DURHAM COUNTY
NORTH CAROLINA

INVITATION FOR BIDS

ROOF REPLACMENT
AT
DURHAM COUNTY
NORTH REGIONAL LIBRARY

IFB NO. 26-030

REI Engineers

ROOF REPLACEMENT AT
DURHAM COUNTY NORTH REGIONAL LIBRARY

IFB NO. 26-030

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BID SCHEDULE

(Note: The dates below are subject to change)

ROOF REPLACEMENT AT DURHAM COUNTY NORTH REGIONAL LIBRARY

IFB No. 26-030

Advertisement Date	March 23, 2026
Pre-Bid Conference & Site Visit (Immediately following)	April 7, 2026 10:00 am, Eastern Standard Durham County North Regional Library 221 Milton Road, Durham, NC 27712
Last Date for Questions	April 16, 2026 by 3:00pm, Eastern Standard
Bids Due Date	April 28, 2026 by 2:00pm, Eastern Standard

0001 – Advertisement for Bids

LEGAL NOTICE

ROOF REPLACEMENT AT DURHAM COUNTY NORTH REGIONAL LIBRARY

IFB No. 26-030

Sealed bids, so marked, will be received by the County of Durham Purchasing Division until **2:00 P.M**. Eastern Time, on **April 28, 2026**, in the Conference Room of Durham County Administrative Complex, 201 East Main Street, 7th Floor, Room 703, Durham, North Carolina. The work contemplated will include **ROOF REPLACEMENT AT DURHAM COUNTY NORTH REGIONAL LIBRARY.**

A Pre-Bid Conference and Site Visit (immediately following) will be held at 10:00 AM, Eastern Standard, on April 7, 2026 at the Durham County North Regional Library, located at 221 Milton Road, Durham, NC 27712. All bidders who intend to bid are encouraged to attend.

Questions concerning administrative matters should be directed to Rishanda Davis, Procurement Specialist at (919) 560-0041 or via email at purchasinggroup@dconc.gov.

Plans and Specifications may be purchased for a refundable deposit of **$250.00**. Deposit checks shall be made payable to **REI Engineer, Inc.** Contractors may secure document sets after 8:30 A.M., until 5:00 P.M., Monday through Friday at the office of the REI Engineers, Inc., 9121 Anson Way, Suite 100, Raleigh, NC 27615. The full deposit shall be returned to those Contractors who return the Specifications and Plans in good condition within ten (10) days after the date set for receiving bids. Plans and Specifications are to be returned to the office of the Architect/Engineer.

Bid Documents are available electronically at no cost to the Contractor.

Send requests for electronic Bid Documents to Bob Tomlinson, REI Engineers' email: rtomlinson@reiengineers.com.

Contractors who bid must be licensed to do work in the State of North Carolina under the Act to Regulate the Practice of General Contracting. The Contractor's North Carolina License number shall be designated on the outside of the envelope containing the bid.

A 5% bid security is required with each bid that equals or exceeds $500,000.00.

Bids will be evaluated and the Contract will be awarded in accordance with statutory public contract requirements as supplemented.

The County reserves the right to reject any and/or all bids, waive informalities, and/or accept such bid as appears in its judgement to be in the best interest of the County.

Publication Date: March 23, 2026

0002 – Instructions to Bidders

INSTRUCTIONS TO BIDDERS

ROOF REPLACEMENT AT DURHAM COUNTY NORTH REGIONAL LIBRARY
IFB No. 26-030

1. For a Bid to be considered, it must be in accordance with the following instructions:

Bids must be made in strict accordance with the "Bid Form" provided therefore and all blank spaces for the Bid Alternates and Unit Prices shall be properly filled in. When alternates are requested, and alternates are not included in the bid, the bid will be considered incomplete. The Bidders agree that Bids on Bid Form detached from Specifications will be considered and will have the same force and effect as if attached hereto.

Numbers shall be stated both in writing and in figures for the Base Bid and Alternates.

One (1) original hard copy and three (3) copies shall be submitted to the Purchasing Division.

Bids are invited on the basis of a Single Prime Contract.

Any modification to the Bid Form (including Alternates and Unit Prices) may disqualify the Bid and may cause the Bid to be rejected.

The Contractor shall fill in the Bid Form as follows:

A. If the documents are executed by a sole Owner, that fact shall be evidenced by the word of "Owner" appearing after the name of the person.

B. If the documents are executed by a Partnership, that fact shall be evidenced by the word of "Co-Partner" appearing after the name of the partner executing them.

C. If the documents are executed on the part of a Corporation, they shall be executed by either the President or the Vice-President and attested by the Secretary or Assistant Secretary in either case, and the title of the office of such person shall appear after their signatures. The Seal of the Corporation shall be impressed on each signature page of the documents.

D. If the Bid is made by a Joint Venture, it shall be executed by each member of the Joint Venture in the above form for sole Owner, Partnership, or Corporation, whichever form is applicable.

E. All signatures shall be properly witnessed.

F. It shall be the specific responsibility of the Bidder to deliver this Bid to the proper official at the appointed place and prior to the time for the opening of the Bids. Late delivery of a Bid for any reason, including delivery by the United States Mail, shall disqualify the Bid.

G. Modifications of previously deposited Bids will be acceptable only if delivered to the place of the bid opening prior to the time for opening Bids.

H. Unit Prices quoted in the Bids shall include overhead and profit and shall be the full compensation for the Contractor's cost involved in the work.

2. It is understood and mutually agreed that by submitting a Bid the Contractor acknowledges that he/she has carefully examined the bidding documents pertaining to the work, the locations, accessibility and general character of the site of the work and all existing buildings and structures within and adjacent to the site; and has satisfied him/herself as to the nature of the work, the condition of the existing buildings and structures, the conformation of the ground, the character, quality and quantity of the materials to be encountered; the character of the equipment, machinery, plant and other facilities needed preliminary to and during prosecuting of the work; the general and local conditions; the construction hazards; and all other matters, including but not limited to, the labor situation which can in any way affect the work under the Contract; and including all safety measures required by the Occupational Safety Health Act of 1970 and all rules and regulations issued pursuant thereto. It is further mutually agreed that by submitting a Bid, the Contractor acknowledges that he/she has satisfied him/herself as to the feasibility and meaning of the plans, drawings, Specifications, and other contract documents for the construction of the work and that he/she accepts all terms, conditions and stipulations contained therein and that he/she is prepared to work in cooperation with the other contractors performing work on the site.

3. **Material substitutions will be considered during the bidding phase until April 16, 2026 at 3:00pm, Eastern Standard. No substitutions will be considered after that time and date.**

   For proposed material substitutions submit the following information directly to the Architect/Engineer at: **Bob Tomlinson, rtomlinson@reiengineers.com**

   Name of manufacturer
   Address of manufacturer
   Phone number of manufacturer
   Trade name
   Model or catalogue designation
   Manufacturer's date including:
   - Performance and test data
   - Reference standards

   Detailed comparison with specified product including:
   - Performance
   - Test results
   - Warranties
   - Gauge, thickness or strength of material finish

   Other pertinent data
   Other information requested by the Project Manager

To ensure a fair bidding process, all other questions from the contractors must be emailed to purchasinggroup@dconc.gov no later than 3:00 P.M. Eastern Time, on April 16, 2026. These questions will be addressed in an Addendum.

4. Any Addenda to Specifications issued during the time of bidding will be sent to each bidder. All Addenda issued are to be considered covered in the bid and in closing a Contract will become part thereof. All Addenda issued will be posted on our eBid System. **It shall be the Contractor's responsibility to ascertain prior to bid time the Addenda issued and to see that his/her bid includes any changes thereby required.**

   The Project Manager will not be responsible for any explanation or interpretation of the proposed documents. Neither the Owner nor the Project Manager will be responsible for any oral instructions. Any interpretation of the proposed document will be made only by Addendum duly issued, a copy of which will be mailed or delivered to each person receiving a set of such documents. Notification should not be later than seven (7) days prior to the date set for receipt of Bids.

   All Addenda shall be acknowledged by the bidder(s) on the Bid Form. Failure to do so may disqualify the bid and may cause the bid to be rejected.

5. **A 5% bid security is required with each bid that equals or exceeds $300,000.00.** As required by Statute, cash, a certified check drawn on some bank or trust company insured by the Federal Deposit Insurance Corporation or Bid Bond in the amount of 5% five percent the bid must be attached to each bid/contract. Each bid/contract requires a separate Bid Bond deposit. Said deposit shall guarantee that the Contract will be entered into by the successful bidder if the award is made. Said deposit to be retained by the Owner in the successful bidder fails to execute the contract within fifteen (15) days after the award or to give satisfactory Surety as required by law. **"Payee shall be the County of Durham."**

   Such deposit of cash or certified check may be held by the County of Durham until the successful bidder has executed and delivered the contract documents, including Performance and Payment Bonds, to the County of Durham. Bid deposits submitted in the form of cash, cashier's check or certified check will be deposited in the County's account as required by North Carolina Local Government Budget and Fiscal Control Act (N.C. General Statute Chapter 159, Article 3). The bids will be evaluated, and the contract will be awarded in accordance with statutory public contract requirements as supplemented.

6. **Bids and Bid Security shall be received in strict accordance with requirements of the General Statutes. All copies of the Bid, the Bid Security, if any and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope can be hand delivered or mailed and shall be addressed to the Durham County Purchasing Division, Durham County Administrative Complex, 201 East Main Street, 7th Floor, Room 703, Durham, NC 27701, and should be identified with the project name, time and date of Bid Opening, the Bidder's name and address, Bidder's license number and designated portion of the work for which the Bid is submitted.**

7. Contractors who bid must be licensed to do work in the State of North Carolina under the Act to Regulate the Practice of General Contracting. The Contractor's North Carolina license number shall be designated on the outside of the envelope containing the bid.

8. It is the responsibility of the bidder to ensure that the bid arrives at or before the time and date indicated. Upon opening, all bids shall be read aloud. Once any bid is opened, there shall not be any withdrawal of bids by any Bidder and no bids may be returned by the Owner to any Bidder.

   A Bidder may withdraw its formal Bid after the Bids are opened without forfeiting its Bid deposit in certain limited circumstances. Withdrawal after opening is permitted only if all conditions specified in North Carolina General Statutes Section 143-129.1 are met.

9. Bids shall be evaluated using the Total Bid. The Total Bid shall be the summation of the product of all the Items' Unit Bid Prices by their Estimated Quantities. In the event of a math error, the Extended Totals and the Total Bid will be corrected based on the Unit Price furnished in the bid. Bids with math errors will be compared using the corrected Total Bid (i.e., the math must be correct before a bid is considered for award).

10. The Owner shall award the contract to the lowest, responsible, responsive bidder taking into consideration the past performance of the Bidder on Construction Contracts for the County of Durham, the State of North Carolina, or other governmental agencies with particular concern given to completion times, quality of work, cooperation with other Contractors, and cooperation with the Project Manager and Owner. The Owner shall have the right to accept Alternates in any order of combination.

11. The successful Bidder, upon award of the Contract, shall furnish a Performance Bond in an amount equal to one hundred percent (100%) of the Contract Price.

12. The successful Bidder, upon award of Contract, shall furnish a Payment Bond in an amount equal to one hundred percent (100%) of the Contract Price.

13. For all work being performed under this Contract, the County of Durham has the right to inspect, examine, and to make copies of any books, accounts, records, and other writings related to the performance of the work. Audit shall take place at times and locations mutually agreed upon by both parties, although the contractor must make the materials to be audited available within one (1) week of the request.

14. Contract completion time for all work on this project is **90 (ninety) days)** from substantial completion, whichever is first. Bidders shall note the 90 calendar day time limit for the substantial completion of such work as may be contracted for as follows: **Roof Replacement at Durham County North Regional Library, 221 Milton Road, Durham, NC 27712.**

15. Bids will be examined promptly after opening and award will be made at the earliest possible date. The prices quoted must be held firm for ninety (90) days. Bids may be withdrawn by written notice of a request to withdraw the bid within seventy-two hours of the bid opening date, not including Saturdays, Sundays, or other days (such as holidays) on which the local government offices are closed.

16. All bidders must complete the Vendor Application/W-9 Form and include it with their bid package. This information will be used to create or update Durham County's electronic Bidder/Vendor files if awarded contract.

17. **Pre-Bid Conference and Site Visit:** A Pre-Bid Conference and Site Visit will take place on **April 7, 2026 at 10:00 AM, Eastern Standard located at Durham County North Regional Library, 221 Milton Road, Durham, NC 27712.**

18. **Security of Non-public Records:** Pursuant to N.C.G.S. § 132-1.7, entitled, "Sensitive Public Security Information", public records, as defined in G.S. 132-1, shall not include information containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities. Therefore, all information provided, received, gathered or obtained by BIDDER containing specific details of public security plans and arrangements or the detailed plans and drawings of public buildings and infrastructure facilities shall be held confidential and shall be used by the BIDDER only for the purpose of responding to this bid. All plans and drawings shall be returned to the County. Any breach of this paragraph by the BIDDER may result in BIDDER being barred from being awarded any contracts with the COUNTY.

19. **E-VERIFY**: As a condition of payment for services rendered under this agreement, CONTRACTOR shall comply with the requirements of Article 2 of Chapter 64 of the General Statutes. Further, if CONTRACTOR provides the services to the County utilizing a subcontractor, CONTRACTOR shall require the subcontractor to comply with the requirements of Article 2 of Chapter 64 of the General Statutes as well. CONTRACTOR shall verify, by affidavit, compliance of the terms of this section upon request by the COUNTY.

20. **DRUG FREE WORKPLACE:** The Contractor acknowledges and certifies that they understand that the following acts by the Contractor, its employees and/or agents performing services on County property is prohibited.
    - The unlawful manufacture, distribution, dispensing, possession or use of alcohol or other drugs, and;
    - Any impairment or incapacitation from the use of alcohol or other drugs (except the use of drugs for legitimate medical purposes).

    The Contractor further acknowledges and certifies that it understands that a violation of these prohibitions constitutes a breach of contract and may result in default action being taken by the County of Durham in addition to any criminal penalties that may result from such conduct.

21. The following forms/documents must be returned with your original Bid Proposal:

a. **Bid Form (Addenda issued must be acknowledged on the Bid Form)**

b. **Non-Collusion Affidavit *(Notarized)***

c. **Vendor Application/W-9 Form**

d. **Bid Deposit (Bid Bond, cash, cashier's check or certified check). Power of Attorney must be included when submitting a Bid Bond)**

e. **Affidavit of Compliance (E-Verify) *(Notarized)***

END OF INSTRUCTIONS TO BIDDERS

0003 – Equal Employment Opportunity

EQUAL EMPLOYMENT OPPORTUNITY

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

a. The contractor will not discriminate against any employee or applicant for employment because of race, handicap, age, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to race, handicap, age, color, religion, sex or national origin. Such action shall include but not be limited to the following: employment, upgrading, demotion or transfer, recruitment or recruiting advertising, layoff or termination rates of pay or other forms of compensation, and selection for training including apprenticeship. The contractor agrees to post in conspicuous places available to employees and applicants for employment notices setting forth the provisions of the nondiscrimination clause.

b. The contractor will in all solicitations or advertisements for employees placed by or on behalf of the contractor state that all qualified applicants will receive consideration for employment without regard to race, handicap, age, color, religion, sex, or national origin.

c. The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding a notice to be provided advising the labor union or workers' representative of the contractor's commitments under the Equal Employment Opportunity section of this contract and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

d. In the event of the contractor's noncompliance with nondiscrimination clauses of this contract or with any such rules, regulations or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further County contracts.

e. The contractor will include the provisions of this section in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Board of County Commissioners of the County of Durham, North Carolina so that such provisions will be binding such subcontractor or vendor.

0004 – Special Conditions

SPECIAL CONDITIONS

PROJECT: ROOF REPLACEMENT AT DURHAM COUNTY NORTH REGIONAL LIBRARY

SCOPE OF WORK

Removal and disposal of the existing single-ply membrane, salvage the existing XPS insulation in good condition, mechanically fasten new gypsum coverboard and adhere new felt-backed PVC membrane and associated membranes and sheet metal flashings and accessories required for a complete, watertight, 20-year warrantable roof assembly.

PROJECT DESCRIPTION

Work on this project shall be covered by a Single Prime Contract. See technical specification Section 01 11 00 Summary of Work (Work Covered by Contract) for details.

BASE CONTRACT

The Work includes furnishing of all materials and labor necessary for the completion of the Project- **ROOF REPLACEMENT AT DURHAM COUNTY NORTH REGIONAL LIBRARY** as shown on the plans and as outlined in these specifications. The scope includes all work indicated or implied by the drawings or specifications. It includes all items that may not be specifically shown but are required for a complete and finished job or may be required by codes or regulations.

LOCATION

DURHAM COUNTY NORTH REGIONAL LIBRARY
221 Milton Road, Durham, NC 27712

DURHAM COUNTY'S REPRESENTATIVE(S)

PROJECT MANAGER:

Lee Duncan
Telephone: 919-451-9694
Email: leeduncan@dconc.gov

ARCHITECT/ENGINEER:

Bob Tomlinson, RRC, CBECxP
Senior Registered Project Manager
REI Engineers, Inc.
9121 Anson Way, Suite 100, Raleigh, NC 27615
Telephone: 919-841-2098
Email: rtomlinson@reiengineers.com

CONTRACTOR USE OF PREMISES

Access to the site shall be from Milton Road and the adjacent parking lot. Keep Milton Road and the adjacent parking lot clear at all times; do not use the road for parking unless otherwise permitted by the Durham County General Services and/or Engineering Departments and/or Sheriff's Department.

CONTRACT COMPLETION TIME/SCHEDULE

Contract completion time for all work on this project is for 90 (ninety) calendar days from the Notice to Proceed. Failure to complete the work within the designated time period will result in the assessment of liquidated damages in the amount of $1,000 per calendar day.

WORK SCHEDULE

Within **ten (10) days** from the Contract Award, the Contractor shall submit a **schedule of work** for the installation of all the work under this contract to the Owner for approval.

END OF SPECIAL CONDITIONS

0005 – Affidavit of Compliance (E-Verify)

STATE OF NORTH CAROLINA

COUNTY OF DURHAM

AFFIDAVIT OF COMPLIANCE
with N.C. E-Verify Statutes

I, _____ (hereinafter the "Affiant"), being duly authorized by and on behalf of _____ (hereinafter "Contractor") after first being duly sworn hereby swears or affirms as follows:

1. Contractor understands that E-Verify is 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 in accordance with Article 2 of Chapter 64 of the North Carolina General Statutes; and

2. Contractor understands that an "Employer", as defined in NCGS§64-25(4), is required by law to use E-Verify to verify the work authorization of its employees through E-Verify in accordance with NCGS§64-26(a). The term "Employer" does not include State agencies, counties, municipalities, or other governmental bodies.

3. Contractor is a person, business entity, or other organization that transacts business in this State and that employs 25 or more employees in the state of North Carolina. (mark Yes or No)

a. Yes _____

b. No _____

4. Contractor will ensure compliance with E-Verify to the extent applicable and will ensure compliance by any subcontractors subsequently hired by Contractor to perform work under Contractor's contract with Durham County.

This _____ day of _____, 20____.

_____
Signature of Affiant

Print or Type Name: _____

State of _____

County of _____

Signed and sworn to (or affirmed) before me, this the _____ day of _____, 20____.

My Commission Expires:

_____ _____
Notary Public

(Affix Official/Notarial Seal)

0006 – Bid Form

BID FORM

GENERAL CONSTRUCTION CONTRACT

PROPOSAL
TO THE
COUNTY OF DURHAM
DURHAM, NORTH CAROLINA

ROOF REPLACEMENT AT DURHAM COUNTY NORTH REGIONAL LIBRARY

IFB No. 26-030

BID FROM:

_____

_____

_____

1. The undersigned BIDDER agrees, if this Bid is accepted, to enter into an agreement with OWNER, in the form included in the Bidding Documents, to perform and furnish the work as specified or indicated in the Bidding Documents for the Bid Price and within the Bid Times indicated in this Bid in accordance with the other terms and conditions of the Contract Documents.

2. In submitting this Bid, BIDDER represents, as more fully set forth in the Agreement, that:

   a) This Bid will remain subject to acceptance for ninety (90) days after the day of Bid opening;
   b) The Owner has the right to reject this bid;
   c) Accompanying this proposal is a certified check (or bid bond) for $_____, which represents not less than five (5) percent of the aggregate amount of the proposal. Said check, or the full amount of the bond, shall become the property of County and be retained by the County in the event of withdrawal of the bid after the public opening or should the undersigned fail to execute a contract with the County and give satisfactory surety within fifteen (15) days after the award. Otherwise, said check or bid bond, to be returned to the undersigned. The undersigned agree, if awarded the contract, to deliver satisfactory surety bond in the amount equal to not less than 100% of the contract within fifteen (15) days after Notice of Award;
   d) BIDDER will sign and submit the Agreement with the Bonds and other documents within 15 days after the date of the Owner's Notice of Award;
   e) BIDDER has examined copies of all the Bidding Documents.
   f) BIDDER has visited the site and become familiar with the general and local site conditions;
   g) BIDDER is familiar with federal, state, and local laws and regulations;
   h) BIDDER certifies that no federal excise or refundable North Carolina sales taxes have been included in this bid;
   i) BIDDER has correlated the information known to BIDDER, information and observations obtained from visits to the site, reports and drawings identified in the Bidding Documents and additional examinations, investigations, tests, studies and data with the Bidding Documents;
   j) BIDDER certifies that this proposal is made in good faith and without collusion or connection with any other person bidding on the same work, or that any official or employee of the County of Durham will be admitted to any share or part of the contract or any benefits that may arise therefrom if the contract is awarded to this company;

k) BIDDER acknowledges receipt of the following Addenda, which have been considered in the preparation of this Bid:

No:_____ Dated: _____

No:_____ Dated: _____

No:_____ Dated: _____

No:_____ Dated: _____

Dated:_____20_____.
(Month and Date)

4. BIDDER will complete the work in accordance with the Contract Documents for the following price(s):

SINGLE PRIME CONTRACT:

Base Bid Lump-Sum Price **$**_____

In words, _____

UNIT PRICES:

Unit 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. Prepare metal roof deck and apply Deck Repair Coating. $ _____ /SF

UP-2. Replace damaged or deteriorated wood blocking. $ _____ /BF

UP-3. Replace damaged or deteriorated 5/8" plywood. $ _____ /SF

UP-4. Replace 3-inch thick XPS insulation. $ _____ /SF

Include in the Base Bid the Quantity Allowances specified in Section 01 21 29 of the Project Manual.

QUANTITY ALLOWANCES:

Allowance No. 1. Prepare metal roof deck and apply 500 SF of Deck Repair Coating. $ _____

Allowance No. 2. Replace 100 board feet of deteriorated wood blocking. $ _____

Allowance No. 3. Replace 200 square feet of 5/8 " plywood. $ _____

Allowance No. 4. Replace 1,000 square feet of 3-inch thick XPS insulation. $ _____

Pursuant to N.C.G.S. 143-128(d), all bidders shall identify on their bid the contractors they have selected for the subdivisions or branches of work for:

(1)	Heating, ventilating, and air conditioning;	_____	Lic.#_____
		_____	Lic.#_____
(2)	Plumbing	_____	Lic.#_____
		_____	Lic.#_____
(3)	Electrical	_____	Lic.#_____
		_____	Lic.#_____
(4)	General	_____	Lic.#_____
		_____	Lic.#_____

A contractor whose bid is accepted shall not substitute any person as subcontractor in the place of the subcontractor listed in the original bid, except (i) if the listed subcontractor's bid is later determined by the contractor to be non-responsible or non-responsive or the listed subcontractor refuses to enter into a contract for the complete performance of the bid work, or (ii) with the approval of the awarding authority for good cause shown by the contractor. The terms, conditions, and requirements of each contract between the contractor and a subcontractor performing work under a subdivision or branch of work listed in this subsection shall incorporate by reference the terms, conditions, and requirements of the contract between the contractor and the County.

4. BIDDER agrees that the Work will be substantially complete and ready for final payment in accordance with the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

5. The following documents are attached to and made a condition of the Bid:
   (a) Required Bid security in the form of
   _____
   _____:

6. BIDDER acknowledges the provisions in the General Conditions for Liquidated Damages of $1,000 per day.

SUBMITTED ON _____, 20_____.

SIGNATURE OF BIDDER:

North Carolina Contractor's License Number _____

If an Individual: _____, doing business as:_____

If a Partnership:_____

by: _____, partner

If a Corporation: _____

(a _____Corporation)

by: _____ (SEAL & ATTEST)

Title: _____

Business Address of Bidder: _____

_____

If Bidder is a joint venture, other party must sign below.

North Carolina Contractor's License Number_____

If an Individual: _____

_____

Doing business as: _____

If a Partnership: _____

by: _____

_____

Title: _____

If a Corporation: _____

(a _____Corporation)

by: _____ (SEAL & ATTEST)

Title: _____

We have the following necessary and suitable equipment in good condition and ready for use on this work.

_____

_____

_____

_____

_____

0007 – Special Notice

SPECIAL NOTICE

NORTH CAROLINA SALES TAX

The Committee Substitute for Senate Bill No. 78, passed by l961 Legislature, requires that contractors pay North Carolina Sales Tax on materials and equipment purchased for construction of municipal work, and further provides that those taxes on certain items are refundable to municipalities under submission of proper evidence by the Owner to the North Carolina Department of Revenue. Reference is made to "Sales and Use Tax Regulation 42".

BIDDER WILL NOT INCLUDE REFUNDABLE NORTH CAROLINA SALES TAX IN HIS OR HER LUMP-SUM BID. The Contractor will be reimbursed at the time each monthly estimate is paid for refundable North Carolina Sales Taxes paid during any preceding month, provided he or she submits to the Owner information which will make it possible to show the sales tax as a separate item on the estimate. The tax may be shown at the bottom of the estimate in the following manner.

"Total of refundable N.C. Sales Tax paid on the above estimate amounted to $_____."

To substantiate the payment of the sales tax indicated, the CONTRACTOR MUST IN ADDITION,

> Submit a SWORN NOTARIZED statement itemizing the tax, showing each amount and to whom paid, and certifying that the articles purchased were used in the work performed for the Owner. Receipts for these amounts must be included with the estimate. Such receipts should include all taxes paid by the prime contractor and any of his subcontractors.

The above must accompany each estimate for payment and is required by the Owner in making claims for tax refunds.

Every person/business who purchases any taxable tangible personal property, taxable services or certain digital property for storage, use, or consumption in North Carolina (NC) for business use from out-of-state vendors upon which the tax has not been fully paid must register with the NC Department of Revenue and remit the balance of tax due on such purchases based on NC's sales and use tax rate. Out-of-state contractors are required to register for sales and use tax purposes with the State of NC. Registration Application, Form NC-BR, must be completed and mailed to the NC Department of Revenue. Out-of-state contractors should also seek a Certificate of Exemption or Certificate of Resale Form from their state's Department of Revenue office when purchasing taxable tangible personal property from their local state to be stored, used, or consumed in NC provided their state participates in the Streamlined Sales Tax Agreement. Out of state sales tax is not reimbursable by the state of North Carolina. For additional information on North Carolina regarding sales and use tax, please contact the NC Department of Revenue.

0008 – Non-Collusion Affidavit

NON-COLLUSION AFFIDAVIT

STATE OF NORTH CAROLINA
COUNTY OF DURHAM

_____, being first duly sworn, deposes and says that:

1. He/She is the_____of _____, the bidder that has submitted the attached bid;

2. He/She is fully informed respecting the preparation and contents of the attached bid and of all pertinent circumstances respecting such bid;

3. Such bid is genuine and is not a **collusive** or **sham** bid;

4. Neither the said bidder nor any of its officers, partners, owners agents, representatives, employees, parties of interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly, with any other bidder, firm or person to submit a **collusive** or **sham** bid in connection with the contract for which the attached bid has been submitted or to refrain from bidding in connection with such contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other bidder, firm or person to fix the price or prices in the attached bid or of any other bidder, or to fix any overhead, profit or cost element of the bid price of any other bidder or to secure through collusion, conspiracy, connivance or unlawful agreement any advantage against the County of Durham or any person interested in the proposed contract; and

5. The price or prices quoted in the attached bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

_____
TITLE

Subscribed and sworn before me,

this_____day of_____,20_____.

(SEAL)

Notary Public
My Commission Expires_____

009 – Performance Bond

PERFORMANCE BOND

DATE OF EXECUTION: _____

NAME OF PRINCIPAL: _____
(CONTRACTOR) _____

NAME OF SURETY: _____
_____

NAME OF CONTRACTING BODY: COUNTY OF DURHAM

AMOUNT OF BOND: _____

CONTRACT NUMBER _____

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 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, successors and assigns, 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, numbered as shown above and hereto attached:

NOW THEREFORE, if the PRINCIPAL shall well and truly perform and fulfill all the undertakings, covenants, terms, conditions, and agreements of said contract during the original term of said contract and any extensions thereof that may be granted by the Contracting Body, with or without notice to the Surety, and during the life of any guaranty required under the contract, and shall also as well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements as 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.

IN WITNESS WHEREOF, the above-bounden parties have executed thus 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.

_____ (SEAL)
Principal

_____
Name and Title

_____ (SEAL)
Surety

_____
Name and Title

Executed in _____counterparts. _____
Name of Principal (Contractor)

_____ By_____
Witness (Print)

_____
(Signature)

Title: _____
(Owner, Partner, or Corp.
Pres. Or Vice President)

Attest: (Corporation)

By _____
(Print)

_____
(Signature)

Title: _____

(Corp. Sec. Or Assist. Sec.)

_____
(Corporate Seal)

_____
(Surety Company)

Witness:

By: _____
(Print)

_____
(Signature)

By: _____
(Print)

_____
(Signature)

Title: _____
(Attorney-in-Fact)

Countersigned:

_____

_____
N.C. Licensed Resident, Agent

_____

_____
(Surety Corporate Seal)

_____
Name and Address - Surety Agency

_____

_____
Surety Company Name and N.C.
Regional or Branch Office Address

0010 – Payment Bond

PAYMENT BOND

DATE OF EXECUTION: _____

NAME OF PRINCIPAL: _____
(CONTRACTOR) _____

NAME OF SURETY: _____
_____

NAME OF CONTRACTING BODY: COUNTY OF DURHAM

AMOUNT OF BOND: _____

CONTRACT NUMBER _____

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 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, successors and assigns, 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, numbered as shown above and hereto attached:

NOW THEREFORE, if the PRINCIPAL shall promptly make payment 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 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.

IN WITNESS WHEREOF, the above-bounden parties have executed thus 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.

_____ (SEAL)
Principal

_____
Name and Title

_____(SEAL)
Surety

_____
Name and Title

Executed in _____ counterparts.

_____
Witness

_____
Name of Principal (Contractor)

By_____
(Print)

_____
(Signature)

Title: _____
(Owner, Partner, or Corp.
Pres. Or Vice President)

Attest: (Corporation)

By _____
(Print)

_____
(Signature)

Title: _____ _____
(Corporate Seal)

(Corp. Sec. Or Assist. Sec.)

_____
(Surety Company)

Witness: By: _____
(Print)

By: _____ _____
(Print) (Signature)

_____
(Signature)

Title: _____
(Attorney-in-Fact)

Countersigned:

_____

_____
N.C. Licensed Resident, Agent

_____
_____ (Surety Corporate Seal)

_____
Name and Address - Surety Agency

_____

_____
Surety Company Name and N.C.
Regional or Branch Office Address

0011 – Vendor Application/W-9 Form

Vendor Application and W9 Form | Durham County

0012 – No Bid Reply Form

No Bid Reply Form

TO: Durham County
Purchasing Division
201 East Main Street, 7th Floor
Durham, NC 27701

IFB No. 26-030

BID TITLE: **ROOF REPLACEMENT AT DURHAM COUNTY NORTH REGIONAL LIBRARY**

To assist us in obtaining good competition on our Invitation for Bids, we ask that each firm that has received an invitation but does not wish to submit a Bid, state their reason(s) below and return to this office. This information will not preclude receipt of future invitations unless you request removal from the Bidders' List by so indicating below, or do not return this form or bona fide bid.

Unfortunately, we must offer a "No Bid" at this time because:

_____ 1. We do not wish to participate in the bid process.

_____ 2. We do not wish to submit a bid under the terms and conditions of the Bid document. Our objections are:

_____

_____

_____ 3. We do not feel we can be competitive.

_____ 4. We cannot submit a Bid because of the marketing or franchising policies of the manufacturing company.

_____ 5. We do not wish to sell to the Durham County. Our objections are:

_____

_____

_____ 6. We do not sell the items/services on which bids are requested.

_____ 7. Other: _____

_____

_____ _____
FIRM NAME DATE

_____ _____
SIGNATURE PHONE

_____ We wish to remain on the Bidders' List.

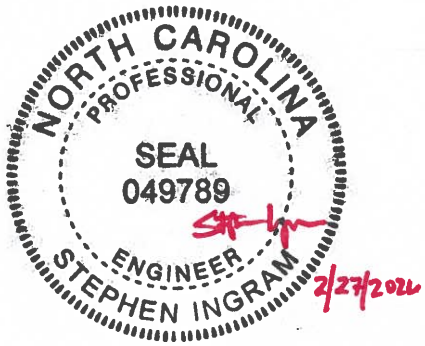
_____ We wish to be deleted from the Bidders' List.

0013 – TECHNICAL SPECIFICATIONS

SECTION 00 01 07

SEALS PAGE

PROFESSIONAL ENGINEER



REGISTERED ROOF CONSULTANT

END OF SECTION 00 01 07

COUNTY OF DURHAM

NORTH REGIONAL LIBRARY

ROOF REPLACEMENT

REI PROJECT NO. R25RAL-031

TECHNICAL SPECIFICATIONS

GENERAL TABLE OF CONTENTS

SECTION 00 01 10

CONTRACT DRAWINGS

END OF SECTION 00 01 10

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 65 37

CONTRACTOR'S TWO-YEAR WARRANTY-THERMOPLASTIC SINGLE-PLY ROOFING

Know all men by these presents, that we, (Contractor) _____ , having installed roofing systems, flashings and sheet metal on Durham County North Regional Library under contract between Durham County (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 including but not limited to wrinkles, open laps, ridges, splits and loose flashing in a manner compatible to the system and acceptable under industry standards and general practice as established by the Engineer.

Date of Substantial Completion: _____

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

Signature: _____ Title: _____

State of North Carolina
_____ County

I, _____, a Notary Public for _____ County, North 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 37

SECTION 00 73 30

ASBESTOS FREE WARRANTY

Owner: Durham County
Project Name: North Regional Library
Project Address: 221 Milton Road, Durham, North Carolina 27712
Project Manual Date: February 20, 2026

Date of Substantial Completion: _____

Know all men by these present that we, _____
(Contractor, Subcontractor, Material Supplier or Equipment Manufacturer)

having furnished labor, materials, equipment and/or supplies; removed existing roof system; installed new roof system and/or miscellaneous roof system components; from, to and/or on the above referenced Project under contract between the Owner and Contractor, warrant to Owner with respect to said work that no materials containing asbestos fibers were incorporated into the work, and that, to our knowledge and belief, no materials containing asbestos remain in or are covered by the work.

Exceptions: _____
If there are no exceptions, state "No Exceptions" here.

Signature: _____

Title: _____

North Carolina
_____ County

I, _____, a Notary Public for _____ County, North 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 73 30

SECTION 00 73 31

THERMOPLASTIC SINGLE-PLY ROOFING

ROOF MANUFACTURER'S ACKNOWLEDGMENT

Owner: Durham County

Project Name: North Regional Library

Project Address: 221 Milton Road, Durham, NC 27712

Roofing Contractor: _____

Address: _____

Telephone:_____

This is to advise the Owner that having thoroughly reviewed the Specifications and Drawings contained within the Project Manual dated February 20, 2026 for the above-titled project, we acknowledge that the roof system(s) and flashing system(s) specified are suitable for the issuance of the specified Manufacturer's warranty on this project and have been tested and approved for the wind uplift pressures outlined in the project specifications. Having reviewed the project requirements in detail, the Manufacturer will provide a written response of exceptions to the Engineer through the contractor prior to five (5) days of the bid due date or as otherwise outlined in the Instructions to Bidders, if conflicts exist between the Manufacturer's warranty requirements and the above listed documents. Exceptions not submitted accordingly are subject to rejection. The manufacturer also certifies that the installer is approved, authorized, or licensed by the manufacturer to install the specified roof system and is eligible to provide the specified manufacturer's warranty. The manufacturer will comply with the specified requirements for on-site technical support.

_____ is hereby designated as our Liaison on this project.
(Print or type name of Liaison)

_____
Telephone

_____
Roof Manufacturer's Company Name

_____ _____
Roof Manufacturer Representative's Signature Date

_____ _____
Roof Manufacturer Representative's Name Title

_____
Roof Manufacturer's Address

_____
Telephone

END OF SECTION 00 73 31

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. Division 6, Section “Rough Carpentry”
2. Division 7, Section “Preparation for Reroofing”
3. Division 7, Section “Roof Insulation”
4. Division 7, Section “Thermoplastic Single-Ply Roofing”
5. Division 7, Section “Sheet Metal Flashing and Trim”
6. Division 7, Section “Elastomeric Joint Sealants
7. Division 22, Section “Roof Drains”

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: North Regional Library Partial Roof Replacement

B. Project Location: 221 Milton Road, Durham, North Carolina 27712

C. Owner: Durham County

D. Engineer: The Contract Documents, dated February 20, 2026, 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 Sectors A, B, and D:

   a. Remove and dispose of all existing single-ply TPO roof membrane, coverboard a tapered insulation crickets.

   b. Remove and salvage existing XPS insulation.

   c. Remove and dispose of membrane flashings and sheet metal flashings.

   d. Replace damaged/deteriorated wood blocking.

   e. Repair existing metal decking as required.

   f. Reinstall salvaged XPS insulation and new XPS insulation as needed.

   g. Provide a minimum 1/4 inch thick gypsum cover board over the existing gypsum sheathing at the parapet walls.

   h. Provide new tapered polyisocyanurate insulation to provide a minimum of ¼” per foot slope finished slope and crickets between the drain outlets.

i. Provide a minimum 1/2 inch thick gypsum cover board over the tapered polyisocyanurate insulation and flat XPS insulation.

j. Provide adhered fleece/felt backed thermoplastic single-ply membrane and associated membranes and sheet metal flashings and accessories required for a complete, watertight, 20-year warrantable roof assembly.

k. Perform additional work as illustrated or described in this Project Manual.

2. Roof Sector C:

a. Remove and dispose of existing single-ply TPO roof membrane down to the plywood deck.

b. Remove and dispose of membrane flashings and sheet metal flashings.

c. Replace damaged/deteriorated plywood decking.

d. Provide adhered fleece/felt backed thermoplastic single-ply membrane and associated membranes and sheet metal flashings and accessories required for a complete, watertight, 20-year warrantable roof assembly.

e. Perform additional work as illustrated or described in this Project Manual.

3. At all pre-cast concrete coping joints with mortar, route joint and install backing material and sealant. Refer to Section 07 92 00 "Elastomeric Joint Sealants".

4. At all pre-cast concrete coping joints with existing sealant, replace backing material and sealant. Refer to Section 07 92 00 "Elastomeric Joint Sealants

5. At Curtain Wall window frames, install bond breaker tape and tooled sealant at all four sides of the glass to aluminum window frames. Refer to Section 07 92 00 "Elastomeric Joint Sealants.

F. Asbestos Containing Roofing Materials (ACRM):

1. 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 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.

1.05 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 21 29

QUANTITY ALLOWANCES

PART 1 GENERAL

1.01 DESCRIPTION

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

1.02 RELATED DOCUMENTS

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

1. Section 05 01 30, Steel Roof Deck Repair.
2. Section 06 10 00, Rough Carpentry.
3. Section 07 01 50, Preparation for Reroofing.
4. Section 07 22 16, Roof Insulation.

1.03 ABBREVIATIONS

A. Abbreviations for typical units of measurement:

1. Square Foot (SF).
2. Square Yard (SY).
3. Cubic Foot (CF).
4. Board Foot (BF).
5. Linear Foot (LF).
6. Each (EA).
7. Tonnage (TON).

1.04 QUANTITY ALLOWANCES

A. Include the specified quantity allowances in the base bid. Use the unit price submitted on the Bid Form to compute the quantity allowances. The quantities indicated on the Bid Form are estimated quantities only for the purpose of comparing bids. Compensation for the unit price bid made for the exact quantity of work performed under the unit price item. Deductive amounts of unit price work included in the Contract Sum are calculated at 100% of the quoted add unit price.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 UNIT PRICE ALLOWANCES SCHEDULE

A. Include the following unit price allowances in the Contract Sum:

1. Allowance No. 1: Prepare roof deck and apply 500 SF of Deck Repair Coating. Refer to Section 05 01 30, Steel Roof Deck Repair.

2. Allowance No. 2: Replace 100 board feet of deteriorated wood blocking. Refer to Section 06 10 00, Rough Carpentry.

3. Allowance No. 3: Replace 200 square feet of deteriorated 5/8" plywood. Refer to Section 06 10 00, Rough Carpentry.

4. Allowance No. 4: Replace 1,000 square feet of 3-inch thick XPS insulation. Refer to Section 07 22 16, Roof Insulation.

END OF SECTION 01 21 29

SECTION 01 22 00

UNIT PRICES

PART 1 GENERAL

1.01 DESCRIPTION

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

1.02 RELATED DOCUMENTS

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

1. Section 05 01 30, Steel Roof Deck Repair.
2. Section 06 10 00, Rough Carpentry.
3. Section 07 01 50, Preparation for Reroofing.
4. Section 07 22 16, Roof Insulation.

1.03 DEFINITIONS

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

1.04 ABBREVIATIONS

A. Abbreviations for typical units of measurement:

1. Square Foot (SF).
2. Square Yard (SY).
3. Cubic Foot (CF).
4. Board Foot (BF).
5. Linear Foot (LF).
6. Each (EA).
7. Tonnage (TON).

1.05 UNIT PRICE MEASUREMENT

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

B. 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.

1.06 UNIT PRICE PAYMENT

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

1.07 UNIT PRICE PERFORMANCE

A. Install unit price work in accordance with the applicable specification sections and Contract Drawings.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 SCHEDULE OF UNIT PRICES

1. UP-1 Description: Prepare metal roof deck and apply Deck Repair Coating according to Section 05 01 30, Steel Roof Deck Repair.

    a. Unit of Measurement: Square Foot (SF).

2. UP-2 Description: Replace damaged or deteriorated wood blocking according to Section 06 10 00, Rough Carpentry.

    a. Unit of Measurement: Board Foot (BF).

3. UP-3 Description: Replace damaged or deteriorated 5/8” plywood according to Section 06 10 00, Rough Carpentry.

    a. Unit of Measurement: Square Foot (SF).

4. UP-4 Description: Replace 3-inch thick XPS insulation to Section 07 22 16, Roof Insulation.

    a. Unit of Measurement: Square Foot (SF).

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 seven (7) calendar 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 seven (7) calendar days prior to the bid opening.

1. Submit each request for substitution on the form contained in Section 00 63 25-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 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, if requested.
5. Weekly Reports, if requested.

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. Contract 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 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. Punch List (Pre-final) 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, Closeout Procedures for other requirements.

C. 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, Closeout Procedures for other requirements.

1.05 REPORTS

A. Weekly Construction Reports: Prepare a weekly construction report recording the following information concerning events at Project site and Fax or email a copy to the Engineer by noon on the following Monday:

1. Approximate daily count of personnel at Project Site.
2. Daily material deliveries.
3. Daily high and low temperatures and general weather conditions.
4. Accidents.
5. Unusual events.
6. Stoppages, delays, shortages, and losses.
7. Orders and requests of authorities having jurisdiction.
8. Change Proposal Forms received and implemented.
9. Change Directives received and implemented.
10. Daily Allowance and Unit Cost usage.

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 is required to be accepted in writing prior to commencement of work.

B. Submission Requirements:

1. Submit required submittals electronically in pdf format to the Engineer for review. The submittals will then be returned electronically to the Contractor with comments. Final submittals require written responses to submittal comments.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as specified below, commencing on Engineers 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.

D. Identification:

1. Submit as one pdf file with bookmarks for each scheduled item.

E. 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. Include a written explanation of why substitutions should be considered under the appropriate tab.

F. Transmittal: Package submittals appropriately for transmittal. 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.

G. Use for Construction: Use only final submittals with mark indicating action taken by Engineer in connection with construction.

1.04 SCHEDULE OF SUBMITTALS

A. Refer to the applicable specification section for list of submittal requirements for each section.

B. Submit the following submittal items electronically with a title page and/or pdf bookmark for each submittal item to meet the requirements specified herein:

1. Section 01 14 00 - Work Restrictions

2. Section 01 25 00 - Product Substitutions

3. Section 01 31 00 - Project Management and Coordination

4. Section 01 40 00 - Quality Requirements

5. Section 01 77 00 - Closeout Procedures

6. Section 05 31 30 - Steel Roof Deck Repair

7. Section 06 10 00 - Rough Carpentry

8. Section 07 01 50 - Preparation for Reroofing

9. Section 07 22 16 - Roof Insulation

10. Section 07 54 00 - Thermoplastic Single-Ply Roofing

11. Section 07 62 00 - Sheet Metal Flashing and Trim

12. Section 07 92 00 - Elastomeric Joint Sealants

13. Section 22 14 26 - Roof Drains

14. Shop Drawings: Shop drawings or letter stating installation of materials as detailed in the Contract Drawings unless properly authorized by the Engineer.

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

PART 2 PRODUCTS

2.01 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. Printed performance curves.

   f. Operational range diagrams.

   g. Compliance with recognized trade association standards.

   h. 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: dimensions, identification of products, fabrication and installation drawings, schedules, coordination requirements and notation of dimensions established by field measurements.

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. 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 specified information.

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

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

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

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

J. Material Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements.

K. 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.

L. 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.

M. 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.

N. 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.

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 Consultant. Contractor shall notify the Consultant 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. 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.
   b. 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.
   c. Licensed by state work is occurring in for the type and dollar amount of work contemplated by these Contract Documents.
   d. Never filed bankruptcy or filed for protection from creditors.

H. 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.

I. During the performance of any work by the Contractor or subcontractors, the Contractor shall provide for the entire length of the project a full time onsite superintendent/representative meeting the following requirements:

1. For the purpose of these Specifications the designation "superintendent" is hereby defined as the individual present on the job site at all times while work is being performed, and whose primary responsibility is to supervise and direct the performance of the Work.
2. The superintendent shall 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.
3. It shall be the superintendent's responsibility to communicate all matters pertaining to the Work with the Owner and/or Engineer. In case of emergency or safety, superintendent shall communicate directly with the Owner and/or Engineer. No decisions regarding changes in the Work will be made without the Owner's knowledge.
4. Possess decision making authority and ability.
5. Able to demonstrate knowledge of work being installed.
6. Fluent in the English language (i.e. reading, writing and speaking).
7. In possession of mobile telephone at all times.
8. Employed by the Contractor at least six months prior to project commencement.
9. Owner and Engineer approval.

J. 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.

1. 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.
2. Promotion, transfer, or reorganization within the company will not be an acceptable cause for reassignment of the superintendent.
3. The superintendent shall have had a minimum of five (5) years continuous experience as a job superintendent.

K. 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.

L. Testing Agency Qualifications: An agency with the experience and capability to conduct testing and inspecting indicated, as documented by ASTM E 329, and that specializes in types of tests and inspections to be performed.

M. 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.

N. 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 damaged or injured by reason of failure of the Contractor to protect its work, such materials shall be removed and replaced at the expense of the Contractor.
    b. During inclement weather and temporary suspension of work, the Contractor shall inspect the facility 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 pres-

ence 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 to ensure materials are being properly installed and as required to obtain the specified warranty. Site visits are to be conducted every ten (10) working days.

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 29, "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
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
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. Water: Potable.

C. 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.

D. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, 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 bibs only with properly fitted handles which shall be removed at the end of each work day. Any damage to hose bibs 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. 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. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Section 01 74 00, "Cleaning and Waste Management" for progress cleaning requirements.

1. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.

B. 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. Provide, erect and maintain construction fencing around all storage and staging areas.

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.

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. 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.

E. 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 Engineer, 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. 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 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. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
6. Complete final cleaning requirements, including touchup painting.
7. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Punch List Inspection: On receipt of substantial completion certification, the Engineer will make a punch list inspection within seven (7) days after receipt of certification.

1. 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 fifteen (15) days of the punch list inspection.
2. 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.

3. 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).

1.04 FINAL COMPLETION

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

1. 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.
2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
3. 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 cannot 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.

1.06 WARRANTIES

A. Thermoplastic Single-ply Roofing warranty as outlined in Section 07 54 00.

B. Pre-Finished Sheet Metal finish warranty as outlined in Section 07 62 00.

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

1. Contractor will be required to attend an inspection prior to the 2-year warranty end date and complete any corrective action requested by Owner, Engineer, or Manufacturer at no additional cost to the Owner.

D. Contractor’s Asbestos-Free Warranty on their company letterhead using sample contained in the Project Manual.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION 01 77 00

SECTION 05 01 30

STEEL ROOF DECK REPAIR

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Steel Deck Repair: Inspect, evaluate and remediate steel roof deck as follows:

a. Repair of surface rust in steel decking.

1.2 RELATED DOCUMENTS

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

1. Section 06 10 00 "Rough Carpentry"
2. Section 07 01 50 "Preparation for Reroofing"
3. Section 07 22 16 "Roof Insulation"
4. Section 07 54 00 "Thermoplastic Single Ply Roofing "

1.3 SUBMITTALS

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

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

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

1.4 QUALITY ASSURANCE

A. Provide meticulous attention to the detail of installation and workmanship to ensure the assemblage of products in the highest grade of excellence by skilled craftsmen of the trade.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Steel Deck Repair:

1. Deck Repair Coating: High solids, low VOC, self-priming epoxy coating for use on steel structures.

a. PPG Amerlock 400

b. Devoe Bar-Rust 231
c. Kryon Industrial High Build Epoxy Mastic 100
d. Benjamin Moore & Co. Surface Tolerant Epoxy Mastic Coating V160

PART 3 - EXECUTION

3.1 EXAMINATION

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

B. Commencement of work signifies acceptance of conditions. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.

C. The following description indicates roof deck corrosion level by degree. Inspect roof deck areas and assess corrosion level of 1. Following the assessment, conduct the appropriate Remediation Method in accordance with the deck corrosion level descriptions. Refer to Section 01 22 00 "Unit Prices"

1. Corrosion Degree 1

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

3.2 PREPARATION

A. Remove and vacuum debris from deck surface and ribs to allow for inspection of deck, and to fasten decking.

B. Take necessary precautions to prevent debris from entering building space, and coordinate operations with Engineer and Owner.

3.3 STEEL DECK REMEDIATION

A. General:

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

B. Corrosion Degree 1:

1. Properly mix deck repair coating according to manufacturer's recommendations.
2. Do not mix more material than can be used in the materials expected pot life.
3. Apply material at temperatures from 50˚ F to 90˚ F for optimum application.
4. Brush or roller apply deck repair coating as recommended by manufacturer.
5. Allow coating to dry a minimum of 30 minutes. Do not install roof insulation until coating is dry.

3.4 FIELD QUALITY CONTROL

A. Monitor the inside of the building during application of coating to prevent damage to building, equipment and occupancy.

END OF SECTION

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 wood blocking.
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.
4. Removal and replacement of damaged, rotted or deteriorated plywood sheathing 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. Division 7, Section “Preparation for Reroofing”.
2. Division 7, Section “Roof Insulation”.
3. Division 7, Section “Thermoplastic Single-Ply Membrane Roofing”.
4. Division 7, Section “Sheet Metal Flashing and Trim”.

1.03 REFERENCES

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

1. NC 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. Installation of all required new rough carpentry for roofing and flashing terminations to ensure plumb, uniform and level metal flashings.

H. Rough carpentry installation shall ensure roof membrane flashing transitions are smooth for complete roof drainage and appearance.

I. 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).

1. Plywood shall match the thickness of the existing.

2.02 FASTENERS

A. General:

1. All fasteners shall be stainless steel or as approved by Engineer.
2. 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.
3. 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.

D. Wood to light gage metal framing (16-ga. or less):

1. Shall be #14-13 DP1, pancake or panhead, corrosion resistant, ASTM A153, FM Approved, self-drilling and self-tapping screw, length to provide minimum 3 pitches of thread through metal thicknesses. Acceptable manufacturers include:
   a. ITW Buildex Teks
   b. Concealor®
   c. Blazer
   d. SFS Intec
   e. Engineers accepted equivalent.

E. Washers: 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.

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. 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.

3.03 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. Wood blocking and nailers shall be installed concurrently with roof system installation. Folding back of roof membrane to install wood blocking and nailers at a later date is not acceptable.

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. Install bolts flush with the top surface of nailers where possible to avoid countersinking. Bolt bottom nailers then fasten upper nailers where possible.

5. 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.
6. 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.
7. 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. Secure at 24" on center in corners (Zone 3) of the roof area.
    b. Screws and 1/4 inch diameter anchors securing wood to concrete or masonry units shall be spaced 12 inches on center maximum, staggered, with fasteners installed at each end of nailer lengths to prevent wood from twisting at board joints.
    c. 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.
    d. 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.

8. Plywood Deck Securement:
    a. Screw plywood at 4 inches on center along the edges of plywood and 6 inches on center along the intermediate roof framing.

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. 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.

I. Wood nailers at roof parapets shall not be less than 3 feet long.

J. 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.

K. 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.

L. 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.

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.

1.02 RELATED DOCUMENTS

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

1. Division 1, Section “Summary of Work”
2. Division 1, Section “Quantity Allowances”
3. Division 1, Section “Unit Prices”
4. Division 5, Section “Steel Roof Deck Repair”
5. Division 6, Section “Rough Carpentry”
6. Division 7, Section “Roof Insulation”
7. Division 7, Section “Thermoplastic Single-Ply Roofing”
8. Division 7, Section “Sheet Metal Flashing and Trim”
9. Division 22, Section “Roof Drains”

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 ASSEMBLY*

A. Roof Sectors A, B, and D: Roofing generally consists of TPO singly-ply membrane over gypsum coverboard board over flat and tapered XPS insulation mechanically fastened to metal roof decking.

1. All Roof Sectors drain through primary roof drains.
2. Secondary roof drainage is provided by overflow drain outlets adjacent to the primary drains.
3. Parapet wall height for all Roof Sectors is approximately 14 feet above grade.

4. Existing slope is 1/4:12 in the structure and tapered insulation system.

B. Roof Sector C: Roofing generally consists of TPO singly-ply membrane adhered to mechanically fastened plywood decking.

1. Roof drains over the roof edges.
2. Existing slope varies and is in the structure.

*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. Metal Deck: Refer to Specification Section 05 01 30.

B. Plywood Deck: Refer to Specification Section 06 10 00.

2.02 MISCELLANEOUS MATERIALS

A. Soil Pipe Extensions:

1. No-Hub:

a. Provide no-hub coupling with coupling conforming to CISPI 310 and ASTM C 1277. Gasket to be made from elastomeric compound meeting

ASTM C 564. 5/16" hex-head screw band assembly. Inside diameter to match outside diameter of soil pipe being raised.

B. Gypsum Sheathing over Existing Sheathing:

1. Gypsum sheathing approved by roof system manufacturer. Board Size: 4 feet by 8 feet. Minimum thickness as listed below or as required by roof system manufacturer:

a. Georgia Pacific 1/4 inch DensDeck Prime Roof Board.
b. DEXcell 1/4 inch Glass Mat Roof Board.
c. Engineers accepted equivalent.

2. Screws for Fastening Gypsum Sheathing to Cold-Formed Metal Framing: Steel drill screws, in length recommended by sheathing manufacturer for thickness of sheathing being attached, with organic-polymer or other corrosion-protective coating having a salt-spray resistance of more than 800 hours according to ASTM B117:

a. For steel framing less than 22 gauge, use screws that comply with ASTM C1002.
b. For steel framing from 21 gauge to 11 gauge, use screws that comply with ASTM C954.

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. If utilities serving occupied portions of the site must be shut down, temporary services shall be provided.
2. Provide 72 hours' notice to Owner if shut down is required.
3. 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 buildings, 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. Coordinate and sequence roof removal such that tear-off debris and materials are not stored on or trafficked over the replacement roof system and such that varying heights between roof assemblies does not adversely affect roof drainage.

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

C. Remove and dispose of all TPO single-ply membrane, membrane flashings, gypsum coverboard, tapered XPS insulation down to the existing XPS insulation and plywood decking. Wood blocking in good condition to remain in place.

D. Remove, salvage and reuse all XPS insulation in good condition (dry, not crushed or deformed) down to the existing steel decking.

1. Salvaged insulation 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.
2. Utilize tarps that will completely cover materials to prevent moisture contamination.
3. Remove damaged or deteriorated insulation from the job site.

E. Remove deteriorated wood blocking and plywood components. Wood blocking and plywood in good condition to remain in place.

F. Remove and discard, all metal counterflashings, sheet metal coping covers, etc.

G. Remove or correct any obstructions which interfere with the proper application of materials.

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

I. Carefully relocate all electrical, miscellaneous wires, cables, gas lines, etc. as required to accomplish work specified herein. Accomplish such relocation without interrupting the service provided by these lines except as specifically authorized by the Owner. Become familiar with each line and the level of precaution necessary to relocate them or work around them. Upon completion of roofing work, relocate lines to their original positions and secure them as originally secured unless indicated otherwise in these specifications or on the project drawings.

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

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

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

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

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

3.06 METAL DECK REPAIR

A. Refer to Specification Section 05 01 30.

3.07 PLYWOOD DECK REPLACEMENT

A. Refer to Specification Section 06 10 00.

3.08 FLASHING HEIGHTS

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

B. 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.

3.09 METAL SANITARY VENT PIPE (PLUMBING STACK) EXTENSION INSTALLATION

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

B. Preparation:

1. Remove existing flashing from plumbing vent piping to extent required to enable installation of new plumbing vent pipe extensions and completion of flashings.
2. Clean plumbing vent piping to ensure that joint surfaces are clean, dry, and free from contamination including dirt, oils, grease, tar, wax, rust, and other substances that may inhibit adhesive or sealant performance.

C. Metal pipe extensions to match the existing pipe.

1. Follow installation procedures from the no-hub coupling manufacturer.

3.10 DRAINAGE TEST

A. Prior to commencement of any work on the project the Contractor shall inspect each primary and overflow roof drain for damage and water flow according to Specification Section 22 14 26, Roof Drains.

3.11 GYPSUM WALL SHEATHING OVER EXISTING SHEATHING INSTALLATION

A. Cut panels at edges and other obstructions of work; fit tightly against abutting construction unless otherwise indicated.

B. Coordinate wall sheathing installation with membrane flashing installation so these materials are installed in sequence and manner that prevent exterior moisture from passing through completed assembly.

C. Fasten gypsum sheathing to cold-formed metal framing with screws.

D. Apply fasteners so heads bear tightly against face of sheathing, but do not cut into facing.

E. Vertical Installation: Install board vertical edges centered over studs. Abut ends and edges of each board with those of adjacent boards. Attach boards at perimeter and within field of board to each stud.

1. Space fasteners approximately 8 inches on center and set back a minimum of 3/8 inch from edges and ends of boards.

3.12 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. Description of Work:

1. Roof Sectors A, B and D: Flat and tapered insulation with coverboard to be installed over metal decks in the project.

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. Division 1, Section "Summary of Work"
2. Division 1, Section "Allowances"
3. Division 1, Section "Unit Prices"
4. Division 5, Section "Steel Roof Deck Repair"
5. Division 6, Section "Rough Carpentry"
6. Division 7, Section "Preparation for Reroofing"
7. Division 7, Section "Thermoplastic Single-Ply Roofing"
8. Division 7, Section "Sheet Metal Flashing and Trim"

1.03 REFERENCES

A. Refer to the following references for specification compliance:

1. 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. Roof Sectors A, B and D:

1. Reinstall salvaged XPS insulation and new 3-inch thick XPS insulation as required.
2. Install new tapered polyisocyanurate insulation to form crickets to provide a minimum of ¼" per foot finished slope to the primary roof drains over the salvaged and new XPS insulation.
3. Install new 1/2 inch gypsum coverboard set over all tapered insulation and XPS insulation mechanically fastened.

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. 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.

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 or started in the event there is a probability of precipitation during the 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. XPS (Extruded Polystyrene Insulation) Insulation Board:

a. Rigid polystyrene roof insulation board.
b. ASTM C 578.

c. Compressive strength: 40 psi.
d. Size: 3 inch thick, 4’ x 8’, R-Value 15.

2. Tapered Roof Insulation shall be rigid polyisocyanurate roof insulation board with factory applied glass fiber reinforced cellulosic felt facers on the top and bottom. Boards to comply with ASTM C1289 Type II, Class I, Grade 2 and meet the following requirements:

a. Compressive strength: 20 psi.
b. 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.
c. Dimensional stability shall be 2 percent maximum linear change when conditioned at 158 degrees F and 97 percent relative humidity for seven days.
d. Minimum total thickness: 0.5 inches.
Board size: 4’ x 4’.

3. Coverboard: As recommended by the Single-Ply Membrane System Manufacturer:

a. Gypsum Board: Shall be nonstructural, glass mat faced gypsum panel with 500 psi moisture resistant treated core, non-asphaltic primer surfacing, and tested in accordance with ASTM E 84 and ASTM E 136. Board size of 4’ x 4’ and thickness shall be 1/4 inch.

B. Insulation Accessories

1. Tapered Edge Strips: ASTM C 728, mineral perlite, 1/2 inch at thick edge for crickets.

2.02 INSULATION ATTACHMENT

A. Insulation Fasteners and Plates: Plated steel fastener and 3 inch diameter round or 3 inch square steel plate as manufactured by or specifically recommended by the roof system manufacturer. Fasteners and plates must be Factory Mutual approved for 1-75 construction with the specified insulation. Length to provide ¾ inch minimum and 1-1/2 inch maximum penetration through the upper-flat portion of the steel decks and the plywood decks.

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 boards and coverboards 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 coverboard one (1') foot (vertically and laterally) to ensure that joints do not coincide with joints from the previous or adjacent layer.
7. Crickets, saddles and tapered edge strips shall be installed before the coverboard.
8. Remove and replace all damaged units with new insulation or repair to provide a smooth surface and uniform insulation thickness.
9. Field modifications of insulation, tapered insulation and tapered edge strips shall be made by the Contractor where required to accommodate roof and flashing conditions, prevent water dams and standing/ponding water. Standing/ponding water at scupper drains and cricket valleys shall not be accepted.

    a. Standing/ponding water is defined as 1/4" of water in a 4 square foot or larger area 24 hours or more after precipitation.

3.04 INSPECTIONS

A. Roof Sectors A, B and D: Contractor shall inspect metal decking prior to application of the insulation and membrane system. Repair deteriorated metal decking as specified in Section 05 01 30 -"Steel Roof Deck Repair". 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.

3.05 INSULATION APPLICATION

A. Roof Sectors A, B and D - Metal Deck Application:

1. Loose lay new tapered polyisocyanurate insulation crickets to provide a minimum of ¼" per foot finished slope to the primary roof drains over the salvaged and new XPS insulation.
2. Form crickets along the upslope side of all curb-mounted equipment with base widths exceeding 24 inches using factory tapered polyisocyanurate insulation units and tapered edge strips.
3. Install crickets of sufficient size and slope as required to ensure complete drainage and prevent standing water. Fabricate full crickets between drains with a minimum width-to-length ratio of 0.5. Fabricate partial crickets with dimensions which would result in a minimum width-to-length ratio of 0.5, if they were

extended to full size. Adhere tapered edge strips over insulation in ribbon application of insulation adhesive.

4. Unless noted otherwise, fabricate all crickets from tapered stock as required to provide an installed slope matching that of the adjacent roof area. For example, where the roof slope is ¼ inch per foot, fabricate crickets from ½ inch per foot stock to provide an installed slope of ¼ inch per foot.
5. Mechanically fasten gypsum coverboard over tapered polyisocyanurate insulation and XPS insulation.

END OF SECTION 07 22 16

SECTION 07 54 00

THERMOPLASTIC SINGLE-PLY ROOFING

PART 1 GENERAL

1.01 WORK INCLUDED

A. Install a fully adhered fleece/felt back thermoplastic 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. Division 1, Section “Summary of Work”
2. Division 1, Section “Allowances”
3. Division 1, Section “Unit Prices”
4. Division 6, Section “Rough Carpentry”
5. Division 7, Section “Preparation for Reroofing”
6. Division 7, Section “Roof Insulation”
7. Division 7, Section “Sheet Metal Flashing and Trim”

1.03 REFERENCES

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

1. NC. 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 certifying material complies with all specified requirements.

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

1. Wind uplift pressures.
2. UL Fire Resistance Rating.

E. Detail Drawings:

1. Submit manufacturer approved drawings and details for conditions not depicted in Contract Drawings including but not limited to inside corners, outside corners, lap seams, etc.

1.05 PERFORMANCE REQUIREMENTS

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

B. Wind Design: Install roofing system to meet or exceed the requirements of the current adopted version of ASCE-10, and shall be an approved assembly tested to the wind uplift pressures listed below:

1. Field of Roof: - 19.6 psf.
2. Perimeter of Roof: - 32.8 psf.
3. Corner of Roof: - 49.4 psf.

1.06 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 Engineer.

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.

1.07 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. 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 approved for the product.

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 or membrane manufacturer are to be removed from the job site and replaced at no cost to the Owner.

1.08 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 Owner 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.

1.09 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). Warranties requiring the Owner's signature will not be acceptable.

1. Warranty to include but not be limited to membrane, insulation, adhesives, fasteners, sealants, flashings, and polymer clad sheet metal, etc.
2. Warranty Period: Twenty years from date of Substantial Completion.
3. 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.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Membrane materials shall be manufactured by the following:

1. Sika Sarnafil
2. Fibertite
3. IB Roof Systems
4. Soprema
5. Flex

2.02 MEMBRANE MATERIALS

A. Roof Membrane: Energy Star rated sheet, reinforced with either polyester fabric or fiberglass, with felt backing heat-bonded to the back side of the membrane with a weldable selvage edge.

1. Color: color to be determined by Owner from manufacturer's standard Energy Star color selection.

2. 45 mil nominal thickness thermoplastic membrane with a 4-oz. per sq. yd. non – woven polyester felt, heat bonded to the back side of the membrane, meeting ASTM D-6754-02.
3. 60 mil nominal thickness thermoplastic membrane with a fiberglass reinforcement, lacquer coating and a factory applied 9 oz. minimum felt backing, meeting ASTM D-4434.

B. Membrane Components:

1. Membrane Adhesive: Shall be membrane manufacturer's adhesive. Water based adhesive shall not be utilized in temperatures below 40 degrees F.
2. Coverstrip: Shall be 8 inches wide pre-cut polyester reinforced flashing strip.
3. Membrane Fasteners and Plates/Attachment Bar: 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 inches
      ii. Thread diameter: .26 inches
      iii. Head diameter: .435"
      iv. Thread density: 13 turns per inch.
   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.
   c. Attachment Bar: Shall be "U"-shaped, roll formed 14 gauge galvanized steel bar with holes punched 1inch on center and be manufactured and supplied by the membrane Manufacturer.

2.03 RELATED MATERIALS

A. Flashing/Stripping Membrane: Shall be non feltback, thermoplastic membrane reinforced with fiberglass.

B. Flashing Adhesive: Shall be membrane manufacturer's adhesive.

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

D. 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.

E. Pipe Flashing: Shall be membrane manufacturer's pre-formed pipe boot flashing that is heat-welded to membrane and secured with a stainless steel draw band and sealant.

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

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

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

I. Backer Rod: Closed-cell polyethylene or polyurethane rods sized approximately 25% larger than joint opening.

J. Fully Fabric Reinforced Liquid Applied Flashing: Manufacturer's Fully Reinforced Liquid Applied Flashing Membrane.

K. Fasteners:

1. Flashing Membrane Termination Screws: #12 hot dipped galvanized or stainless steel hex or pan head screws with length to penetrate substrate a minimum of 1-1/2 inch.
2. Concrete and Masonry Flashing Membrane Termination Anchors:

a. ¼ inch diameter metal based expansion anchor with stainless steel pin of length to penetrate substrate a minimum of 1-1/2 inches.
b. Masonry screws approved my membrane manufacturer, 1/4 inch minimum diameter, corrosion resistant, with Phillips flat head. Length to provide minimum 1-1/2 inches embedment into substrate.

L. Walkway Pad: Walkway pad by manufacturer of roof membrane.

M. 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.

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

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

PART 3 EXECUTION

3.01 EXAMINATION

A. A pre-job conference including the Engineer, Contractor, and the membrane manufacturer's representative shall be conducted prior to the application of the roofing.

B. Contractor shall verify that work penetrating the roof deck or work which may otherwise affect the roofing has been properly completed.

C. 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.

3.02 SUBSTRATE PREPARATION

A. General. All surfaces shall be swept or vacuumed prior to commencement of roofing.

B. Contractor shall coordinate closure of air intakes prior to application of primer and cold adhesives.

C. Where walls, curbs, expansion joints, etc. present an unacceptable substrate for flashing, a layer of non-combustible overlayment board shall be fastened to provide a suitable substrate for flashing.

D. Any deteriorated substrate shall be repaired.

E. Beginning installation means acceptance of prepared substrate.

3.03 MEMBRANE INSTALLATION

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 applied in accordance with the manufacturer's instructions. The adhesive shall be applied to the substrate at a rate according to the membrane manufacturer's requirements. The adhesive shall be applied in smooth, even coatings with no gaps, globs, puddles or similar inconsistencies. Only an area which can be completely covered in the same day's operations shall be coated with adhesive.

C. The roof membrane is unrolled immediately into a second layer of wet adhesive. Adjacent to that first installed roll of membrane, another second layer of wet adhesive is applied and the second roll of membrane is immediately unrolled into it, overlapping the first roll by 3 inches (75 mm). This process is repeated throughout the roof area. Immediately after application into adhesive, each roll shall be pressed firmly in place with a water-filled, foam-covered lawn roller by frequent rolling in two directions. **Do not allow the second application of adhesive to dry at all.** The amount of membrane that can be coated with adhesive before rolling into substrate will be determined by ambient temperature, humidity and work crew.

1. Water based membrane adhesive shall not be used if temperatures below 40º F (5º C) are expected during application or subsequent drying time.
2. Adhesive application rates shall comply with the manufacturer's published requirements.
3. The Applicator shall count the amount of pails of adhesive used per area per day to verify conformance to the specified adhesive rate.
4. No adhesive shall be applied in seam areas. All membrane shall be applied in the same manner.

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

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

1. Wood Substrate: Membrane shall be turned up wall one inch and mechanically terminated using approved screws eight (8) inches on center with a termination bar.
2. Concrete/Masonry Substrate: Membrane shall be turned up wall one inch and mechanically terminated using approved anchors eight (8) inches on center with a termination bar.

3.04 MEMBRANE FLASHING INSTALLATION

A. General

1. All flashings shall be installed concurrently with the roof membrane as the job progresses.
2. No temporary flashings shall be allowed without the prior written approval of the Engineer and Manufacturer. Approval shall only be for specific locations on specific dates. 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.

3. Seams shall not be “taped” as temporary measure but shall be fully completed before the end of each day.
4. Flashing shall be adhered to compatible, dry, smooth, and solvent-resistant surfaces.
5. 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.
6. 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.

C. All flashings shall mechanically terminated a minimum of 8 inches above the finished roofing surface using approved fasteners and counter flashing bar unless otherwise indicated in the Contract Drawings. Flashing heights less than 8 inches 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 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 edge of sheet metal.

I. Soil Pipe/Pipe Penetrations-Minimum 2” Diameter:

1. Provide field wrapped pipe penetration flashing or manufacturer’s pre-fabricated pipe boot 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 inches finished flashing height.
4. Cut existing pipe to obtain a maximum 12 inches 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 inches 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.

3.05 FABRIC-REINFORCED FLUID-APPLIED FLASHING INSTALLATION

A. General

1. All flashings shall be installed concurrently with the roof membrane as the job progresses.
2. No temporary flashings shall be allowed without the prior written approval of the Engineer and Manufacturer. Approval shall only be for specific locations on specific dates. 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.
3. Flashing shall be adhered to compatible, dry, smooth, and solvent-resistant surfaces.
4. Where substrates are incompatible with fluid applied flashing materials, the Contractor shall remove the incompatible materials.

B. All fluid-applied flashings shall be terminated a minimum of 8 inches above the finished roofing surface unless otherwise indicated in the Contract Drawings. Flashing heights less than 8 inches shall be accepted in writing by the Manufacturer’s Technical Department.

C. All fluid-applied flashing shall be consistently adhered to substrates.

D. Pipe Penetrations Less Than 2” Diameter:

1. Fluid-Applied Flashing System: Shall be single-ply membrane manufacturer’s polyurethane, polyether or PMMA based resin with polyester fleece flashing system.
2. Prepare and prime substrates as required by the single-ply membrane manufacturer and install fluid-applied flashing as shown in detail drawing.

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.

3.07 WALKWAY PAD INSTALLATION

A. Check membrane seams that are to be covered by walkway pad with rounded screwdriver and repair deficiencies prior to walkway pad installation.

B. Clean and dry roof membrane to receive walkway pad.

C. Place chalk lines on sheet to indicate location of Walkway.

D. Apply a continuous coat of membrane adhesive to the 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.

E. Clean the membrane in areas to be welded. Hot-air weld perimeter of the walkway to the roof membrane.

F. Check welds with a rounded screwdriver. Repair deficiencies.

G. Provide walkway pads at the following locations:

1. Center walkway pad installation under the full length of the drip edges of the adjacent standing seam metal roof areas.

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 inch strip of flashing membrane shall be welded 4 inches to the new field membrane. The remaining 4 inches 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

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

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

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

D. The Contractor shall remove temporary coverings and masking protection from adjacent work areas upon completion.

3.10 PROTECTION

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

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

END OF SECTION 07 54 00

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. Division 1, Section “Summary of Work”
2. Division 6, Section “Rough Carpentry”
3. Division 7, Section “Thermoplastic Single-Ply Roofing”

1.03 REFERENCES

A. Refer to the following references for specification compliance:

1. NC 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).

    a. Architectural Sheet Metal Manual, Seventh Edition – January 2012.

5. ANSI/SPRI ES-1.

1.04 SUBMITTALS

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

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

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

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

E. Color Charts:

1. Pre-finished Sheet Metal
2. Polymer Clad Sheet Metal
3. Sealants

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 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. Pre-finished Galvalume: 24-gauge, galvalume coated steel meeting or exceeding AZ50 per ASTM A792. Manufacturer's smooth finish, pre-finished color coatings consisting 70% Kynar 500 fluorocarbon (Polyvinylidene Fluoride PVF2) coating over a urethane primer on the finish side, with primer and a wash coat on the reverse. Measurements per NCCA Technical Bulletin II-4 or ASTM D1005. Protect the finish during fabrication and installation with a strippable plastic film. Manufacturer's standard color to be selected by Owner.

1. 24 gauge.

    a. Slip Flashing

b. Coping Cap
c. Counterflashing Receiver
d. Counterflashing
e. End Closure at Parapet Walls

2.02 GALVANIZED STEEL

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

1. Continuous Cleat: 22 gauge

2.03 STAINLESS STEEL

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

1. Closure Cap (Multiple-Pipe Penetration)
2. Two-Piece Watertight Umbrella (Hot Stack)
3. Splash Pan
4. Equipment Support Curb Cover

B. 18 gauge, Type 304 as tested in accordance with ASTM A 167:

1. Steel Support Bracket (Rail Curb)

2.04 POLYMER CLAD METAL (PVC)

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 (Hot Stack)
2. Pipe Enclosure Flashing (Multi-Pipe Penetration)
3. Metal Edge
4. Counterflashing
5. In-wall Scupper flange, Liner, and Faceplate
6. Base Flashing Closure
7. Flashing Receiver (Base Flashing)

2.05 FASTENERS

A. Roofing Nails: 11 or 12 gauge double hot dipped galvanized or stainless steel ring shank roofing nails with diamond point, minimum 3/8" diameter head and 1-1/4" length.

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

1. Sheet metal to wood attachment (exposed): #12 stainless steel, 5/16 HWH with length to penetrate substrate a minimum of 1-1/2 inches. Provide with bonded EPDM washer or washer specified below. Factory painted heads to match the sheet metal color.

2. Sheet metal to wood attachment (concealed): #10 stainless steel, low profile pancake head with length to penetrate substrate a minimum of 1-1/2 inches.
3. Sheet metal to sheet metal attachment (exposed): 1/4 inch x 7/8 inch carbon steel, self-drilling point, self-tapping, zinc alloy hex head screws with bonded EPDM tubular washer under head of fastener; screw heads to match color of wall panel by means of factory applied coating. Factory painted heads to match the sheet metal color.
4. Sheet metal to light gauge steel attachment (concealed): #14-13 DP1 stainless-steel low-profile pancake head of length as required for three threads to penetrate metal substrate or min. 1 inch penetration though wood substrates.

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. Masonry Screws: 1/4-inch minimum diameter, Type 410 stainless steel with flat head. Length to provide minimum 1" embedment into substrate.

1. Products:

a. Tapcon by ITW Buildex
b. KWIK-CON II by Hilti
c. Powers Fasteners Tapper+
d. Engineers accepted equivalent.

E. 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.

F. 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.

2.06 RELATED MATERIALS

A. Hardware cloth: 19-gauge steel, having a square mesh.

B. High-density mineral wool roof insulation, meeting ASTM C 726.

C. High-Temperature Silicone Sealant: Shall be a one-component, non-slumping temperature resistant, UV resistant, high performance silicone sealant. Shall meet ASTM C 920, Type S, Grade NS, Class 100, Use A or O. Color to match adjacent materials.

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

E. Sheet Metal Underlayment: Flexible ASTM A240, Type 304, stainless steel core with one uncoated (bare) stainless steel face (outward facing) with a butyl block copolymer adhesive (inward facing). Class A fire resistant in accordance with ASTM E84. Acceptable products include:

1. York Manufacturing, Inc.; York 304 SA-Self-Adhering Stainless Steel.
2. GE Silicones, Inc.; GE Elemax SS Flashing.
3. Vapro Shield, Inc.; VaproThru-Wall Flashing SA.

F. Silicone Sealant: Shall be a one-component, non-sag, neutral cure, low-modulus, UV resistant, high performance silicone sealant. Shall meet ASTM C920, Type S, Grade NS, Class 100, Use M, G, A or O. Color to match adjacent materials.

G. Butyl Sealant: Gun grade, non-skinning, non-hardening, flexible blend of butyl rubber and polyisobutylene sealant.

H. Non-Shrink Grout: High early strength, non-rusting, non-shrink grout conforming to ASTM C 1107 Grade C (modified for rapid-setting grout):

1. 747 Rapid Setting Grout as manufactured by ThoRoc (ChemRex).
2. Multi-Purpose Non-Shrink Grout as manufactured by US Mix.
3. Sikagrout 212 as manufactured by Sika.

I. Pourable Sealer: Two-part pourable polyurethane sealant conforming to ASTM D 429 and designed to seal around penetrations.

J. Tapered Edge Strips: ASTM C 728, mineral perlite.

K. 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.

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

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. Sheet Metal Laps: Unless otherwise indicated:

1. Notch and lap ends of adjoining sheet metal sections not less than 4 inches; apply sealant tape or two bead of butyl sealant between sections.
2. Lap miters at corners a minimum of 1 inch and apply sealant between laps. Rivet at 2 inches on center.

C. Sheet Metal Underlayment:

1. Adhere to substrates where indicated in Contract Drawings.
2. Lap adjoining sections a minimum of 3 inches and adhere.
3. Extend beyond wood blocking a minimum of 1 inch at roof edges, parapet walls and curbs.
4. Install concurrently with roof membrane and flashing installation. Temporary weather protection utilizing other materials is not acceptable when sheet metal underlayment is specified.

D. 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.

E. 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 3 inches below base flashing termination and shall fit tightly against curb.
3. Secure slip flashing 12 inches 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 inches; apply sealant tape between sections.

5. Lap miters at corners a minimum of 1 inch and apply sealant between laps. Rivet at 2 inches on center.

F. Rail Curb Cover-Equipment Support:

1. Fabricate Rail Curb Cover at curbs as shown in detail drawings in one continuous piece of sheet metal.
2. Secure at 18 inches on center.
3. Lap miters at corners a minimum of 1 inch and apply sealant between laps. Rivet at 2 inches on center.

G. Multiple Pipe Penetration:

1. Fabricate pitch pan, pipe enclosure flashing, and closure cap as shown in detail drawings. Refer to SMACNA Architectural Sheet Metal Manual Figure 8-8B or 8-9A depending on the direction of pipes.
2. Size pitch pan minimum 2 inches larger than the penetration on all sides. Provide a 4 inches minimum flange and double walls with minimum depth of 6 inches.
3. Provide hot-air welded stripping over seams of pitch pan.
4. Set flange of pitch pan in full bead of cut-off mastic.
5. Strip-in flange of pitch pan as indicated in the Contract Drawings.
6. Install 2 inch wide aluminum tape around all sides of pitch pan extending ½ inch above top edge.
7. Fill pitch pan with non-shrink grout to a depth of 2 inches from the top of the tape.
8. Fill pitch pan with pourable sealer to the top of the tape. Slope to shed water.
9. Secure pipe enclosure flashing and cap as indicated in detail drawings.
10. Clean and solder all seams.

H. Base Flashing Closures:

1. Install closures where base flashings abruptly end.
2. Hot-air weld joints watertight.
3. Install closures over membrane and under finish ply of base flashing.
4. Extend closures up under coping or counter flashing.
5. Install closures to seal ends of base flashings and membrane as well as end joints of edge metal.

I. Receiver Flashing:

1. Fabricate counter flashing as shown in detail drawings in 10' lengths.
2. Attachment:

    a. Install receiver flashing into saw-cut reglet and secure with soft metal wedges at 18 inches on center set deep into joint. If receiver flashing is located within Corner (Zone 3) secure at 9 inches on center maximum.
    b. Install receiver flashing surface mounted at 12 inches on center. If receiver flashing is located within Corner (Zone 3) secure at 6 inches on center maximum.

3. Install sealant properly tooled to ensure adhesion and slope to shed water.

4. Cover soft metal wedges with sealant.

J. Reglet Mounted Counterflashing:

1. Fabricate counter flashing as shown in detail drawings in 10' lengths.
2. Install counterflashing into saw-cut reglet and secure with soft metal wedges at 18 inches on center set deep into joint. If counterflashing is located within Corner (Zone 3) secure at 9 inches on center maximum.
3. Install sealant properly tooled to ensure adhesion and slope to shed water.
4. Cover soft metal wedges with sealant.

K. Surface Mounted Counterflashing:

1. Fabricate counter flashing as shown in detail drawings in 10' lengths.
2. Install flashing surface mounted at 6 inches on center.
3. Install sealant in kick-out and manually tool concave to ensure proper adhesion and slope to shed water as indicated in detail drawings.
4. Counterflashing shall extend a minimum of 4 inches below base flashing termination.
5. Notch and lap ends of adjoining sheet metal sections not less than 4", apply sealant between sections.

L. Polymer Clad Base Flashing:

1. Fabricate counter flashing as shown in detail drawings in 10' lengths.
2. Leave a 1/4 inch opening between sheet metal sections.
3. Center aluminum tape over joint opening.
4. Hot-air weld 4-inch wide strip of stripping membrane over joint.
5. Strip flange of base flashing as indicated in the Contract Drawings.

M. Metal Edge (Thermoplastic):

1. Fabricate metal edge as shown in detail drawings in 10 foot lengths.
2. Terminate membrane at roof edge and hot-air weld flashing membrane strip to extend down the outside vertical face over the wall.
3. Provide sealant tape at base of flashing membrane on outside of wall to prevent moisture infiltration.
4. Lock metal edge onto existing "C" channel and secure flange of metal edge to wood blocking 3" on center staggered and not within ½ inch from inside edge and ¾ inch from outside edge.
5. Strip flange of metal edge with hot-air welded stripping membrane as specified in the Contract Drawings.
6. Metal Edge Joints:

    a. Leave a ¼ inch opening between metal edge sections. Install two roofing nails in the end of the flange, and one roofing nail in the end of the vertical face of each metal edge section.
    b. Center aluminum tape over entire joint opening (flange and face).
    c. Hot-air weld 4 inches wide strip of stripping membrane over entire joint.
    d. Strip in flange of metal edge as described above.

e. Strip flange of cover plate with hot-air welded flashing membrane. Flashing membrane shall extend 2 inches beyond the cover plate flange on 3 interior sides.

N. In-Wall Secondary Drain Scupper

1. Fabricate in-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 3” on top and sides of scupper, and extends a minimum of 4” out onto the horizontal membrane. Mechanically fasten the flanges into metal studs with approved fasteners.
5. Strip-in flanges as specified in Contract Drawings.

O. Parapet Wall Coping Cap

1. Fabricate coping in 10' lengths. Width of coping shall be fabricated to be a maximum of 1/2" wider than the width of the wall; Contractor is responsible to field verify parapet wall width prior to sheet metal fabrication. Refer to SMACNA Architectural Sheet Metal Manual Figure 3-4A.
2. Install tapered edge strip mechanically attached or set in foam adhesive to top of wood blocking.
3. Install flashing membrane up and over parapet extending a minimum of 1" below wood blocking.
4. Install continuous cleat fastened to substrate 6” on center in vertical leg. Locate fasteners no greater than 2” from the bottom hem.
5. Lock outside face of coping onto continuous cleat and secure inside face as follows:

    a. For coping widths up to and including 12 inches, secure with screws through waterproof washers and oversized holes at 18 inches on center.
    b. For coping widths greater than 12 inches, secure inside face with continuous cleats. Secure cleat through vertical face of cleat to blocking with fasteners at 6 inches on center. Locate fasteners no greater than 2 inches from the bottom hem.

6. Provide 1" high single lock standing seam at adjoining coping sections. Provide sealant on both sides of 1” turn up for standing seam. Refer to SMACNA Architectural Sheet Metal Manual Figure 3-3, type 22.
7. Provide one-piece coping section at corners. Joints shall be located 24” from inside corner.
8. Turn coping ends up a minimum of 2” at elevation walls and cover termination with surface mounted counterflashing.

P. Soil Pipe:

1. Provide field wrapped pipe penetration flashing or manufacturer’s pre-fabricated pipe boot as shown in detail drawing. See Section 07 54 00, Adhered Thermoplastic Single-Ply Roofing, 3.04 Flashing Installation, Paragraph I, Soil Pipe/Pipe Penetrations.

Q. Hot Stack

1. Fabricate hot stack metal sleeve and watertight skirt as shown in detail drawings.
2. Provide 4 inch minimum flange and walls with minimum height of 8 inches.
3. Hot air weld flashing membrane to horizontal flange of metal sleeve as indicated in the Contract Drawings. Fill void between metal sleeve and hot stack with mineral wool insulation.
4. Install watertight skirt as indicated in detail drawings and secure to hot stack with stainless steel band clamp and concealed bead of high temperature sealant.
5. Watertight skirt shall extend a minimum of 4 inches below top of metal sleeve.

R. Splash Pans

1. Where existing downspouts discharge onto the new roof surface; provide splash pans on 18" by 30" walk pads.
2. Splash pan shall be fabricated to meet SMACNA Architectural Sheet Metal Manual Figure 1-36, Alternate Section with 2 v-grooves.

3.03 CLEANING AND PROTECTION

A. All sheet metal work shall be thoroughly cleaned of all 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 92 00

ELASTOMERIC JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Install new construction joint sealants at pre-cast concrete coping joints filled with mortar, including routing existing mortar joints to a minimum depth of 1-1/2", preparation of joints, priming of substrate as determined from sample adhesion tests, installation of backer-rod or tape to prevent 3-sided adhesion, and providing specified sealant properly tooled to ensure adhesion.
2. Replace construction joint sealants at pre-cast concrete coping joints including removal of materials, preparation of joints, priming of substrate as determined from sample adhesion tests, installation of backer-rod or tape to prevent 3-sided adhesion, and providing specified sealant properly tooled to ensure adhesion.
3. At Curtain Wall locations indicated on the Contract Drawings. Apply bond breaker tape and tooled sealant at all four sides of the glass to aluminum window frames.

1.2 RELATED DOCUMENTS

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

1. Section 01 11 00 "Summary of Work"

1.3 REFERENCES

A. Refer to the following references for specification compliance:

1. Federal Specification TTS-00230C Elastomeric type, cold-applied single-component for caulking, sealing and glazing in building areas, and other structures.

2. ASTM International

   a. ASTM C 719
   b. ASTM C 794
   c. ASTM C 920
   d. ASTM C 1193
   e. ASTM C 1248
   f. ASTM D 412
   g. ASTM D 624

3. Underwriters Laboratories, Inc. - UL

1.4 SUBMITTALS

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

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

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

1.5 QUALITY ASSURANCE

A. Installer Qualifications:

1. Minimum of 5 years successful experience in building envelope restoration with the application of elastomeric joint sealants on projects of similar type and nature.
2. Approved by Sealant Manufacturer.

B. During the progress of the work, after material has received final cure, hand pull test in accordance with procedures as published by SWRI, perform in the presence of the Engineer. Perform tests at random times in random areas selected by the Engineer. Repair test areas at no additional charge to the owner.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver materials in the manufacturer's original sealed and labeled containers and cartons.

B. Storage. Store materials out of direct exposure to the elements, located above standing water at least 4 inches above ground level. Place non-sweating tarpaulins to prevent moisture contamination.

C. Sealants are heat and moisture sensitive; protect from excessive heat exposure and moisture exposure.

D. Do not allow sealants to be exposed to prolonged freezing temperatures.

E. Shelf Life: Do not use products over 9 months old unless Manufacturer's published literature allow. Document product self-life information, and check expiration date before use.

F. Handling: Handle material to prevent exposure to moisture. During cold temperatures (less than 40°F) store containers at room temperature for 24 hours.

1.7 PROJECT CONDITIONS

A. Do not apply sealant during precipitation or start in the event there is a probability of precipitation during the application. Forecasted conditions to be dry for no less than 24 hours after application

B. Ensure sealant Manufacturer's published requirements are followed, including the following general limitations for sealants:

1. Do not apply polyurethane sealants to uncured silicone sealants, or install adjacent to uncured silicone.
2. Do not allow uncured polyurethane sealant to come in contact with alcohol-based sealants, butyl sealants, acrylic sealants or other incompatible materials.
3. Do not allow uncured polyurethane sealant to come in contact with oil-based caulking/sealants, oil, asphalt, polysulfides, or fillers impregnated with oil, asphalt or tar.
4. Do not install sealant on damp substrates.
5. Do not install where sealant where continually immersed in water.
6. Do not apply sealant to "green" treated lumber.
7. Prime masonry, stainless steel, copper, galvanized steel and pre-finished metal with sealant Manufacturer's approved primer. Refer to specified primers.
8. Follow Manufacturer's published precautions.

C. Do not install more sealant than can cure for 24 hours before precipitation.

1.8 WARRANTY

A. Material Manufacturer's Warranty:

1. Guarantee material to meet or to exceed the properties specified within this section of the specifications and agree to replace products found defective.
2. Silicone Sealant: 20 year period beginning at date of substantial completion of the work.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Silicone Sealant Components:

1. Silicone Sealant: One-component, non-sag, neutral cure, low-modulus, UV resistant, high performance silicone sealant for high movement expansions and control joints meeting ASTM C 920, Type S, Grade NS, Class 100/50, Use NT, M, G, A or O. Color chosen by Owner from manufacturer's standard color chart and approved by Owner in advance of application. Acceptable Manufacturers include:

    a. Dow 790 Building Sealant
    b. Pecora 890 NST Silicone
    c. Sikasil-WS 290

2. Primer: Primer manufactured and recommended by Sealant Manufacturer. Consult sealant Manufacturer's published literature for specific substrate and primer types.
3. Backer Rod: Open-cell polyurethane backer-rod or soft polyethylene backer-rod as recommended by sealant Manufacture sized 25% greater than joint for tight fitting compression in the joint.

4. Bond-breaker Tape: Polyethylene strip or tape, as recommended by or supplied by the sealant Manufacturer to prevent 3-sided bond in joints.

PART 3 - EXAMINATION

A. Site Verification of Conditions: Inspect joints indicated for restoration and verify joint substrate conditions are acceptable for installation in accordance with sealant Manufacturer's instructions. Correct unsatisfactory conditions before installing sealants.

1. Determine acceptable removal techniques for contaminants, dust, dirt, grease, oils, curing compounds, form release agents, laitance and waterproofing film or over-spray coatings which are harmful to sealant performance.
2. Surface Defects and Repairs: Identify contaminants in substrates that are harmful to system performance. Allow substrates or repaired surface defects to cure per manufacturer's recommendations.

B. Commencement of work signifies acceptance of substrate. Correct defects in work resulting from accepted substrates at no additional expense to the Owner.

3.2 PREPARATION

A. Protect adjacent work areas and finished surfaces from damage during joint sealant installation.

B. At existing mortar joints: Route existing mortar joints to a minimum depth of 1-1/2” and clean substrates of substances that impair the bond of joint sealants. Remove mortar residue.

C. At existing sealant joints: Prior to installation, remove joint sealant materials and clean substrates of substances that impair the bond of joint sealants. Remove joint sealant residue.

D. Remove rusting or scaling surfaces using abrasive cleaning methods as recommended by joint sealant Manufacturer prior to joint sealant installation.

E. Remove and neutralize efflorescence, mold, mildew and algae prior to joint sealant installation.

F. Clean and prepare joint surfaces before installing joint sealants. Clean and dry surfaces of frost and dust.

1. Clean porous joint surfaces by using heavy-duty brushing, light abrasive, mechanical abrading or combination of these methods to produce a clean, sound surface for optimum bond with joint sealants per manufacturer's recommendations. Provide dry, dust-free and cleaned substrate for optimum results.
2. Clean non-porous surfaces using the two-cloth solvent wipe method as referenced in ASTM C-1193 and outlined by joint sealant manufacturer's instruction. IPA (isopropyl alcohol) is not a degreasing solvent; utilize for non-porous joint cleaning and preparation. Use xylene, toluene or MEK for degreasing solvent and general cleaning of non-porous surfaces. Follow applicable precautions associated with solvents.

G. Coordinate cleaning, priming and installation to avoid contamination of wet, freshly coated or on adjacent finished surfaces.

H. Prepare finish-coated surfaces in accordance with joint sealant Manufacturer's specific recommendations.

3.3 INSTALLATION

A. Comply with joint sealant Manufacturer's written installation instructions for products, primers and applications.

B. Apply joint sealants for continuous waterproof sealant joint protection. Lap vertical joints over horizontal joints as recommended by sealant Manufacturer. Comply with installation recommendations in ASTM C-1193 for use of joint sealants as applicable to each specific sealant installation.

C. Install sealant primers when recommended by sealant Manufacturer and demonstrated at pre-construction tests after joint surface preparation has been completed and when surfaces are verified as clean and dry.

1. Apply sealant Manufacturer's primer per Manufacturer's instructions.
2. Follow Manufacturer's specific safety, health and environmental recommendations per most recent Material Safety Data Sheets, technical bulletins and instructions. Handle solvents in compliance with applicable EPA, OSHA and VOC requirements regarding health/safety standards.
3. Allow primer installation to dry or cure prior to installation of backing or joint sealants.

D. Install joint sealant backings of type and size required.

1. Avoid gaps, twisting, stretching or puncturing joint sealant backing materials. Place backing materials into joint opening using a gauge or roller-tool designed to provide the appropriate uniform depth allowing optimum sealant profile, sealant coverage and long-term joint sealant performance.
2. Install bond-breaker tape behind sealant joints where sealant backings are not feasible and to avoid 3-sided adhesion at backside of sealant joint.
3. Use masking tape to protect adjacent finished surfaces prior to joint sealant installation.

E. Install joint sealants in accordance with joint sealant Manufacturer's instructions using proven techniques that comply with the following and in proper sequence with installation of joint backings.

1. Using proper joint sealant dispensing equipment, place sealants by pushing sealant beads into opening to wet-out joint sealant substrates. Fill sealant joint opening to proper configuration.
2. Install, providing uniform cross-sectional shapes and depths in relation to joint width for optimum sealant movement capability per joint sealant manufacturer's instructions.

F. Tool non-sag joint sealant installations. After placing fresh sealants and before skinning or curing begins, tool sealants using metal spatulas designed for this purpose in accordance with sealant Manufacturer's recommendation. Tool to form a smooth, uniform sealant finish, eliminating air pockets and ensuring good contact for optimum joint sealant adhesion within each side of the joint opening.

1. Provide concave joint configuration as indicated per figure 8-A in ASTM C-1193 unless otherwise indicated for the project. Wet tooling of joint sealants is not permitted.
2. Remove excess sealant from surfaces adjacent to joint openings using metal spatula, promptly cleaning sealant residue from adjacent finished surfaces. Remove masking after joint sealant is installed.

G. Allow joint sealants to cure for a minimum of 7 days before adhesion testing is performed as recommended by joint sealant Manufacturer for field-testing.

3.4 FIELD QUALITY CONTROL

A. Where required above, ensure Manufacturer's field service is provided consisting of site visits at the start of the project, during application, and upon completion of the project.

B. Field-Adhesion Testing: Keep daily log of sealant installation recording self-performed field-adhesion testing at each elevation of the project and as follows:

1. Document and perform field-adhesion testing in accordance with Manufacturer's recommended field-adhesion testing to qualify for joint sealant Manufacturer's Warranty.
2. In compliance with joint sealant manufacturer, joint sealants tested and not indicating adhesive failure within the substrates are considered satisfactory results. For joint sealants that fail to adhere to the substrate, clean, re-install and then re-test until satisfactory results are obtained.

C. The Engineer and Owner reserves the right to complete recommended testing required by the Manufacturer at completion of work to ensure warranty requirements and contract compliance are met.

3.5 PROTECTION

A. Protect installed sealants during and after final curing from damage resulting during construction. Replace damaged joint sealants.

3.6 CLEANING

A. Clean off/remove excess sealant or sealant residue adjacent to joint sealant installations as the work progresses by methods approved by joint sealant Manufacturer. Do not damage adjacent surfaces with harmful removal techniques and protect finished surfaces beyond those that have been masked.

B. 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

SECTION 22 14 26

ROOF DRAINS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Water test storm drain leaders and roof drains.
2. Replace deteriorated roof drain components.
3. Provide retrofit overflow roof drain approved by the roof system manufacturer where indicated in the Contract Drawings.

1.2 RELATED SECTIONS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specifications sections apply to this section, including but not limited to:

1. Section 06 10 00 "Rough Carpentry"
2. Section 07 01 50 "Preparation for Reroofing"
3. Section 07 22 16 "Roof Insulation"
4. Section 07 54 00 "Thermoplastic Single Ply Roofing"
5. Section 07 62 00 "Sheet Metal Flashing and Trim"

1.3 REFERENCES

A. Refer to Section 01 42 00 "References" for referenced standards and applicable building code.

B. Refer to the following references for specification compliance:

1. American Society of Mechanical Engineers - ASME

    a. ASME A112.21.2 Roof Drains

2. International Association Plumbing & Mechanical Officials - IAPMO
3. ASTM International

1.4 SUBMITTALS

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

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

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

1.5 PROJECT CONDITIONS

A. Environmental Requirements:

1. Flood test roof drain systems to verify functional operation prior to roof replacement operations and report deficiencies to Engineer and Owner.

B. Protection:

1. Ensure roof drainage systems remain in service and restore to operational before leaving the site.
2. Protect building interior and exterior surfaces during construction.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Existing Roof Drains: Replace deteriorated clamping rings and damaged strainer domes to match existing drain manufacturer and model. Replace bolts with stainless steel clamping ring bolts. Restore threads as necessary using taps to ensure positive fastening; clean metal shavings, chips and debris before fastening clamping ring.

B. Retrofit Overflow Roof Drain (PVC): Shall be a prefabricated aluminum drain insert composed of 11 gauge spun aluminum drain body, with PVC coated 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 manufacturers. Contractor shall field verify drain diameter and required stem length prior to ordering drains.

PART 3 - EXECUTION

3.1 INSPECTION

A. Conduct a pre-job conference including the Engineer, Contractor, and the Owner's representative prior to the installation of roof drain components.

B. Verify that conditions are acceptable to begin the installation.

C. Inspect daily the drain components installation to ensure conditions remain satisfactory.

3.2 PREPARATION

A. Inspect building components and conditions before proceeding with drain components installation.

B. EXISTING ROOF DRAINS AND LEADERS

C. Prior to commencement of work on the project inspect leaders and roof drains for damage and water flow.

1. Clean drains of accumulated debris.

2. Clean drain bowl and drain outlet of debris build-up to bare metal.
3. Power vacuum debris down to the first elbow in the drain line.
4. After cleaning debris from the drain bowl, inspect the bowl carefully for cracks, and the drainpipe connection for possible deterioration.
5. Flood test leaders and roof drains to determine that there are no plumbing leaks unrelated to the existing roof system and to verify proper function and flow.
6. Complete inspection and testing prior to roofing tear-off. If deficiencies or damages are observed, record the deficiency on a Roof Plan and forward to the Engineer. The Engineer will notify the Owner accordingly. Allow 48 hours after notification for corrective work by the Owner.
7. If no deficiencies or damages are reported to the Owner prior to commencement of work, assume responsibility for the condition and operation of the leaders and drains including the connection between the roof drain and associated plumbing/leaders.

D. Install temporary drain plugs during roofing activities to prevent foreign materials from entering drainage system. Remove drain plugs at the end of each workday to maintain drains in operational condition.

E. Replace deteriorated clamping rings, install new bolts, replace damaged strainer domes at the end of each working day.

F. Repair drain piping clogged by construction debris at no cost to the Owner.

G. Repair leaks associated with damage, following successful flood testing, to the roof drain connection to associated plumbing at no cost to the Owner.

3.3 RETROFIT OVERFLOW DRAINS

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

B. Adjust the height of the existing PVC drain leader to match the height of the new insulation system.

C. Examine existing drain leader to ensure there are not elbows preventing drain insert from being installed. Contractor is responsible to field verify this condition along with drain diameter prior to ordering drain inserts.

D. Prepare inside of drain leader in accordance with manufacturer’s preparation instructions.

E. Install drain insert in accordance with manufacturer’s installation instructions, secure to roof deck and properly tighten compression seal.

F. Provide roof drain flashings as specified.

G. Clamping rings and bolts/nuts shall be installed and properly tightened.

H. Stainer dome shall be installed and remain in place daily.

I. Provide 2 inch high overflow ring.

3.4 CLEANING

A. Clean interior of piping of dirt and superfluous materials. Flush with potable water.

END OF SECTION

0014 – DRAWINGS

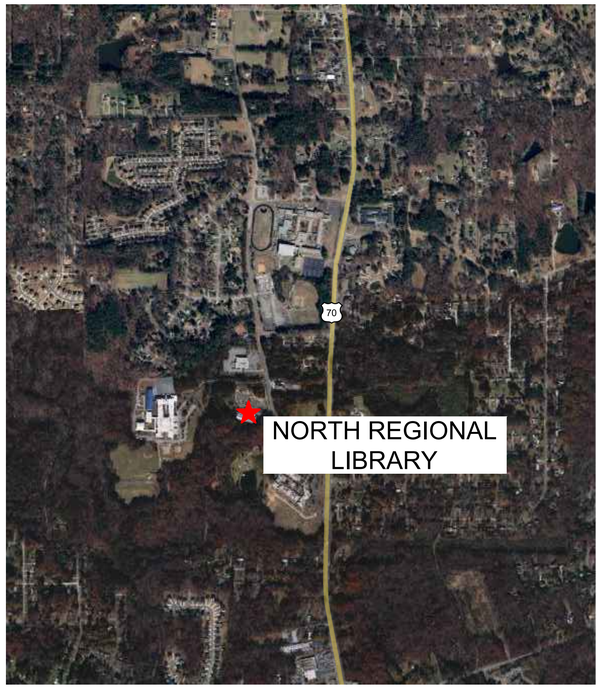
DURHAM COUNTY GENERAL SERVICES

NORTH REGIONAL LIBRARY ROOF REPLACEMENT

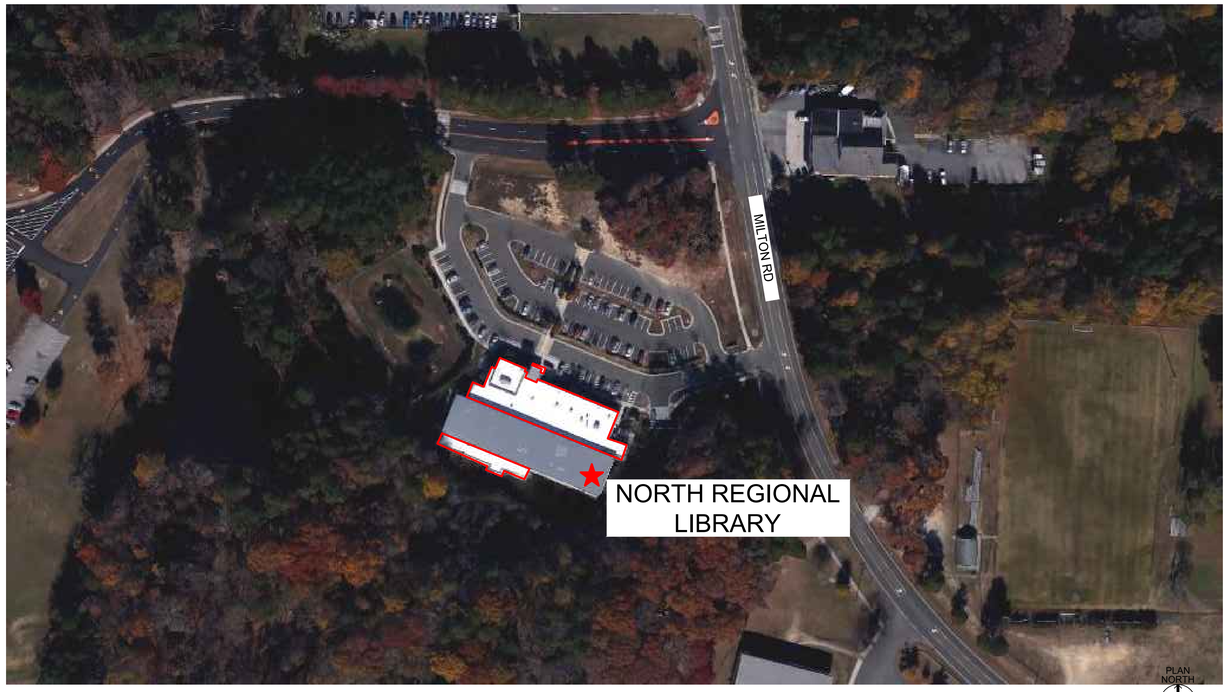
221 MILTON ROAD
DURHAM, NC 27712

REI PROJECT NO. R25RAL-031

DATE: FEBRUARY 20, 2026



A VICINITY MAP
SCALE: N.T.S.



B SITE PLAN
SCALE: N.T.S.

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4. NOTES ARE INTENDED TO PROVIDE TYPICAL LOCATIONS OF WORK. IT IS THE CONTRACTORS RESPONSIBILITY TO QUANTIFY ALL LOCATIONS.

DETAIL NOTES
1. LIGHT LINES REPRESENT EXISTING CONSTRUCTION TO REMAIN AND DARK LINES REPRESENT NEW COMPONENTS TO BE PROVIDED.

ABBREVIATION LIST:

AB	ABANDONED
ALUM.	ALUMINUM
BLDG.	BUILDING
CJ	CONTROL JOINT
DS	DOWNSPOUT
EJ	EXPANSION JOINT
EPDM	ETHYLENE PROPYLENE DIENE MONOMER
EX.	EXISTING
GALV.	GALVANIZE
GA.	GAUGE
HT	HEIGHT
MAX.	MAXIMUM
MIN.	MINIMUM
N.I.C	NOT IN CONTRACT
NOM.	NOMINAL
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
OF	OVERFLOW
PS	PRESSURE SENSITIVE
PVC	POLYVINYL CHLORIDE
RPLC.	REPLACEMENT
SF	SQUARE FEET
S.S.	STAINLESS STEEL
SIM.	SIMILAR
TERM.	TERMINATE/TERMINATION
TYP.	TYPICAL

DRAWING INDEX:

BUILDING CODE REFERENCE:
2018 NCBC: BUILDING
2018 NCBC: ENERGY CONSERVATION
2018 NCBC: EXISTING BUILDING
2018 NCBC: FIRE PREVENTION
2018 NCBC: FUEL GAS
2018 NCBC: MECHANICAL
2018 NCBC: PLUMBING

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Robert E. Tomlinson IIBEC 0321 Registered Roof Consultant

PROJECT NAME:

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DURHAM, NC 27712

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CD	02-20-26	CONTRACT DOCUMENTS

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SHEET TITLE

COVER

DRAWING

G-001

2018 APPENDIX B
BUILDING CODE SUMMARY
FOR COMMERCIAL ROOF REPLACEMENT PROJECTS
(EXCEPT 1 AND 2 FAMILY DWELLINGS AND TOWNHOUSES)

Name of Project: NORTH REGIONAL LIBRARY ROOF REPLACEMENT
Address: 221 MILTON ROAD DURHAM, NC 27712
Owner/ Authorized Agent: Lee Duncan Phone #: 910-560-7196
Email: leeduncan@dconc.gov
Owned By: ☒ City/County ☐ Private ☐ State
Code Enforcement Jurisdiction: ☐ City ☒ County Durham ☐ State

ENGINEER:

FIRM	NAME	LICENSE #	PHONE #	EMAIL
REI Engineers	Stephen Ingram	049789	919-605-4033	singram@reiengineers.com

2018 NORTH CAROLINA CODE FOR:
☒ Roof Replacement ☐ Roof Recover ☐ Roof Repair

2018 NORTH CAROLINA EXISTING BUILDING CODE
CHAPTER 5 CLASSIFICATION OF WORK:
☒ Section 503: Alteration – Level 1 (Renovation) ☐ Section 504: Alteration – Level 2 (Alteration) ☐ Section 505: Alteration – Level 3 (Reconstruction)

BASIC BUILDING DATA
Constructed Date: 2001
Construction Type: (check all that apply) ☐ I-A ☐ II-A ☐ III-A ☐ IV ☐ V-A ☐ I-B ☒ II-B ☐ III-B ☐ V-B
Sprinklers: ☐ No ☐ Partial ☒ Yes: ☒ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☒ No ☐ Yes: Class: ☐ 1 ☐ 2 ☐ 3 ☐ Wet ☐ Dry
Fire District: ☐ No ☒ Yes (Primary)
Building Height: 24 feet **Roof Area:** 26,649 square feet **Number of Stories:** 1
Allowable Height: 55 feet **Allowable Area:** 28,500 square feet **Allowable Stories:** 2

OCCUPANCY
Assembly: ☐ A-1 ☐ A-2 ☒ A-3 ☐ A-4 ☐ A-5
Business: ☐ B
Educational: ☐ E
Factory: ☐ F-1 (Moderate) ☐ F-2 (Low Hazard)
High Hazard: ☐ H-1 (Detonate) ☐ H-2 (Deflagrate) ☐ H-3 (Combust) ☐ H-4 (Health) ☐ H-5 (HPM)
Institutional: ☐ I-1 Condition 1 ☐ I-1 Condition 2 ☐ I-2 ☐ I-3 ☐ I-4
Mercantile: ☐ M
Residential: ☐ R-1 ☐ R-2 ☐ R-3 ☐ R-4
Storage: ☐ S-1 (Moderate) ☐ S-2 (Low Hazard)
Utility: ☐ U

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT	FIRE PROTECTION RATING REQUIRED	FIRE PROTECTION RATING PROVIDED	DESIGN # FOR RATED ASSEMBLY	COMMENTS
Roof Construction	- HR	- HR	N/A	Type II-B Construction

STRUCTURAL SUMMARY

Components & Cladding Wind Uplift Resistance: (ASCE 7-10)
Basic Wind Speed 120 mph Risk Category III
Internal Pressure Coeff. 0.18 Exposure Category C

Wind Uplift Nominal Design Pressures:

Zone 1 (Field)	-19.6 psf
Zone 2 (Perimeter)	-32.8 psf
Zone 3 (Corner)	-49.4 psf
Zone 2 OH (Perimeter)	-28.2 psf
Zone 3 OH (Corner)	-46.4 psf
Zone 4 (Perimeter)	-19.4 psf
Zone 5 (Corner)	-23.9 psf
Positive Zones 4 & 5	+17.9 psf

Roof System Dead Load **Sectors A, B, & D**
Existing System: 5.12 psf
Replacement system 6.22 psf

ENERGY SUMMARY

Roof Assembly Description: Refer to Specification Section 07 22 16 Roof Insulation
Code Compliance: 2018 NCEBC
Min. Required R-value: Not less than existing or R-xx

Sectors A, B, & D

Existing R-Value:	R-30
R-Value of Insulation (min):	R-30
Number of Skylights:	0
u-Value of each Skylight:	0
Total Sq. Ft. of Skylights	0

A BUILDING CODE SUMMARY
SCALE: N.T.S.

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Robert E. Tomlinson IBEC 0321 Registered Roof Consultant

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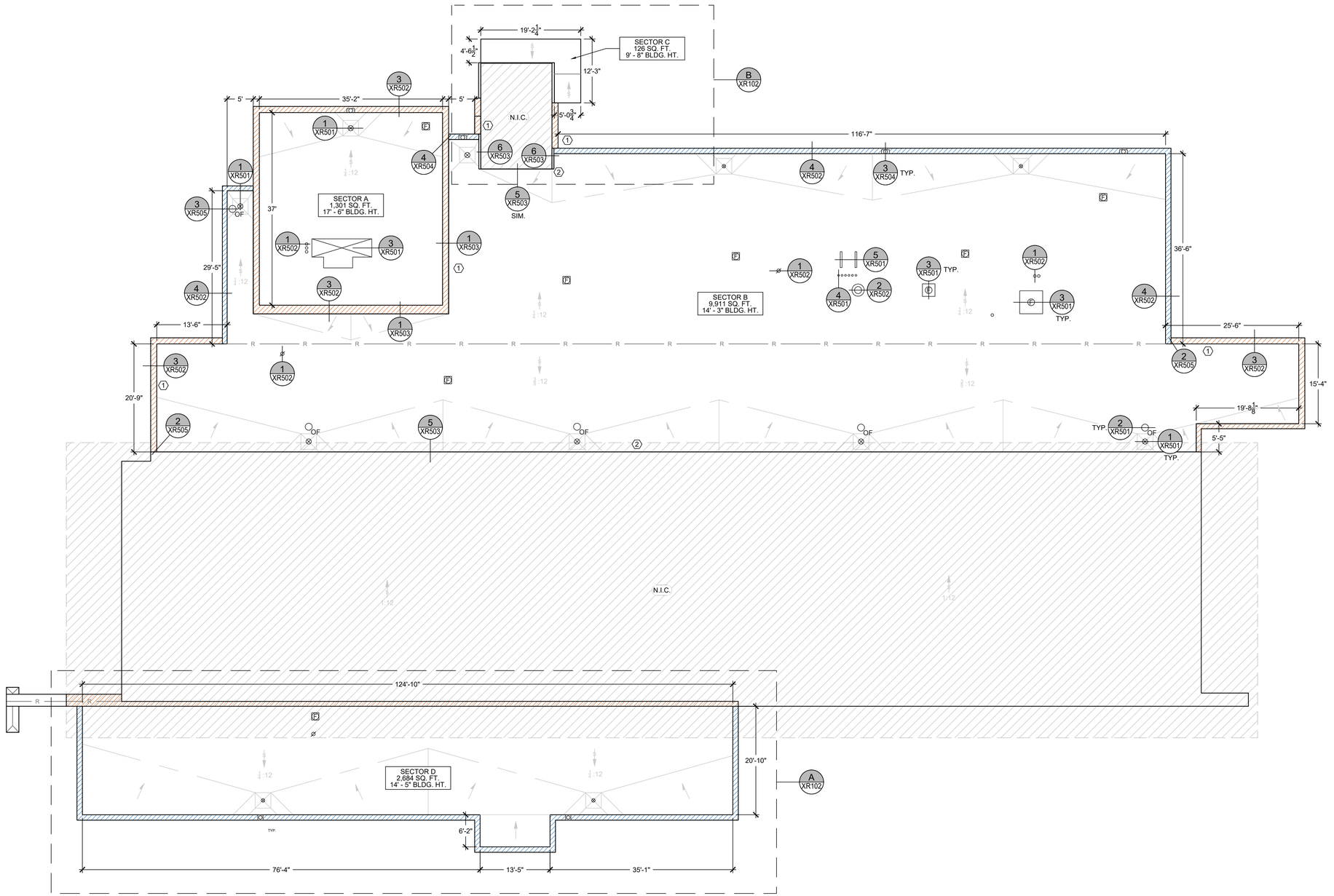
SHEET TITLE
BUILDING CODE SUMMARY

DRAWING
G-002



A ROOF PLAN

SCALE: 1"=10'

PLAN NORTH

1"=10' 10 0 10 20

WIND ZONES

- ZONE 1 (FIELD)
- ZONE 2 (PERIMETER)
- ZONE 3 (CORNER)

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SHEET NOTES:

(1) AT JOINTS IN STONE COPING, REMOVE EXISTING SEALANT AND BACKING MATERIAL AND INSTALL NEW BACKING MATERIAL AND SEALANT ACCORDING TO SECTION 07 92 00 - ELASTOMERIC JOINT SEALANT AND DETAIL 7/XR503.

(2) AT ROOF SECTOR B, INSTALL WALKWAY PADS ON THE MEMBRANE ROOF SURFACE CENTERED UNDER THE FULL LENGTH OF THE DRIP EDGES OF ADJACENT STANDING SEAM METAL ROOF AREAS ACCODRING TO SECTION 07 54 00 - THERMOPLASTIC SINGLE-PLY ROOFING.

COPING KEY

- METAL COPING
- STONE COPING

KEY

- ROOF EDGE
- PARAPET WALL
- EXPANSION JOINT
- RIDGE
- VALLEY
- TAPERED INSULATION
- STRUCTURAL SLOPE
- TAPERED INSULATION SLOPE
- CRICKET SLOPE
- ROOF OVERHANG
- ROOF DRAIN
- OVERFLOW DRAIN
- PARAPET DRAIN SCUPPER
- SOIL PIPE
- PIPE PENETRATION
- HOT STACK
- MECHANICAL CURB
- EXHAUST FAN
- EQUIPMENT SUPPORT CURB
- NOT IN CONTRACT
- ELEVATION CHANGE
- NOTE NO.
- DETAIL INDICATOR
- ELEVATION INDICATOR

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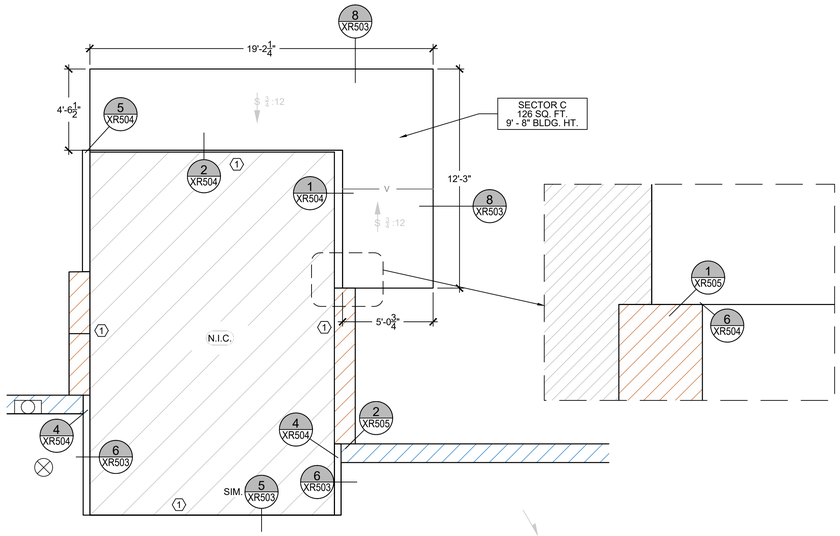
SHEET TITLE

ROOF PLAN

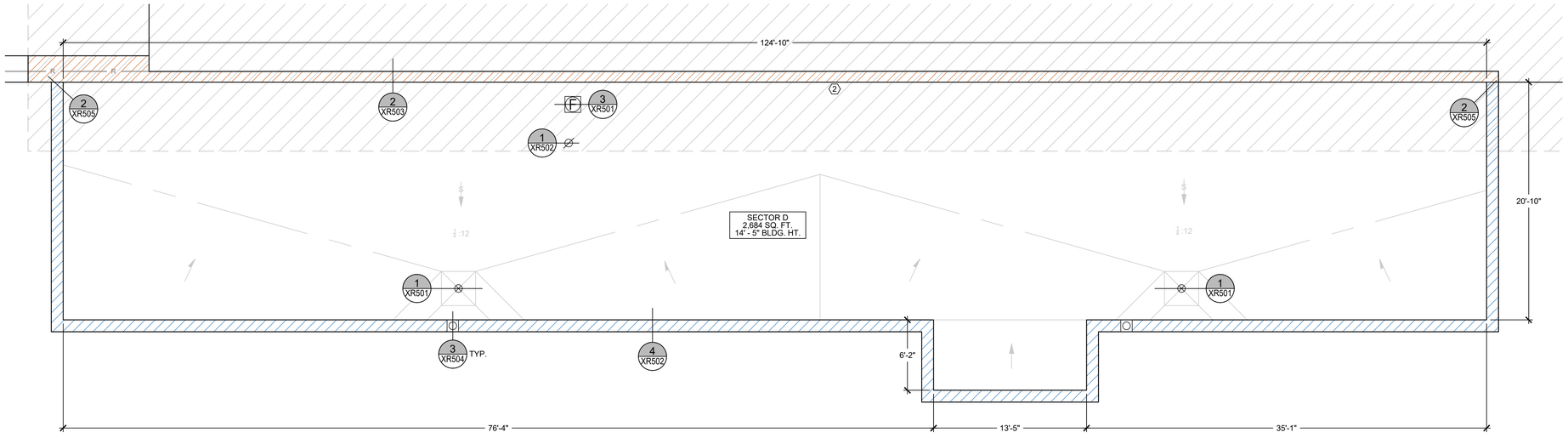
DRAWING

XR101



B ROOF PLAN

SCALE: 1/4" = 1'-0"



A ROOF PLAN

SCALE: 3/16" = 1'-0"

PLAN NORTH

1/4" = 1'-0" (4 0 4 8)

WIND ZONES

- ZONE 1 (FIELD)
- ZONE 2 (PERIMETER)
- ZONE 3 (CORNER)

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SHEET NOTES:

(1) INSTALL WET GLAZING SEALANT AT HEADS, SILLS AND JAMBS ACCORDING TO SECTION 07 92 00 - ELASTOMERIC JOINT SEALANTS AND DETAIL DRAWINGS 3/XR503 AND 4/XR503.

(2) AT JOINTS IN STONE COPING, ROUT EXISTING MORTAR AND INSTALL NEW BACKING MATERIAL AND SEALANT ACCORDING TO DETAIL 2/XR503, SECTION 07 92 00 - ELASTOMERIC JOINT SEALANT AND DETAIL 7/XR503.

COPING KEY

- METAL COPING
- STONE COPING

KEY

- ROOF EDGE
- PARAPET WALL
- EXPANSION JOINT
- R — RIDGE
- V — VALLEY
- TAPERED INSULATION
- STRUCTURAL SLOPE
- TAPERED INSULATION SLOPE
- CRICKET SLOPE
- ROOF OVERHANG
- ROOF DRAIN
- OVERFLOW DRAIN
- PARAPET DRAIN SCUPPER
- SOIL PIPE
- PIPE PENETRATION
- HOT STACK
- MECHANICAL CURB
- EXHAUST FAN
- EQUIPMENT SUPPORT CURB
- NOT IN CONTRACT
- ELEVATION CHANGE
- (#) NOTE NO.
- (# / SHT) DETAIL INDICATOR
- (# / SHT) ELEVATION INDICATOR

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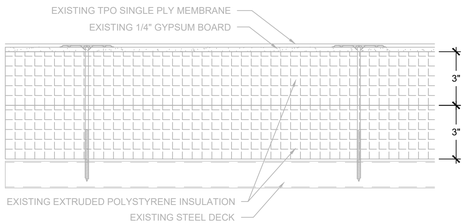
SHEET TITLE

ROOF PLAN

DRAWING

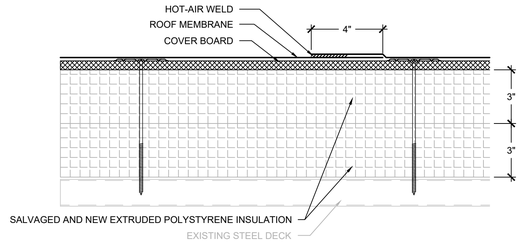
XR102



NOTES:
1. EXISTING ROOF SYSTEM COMPOSITION SHOWN IS BASED UPON RANDOM SAMPLING AT TEST CUT LOCATIONS INDICATED ON ROOF PLAN.
2. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY INFORMATION PROVIDED.
3. REMOVE COMPONENTS DOWN TO THE EXISTING EXTRUDED INSULATION TO REMAIN.

A EXISTING SYSTEM - SECTORS A, B, & D

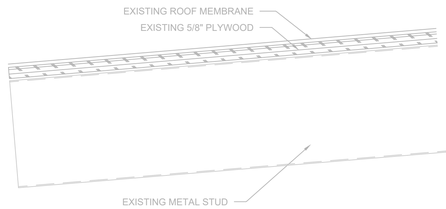
SCALE: 3" = 1'-0"



NOTES:
1. ROOF SYSTEM SHALL BE A TESTED ASSEMBLY IN ACCORDANCE WITH FM 4474, UL 580 OR UL 1897 TO RESIST THE WIND UPLIFT PRESSURES SPECIFIED IN SECTION 07 54 00 OF THE CONTRACT DOCUMENTS. PROVIDE SUBMITTAL INCLUDING DOCUMENTATION OF TESTED ASSEMBLY ALONG WITH ATTACHMENT REQUIREMENTS FOR THE ASSEMBLY.
2. ANY WHOLE OR PARTIAL INSULATION BOARD OR PORTION OF ANY BOARD WHICH FALLS IN THE PERIMETERS & CORNERS OUTLINED SHALL BE SUBJECT TO THE FASTENING REQUIREMENTS FOR THE HIGHEST WIND ZONE ENCOUNTERED, ACROSS THE ENTIRE BOARD.

B REPLACEMENT SYSTEM - SECTORS A, B, & D

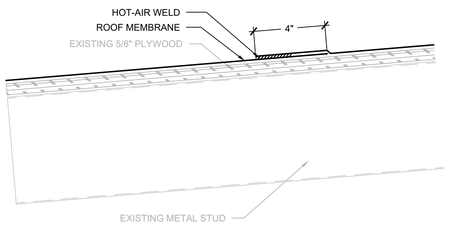
SCALE: 3" = 1'-0"



NOTES:
1. EXISTING ROOF SYSTEM COMPOSITION SHOWN IS BASED UPON RANDOM SAMPLING AT TEST CUT LOCATIONS INDICATED ON ROOF PLAN.
2. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY INFORMATION PROVIDED.
3. REMOVE COMPONENTS DOWN TO THE EXISTING PLYWOOD TO REMAIN.

C EXISTING SYSTEM - SECTOR C

SCALE: 3" = 1'-0"



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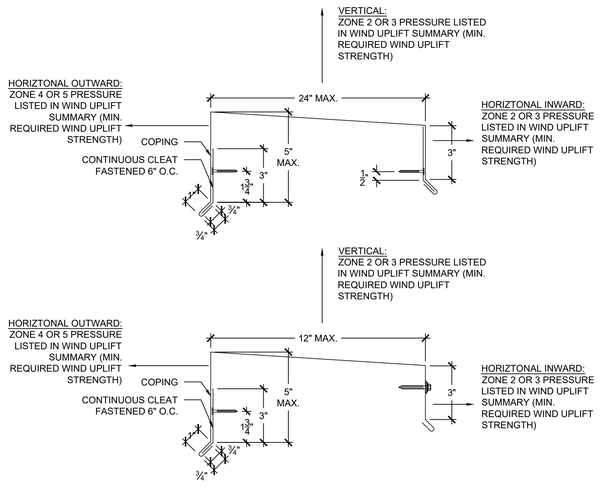
D REPLACEMENT SYSTEM - SECTOR C

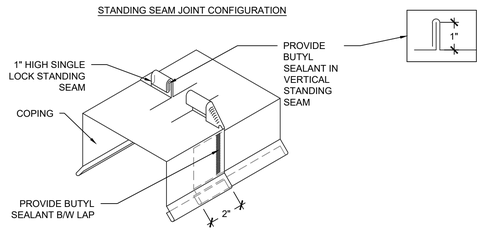
SCALE: 3" = 1'-0"



NOTES:
1. COPING SHALL BE TESTED FOR RESISTANCE TO PRESSURES SHOWN ABOVE IN ACCORDANCE WITH ANSI/SPRI ES-1 TEST METHOD RE-3.
2. CONTRACTOR SHALL PROVIDE SHOP DRAWING DEPICTING SHEET METAL COMPONENTS WITH DIMENSIONS AND PROVIDE EVIDENCE OF TESTING TO RESIST THE SPECIFIED PRESSURES.
3. PROVIDE SEPARATE FASCIA COVER EXTENSION WHERE EDGE METAL DIMENSIONS EXCEED ALLOWABLE TESTED ASSEMBLY REQUIREMENTS.

E COPING ATTACHMENT

SCALE: 3" = 1'-0"



F COPING JOINTS (STANDING SEAM)

SCALE: 3" = 1'-0"

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SHEET NOTES:
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SEALS:

NORTH CAROLINA PROFESSIONAL SEAL 049789 ENGINEER STEPHEN INGRAM 12/17/25

Robert E. Tomlinson IIBEC 0321 Registered Roof Consultant

PROJECT NAME:

DURHAM COUNTY GENERAL SERVICES

NORTH REGIONAL LIBRARY ROOF REPLACEMENT

221 MILTON ROAD
DURHAM, NC 27712

PROJECT NO:

R25RAL-031

ISSUE:

NO.	DATE	DESCRIPTION
DD	10-15-25	DESIGN DEVELOPMENT (90%)
CD	02-20-26	CONTRACT DOCUMENTS

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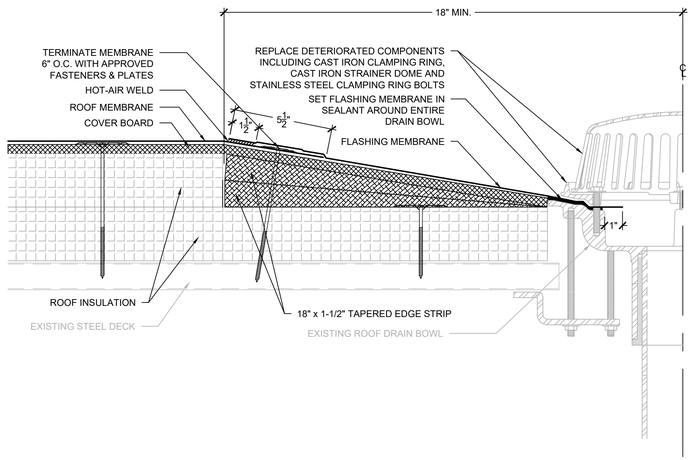
SHEET TITLE

ROOF SYSTEMS

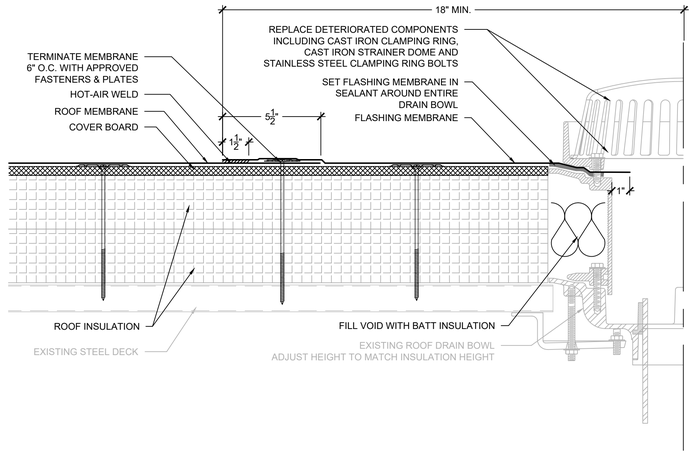
DRAWING

XR301



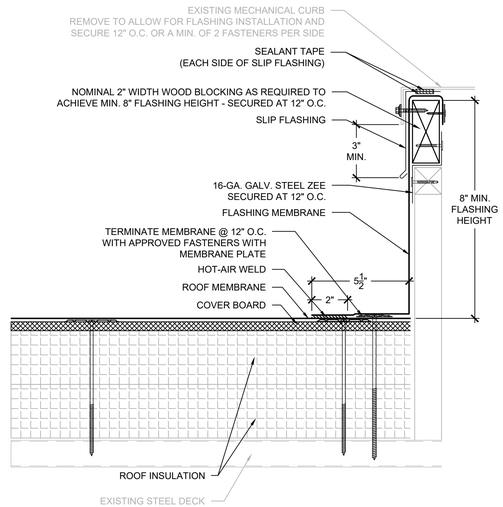
NOTES:
1. NOTIFY ENGINEER OF ANY BROKEN, CRACKED OR DAMAGED ROOF DRAIN BOWLS.
2. ALL CLAMPING RING BOLTS MUST BE PRESENT AND SECURE.
3. PROPERLY CLEAN ASPHALTIC MATERIALS AND RESIDUE FROM DRAIN BOWL DOWN TO BARE METAL PRIOR TO FLASHING MEMBRANE INSTALLATION.

1 PRIMARY ROOF DRAIN
SCALE: 3" = 1'-0"



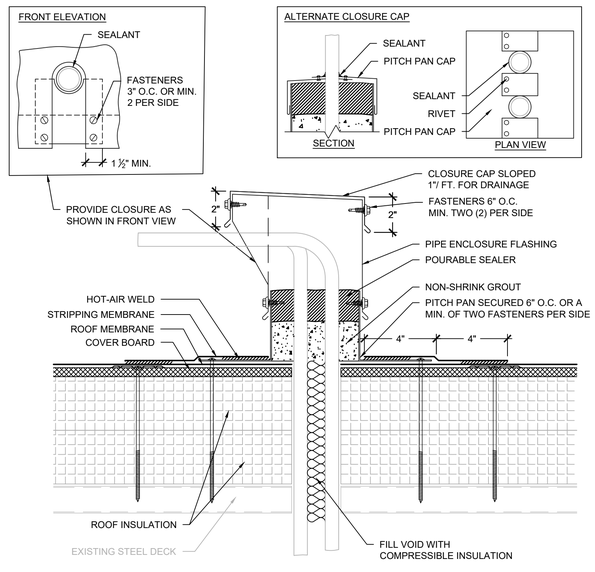
NOTES:
1. NOTIFY ENGINEER OF ANY BROKEN, CRACKED OR DAMAGED ROOF DRAIN BOWLS.
2. INSTALL RETROFIT DRAIN INSERT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ENSURE IT IS PROPERLY SECURED AND SEAL IS PROPERLY TIGHTENED TO EXISTING DRAIN LEADER.

2 OVERFLOW ROOF DRAIN
SCALE: 3" = 1'-0"



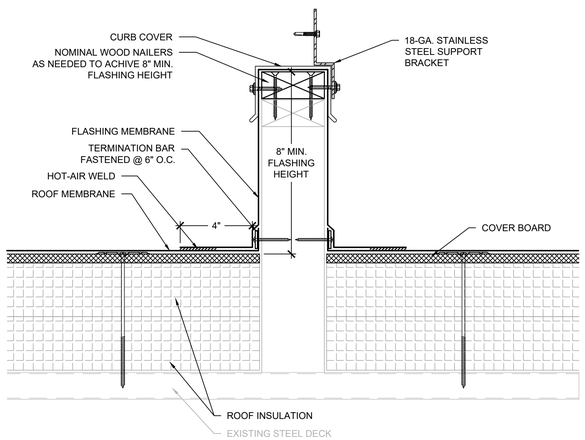
NOTES:
1. PROPERLY DISCONNECT UNIT TO RAISE AND ALLOW FLASHING INSTALLATION THEN PROPERLY REINSTALL AND CONNECT.
2. EXTEND CURB HEIGHT AND/OR PROVIDE WOOD NAILERS TO PROVIDE MINIMUM 8" FLASHING HEIGHT.

3 EQUIPMENT CURB SLIP FLASHING
SCALE: 3" = 1'-0"



NOTES:
1. WHERE PIPES CAN BE SEPARATED WITH 2" MIN. CLEARANCE, PROVIDE FLUID APPLIED FLASHING IN LIEU OF MULTIPLE PIPE PENETRATION FLASHING. UTILIZE RIGID INSULATION B/W PIPES TO MAINTAIN SEPARATION.
2. WHERE PIPES ARE VERTICAL, PROVIDE ALTERNATE CLOSURE CAP.

4 MULTIPLE PIPE PENETRATION
SCALE: 3" = 1'-0"



NOTES:
1. PROPERLY DISCONNECT EQUIPMENT/UNIT TO RAISE AND ALLOW FLASHING INSTALLATION THEN PROPERLY REINSTALL AND CONNECT. EXTEND CURB HEIGHT AND/OR PROVIDE WOOD NAILERS TO PROVIDE MINIMUM 8" FLASHING HEIGHT.
2. PROVIDE MECHANICALLY ATTACHED BASE SHEET OVER COMBUSTIBLE OR NAILABLE SUBSTRATES PRIOR TO ADHERING BASE FLASHINGS.
3. PROVIDE RUBBER PROTECTION PAD ADHERED TO TOP OF CURB COVER WHERE EQUIPMENT BEARS ON EQUIPMENT SUPPORT CURB.
4. DO NOT SECURE EQUIPMENT THROUGH TOP OF CURB. UTILIZE SUPPORT BRACKET SECURED TO SIDE OF CURB.

5 EQUIPMENT RAIL SUPPORT
SCALE: 3" = 1'-0"

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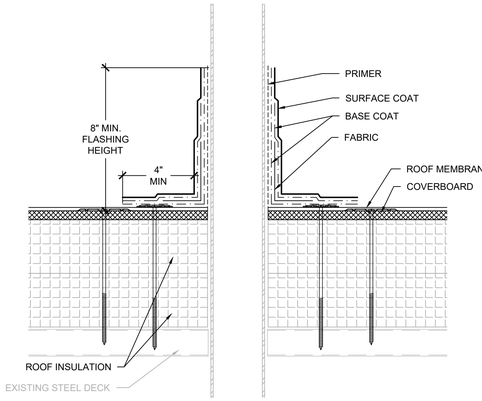
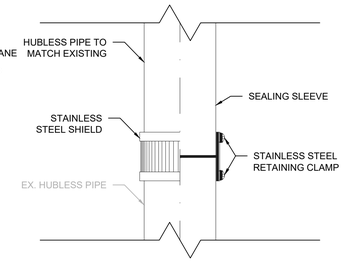
DETAILS

DRAWING

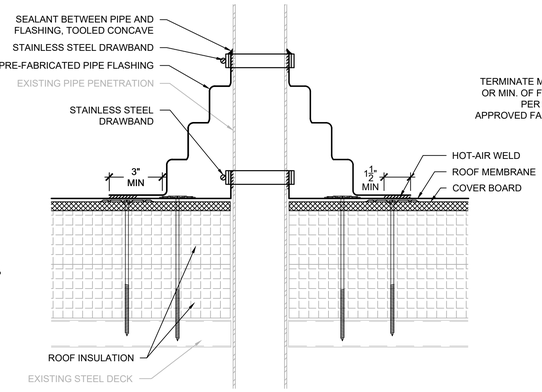
XR501



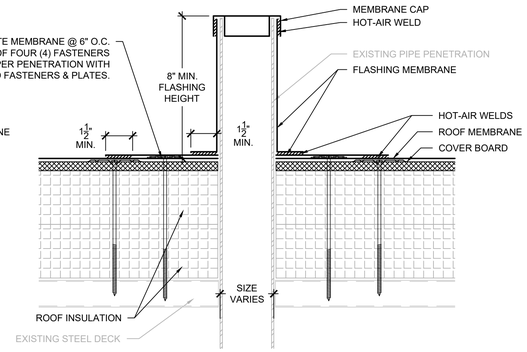
FLUID-APPLIED FLASHING



PIPE EXTENSION COUPLING



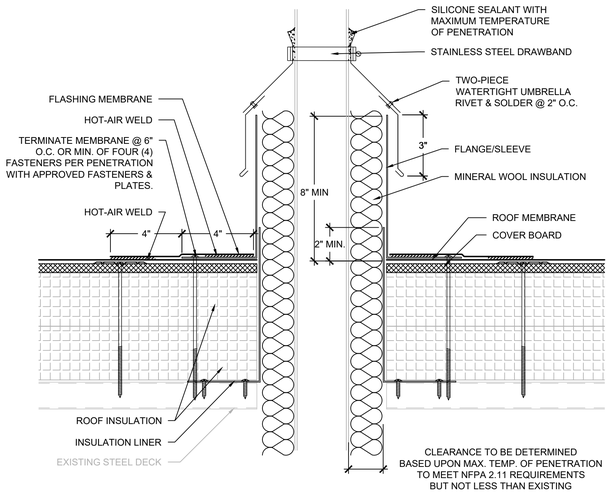
PRE-FABRICATED BOOT



FIELD WRAPPED PENETRATION

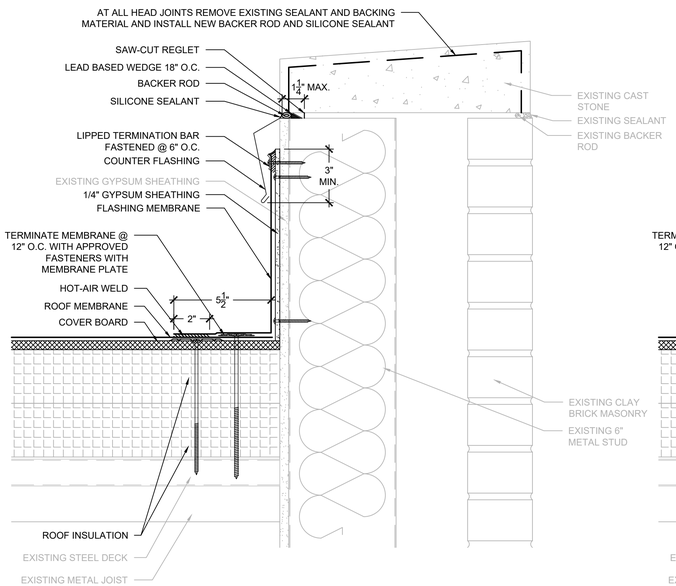
1 PIPE PENETRATION

SCALE: 3" = 1'-0"



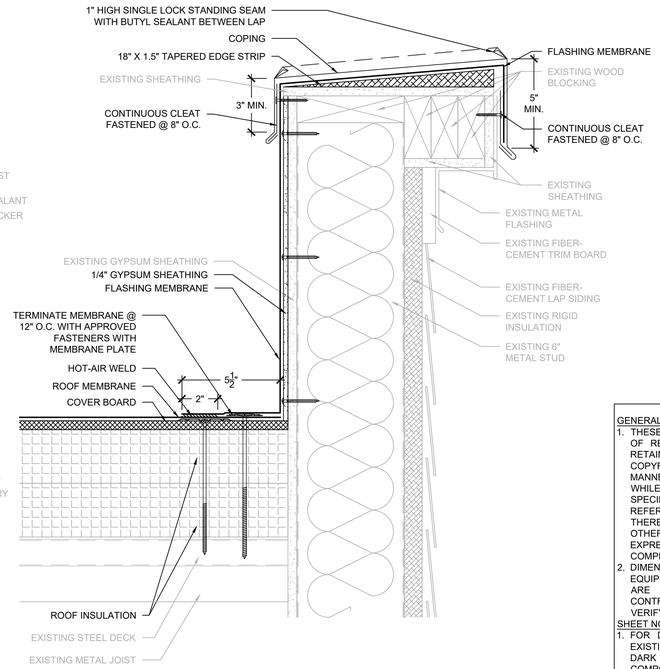
2 HOT STACK

SCALE: 3" = 1'-0"



3 PARAPET WALL WITH STONE CAP

SCALE: 3" = 1'-0"



4 PARAPET WALL WITH METAL CAP

SCALE: 3" = 1'-0"

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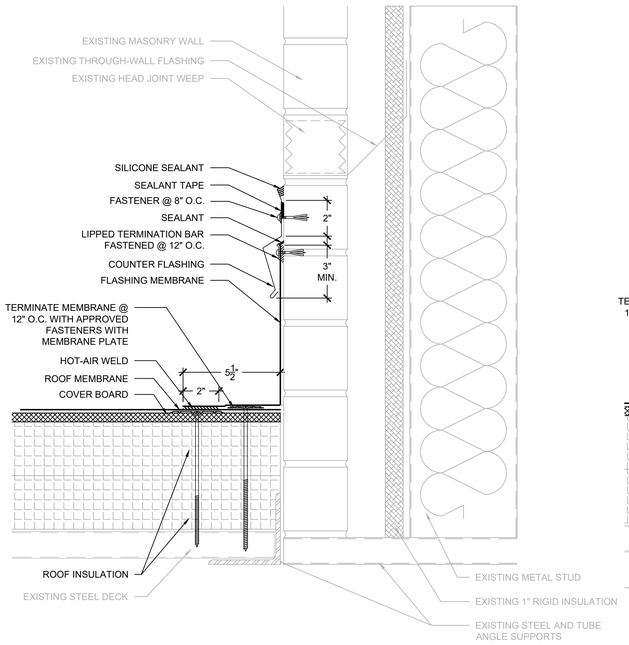
DETAILS

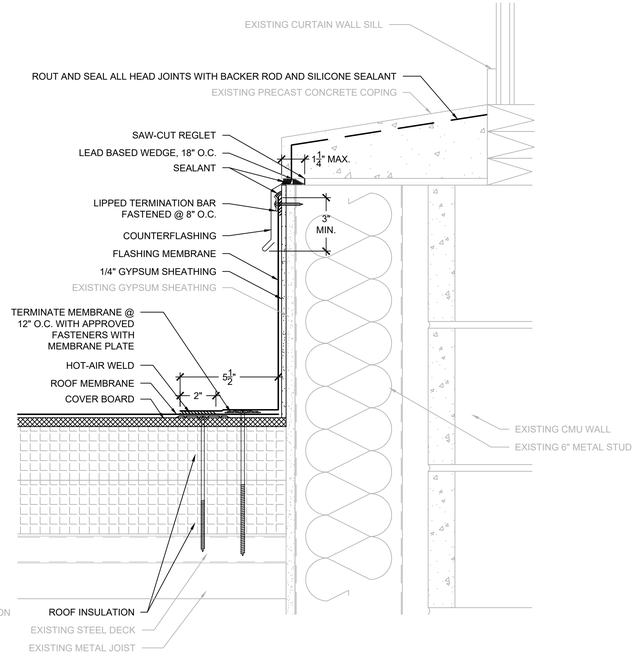
DRAWING

XR502



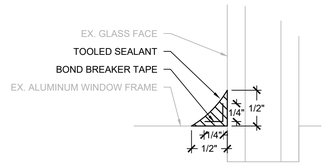
1 COUNTER FLASHING AT CLAY BRICK MASONRY WALL

SCALE: 3" = 1'-0"



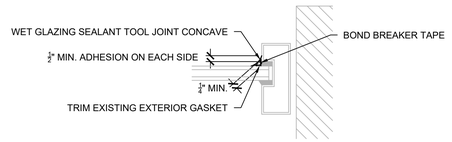
2 PARAPET WALL AT CAST STONE WINDOW SILL

SCALE: 3" = 1'-0"



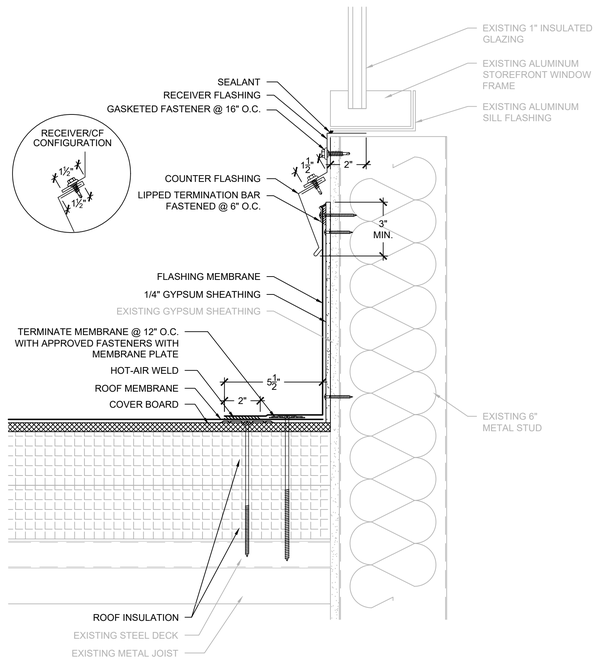
3 HEAD, SILL AND JAMB JOINTS WET GLAZING SEALANT

SCALE: 3" = 1'-0"



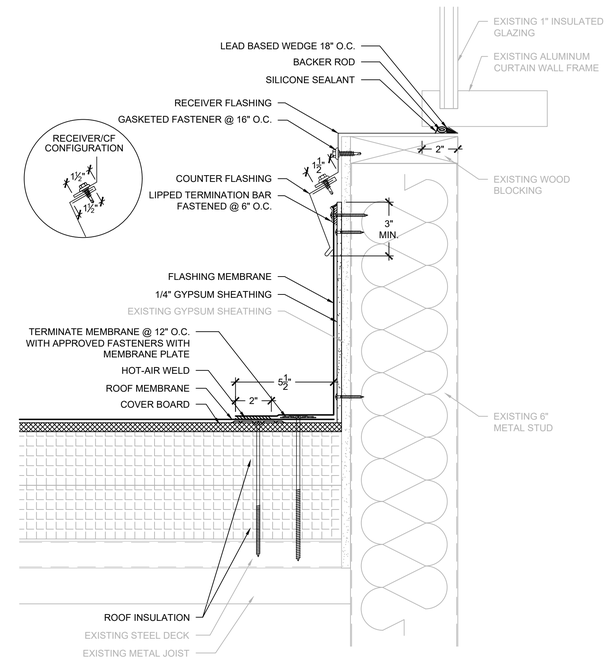
4 HEAD, SILL, AND JAMB SEALANT JOINTS

SCALE: 3" = 1'-0"



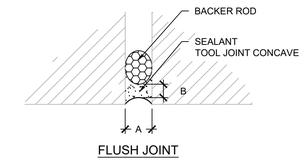
5 BASE FLASHING AT ALUMINUM FRAMED STOREFRONT WINDOW

SCALE: 3" = 1'-0"



6 BASE FLASHING AT CURTAIN WALL

SCALE: 3" = 1'-0"

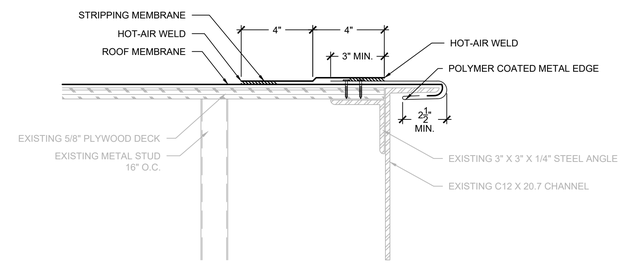


FLUSH JOINT

NOTES:
1. DIMENSION A SHALL BE 1/4" MINIMUM
2. DIMENSION B SHALL BE 1/4" MIN. AND 1/2" MAX.
3. RATIO OF A:B SHALL BE 2:1 MINIMUM.
4. BACKER ROD DIAMETER SHALL BE 25% LARGER THAN JOINT WIDTH.

7 BUTT JOINT

SCALE: 3" = 1'-0"



8 ENTRANCE CANOPY ROOF EDGE

SCALE: 3" = 1'-0"

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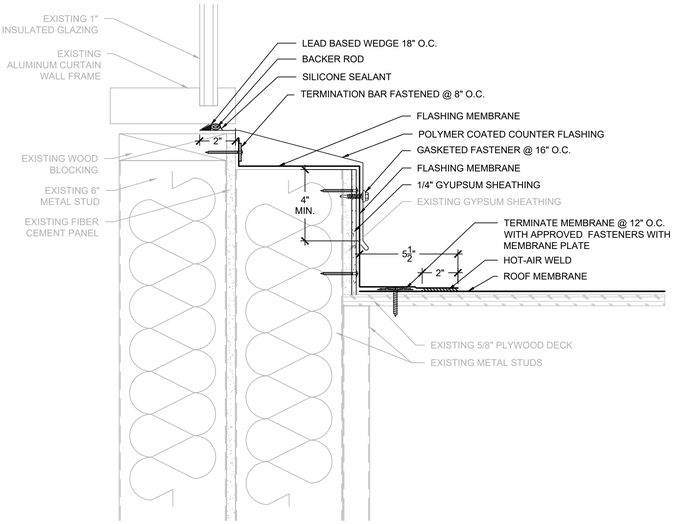
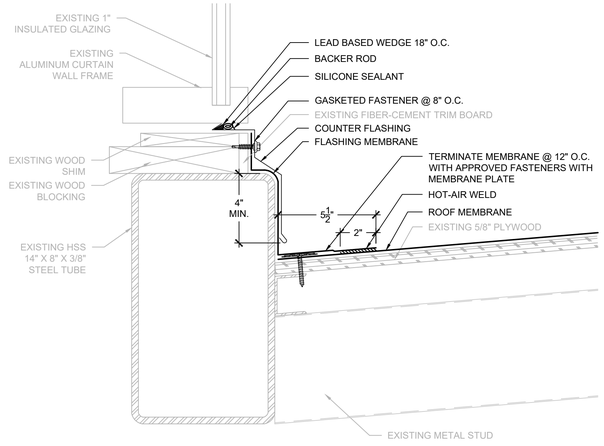


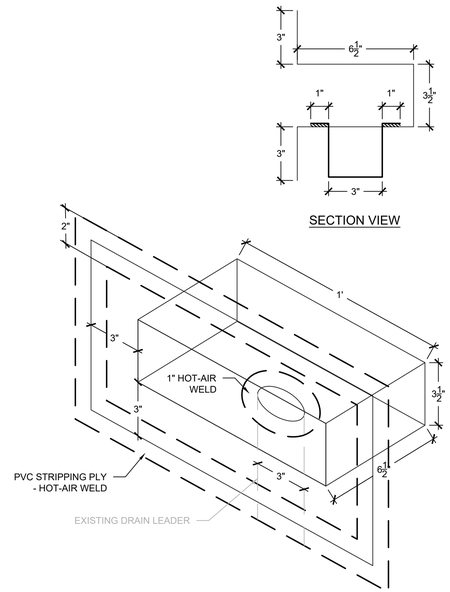
1 BASE FLASHING AT CANOPY CURTAIN WALL

SCALE: 3" = 1'-0"



2 BASE FLASHING AT CANOPY CURTAIN WALL

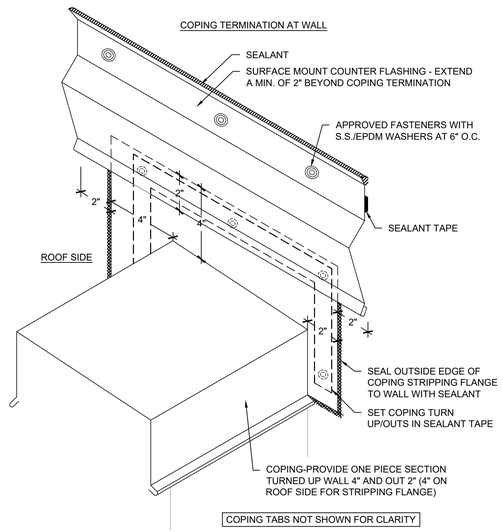
SCALE: 3" = 1'-0"



NOTE:
1. FLASHING MEMBRANE NOT SHOWN FOR CLARITY.

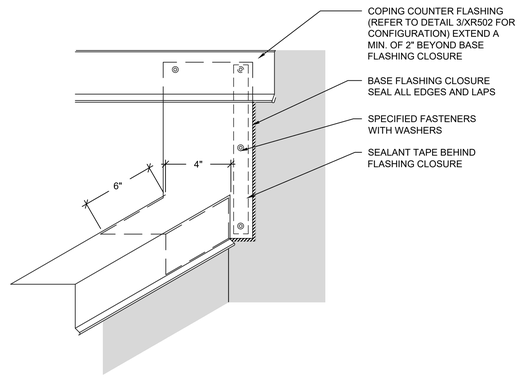
3 OVERFLOW SCUPPER - PVC COATED SHEET METAL

SCALE: 3" = 1'-0"



4 COPING TERMINATION AT MASONRY WALL

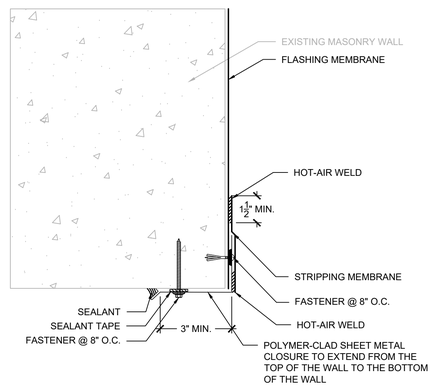
SCALE: 3" = 1'-0"



NOTES:
1. MEMBRANE AND FLASHING/STRIPPING MEMBRANE NOT SHOWN FOR CLARITY.
2. BASE FLASHING CLOSURE TO BE INSTALLED CONCURRENTLY WITH METAL EDGE AND STRIPPED INTO MEMBRANE WITH HOT-AIR WELDED STRIPPING PLY.

5 DRIP EDGE TO BASE FLASHING CLOSURE

SCALE: 3" = 1'-0"



6 MASONRY WALL OUTSIDE CORNER CLOSURE

SCALE: 3" = 1'-0"

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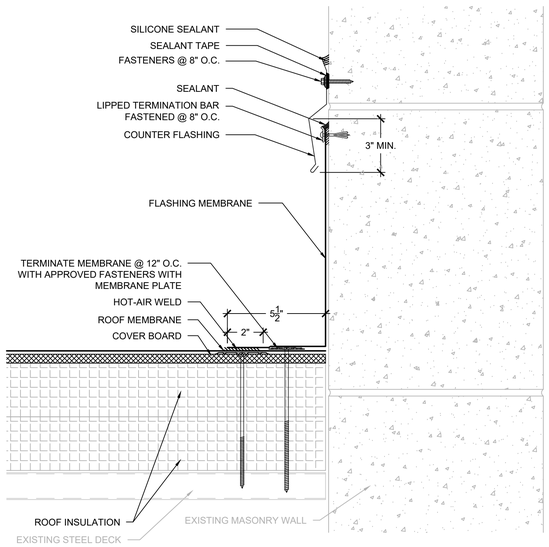
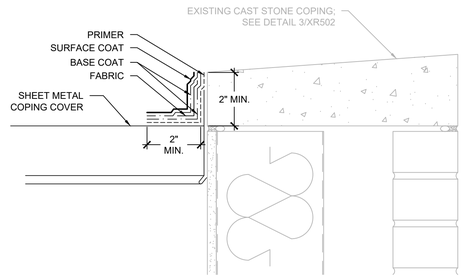
XR504



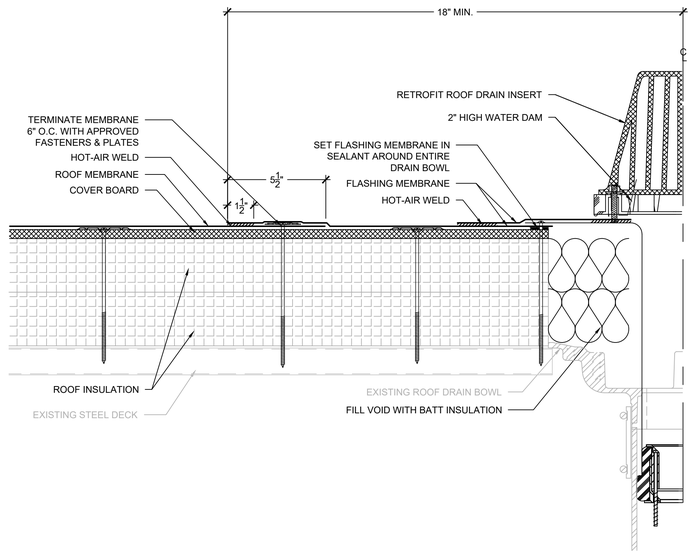
1 COUNTER FLASHING WITH BASE FLASHING AT CAST STONE MASONRY WALLS

SCALE: 3" = 1'-0"



2 METAL COPING TO STONE COPING TRANSITION

SCALE: 3" = 1'-0"



NOTE:
1. INSTALL RETROFIT DRAIN INSERT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ENSURE IT IS PROPERLY SECURED AND SEAL IS PROPERLY TIGHTENED TO EXISTING DRAIN LEADER.

3 RETROFIT OVERFLOW ROOF DRAIN

SCALE: 3" = 1'-0"

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Robert E. Tomlinson IIBEC 0321 Registered Roof Consultant

PROJECT NAME:

DURHAM COUNTY GENERAL SERVICES

NORTH REGIONAL LIBRARY ROOF REPLACEMENT

221 MILTON ROAD
DURHAM, NC 27712

PROJECT NO:

R25RAL-031

ISSUE:

NO.	DATE	DESCRIPTION
DD	10-15-25	DESIGN DEVELOPMENT (90%)
CD	02-20-26	CONTRACT DOCUMENTS

THIS LINE IS 1 INCH ON THE ORIGINAL DRAWING

IF IT IS NOT 1 INCH ON THIS PAGE, SCALE DRAWING ACCORDINGLY.

SHEET TITLE

DETAILS

DRAWING

XR505