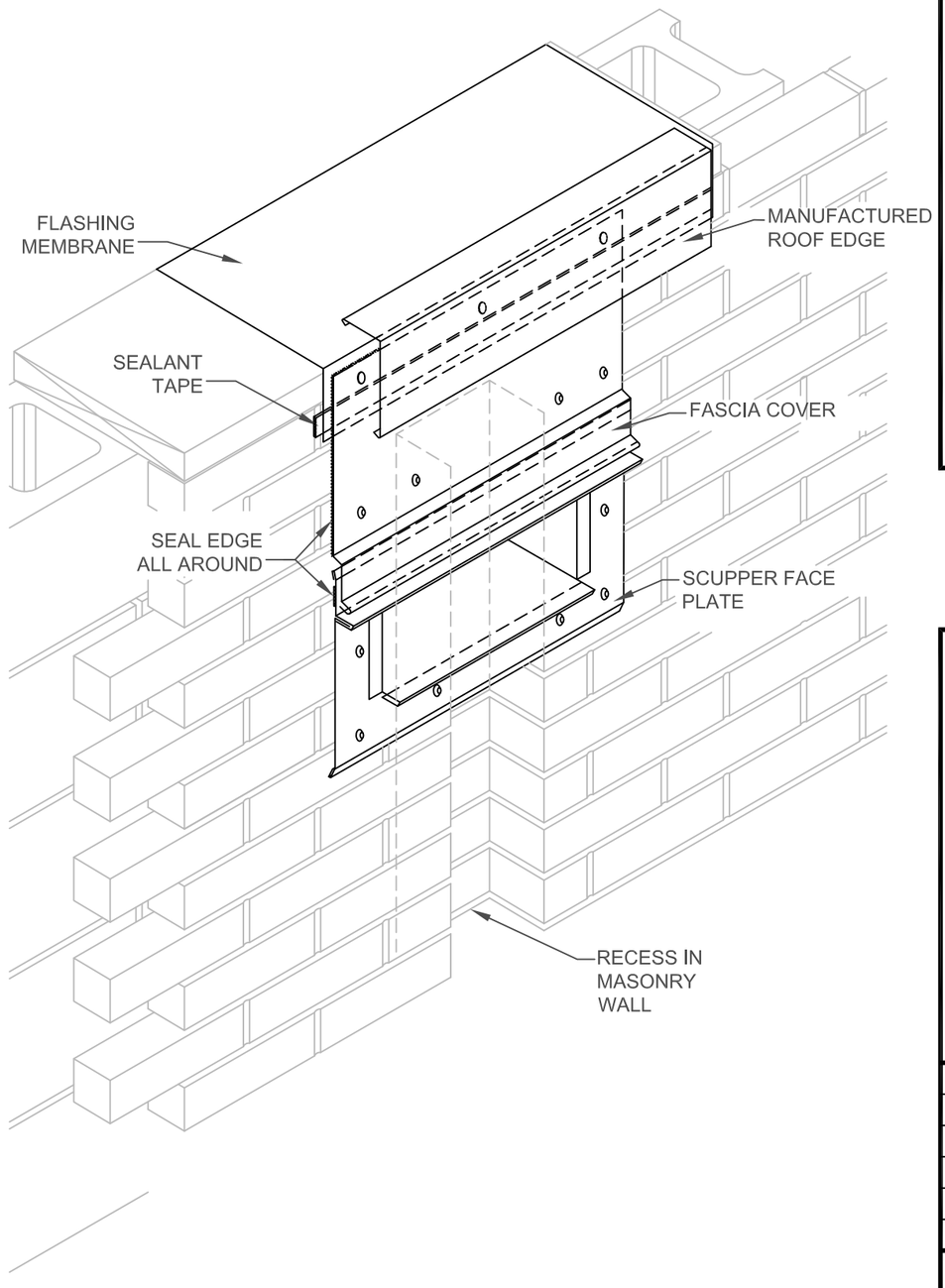
DETAIL: 2







DARK LINES - NEW
LIGHT LINES - EXISTING



DRAWN BY: LBB
SCALE: 3/16" = 1"
REI PROJECT NO: 16CLT-046
DETAIL: 3

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ENGINEERS

OVERFLOW SCUPPER
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

REVISIONS	
NO.	DATE
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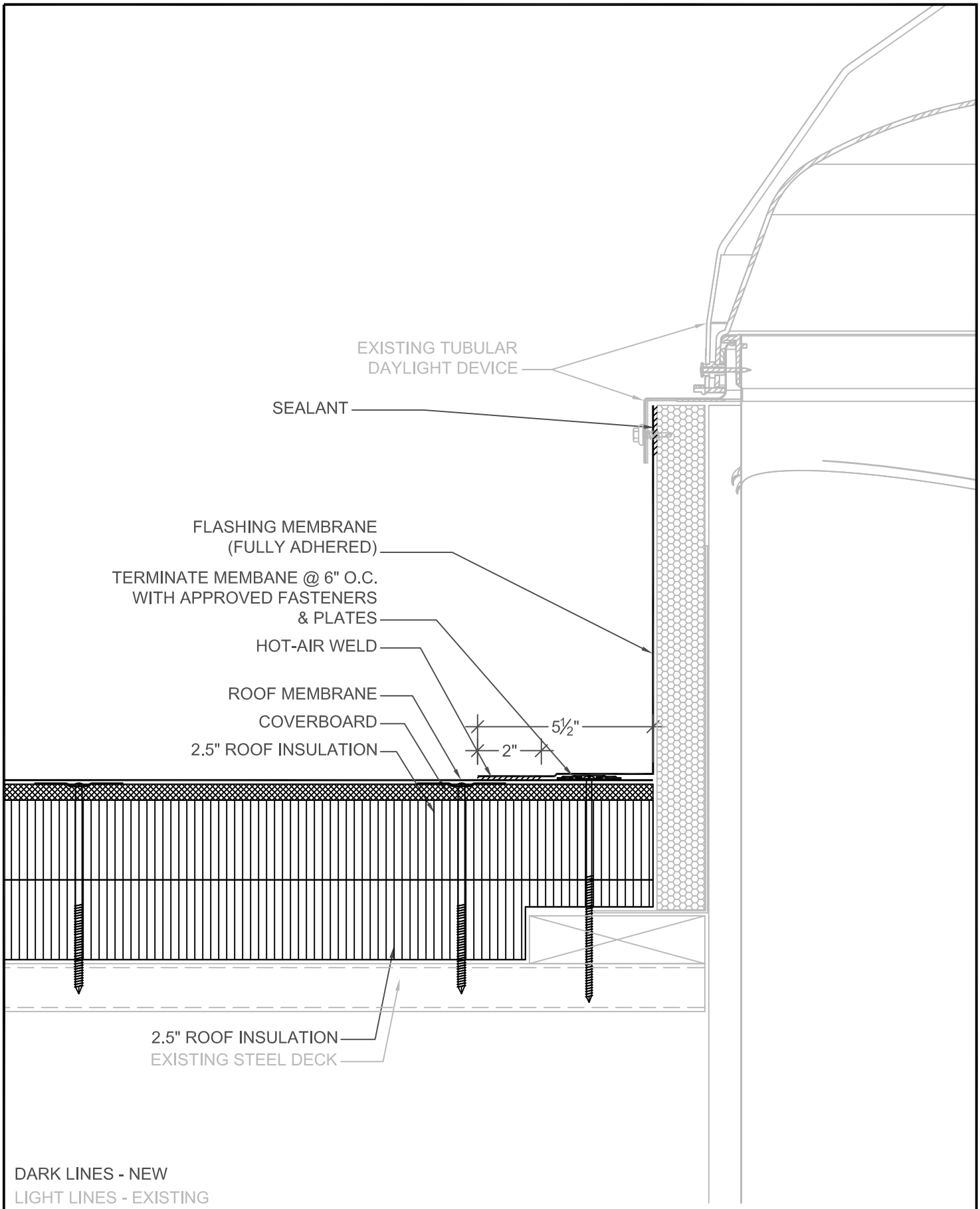
DATE: 02-19-2016



DARK LINES - NEW
LIGHT LINES - EXISTING

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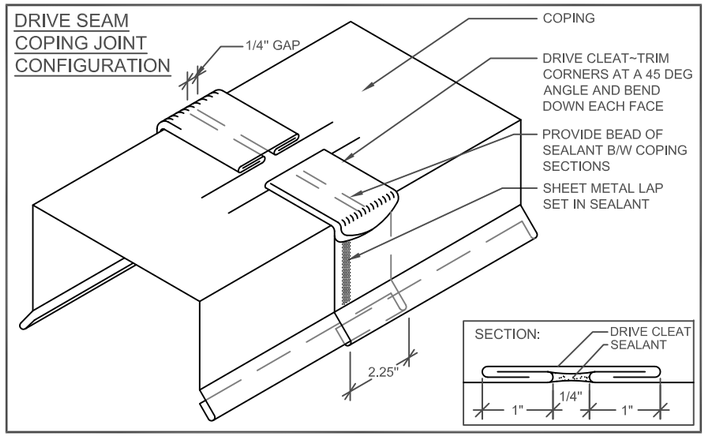
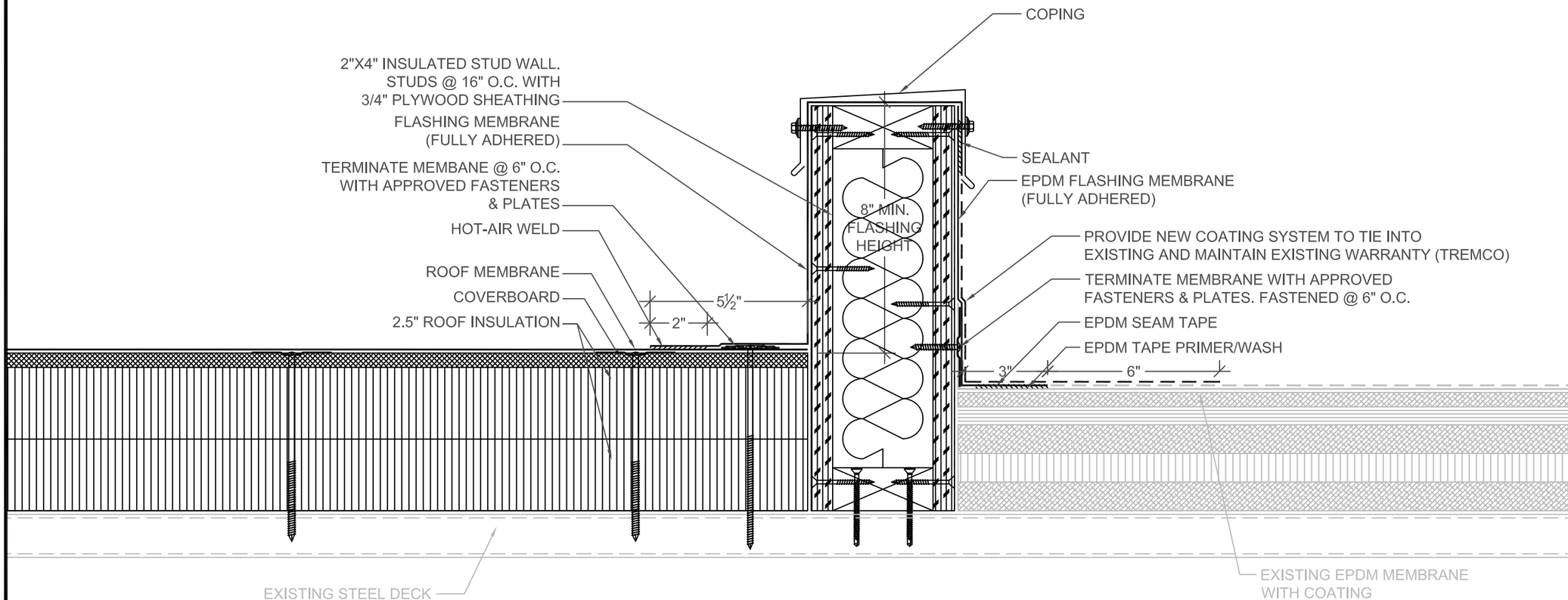
SCALE: 1/4" = 1"
DATE: 02-19-2016
REI PROJECT NO: 16CLT-046

TUBULAR DAYLIGHT DEVICE
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

DETAIL: 4

DRIVE SEAM COPING JOINT CONFIGURATION





DARK LINES - NEW
LIGHT LINES - EXISTING

DRAWN BY: LBB
SCALE: 1/4" = 1"
REI PROJECT NO: 16CLT-046
DETAIL: 5

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AREA DIVIDER
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

REVISIONS	
NO.	DATE
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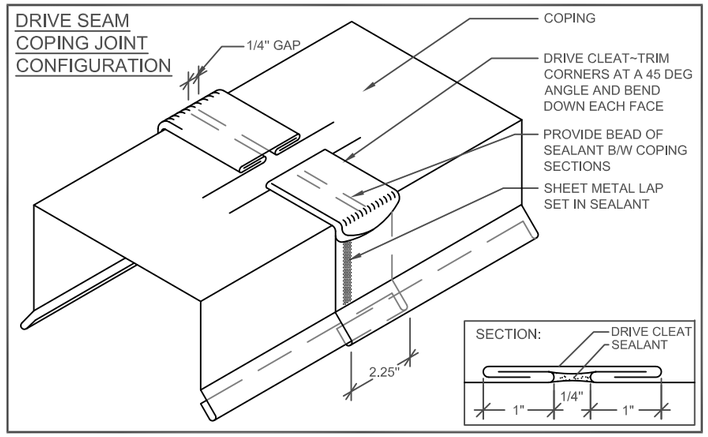
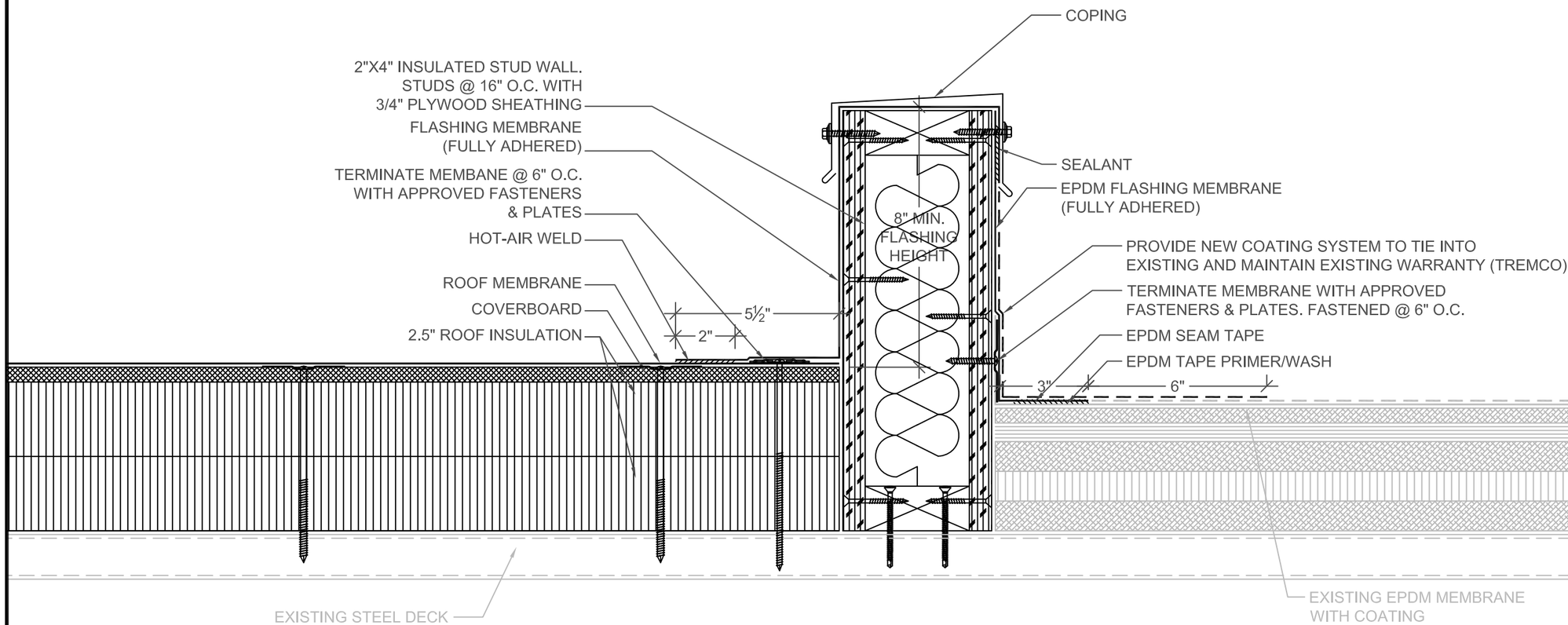
DRIVE SEAM COPING JOINT CONFIGURATION





DARK LINES - NEW
LIGHT LINES - EXISTING

DRAWN BY: LBB
SCALE: 1/4" = 1"
REI PROJECT NO: 16CLT-046
DETAIL: 5A

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AREA DIVIDER (AT NOC)
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

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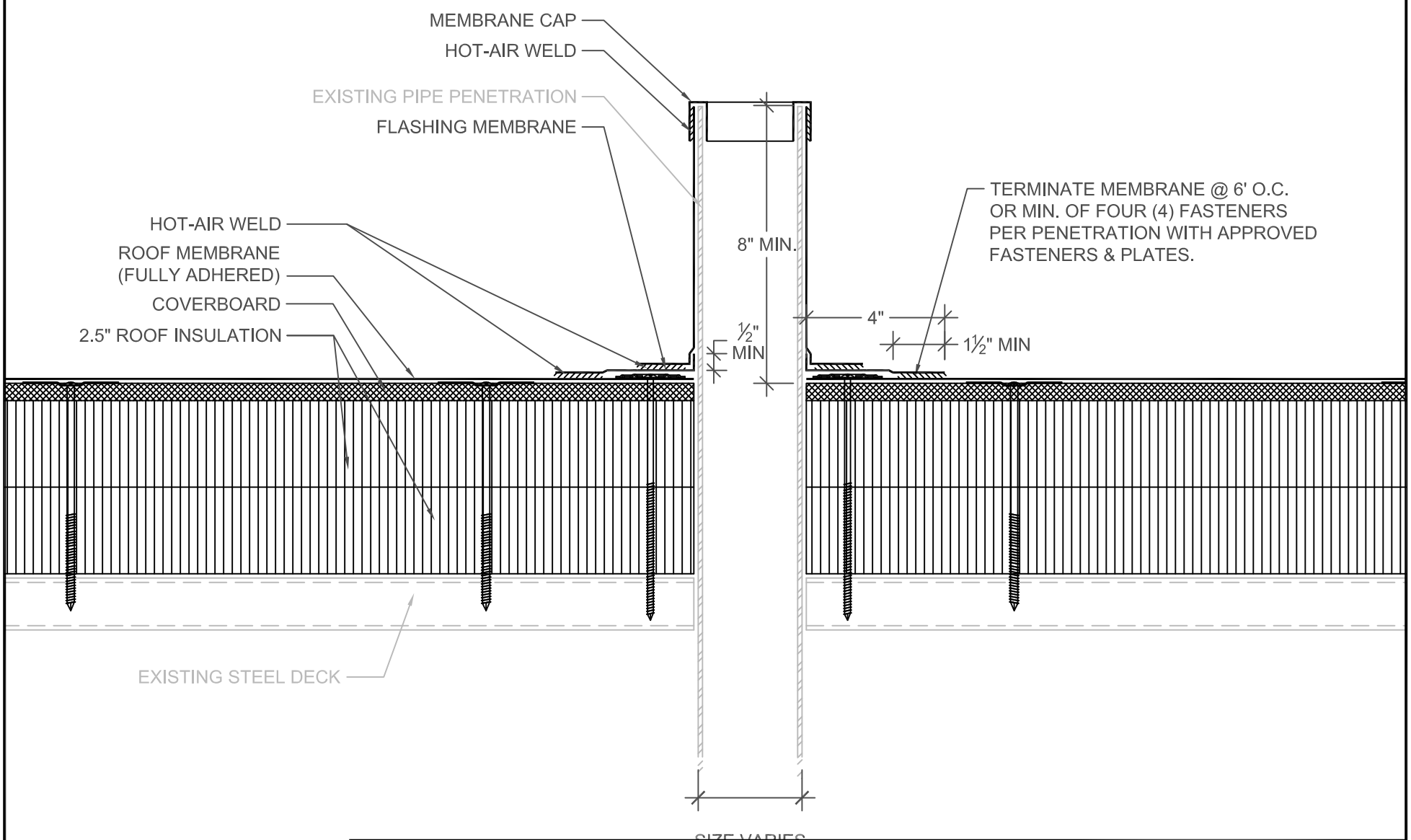

DARK LINES - NEW
LIGHT LINES - EXISTING

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SCALE: 1/4" = 1"
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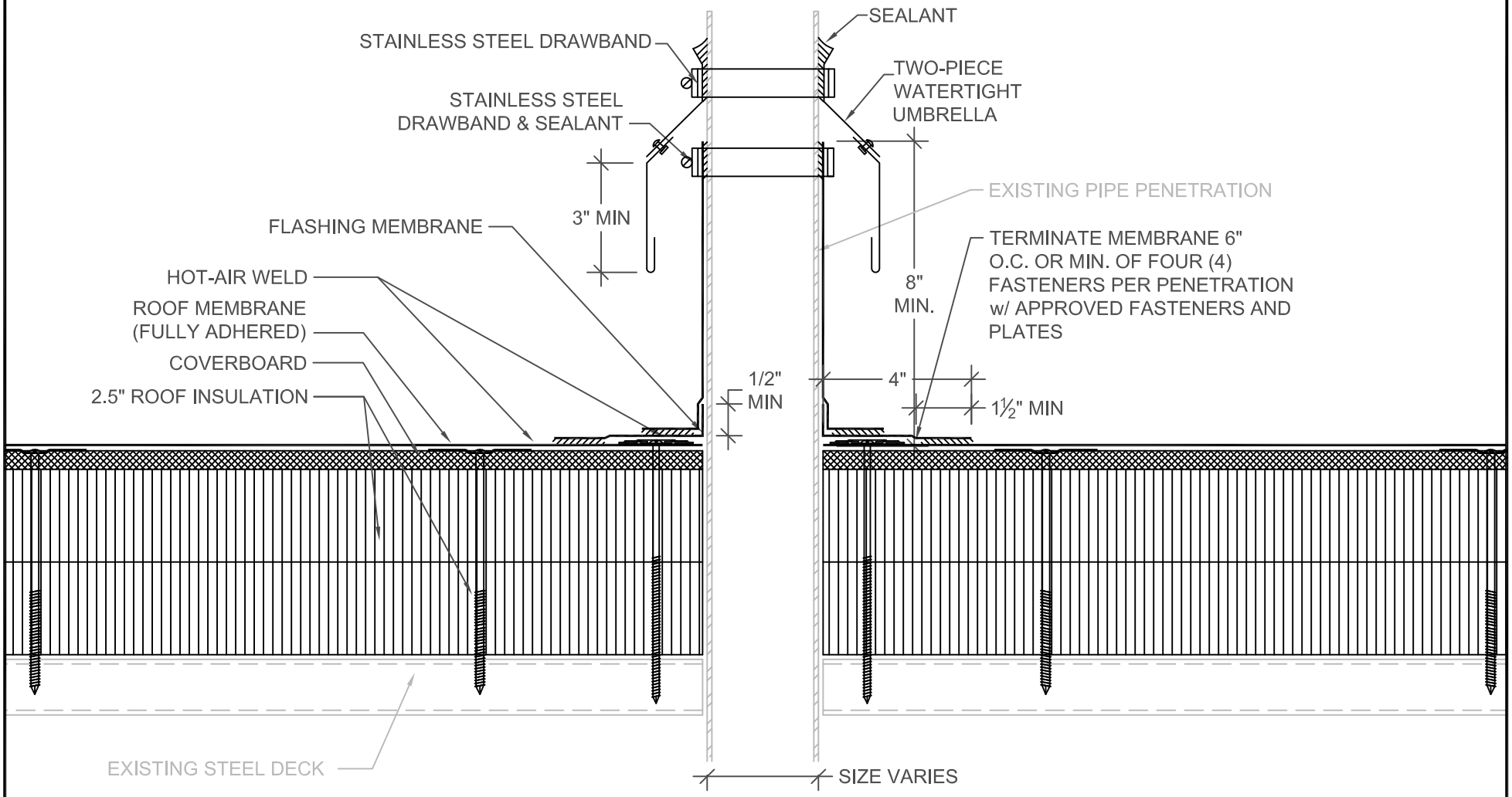
REI PROJECT NO: 16CLT-046

SOIL PIPE
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

DETAIL: 6



DARK LINES - NEW
LIGHT LINES - EXISTING

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SCALE: 1/4" = 1"
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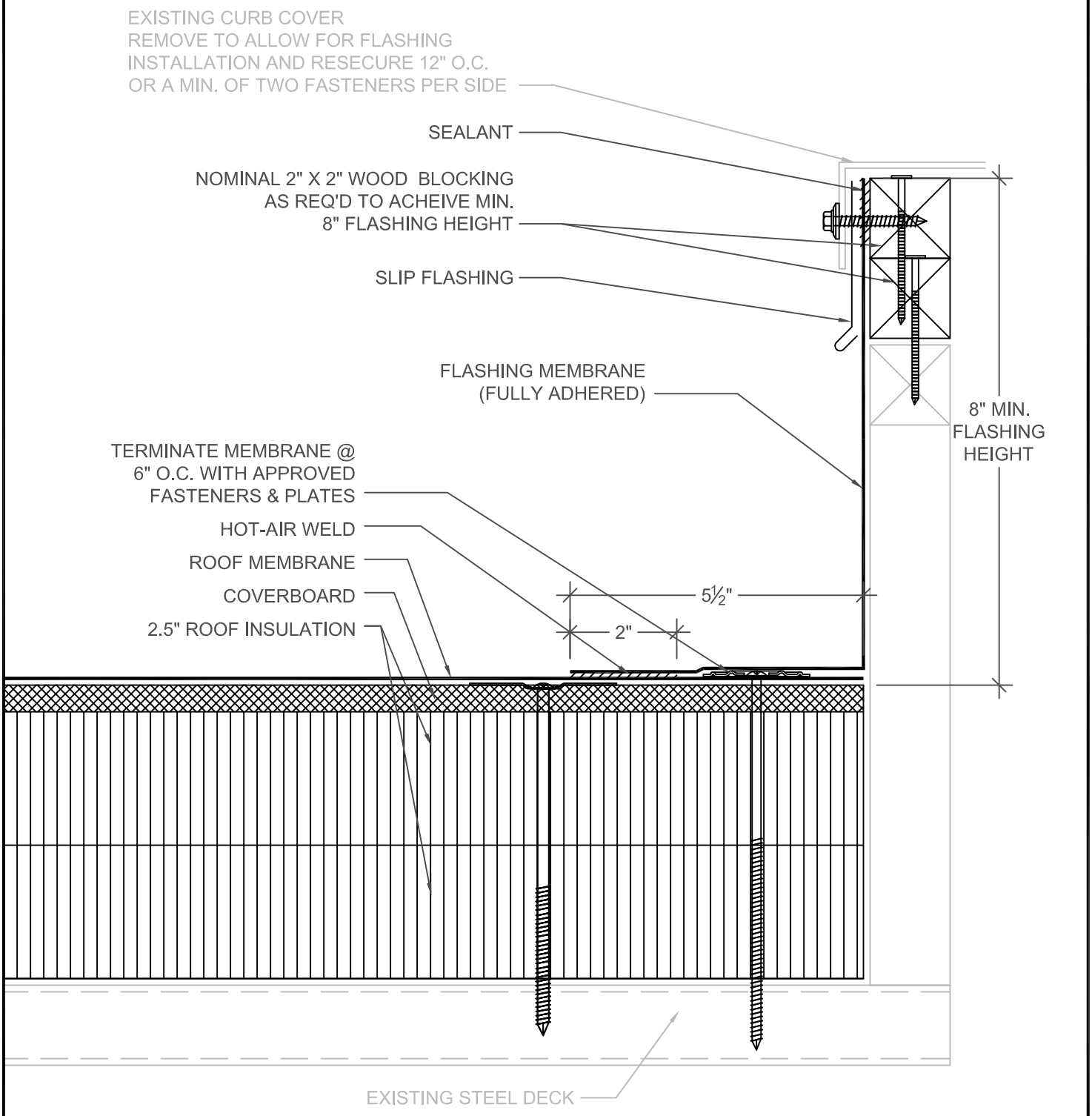
PIPE PENETRATION
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

DETAIL: 7



NOTE: PROVIDE MEMBRANE TERMINATION INTO SIDE OF CURB ON FULLY ADHERED ROOF ADHERED AREA (DRAWING C2).

DARK LINES - NEW

LIGHT LINES - EXISTING

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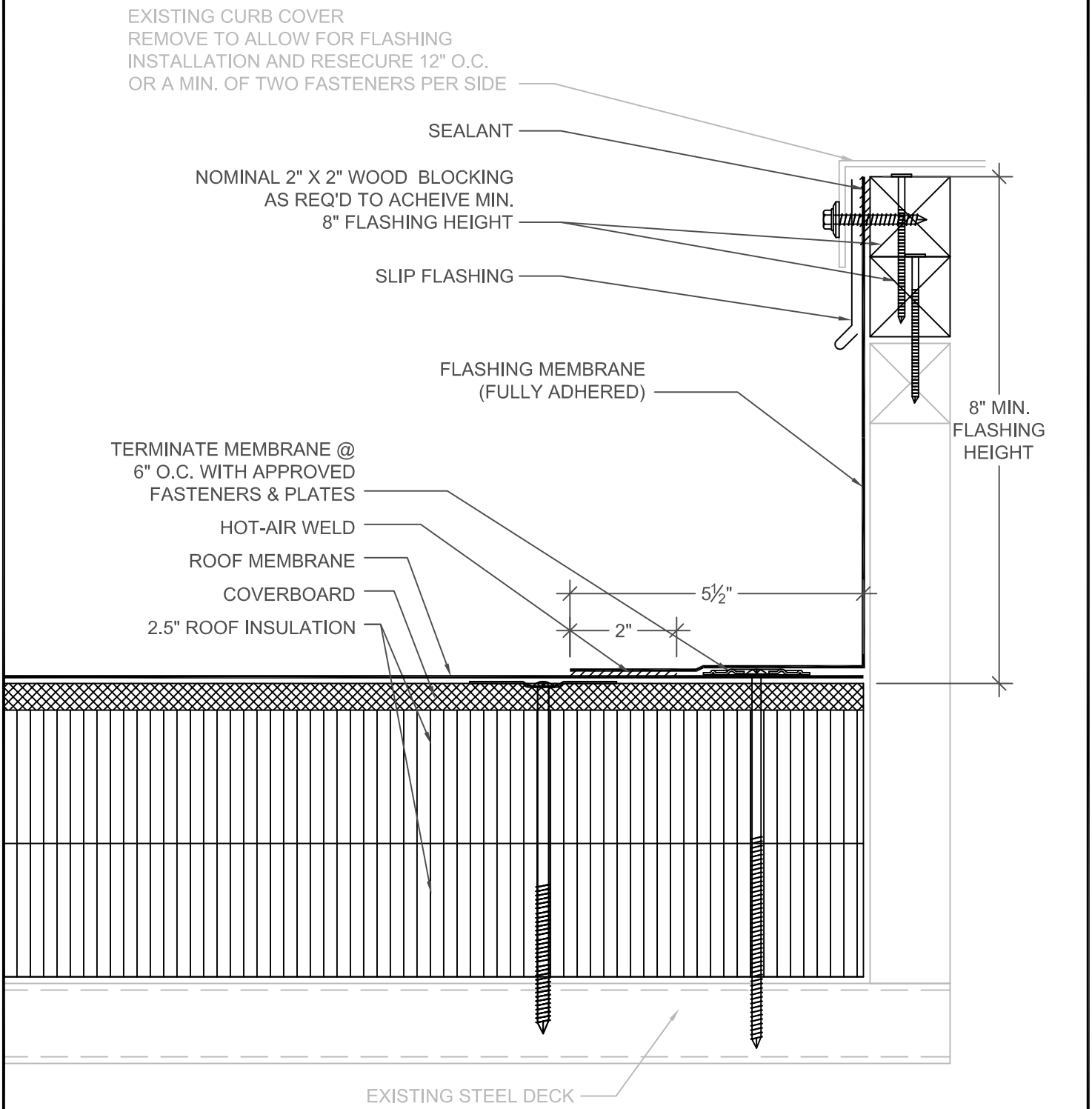
SCALE: 3/8" = 1"

DATE: 02-19-2016

REI PROJECT NO: 16CLT-046

MECHANICAL CURB
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

DETAIL: 8



NOTE: PROVIDE MEMBRANE TERMINATION INTO SIDE OF CURB ON FULLY ADHERED ROOF ADHERED AREA (DRAWING C2).

DARK LINES - NEW

LIGHT LINES - EXISTING

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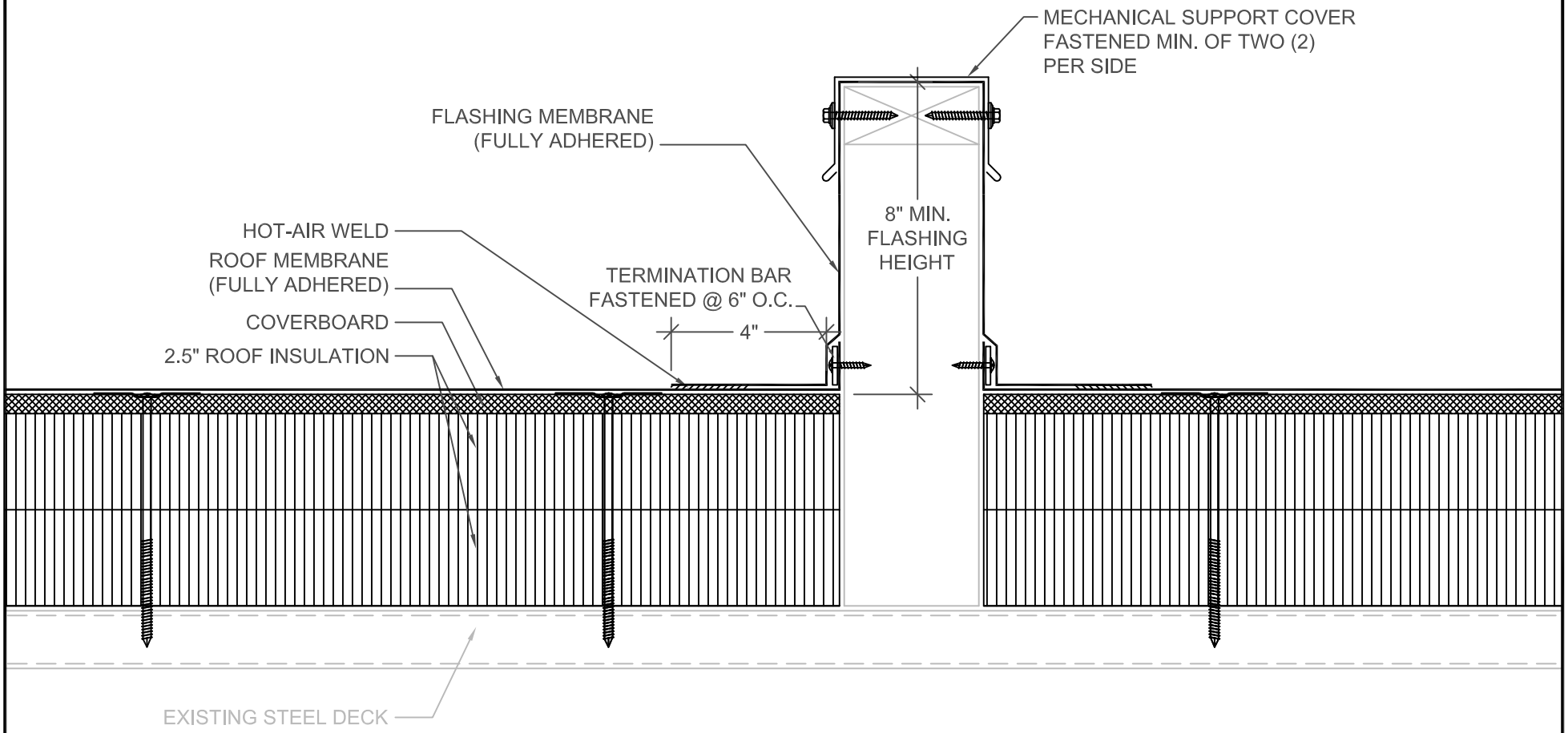
SCALE: 3/8" = 1"

DATE: 02-19-2016

REI PROJECT NO: 16CLT-046

HVAC UNIT
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

DETAIL: 9



DARK LINES - NEW
LIGHT LINES - EXISTING

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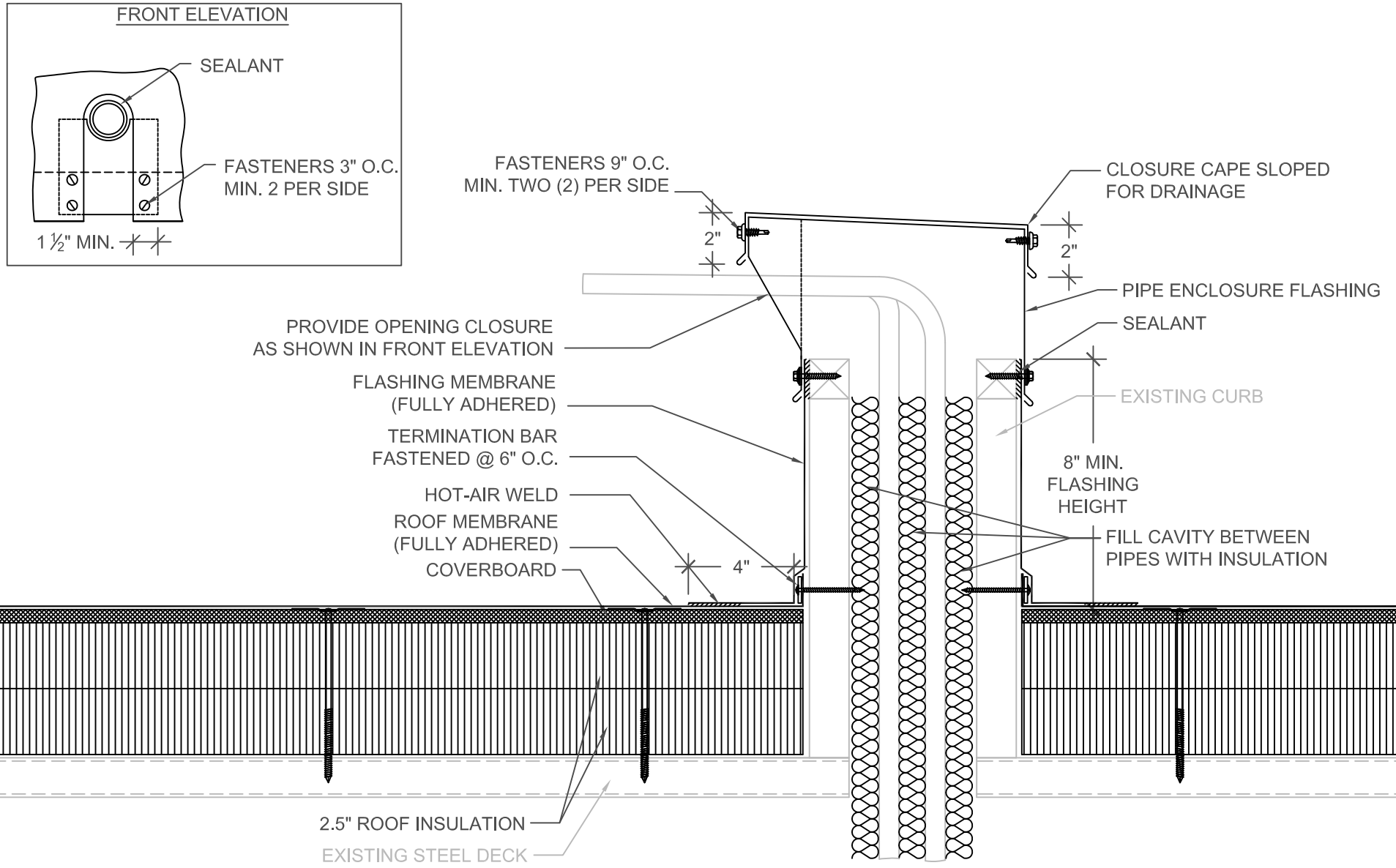
MECHANICAL CUPPORT CURB
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

DETAIL: 10



DARK LINES - NEW
LIGHT LINES - EXISTING

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SCALE: 3/16" = 1"
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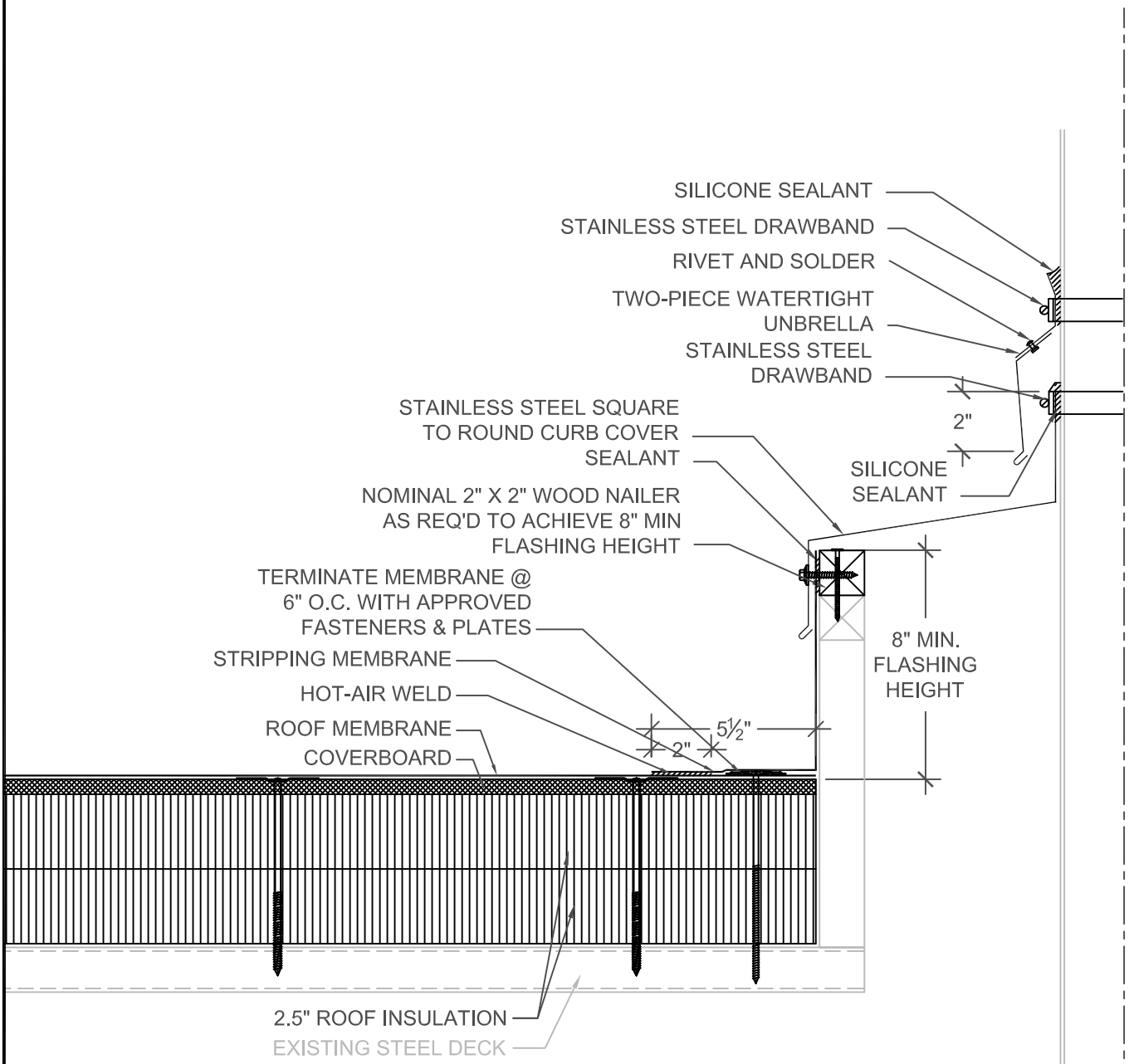
MULTIPLE PIPE PENETRATION
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

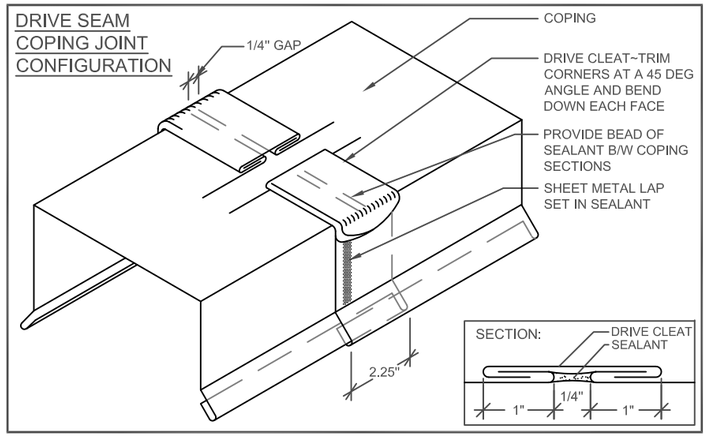
DETAIL: 11

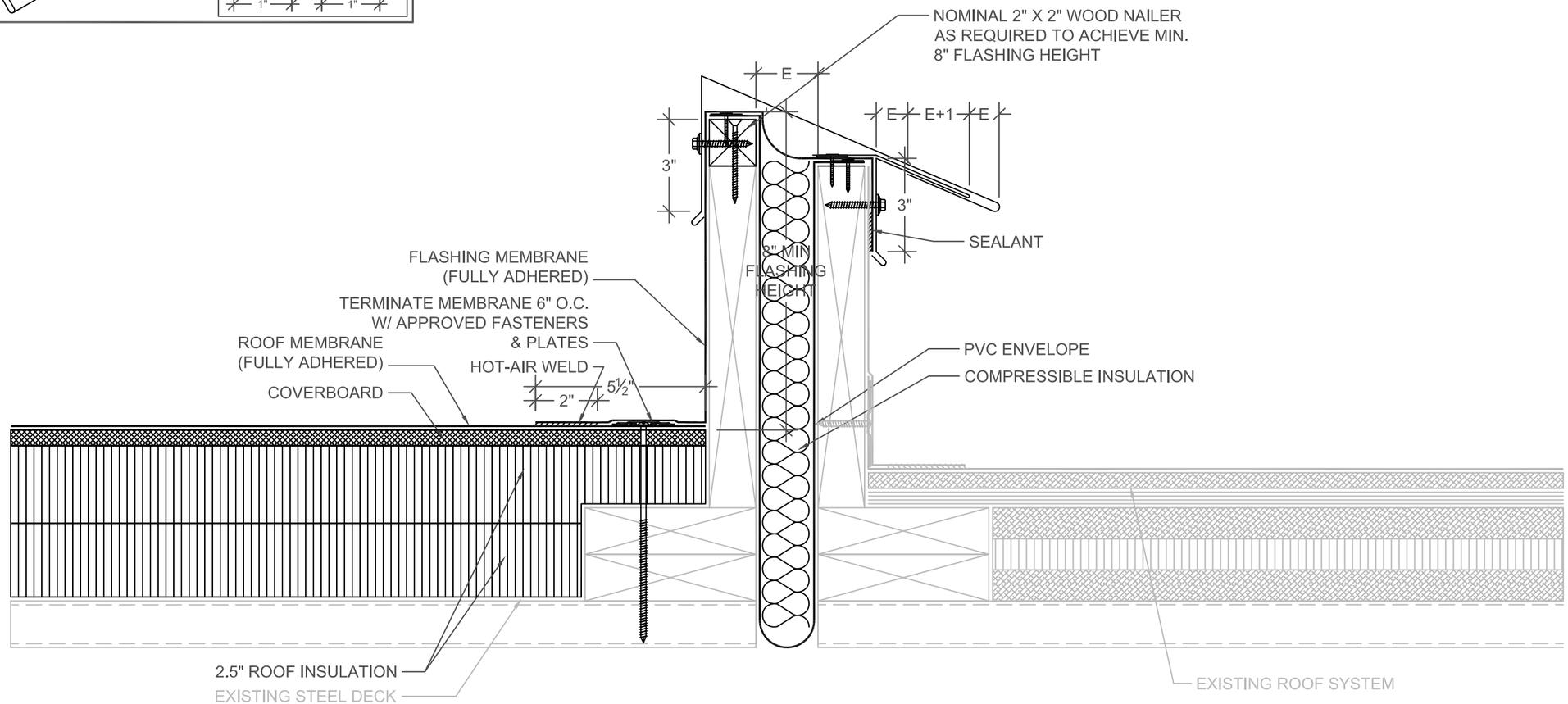


DARK LINES - NEW

LIGHT LINES - EXISTING

ENGINEERS ROOFING, WATERPROOFING AND BUILDING ENVELOPE ENGINEERS AND CONSULTANTS www.reiengineers.com AN EMPLOYEE-OWNED COMPANY	SCALE: 3/16" = 1" DATE: 02-19-2016 REI PROJECT NO: 16CLT-046	HIGH HEAT CURB BUNCOMBE COUNTY SCHOOLS ADMINSITRATIVE SERVICES BUILDING AREA D2 ROOF REPLACEMENT	DETAIL: 12





DARK LINES - NEW
LIGHT LINES - EXISTING

DRAWN BY: LBB
SCALE: 1/4" = 1"
REI PROJECT NO: 16CLT-046
DETAIL: 13

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EXPANSION JOINT
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

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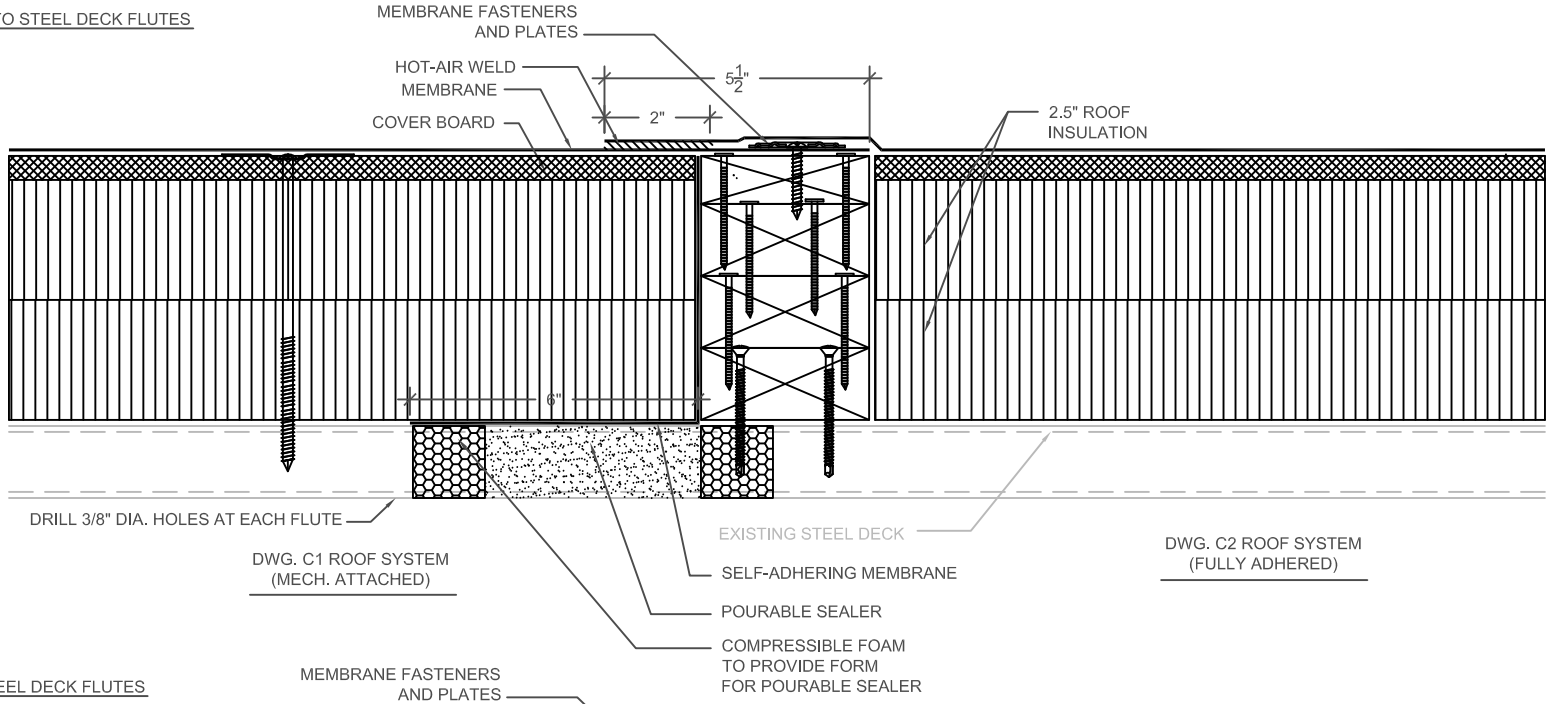
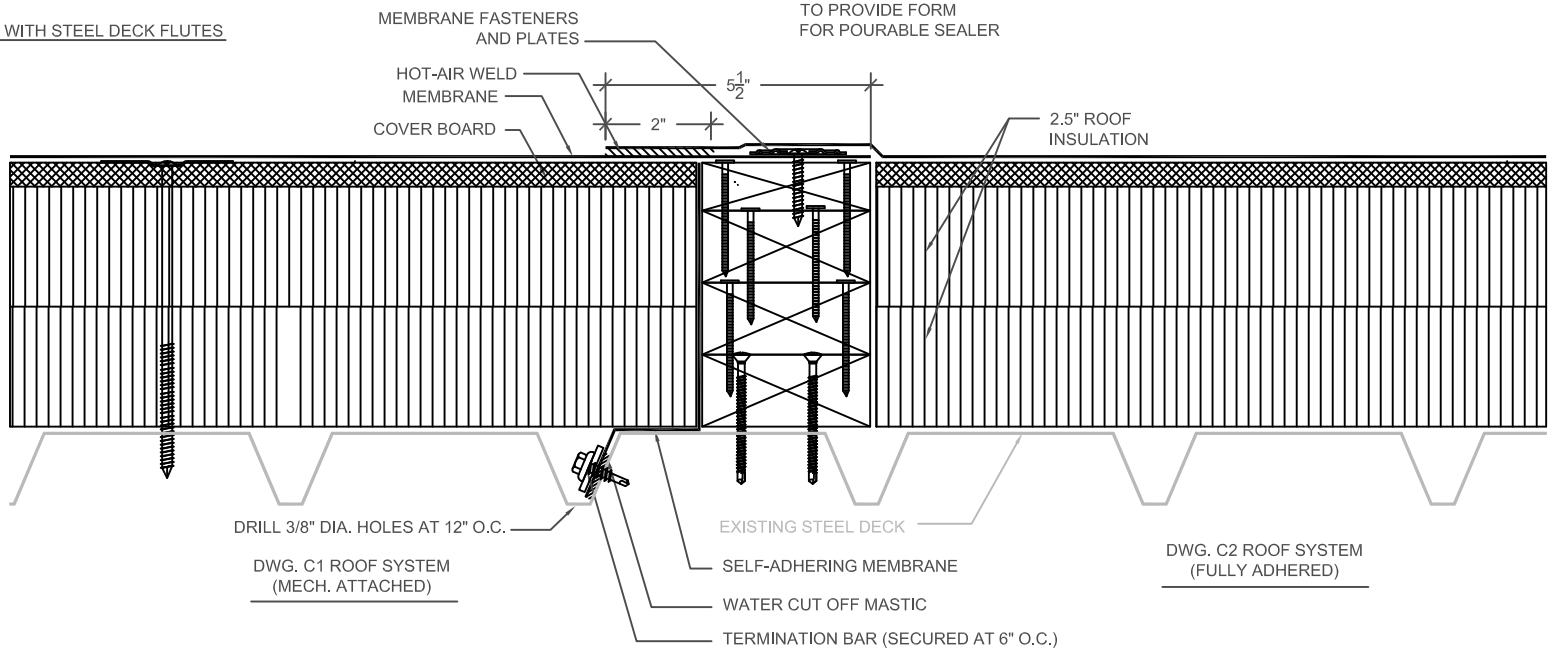
DATE: 02-19-2016

PERPENDICULAR TO STEEL DECK FLUTES



PARALLEL WITH STEEL DECK FLUTES



DARK LINES - NEW

LIGHT LINES - EXISTING

ROOFING, WATERPROOFING AND BUILDING ENVELOPE ENGINEERS AND CONSULTANTS
www.reiengineers.com
AN EMPLOYEE-OWNED COMPANY

SCALE: 1/4" = 1"

DATE: 02-19-2016

REI PROJECT NO: 16CLT-046

ROOF SYSTEM TRANSITION (AT NOC)
BUNCOMBE COUNTY SCHOOLS
ADMINSITRATIVE SERVICES BUILDING
AREA D2 ROOF REPLACEMENT

DETAIL: 14