BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

INVITATION FOR BID

Item Description: MUNICIPAL FACILITY ROOF REPLACEMENT AT 552 ACADEMY AVE, PROVIDENCE, RI 02908

Procurement/MinuteTraq #: 50513

Date to be opened: 10/6/2025

Issuing Department: Public Property

QUESTIONS

- Please direct questions related to the process, how to fill out forms, and how to submit an application(Pages 1-8) to the Purchasing Department.
    - Email: purchasing@providenceri.gov
        - Please use the subject line "**Solicitation Question**"
- Please direct questions relative to the Minority and Women's Business Enterprise Program and the corresponding forms (Pages 10-11) to the MBE/WBE Outreach Director for the City of Providence, Grace Diaz
    - Email: gdiaz@providenceri.gov
        - Please use subject line "**MBE WBE Forms**"
- Please direct questions relative to the specifications outlined (beginning on page 14) to the issuing department's subject matter expert:
    - Name: Taylor Erkkinen
    - Title: Project Manager
    - Email Address: terkkinen@providenceri.gov

Pre-submission Conference

There will be a Mandatory Pre-Bid Conference

On-site at 552 Academy Ave at **9am** on **9/17/25**

Deadline for questions submissions: **Friday, 9/26 at 4:30pm**

INSTRUCTIONS FOR SUBMISSION

Meeting Date: 10/6/2025

Bids may be submitted up to **2:15 P.M.** on the above meeting date at the **Department of the City Clerk. Room 311, City Hall. 25 Dorrance Street, Providence.** At 2:15 P.M. all bids will be publicly opened and read at the Board of Contract Meeting in Conference Room 305, on the 3rd floor of City Hall.

- Bidders must submit **2 copies** of their bid in sealed envelopes or packages labeled with the captioned **Item Description** and the **City Department to which the solicitation and bid are related and must include the company name and address on the envelope as well**. (On page 1).
- If required by the Department, please keep the original bid bond and check in only one of the envelopes.
- Communications to the Board of Contract and Supply that are not competitive sealed bids (i.e. product information/samples) should have "**NOT A BID**" written on the envelope or wrapper.
- Only use form versions and templates included in this solicitation. If you have an old version of a form do not recycle it for use in this bid.
- The bid envelope and information relative to the bid must be addressed to:

Board of Contract and Supply
Department of the City Clerk – City Hall, Room 311
25 Dorrance Street
Providence, RI 02903

****PLEASE NOTE: This bid may include details regarding information that you will need to provide (such as proof of licenses) to the issuing department before the formalization of an award.**

This information is NOT requested to be provided in your initial bid by design.

All bids submitted to the City Clerk become public record. Failure to follow instructions could result in information considered private being posted to the city's Open Meetings Portal and made available as a public record. The City has made a conscious effort to avoid the posting of sensitive information on the City's Open Meetings Portal, by requesting that such sensitive information be submitted to the issuing department only at their request.

BID PACKAGE CHECKLIST

Digital forms are available in the City of Providence Purchasing Department Office or online at **http://www.providenceri.gov/purchasing/how-to-submit-a-bid/**

The bid package **MUST** include the following, in this order:

- Bid Form 1: Bidder's Blank as the cover page/ 1st page (s*ee page **6** of this document*)
- Bid Form 2: Certification of Bidder as 2nd page (s*ee page **7** of this document*)
- Bid Form 3: Certificate Regarding Public Records (s*ee page **8** of this document)*
- Bid Form 4: Affidavit of City Vendor (*see pages **9 and 10** of this document*)
- Forms from the Minority and Women Business Enterprise Program: Based on Bidder Category. S*ee forms and instructions enclosed (pages **10-11**) or on: https://www.providenceri.gov/purchasing/minority-women-owned-business-mbewbe-procurement-program/*

***Please note: MBE/WBE forms must be completed for EVERY bid submitted and must be inclusive of ALL required signatures. Forms without all required signatures will be considered incomplete.**

- Bidder's Proposal/Packet: Formal response to the specifications outlined in this RFP, including pricing information and details related to the good(s) or service(s) being provided. Please be mindful of formatting responses as requested to ensure clarity.
- Financial Assurance, *if requested* (a*s indicated on page 5 of this document under "Bid Terms")*
- Form acknowledging Apprenticeship and First Source requirements

All of the above listed documents are REQUIRED. (With the exception of financial assurances, which are only required if specified on page 5.)

******Failure to meet specified deadlines, follow specific submission instructions, or enclose all required documents with all applicable signatures will result in disqualification, or in an inability to appropriately evaluate bids.***

NOTICE TO VENDORS

1. The Board of Contract and Supply will make the award to the lowest qualified and responsible bidder.
2. In determining the lowest responsible bidder, cash discounts based on preferable payment terms will not be considered.
3. Where prices are the same, the Board of Contract and Supply reserves the right to award to one bidder, or to split the award.
4. No proposal will be accepted if the bid is made in collusion with any other bidder.
5. Bids may be submitted on an "equal in quality" basis. The City reserves the right to decide equality. Bidders must indicate brand or the make being offered and submit detailed specifications if other than brand requested.
6. A bidder who is an out-of-state corporation shall qualify or register to transact business in this State, in accordance with the Rhode Island Business Corporation Act, RIGL Sec. 7-1.2-1401, et seq.
7. The Board of Contract and Supply reserves the right to reject any and all bids.
8. Competing bids may be viewed in person at the Department of the City Clerk, City Hall, Providence, immediately upon the conclusion of the formal Board of Contract and Supply meeting during which the bids were unsealed/opened. Bids may also be accessed electronically on the internet via the City's Open Meetings Portal.
9. As the City of Providence is exempt from the payment of Federal Excise Taxes and Rhode Island Sales Tax, prices quoted are not to include these taxes.
10. In case of error in the extension of prices quoted, the unit price will govern.
11. The contractor will **NOT** be permitted to: a) assign or underlet the contract, or b) assign either legally or equitably any monies or any claim thereto without the previous written consent of the City Purchasing Director.
12. Delivery dates must be shown in the bid. If no delivery date is specified, it will be assumed that an immediate delivery from stock will be made.
13. A certificate of insurance will normally be required of a successful vendor.
14. For many contracts involving construction, alteration and/or repair work, State law provisions concerning payment of prevailing wage rates apply (RIGL Sec. 37-13-1 et seq.)
15. No goods should be delivered, or work started without a Purchase Order.
16. **Submit 2 copies of the bid to the City Clerk, unless the specification section of this document indicates otherwise.**
17. Bidder must certify that it does not unlawfully discriminate on the basis of race, color, national origin, gender, gender identity or expression, sexual orientation and/or religion in its business and hiring practices and that all of its employees are lawfully employed under all applicable federal, state and local laws, rules and regulations. (See Bid Form 2.)

BID TERMS

1. Financial assurances may be required in order to be a successful bidder for Commodity or Construction and Service contracts. If either of the first two checkboxes below is checked, the specified assurance **must accompany** a bid, or the bid will not be considered by the Board of Contract and Supply. The third checkbox indicates the lowest responsible bidder will be contacted and required to post a bond to be awarded the contract.

   a) ☐ A certified check for **$**_____ must be deposited with the City Clerk as a guarantee that the Contract will be signed and delivered by the bidder.

   b) ☒ A bid bond in the amount of _____ per centum (%) of the proposed total price, must be deposited with the City Clerk as a guarantee that the contract will be signed and delivered by the bidder; and the amount of such bid bond shall be retained for the use of the City as liquidated damages in case of default. Any person signing a bid bond as an attorney-in-fact shall include with the bid bond an original, or a photocopy or facsimile of an original, power of attorney.

   c) ☒ A performance and payment bond with a satisfactory surety company will be posted by the bidder in a sum equal to one hundred per centum (100%) of the awarded contract.

   d) ☐ No financial assurance is necessary for this item.

2. Awards will be made within **ninety (90) days of bid opening**. All bid prices will be considered firm, unless qualified otherwise. Requests for price increases will not be honored.
3. Failure to deliver within the time quoted or failure to meet specifications may result in default in accordance with the general specifications. It is agreed that deliveries and/or completion are subject to strikes, lockouts, accidents, and Acts of God.

The following entry applies only for COMMODITY BID TERMS:

4. Payment for partial delivery will not be allowed except when provided for in blanket or term contracts.

The following entries apply only for CONSTRUCTION AND SERVICE BID TERMS:

5. Only one shipping charge will be applied in the event of partial deliveries for blanket or term contracts.
6. Prior to commencing performance under the contract, the successful bidder shall attest to compliance with the provisions of the Rhode Island Worker's Compensation Act, RIGL 28-29-1, et seq. If exempt from compliance, the successful bidder shall submit a sworn Affidavit by a corporate officer to that effect, which shall accompany the signed contract.
7. Prior to commencing performance under the contract, the successful bidder shall, submit a certificate of insurance, in a form and in an amount satisfactory to the City.

BID FORM 1: Bidders Blank

1. Bids must meet the attached specifications. Any exceptions or modifications must be noted and fully explained.
2. Bidder's responses must be in ink or typewritten, and all blanks on the bid form should be completed.
3. The price or prices proposed should be stated both in **WRITING** and in **FIGURES**, and any proposal not so stated may be rejected. **Contracts exceeding twelve months must specify annual costs for each year.**
4. Bids **SHOULD BE TOTALED** so that the final cost is clearly stated (unless submitting a unit price bid), however **each item should be priced individually**. Do not group items. Awards may be made on the basis of ***total*** bid or by ***individual items***.
5. All bids **MUST BE SIGNED IN INK.**

Name of Bidder (Firm or Individual): _____

Contact Name: _____

Business Address: _____

Business Phone #: _____

Contact Email Address: _____

Agrees to bid on (Write the "Item Description" here): _____

If the bidder's company is based in a state *other than Rhode Island*, list name and contact information for a local agent for service of process that ***is located within Rhode Island*** _____

Delivery Date (if applicable): _____

Name of Surety Company (if applicable): _____

Total Amount in Writing*, inclusive of allowances: _____

Total Amount in Figures*, inclusive of allowances: _____

If you are submitting a unit price bid, please insert "Unit Price Bid"

SEE ADDITIONAL PAGE FOR FURTHER BID DETAILS

_____
Signature of Representation

_____
Title

Name of Bidder (Firm or Individual): _____

Contact Name: _____

Business Address: _____

Business Phone #: _____

Contact Email Address: _____

Agrees to bid on (Write the "Item Description" here): _____

_____

Allowance #1:

Hazardous Materials

Testing and Abatement

Plan $10,000

Allowance #2:

Abatement $250,000

A – BASE BID #1: ROOF SECTIONS B & C– 30 YEAR WARRANTY

_____ $_____

Words Figures

B – ADD ALTERNATE #1: ROOF SECTIONS B & C– 35 YEAR WARRANTY

_____ $_____

Words Figures

C– ADD ALTERNATE #2: ROOF SECTIONS B & C– 40 YEAR WARRANTY

_____ $_____

Unit Costs:

Asbestos Abatement: $_____ per square foot
Wood Deck Replacement: $_____ per square foot
2 x 6" Wood Blocking Replacement: $_____ per square foot
Spot concrete repair: $_____ per square foot
Brick repointing: $_____ per square foot

The bidder hereby acknowledges receipt of the following addenda:

Addendum No._____ Dated_____

Addendum No._____ Dated_____

Addendum No._____ Dated_____

BID FORM 2: Certification of Bidder
(Non-Discrimination/Hiring)

Upon behalf of_____ (Firm or Individual Bidding),

I,_____(Name of Person Making Certification),

being its_____(Title or "Self"), hereby certify that:

1. Bidder does not unlawfully discriminate on the basis of race, color, national origin, gender, sexual orientation and/or religion in its business and hiring practices.
2. All of Bidder's employees have been hired in compliance with all applicable federal, state and local laws, rules and regulations.

I affirm by signing below that I am duly authorized on behalf of Bidder, on this_____day of_____20____.

_____

Signature of Representation

_____

Printed Name

BID FORM 3: Certificate Regarding Public Records

Upon behalf of_____ (Firm or Individual Bidding),

I,_____(Name of Person Making Certification),

being its_____(Title or "Self"), hereby certify an

understanding that:

1. All bids submitted in response to Requests for Proposals (RFP's) and Requests for Qualification (RFQ's), documents contained within, and the details outlined on those documents become public record upon receipt by the City Clerk's office and opening at the corresponding Board of Contract and Supply (BOCS) meeting.
2. The Purchasing Department and the issuing department for this RFP/RFQ have made a conscious effort to request that sensitive/personal information be submitted directly to the issuing department and only at request if verification of specific details is critical the evaluation of a vendor's bid.
3. The requested supplemental information may be crucial to evaluating bids. Failure to provide such details may result in disqualification, or an inability to appropriately evaluate bids.
4. If sensitive information that has not been requested is enclosed or if a bidder opts to enclose the defined supplemental information prior to the issuing department's request in the bidding packet submitted to the City Clerk, the City of Providence has no obligation to redact those details and bears no liability associated with the information becoming public record.
5. The City of Providence observes a public and transparent bidding process. Information required in the bidding packet may not be submitted directly to the issuing department at the discretion of the bidder in order to protect other information, such as pricing terms, from becoming public. Bidders who make such an attempt will be disqualified.

I affirm by signing below that I am duly authorized on behalf of Bidder, on

this_____day of_____20____.

_____

Signature of Representation

_____

Printed Name

BID FORM 4: Affidavit of City Vendor

Per our Code of Ordinances Sec. 21.-28.1 (e), this form applies to a) the business, b) any political action committee whose name includes the name of the business, c) all persons holding ten (10) percent or greater equity interest or five thousand dollars ($5,000.00) or greater cash value interest in the business at any time during the reporting period, d) all executive officers of the business entity, e) any spouse or dependent child of any individual identified in a) though d) above.

Executive officers who are not residents of the state of Rhode Island are exempted from this requirement.

Per R.I.G.L. § 36-14-2, "Business" means a sole proprietorship, partnership, firm, corporation, holding company, joint stock company, receivership, trust, or any other entity recognized in law through which business for profit or not for profit is conducted.

Name of the person making this affidavit: _____

Position in the "Business" _____

Name of Entity _____

Address: _____

Phone number: _____

The number of persons or entities in your entity that are required to report under Sec. 21.-28.1 (e): _____

Read the following paragraph and answer one of the options:

Within the 12 month period preceding the date of this bid submission with the City of Providence, or with respect to the contracts that are not in writing within the 12 month period preceding the date of notification that the contract has reached the $100,000 threshold, have you made campaign contributions within a calendar year to (please list all persons or entities required under Sec. 21.-28.1 (e)).

a. Members of the Providence City Council? ☐ Yes ☐ No
   - If Yes, please complete the following:
     Recipient(s) of the Contribution:
     Contribution Date(s): Contribution Amount(s):

b. Candidates for election or reelection to the Providence City Council? ☐ Yes ☐ No
   - If Yes, please complete the following:
     Recipient(s) of the Contribution:
     Contribution Date(s): Contribution Amount(s):

c. The Mayor of Providence? ☐ Yes ☐ No
   - If Yes, please complete the following:
     Recipient(s) of the Contribution:
     Contribution Date(s): Contribution Amount(s):

d. Candidates for election or reelection to the office of Mayor of Providence? ☐ Yes ☐ No
   - If Yes, please complete the following:
     Recipient(s) of the Contribution:
     Contribution Date(s): Contribution Amount(s):

_____ _____

Signed under the pains and penalties of perjury. Position

MBE/WBE Participation Plan

Please complete separate forms for each MBE/WBE subcontractor/supplier to be utilized on the solicitation.

Bidder's Name:	
Bidder's Address:	
Point of Contact:	
Telephone:	
Email:	
Procurement #:	
Project Name:	
Which one of the following describes your business' status in terms of Minority and/or Woman Owned Business Enterprise certification with the State of Rhode Island? (Check all that apply).	☐MBE ☐WBE ☐Neither MBE nor WBE

This form is intended to capture commitments between the prime contractor/vendor and MBE/WBE subcontractors and suppliers, including a description of the work to be performed and the percentage of the work as submitted to the prime contractor/vendor. Please note that all MBE/WBE subcontractors/suppliers must be certified by the Office of Diversity, Equity and Opportunity at the time of bid. The MBE/WBE Directory can be found here. Please visit, the City's MBE/WBE page for details of the program (e.g. instructions and requirements).

- **Nonprofit organizations are not required to complete the rest of this form.**
- **Construction projects unable to identify subcontractors prior to bid submission (e.g. Design Build) are required to provide updates to the MBE/WBE Outreach Office**

Name of Subcontractor/Supplier:					
Type of RI Certification:	☐MBE ☐WBE ☐Neither				
Address:					
Point of Contact:					
Telephone:					
Email:					
Detailed Description of Work to Be Performed by Subcontractor or Materials to be Supplied by Supplier Per the Scope of Work provided in the RFP					
Total Contract Value ($):		Subcontract Value ($):		Participation Rate (%):	
Anticipated Date of Performance:					

I certify under penalty of perjury that the forgoing statements are true and correct.

Prime Contractor/Vendor Signature	**Title**	**Date**
Subcontractor/Supplier Signature	**Title**	**Date**

***If you did not meet the 20% MBE/WBE combined participation goal, submit a Waiver Request Form.**

MBE/WBE Waiver Request Form

Fill out this form only if you did not meet the 20% MBE/WBE participation goal.
State-certified MBE or WBE Prime Bidders are NOT REQUIRED to fill out this form.

Submit this form to the City of Providence MBE/WBE Outreach Director, Grace Diaz, at gdiaz@providenceri.gov, for review **prior to bid submission.** This waiver applies only to the current bid which you are submitting to the City of Providence and does not apply to other bids your company may submit in the future. **In case a waiver is needed, City Department Directors should not** recommend a bidder for an award if this form is not included, absent or is not signed by the city of Providence MBE/WBE director**.**

Prime Bidder: _____ Contact Email and Phone_____
Company Name, Address: _____ Trade _____
Project /Item Description (as seen on RFP):
_____
_____

To receive a waiver, you must list the certified MBE and/or WBE companies you contacted, the name of the primary individual with whom you interacted, and the reason the MBE/WBE company could not participate on this project.

MBE/WBE Company Name	Individual's Name	Company Name	Why did you choose not to work with this company?

I acknowledge the City of Providence's goal of a combined MBE/WBE participation is 20% of the total bid value. I am requesting a waiver of _____ % MBE/WBE (20% minus the value of **Box F** on the Subcontractor Disclosure Form). If an opportunity is identified to subcontract any task associated with the fulfillment of this contract, a good faith effort will be made to select MBE/WBE certified businesses as partners.

_____	_____	_____
Signature of Prime Contractor / or Duly Authorized Representative	Printed Name	Date Signed
_____	_____	_____
Signature of City of Providence MBE/WBE Outreach Director / or Duly Authorized Representative	Printed Name of City of Providence MBE/WBE Outreach Director	Date Signed

FOR CONSTRUCTION PROJECTS

APPRENTICE REQUIREMENTS (Construction Projects Valued at $100,000 or More).

Attention of prospective bidders is called to the fact that this project is to be bid upon and executed under the City of Providence Code of Ordinances Chapter 21 Art. II Section 21-28.1 c(1) and (2) related to utilizing apprentices in the contract. This ordinance outlines requirements for all awarded contractors and subcontractors to have a registered apprenticeship program, and for utilizing not less than 15% of total hours worked by apprentices. The City may lower this percentage only if it determines in writing that compliance is not feasible or that it would be unduly cost prohibitive to the project. The attention of prospective bidders is also called to the fact that reporting the efforts undertaken and progress towards achieving the requirements in this ordinance is a condition for payment. Compliance reporting shall be submitted with any contract payment requisition, in a format to be specified by the City. This demonstration of compliance through such reports shall be a condition of the requisition for payment to be processed. Upon the contract being awarded to the successful bidder, a mandatory meeting will be scheduled to review the project requirements relative to apprenticeship requirements and the process and protocols by which these goals will be achieved. At this meeting, specific forms and procedures for the documentation and achievement of these requirements by the successful bidder will be provided, discussed and agreed upon for the execution of the contract.

“FIRST SOURCE” REQUIREMENTS.

Attention of prospective bidders is called to the fact that this project is to be bid upon and executed under the City of Providence Code of Ordinances Chapter 21 Art. III 1/2 First Source Agreements Sec. 21-91 through 21-96. This ordinance outlines requirements for hiring Providence residents to work on this project. The City may waive this requirement only upon a determination in writing that qualified residents of Providence are not available for the project, pursuant to Sec. 21-94(e). The attention of prospective bidders is called to the fact that reporting the efforts undertaken and progress towards achieving the requirements in this ordinance is a condition for payment. Compliance reporting shall be submitted with any contract payment requisition, in a format to be specified by the City. This demonstration of compliance through such reports shall be a condition of the requisition for payment to be processed. Upon the contract being awarded to the successful bidder, a mandatory meeting will be scheduled to review the project requirements relative to the First Source Agreements and the process and protocols by which these goals will be achieved. At this meeting, specific forms and procedures for the documentation and achievement of these requirements by the successful bidder will be provided, discussed, and agreed upon for the execution of the contract.

_____

Signature of Prime Contractor / or Duly Authorized Representative | Printed Name | Date Signed

BID PACKAGE SPECIFICATIONS

Overview

- Furnish and install labor, roofing materials, insulation, flashings, and incidentals on the following designated roof areas; City of Providence, 552 Academy Ave, Providence, RI 02908.
- Repair and replace structural elements as indicated or required.

Scope of Work

Drawings:

A-001	Coversheet
A-100	Roof Plan
A-500	Roof Details
A-501	Roof Details
S-001	Structural Design Criteria & General Notes
SF111	Roof Framing Repair Plan
S-311	Framing Repair Details

Specifications:

010100	Summary of Work
011510	Contractor's Use of Premises
011530	Change Order Procedures
014000	Quality Control
014210	Roofing Inspection Services
016000	Material And Equipment
017000	Contract Close-out
024113	Selective Demolition
061000	Rough Carpentry
061516	Wood Roof Decking
061800	Glued-Laminated Construction
072200	Roof Deck and Insulation
075200	Modified Bituminous Membrane Roofing
074214	Metal Wall Panels
076100	Sheet Metal Flashing and Trim

Provisions of This Project

- Upon the Issuance of the Award from the Board of Contract – the City shall issue a Contract to be executed by the City and the vendor incorporating the bid specifications. All Provisions of the Specifications are binding.

- Any Permits Required by the City of Providence and/or State of Rhode Island Shall be Obtained by the Vendor – Permit Fees by the City of Providence Shall be Waived – the State ADA Fee Must be Paid

- The Davis Bacon Act Applies– Prevailing Wages Must Be Paid for On Site Hours – On-Site Interviews will be Conducted During the Project – Employees Shall be Advised of the Prevailing Wage Rates Prior to Mobilization on Site.

- Weekly Certified payrolls must be Submitted with Pay Requests Including Monthly Utilization Form

- An Insurance Certificate Shall be Submitted to the City Within 10 Days of Award

- A Copy of the Vendors Contractor's License Must be Submitted within 10 Days of Award

- All On-Site Personnel Shall be Licensed (If Required) and Shall have Proof of All Licenses Required by the State of Rhode Island to Perform the Work Required

- All Subcontractors Shall be Listed on the Bid Form – All Insurance & Payroll Requirements Apply

    - General Contractor Shall be the Insurance Certificate Holder and the City Shall be Named as 'Additionally Insured' with Respect to Liability Insurance

- A Submittal Log Must be Submitted within 10 Days of Award

SUPPLEMENTAL INFORMATION

If the issuing department for this RFP determines that your firm's bid is best suited to accommodate their need, you will be asked to provide proof of the following prior to formalizing an award.

An inability to provide the outlined items at the request of the department may lead to the disqualification of your bid.

This information is <u>NOT</u> requested to be provided in your initial bid that you will submit to the City Clerk's office by the "date to be opened" noted on page 1. This list only serves as a list of items that your firm should be ready to provide on request.

<u>All bids submitted to the City Clerk become public record</u>. Failure to follow instructions could result in information considered private being posted to the city's Open Meetings Portal and made available as a public record.

You must be able to provide:

- Business Tax ID will be requested after an award is approved by the Board of Contract and Supply.
- Proof of Insurance.
- Certificate of Good Standing with the Rhode Island Secretary of State.

BOARD OF CONTRACT AND SUPPLY
CITY OF PROVIDENCE, RHODE ISLAND

CITY OF PROVIDENCE STANDARD TERMS & CONDITIONS

1. The terms "you" and "your" contained herein refer to the person or entity that is a party to the agreement with the City of Providence ("the City") and to such person's or entity's employees, officers, and agents.
2. The Request For Proposals ("RFP") and these Standard Terms and Conditions together constitute the entire agreement of the parties ("the Agreement") with regard to any and all matters. By your submission of a bid proposal or response to the City's RFP, you accept these Standard Terms & Conditions and agree that they supersede any conflicting provisions provided by bid or in any terms and conditions contained or linked within a bid and/or response. Changes in the terms and conditions of the Agreement, or the scope of work thereunder, may only be made by a writing signed by the parties.
3. You are an independent contractor and in no way does this Agreement render you an employee or agent of the City or entitle you to fringe benefits, workers' compensation, pension obligations, retirement or any other employment benefits. The City shall not deduct federal or state income taxes, social security or Medicare withholdings, or any other taxes required to be deducted by an employer, and this is your responsibility to yourself and your employees and agents.
4. You shall not assign your rights and obligations under this Agreement without the prior written consent of the City. Any assignment without prior written consent of the City shall be voidable at the election of the City. The City retains the right to refuse any and all assignments in the City's sole and absolute discretion.
5. Invoices submitted to the City shall be payable sixty (60) days from the time of receipt by the City. Invoices shall include support documentation necessary to evidence completion of the work being invoiced. The City may request any other reasonable documentation in support of an invoice. The time for payment shall not commence, and invoices shall not be processed for payment, until you provide reasonably sufficient support documentation. In no circumstances shall the City be obligated to pay or shall you be entitled to receive interest on any overdue invoice or payment. In no circumstances shall the City be obligated to pay any costs associated with your collection of an outstanding invoice.
6. For contracts involving construction, alteration, and/or repair work, the provisions of applicable state labor law concerning payment of prevailing wage rates (R.I. Gen. Laws §§ 37-13-1 et seq., as amended) and the City's First Source Ordinance (Providence Code of Ordinances §§ 21-91 et seq., as amended) apply.
7. With regard to any issues, claims, or controversies that may arise under this Agreement, the City shall not be required to submit to dispute resolution or mandatory/binding arbitration. Nothing prevents the parties from mutually agreeing to settle any disputes using mediation or non-binding arbitration.
8. To the fullest extent permitted by law, you shall indemnify, defend, and hold harmless the City, its employees, officers, agents, and assigns from and against any and all claims, damages, losses, allegations, demands, actions, causes of action, suits, obligations, fines, penalties, judgments, liabilities, costs and expenses, including but not limited to attorneys' fees, of any nature whatsoever arising out of, in connection with, or resulting from the performance of the work provided in the Agreement.
9. You shall maintain throughout the term of this Agreement the insurance coverage that is required by the RFP or, if none is required in the RFP, insurance coverage that is considered in your industry to be commercially reasonable, and you agree to name the City as an additional insured on your general liability policy and on any umbrella policy you carry.
10. The City shall not subject itself to any contractual limitations on liability. The City shall have the time permitted within the applicable statute of limitations, and no less, to bring or assert any and all causes of action, suits, claims or demands the City may have arising out of, in connection with, or resulting from the performance of the work provided in the Agreement, and in no event does the City agree to limit your liability to the price of the Agreement or any other monetary limit.
11. The City may terminate this Agreement upon five (5) days' written notice to you if you fail to observe any of the terms and conditions of this Agreement, or if the City believes your ability to perform the

terms and conditions of this Agreement has been materially impaired in any way, including but in no way limited to loss of insurance coverage, lapsing of a surety bond, if required, declaration of bankruptcy, or appointment of a receiver. In the event of termination by the City, you shall be entitled to just and equitable compensation for any satisfactory work completed and expenses incurred up to the date of termination.

12. Written notice hereunder shall be deemed to have been duly served if delivered in person to the individual or member of the firm or entity or to an officer of the entity for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known by the party providing notice.
13. In no event shall the Agreement automatically renew or be extended without a writing signed by the parties.
14. You agree that products produced or resulting from the performance of the Agreement are the sole property of the City and may not be used by you without the express written permission of the City.
15. For any Agreement involving the sharing or exchange of data involving potentially confidential and/or personal information, you shall comply with any and all state and/or federal laws or regulations applicable to confidential and/or personal information you receive from the City, including but not limited to the Rhode Island Identity Theft Protection Act, R.I. Gen. Laws § 11-49.3-1, during the term of the Agreement. You shall implement and maintain appropriate physical, technical, and administrative security measures for the protection of, and to prevent access to, use, or disclosure of, confidential and/or personal information. In the event of a breach of such information, you shall notify the City of such breach immediately, but in no event later than twenty-four (24) hours after discovery of such breach.
16. The Agreement is governed by the laws of the State of Rhode Island. You expressly submit yourself to and agree that any and all actions arising out of, in connection with, or resulting from the performance of the Agreement or relationship between the parties shall occur solely in the venue and jurisdiction of the State of Rhode Island or the federal court located in Rhode Island.
17. The failure of the City to require performance of any provision shall not affect the City's right to require performance at any time thereafter, nor shall a waiver of any breach or default of this Agreement constitute a waiver of any subsequent breach or default or a waiver of the provision itself.
18. If any term or provision of this Agreement, or the application thereof to any person or circumstance shall, in any extent, be invalid or unenforceable, the remainder of this Agreement shall not be affected thereby, and each term and provision shall be valid and enforceable to the fullest extent permitted by law.

CITY of PROVIDENCE

ROOFS B & C

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PROJECT AERIAL VIEW

DRAWING INDEX

CITY of PROVIDENCE

ROOFS B & C

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Providence, RI 02908

SCALE: AS NOTED

DATE: 05/24/25

PROJ. #:

DRAWN BY:

CHECKED BY:

COVERSHEET

A-001

KEYED NOTES

R1 REGLET TO BE RAISED ON ENTIRE WALL

R2 COPING AT PERIMETER

R3 R-MER FORCE WITH EXTENDER. ADD BLOCKING

R4 OBSOLETE ROOF EQUIPMENT TO BE REMOVED

R5 METAL PANEL ON WALL. SEE DETAIL 3/A-501.

PROJECT NOTES:

1.) REMOVE (7) SEVEN 3x3 CURBS AND INFILL.

2.) REMOVE TERRACOTTA COPING AND ADD BLOCKING FOR INSTALLATION OF NEW METAL COPING.

TEST CUT #1 (HIGH WALL) :

- WOOD DECK
- 4 PLY LTP
- 3" POLYISOCYANURATE
- EPDM FA

TEST CUT #2 (LOW DRAIN) :

- WOOD DECK
- 3" POLYISOCYANURATE
- EPDM FA

GENERAL NOTES:

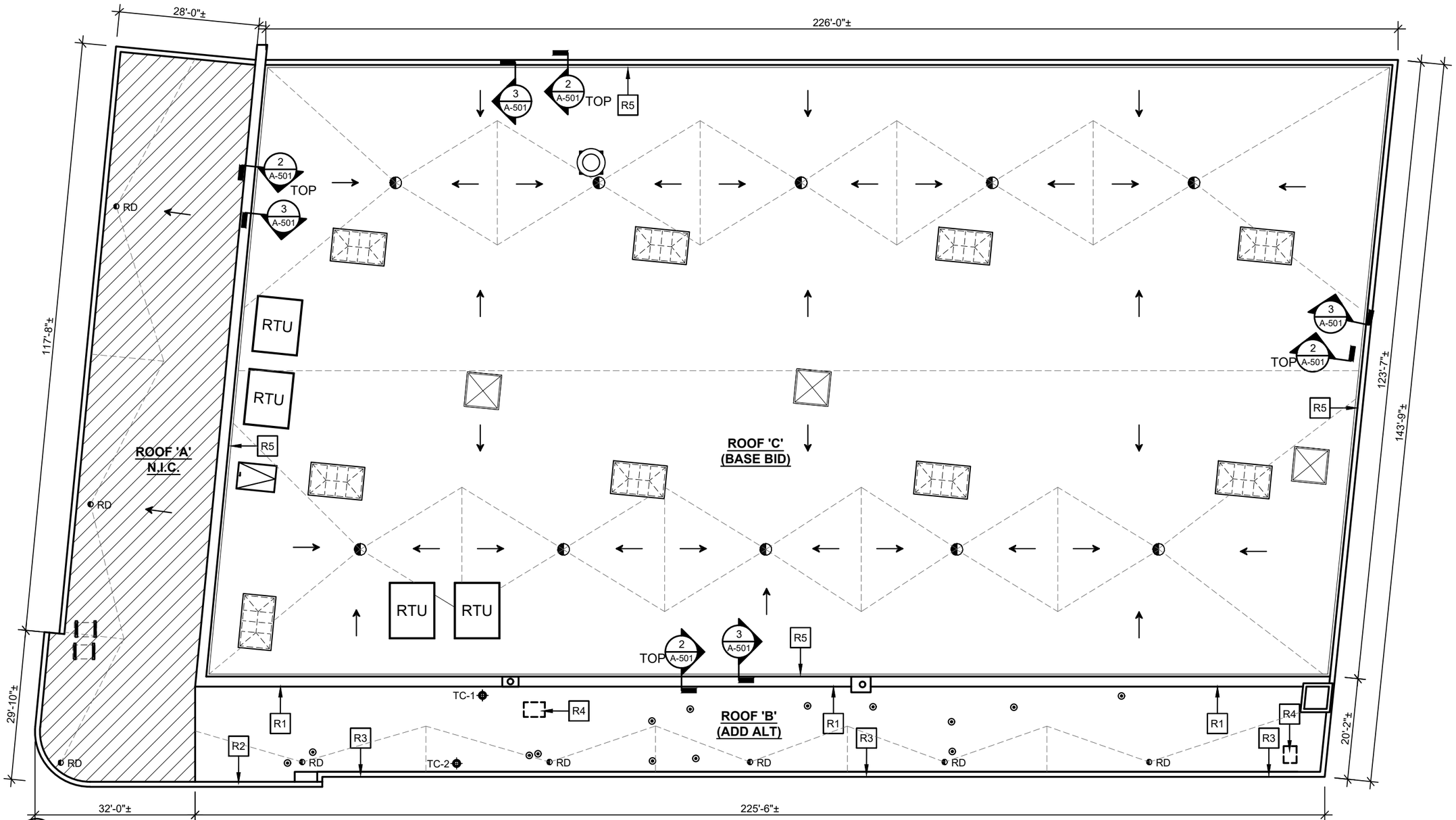
1.) IT IS THE ROOFING CONTRACTOR'S RESPONSIBILITY TO FAMILIARIZE THEMSELVES WITH ALL DETAILS INVOLVED IN THE ROOFING CONTRACT.

2.) ALL DRAWINGS ARE GRAPHIC REPRESENTATION OF APPROXIMATE LOCATIONS OF EXISTING AND NEW MATERIALS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK.

3.) THE ROOFING CONTRACTOR TO PROTECT ALL ADJACENT SURFACES NOT SCHEDULED FOR WORK AND TO REPAIR ANY DAMAGED AREAS AS A RESULT OF CONTRACTOR WORK AT NO ADDITIONAL COST TO THE OWNER.

4.) THE ROOFING CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN WATER TIGHTNESS AND PROVIDE PROTECTION AT ANY/ALL OPENINGS IN THE ROOF LEFT AT THE END OF EACH CONSTRUCTION DAY.

5.) CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, CONDITIONS AND QUANTITIES.



1 A-100 ROOF PLAN
SCALE: N.T.S.

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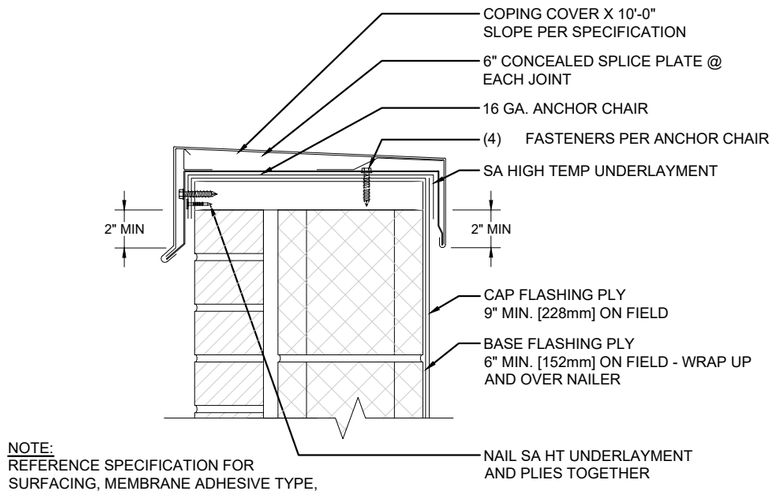
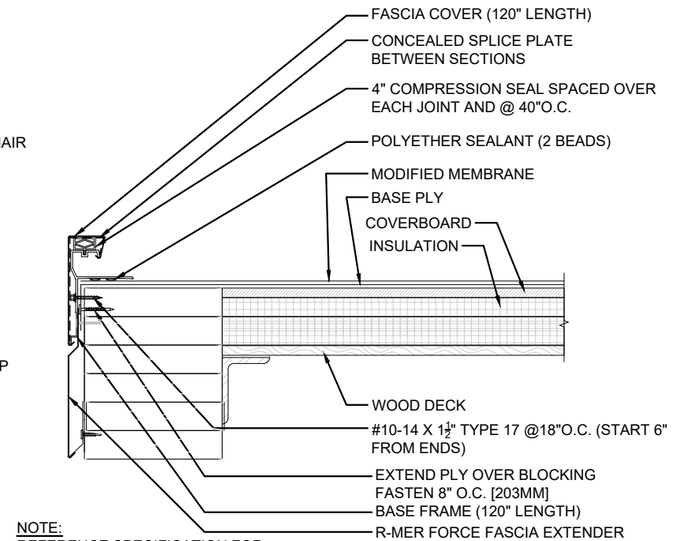
ROOF PLAN

A-100



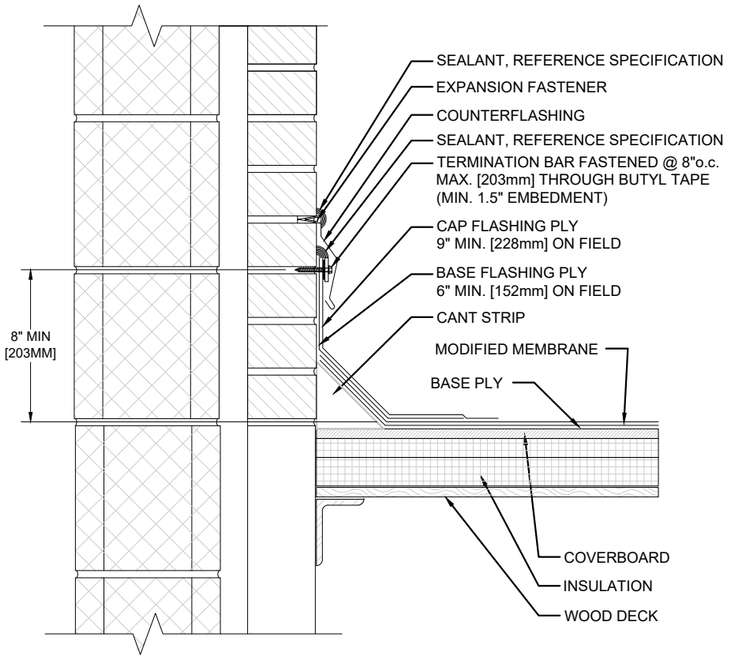
NOTE:
REFERENCE SPECIFICATION FOR SURFACING, MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

1 A-500 COPING CAP AT MASONRY WALL DETAIL
SCALE: N.T.S.



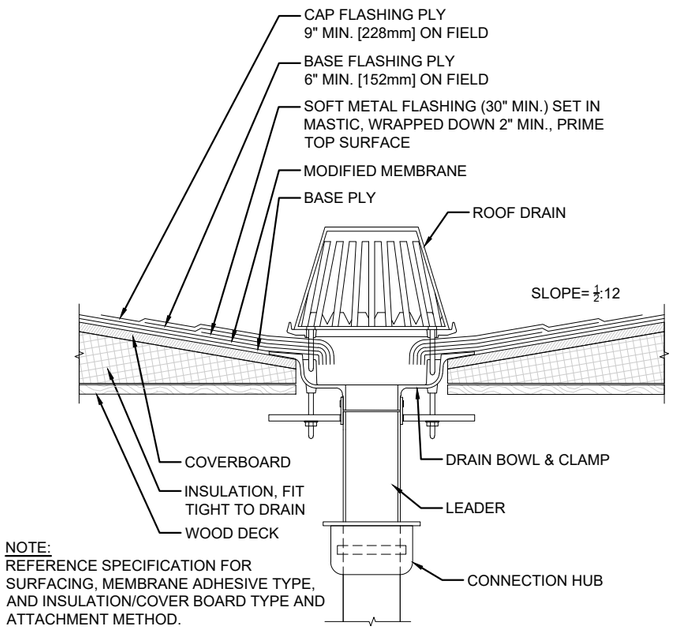
NOTE:
REFERENCE SPECIFICATION FOR SURFACING, MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

2 A-500 METAL EDGE FLASHLESS SNAP ON DETAIL
SCALE: N.T.S.



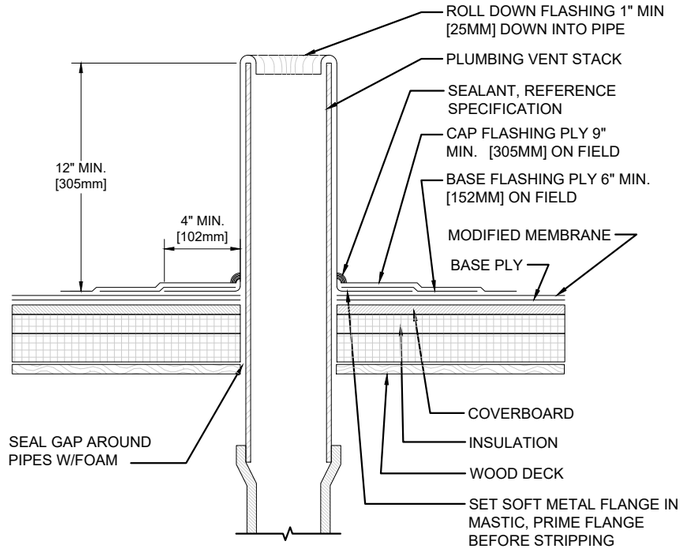
NOTE:
REFERENCE SPECIFICATION FOR SURFACING, MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

3 A-500 REGLET MOUNTED COUNTERFLASHING DETAIL
SCALE: N.T.S.



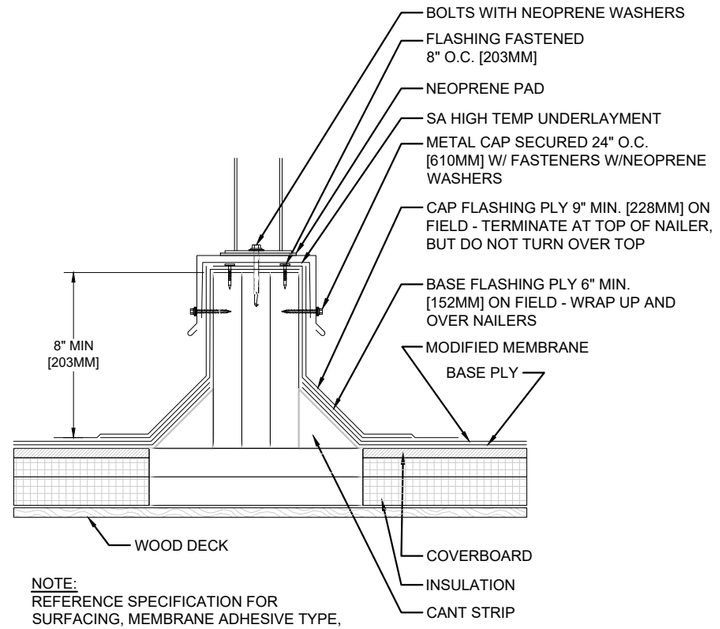
NOTE:
REFERENCE SPECIFICATION FOR SURFACING, MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

4 A-500 ROOF DRAIN DETAIL
SCALE: N.T.S.



NOTE:
REFERENCE SPECIFICATION FOR SURFACING, MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

5 A-500 PLUMBING STACK DETAIL
SCALE: N.T.S.



NOTE:
REFERENCE SPECIFICATION FOR SURFACING, MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

6 A-500 EQUIPMENT CURB DETAIL
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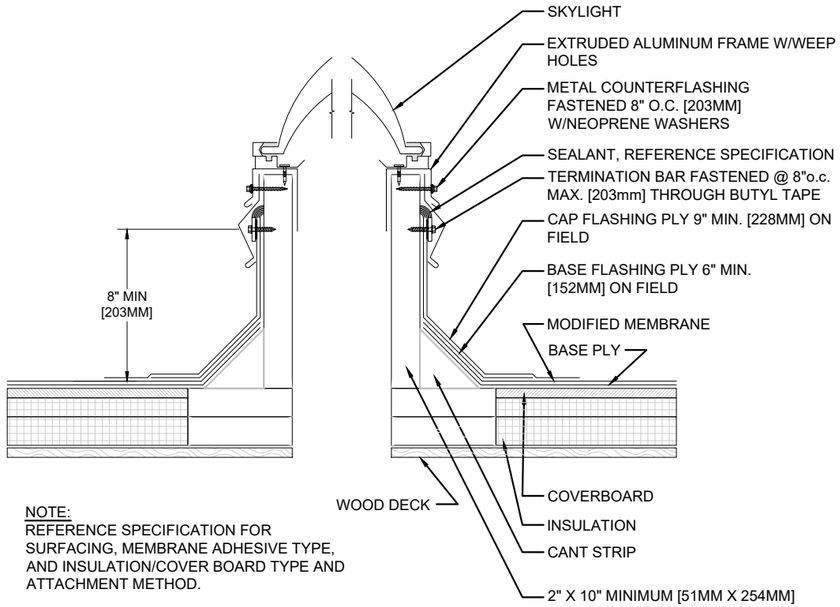
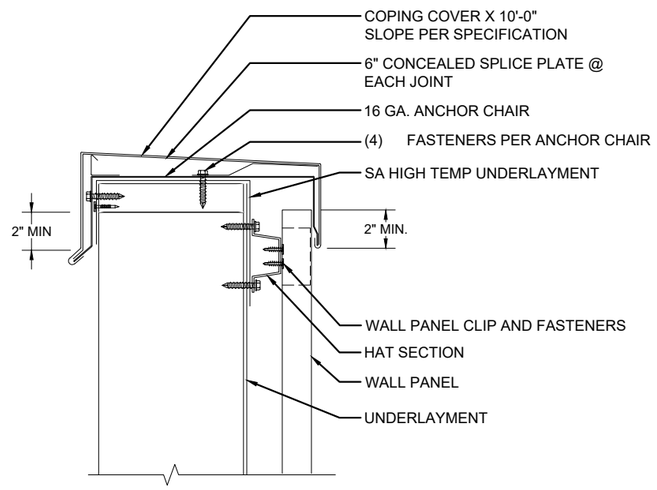
ROOF DETAILS

A-500



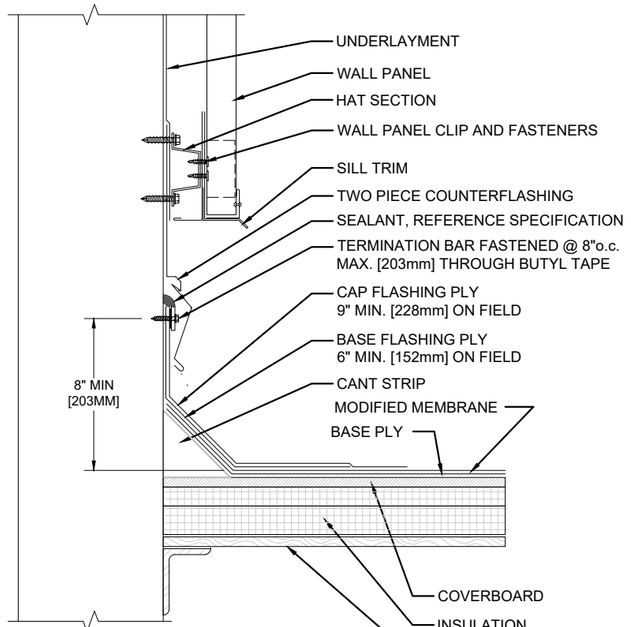
NOTE:
REFERENCE SPECIFICATION FOR SURFACING, MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

1 A-501 SKYLIGHT DETAIL
SCALE: N.T.S.



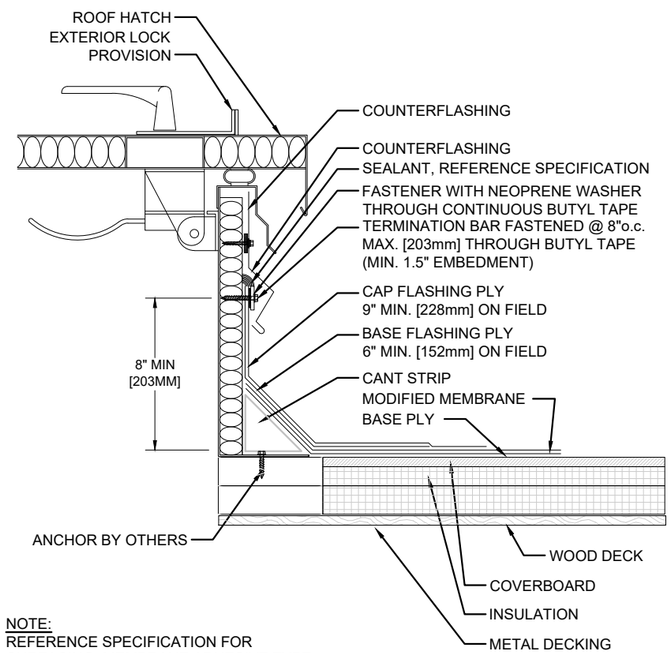
NOTE:
REFERENCE SPECIFICATION FOR SURFACING, MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

2 A-501 COPING CAP AT WALL PANEL DETAIL
SCALE: N.T.S.



NOTE:
REFERENCE SPECIFICATION FOR SURFACING, MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

3 A-501 WALL FLASHING AT WALL PANEL
SCALE: N.T.S.



NOTE:
REFERENCE SPECIFICATION FOR SURFACING, MEMBRANE ADHESIVE TYPE, AND INSULATION/COVER BOARD TYPE AND ATTACHMENT METHOD.

4 A-501 ROOF HATCH DETAIL
SCALE: N.T.S.

5 A-501 NOT USED
SCALE: N.T.S.

6 A-501 NOT USED
SCALE: N.T.S.

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ROOF DETAILS

A-501

DESIGN CRITERIA

DC-1 BUILDING CODE:
- A. RHODE ISLAND STATE BUILDING CODE, 2021
- B. INTERNATIONAL BUILDING CODE (IBC), 2018
- C. EDITION OF ALL REFERENCED STANDARDS NOTED HEREIN ARE AS NOTED IN THE BUILDING CODE.

DC-2 VERTICAL LOADS

A.	DEAD LOADS (INCLUDES SELF-WEIGHT)	
1.	ROOF	20 PSF
A.	MINIMUM (FOR UPLIFT)	8 PSF
2.	RTU	2400 LBS (ASSUMED)
B.	LIVE LOADS	
1.	ROOF (REDUCIBLE PER ASCE 7)	25 PSF MINIMUM
C.	SNOW LOADS	
1.	GROUND SNOW LOAD (Pg)	35 PSF
2.	MINIMUM SNOW LOAD (Pm)	35 PSF
3.	FLAT-ROOF SNOW LOAD (Pf)	22.05 PSF
4.	SLOPED ROOF SNOW LOAD (Ps)	22.05 PSF
5.	SNOW IMPORTANCE FACTOR (Is)	1.0
6.	SNOW EXPOSURE FACTOR (Ce)	0.9
7.	THERMAL FACTOR (Ct)	1.0
8.	SLOPE FACTOR (Cs)	1.0
D.	CONSTRUCTION LOADS	
1.	NON-COMPOSITE CONSTRUCTION NOT TO EXCEED THE DESIGN LIVE LOADS.	

DC-3 LATERAL LOADS

A.	RISK CATEGORY	II
B.	WIND DESIGN CRITERIA	
1.	BASIC DESIGN WIND SPEED (V)	125 MPH
2.	ALLOWABLE DESIGN WIND SPEED (Vasd)	97 MPH
3.	EXPOSURE CATEGORY	B
4.	INTERNAL PRESSURE COEFFICIENT	+/- 0.18
C.	SEISMIC DESIGN CRITERIA	
1.	SEISMIC IMPORTANCE FACTOR (Ie)	1.0
2.	SITE CLASS (ASSUMED)	D
3.	MAPPED SPECTRAL RESPONSE ACCELERATION	
A.	SHORT PERIOD (Ss)	0.198
B.	ONE SECOND (S_1)	0.055
4.	DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS	
A.	SHORT PERIOD (S_{DS})	0.211
B.	ONE SECOND (S_{D1})	0.089
5.	SEISMIC DESIGN CATEGORY	B

GENERAL

G-1 METHODS, PROCEDURES AND SEQUENCES OF CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING THE NECESSARY PRECAUTIONS TO MAINTAIN THE INTEGRITY OF THE STRUCTURE AT EACH STAGE OF CONSTRUCTION.

G-2 STRUCTURAL ENGINEER WILL NOT BE RESPONSIBLE FOR ACTIVITIES UNDER THE CONTROL OF THE CONTRACTOR SUCH AS CONSTRUCTION SITE SAFETY, MEANS, METHODS AND SEQUENCES OF CONSTRUCTION. STRUCTURAL ENGINEER WILL NOT BE RESPONSIBLE FOR FABRICATION, ERECTION AND CONSTRUCTION REQUIREMENTS AS PRESCRIBED BY OSHA OR OTHER REGULATORY AGENCIES REGARDLESS OF INDICATION IN THESE DOCUMENTS. THE CONTRACTOR IS SOLEY RESPONSIBLE FOR ALL SAFETY REGULATIONS, PROGRAMS AND PRECAUTIONS RELATED TO ALL WORK ON THE PROJECT.

G-3 WHERE SUPPORTED SLABS OR ROOFS ARE TO BE USED FOR STAGING OR TEMPORARY CONSTRUCTION LOADS, THE CONTRACTOR MUST VERIFY THAT APPLIED LOADS DO NOT EXCEED THE DESIGN LOADS FOR THE SUPPORTING FLOORS OR ROOFS. DURING AND AFTER CONSTRUCTION, CONTRACTOR AND/OR OWNER MUST KEEP LOADS ON THE STRUCTURE WITHIN THE LIMITS OF THE DESIGN LOADS AS NOTED IN THESE DRAWINGS.

G-4 THE STRUCTURAL SYSTEMS SHOWN IN THESE DRAWINGS MUST NOT BE CONSIDERED STABLE UNTIL ALL STRUCTURAL ELEMENTS ARE IN PLACE AND COMPLETED. TEMPORARY BRACING, SHEETING, SHORING, ETC, REQUIRED TO ENSURE THE STRUCTURAL INTEGRITY/STABILITY OF THE EXISTING BUILDINGS, SIDEWALKS, UTILITIES, ETC, DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE DESIGNED BY A REGISTERED PROFESSIONAL ENGINEER EMPLOYED BY THE CONTRACTOR.

G-5 CONTRACTOR MUST COORDINATE WITH ALL TRADES THE LOCATIONS AND DIMENSIONS OF ALL OPENINGS THROUGH FLOORS, ROOFS AND WALLS REGARDLESS OF IF THEY ARE SHOWN ON THE STRUCTURAL DRAWINGS.

G-6 THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING DIMENSIONS AND INSTALLATION REQUIREMENTS OF EQUIPMENT WITH THE SUPPORTING STRUCTURE.

G-7 THE STRUCTURAL DRAWINGS ARE SUPPLEMENTARY TO THE ARCHITECTURAL AND OTHER DISCIPLINE DRAWINGS. DO NOT ATTEMPT TO BID NOR CONSTRUCT ANY PORTION OF THIS PROJECT WITHOUT CONSULTING OTHER DISCIPLINES' DRAWINGS WITHIN THIS PROJECT. ALL CONFLICTS OR OMISSIONS, INCLUDING DIMENSIONS, BETWEEN THE VARIOUS ELEMENTS OF THE STRUCTURAL DRAWINGS AND/OR SPECIFICATIONS MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER BEFORE PROCEEDING WITH ANY WORK INVOLVED. IN CASE THERE IS A CONFLICT BETWEEN DRAWINGS, SUBMIT A REQUEST FOR INFORMATION, AND PROCEED AS DIRECTED BY THE ENGINEER. ANY WORK DONE BY THE CONTRACTOR AFTER DISCOVERY OF SUCH DISCREPANCY WITHOUT OFFICIAL DIRECTION WILL BE DONE AT THE CONTRACTOR'S RISK.

G-8 IN CASE OF CONFLICT BETWEEN THE GENERAL NOTES, SPECIFICATIONS, DRAWINGS, OR WITHIN THESE DOCUMENTS, THE MOST STRINGENT REQUIREMENTS AS DETERMINED BY THE ENGINEER WILL GOVERN.

G-9 EXISTING BUILDING INFORMAITON SHOWN IS BASED UPON EXISTING BUILDING DOCUMENTS AND/OR FROM FIELD OBSERVATION. THE INFORMAITON CONTAINED HEREIN MAY REQUIRE ADJUSTMENTS AND/OR MODIFICATIONS TO CONFORM TO EXISTING CONDITIONS. THE CONTRACTOR MUST FIELD VERIFY THE EXISTING BUILDING INFORMATION SHOWN IN ITS ENTIRETY (DIMENSIONS, ELEVATIONS, ETC) AND NOTIFY THE ENGINEER OF DISCREPANCIES PRIOR TO FABRICATION OF STRUCTURAL COMPONENTS.

G-10 WORK NOT INDICATED ON A PART OF THE DRAWINGS, BUT REASONABLY IMPLIED TO BE SIMILAR TO THAT SHOWN AT CORRESPONDING LOCATIONS, IS TO BE REPEATED.

G-11 TYPICAL DETAILS ARE GENERALLY NOT REFERENCED ON THE DRAWINGS AND WILL APPLY IN AREAS WHERE CONDITIONS ARE SIMILAR AS DESCRIBED IN THE DETAILS. THE CONTRACTOR MUST IDENTIFY, COORDINATE AND APPLY THESE DETAILS AS NEEDED. TYPICAL DETAILS MAY BE REFERENCED ON PLANS OR DETAILS TO CLARIFY OR IDENTIFY A PARTICULAR CONDITION. THE PRESENCE OF SUCH A REFERENCE DOES NOT ALTER THE OBLIGATION OF THE CONTRACTOR TO APPLY THE DETAIL(S) AS NEEDED EVEN IF THEY ARE NOT REFERENCED.

G-12 THE STRUCTURAL DOCUMENTS HAVE BEEN DRAWN TO SCALE AS INDICATED ON THESE DRAWINGS. THIS IS TO CONFIRM GENERAL GEOMETRIC TOLERANCES TO THE GREATEST EXTENT POSSIBLE. HOWEVER, SOME COMPONENTS MAY NOT BE DRAWN TO SCALE TO REFLECT DESIGN INTENT. IF DIMENSIONAL INFORMATION IS NOT INDICATED AND/OR PROVIDED, THE ENGINEER MUST BE NOTIFIED IN WRITING. DO NOT SCALE DRAWINGS.

CONSTRUCTION ADMINISTRATION

CA-1 CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL SIZES, DIMENSIONS, AND ELEVATIONS ON SUBMITTALS AS RELATED TO DESIGN DOCUMENTS PRIOR TO DELIVERY TO MICHAEL BAKER INTERNATIONAL FOR REVIEW.

CA-2 PREPARATION OF SHOP DRAWING SUBMITTALS FOR STRUCTURAL ELEMENTS WILL REQUIRE INFORMATION (I.E. DIMENSIONS, ETC.) FOUND IN THE ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND OTHER DISCIPLINE DRAWINGS. CONTRACTOR IS TO FURNISH SUFFICIENT INFORMATION, INCLUDING PROJECT SPECIFICATIONS, TO THE SUB-CONSULTANT CREATING THE SHOP DRAWING SUBMITTAL TO ALLOW FOR A COMPETE SUBMITTAL.

CA-3 SHOP DRAWINGS:
- A. SHOP DRAWINGS FOR MATERIALS MUST BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO THE START OF FABRICATION OR COMMENCEMENT OF WORK.
- B. SHOP DRAWINGS MUST BE CHECKED AND STAMPED BY THE CONTRACTOR PRIOR TO SUBMISSION. THE CONTRACTOR'S STAMP OF APPROVAL WILL CONSTITUTE CERTIFICATION THAT HE HAS VERIFIED FIELD MEASUREMENTS, CONSTRUCTION CRITERIA, MATERIALS AND SIMILAR DATA AND HAS CHECKED EACH DRAWING FOR COMPLETENESS, COORDINATION, AND COMPLIANCE WITH THE CONTRACT DOCUMENTS. SHOP DRAWINGS SUBMITTED WITHOUT THE CONTRACTOR'S STAMP AND REVIEW WILL BE RETURNED WITHOUT REVIEW BY MICHAEL BAKER.
- C. REPRODUCTION OF ANY PORTION OF THE STRUCTURAL CONTRACT DRAWINGS FOR SUBMITTAL AS SHOP DRAWINGS IS PROHIBITED. SUBMITTALS PROVIDED THAT INCLUDE REPRODUCTION OF THE CONTRACT DRAWINGS WILL BE RETURNED WITHOUT REVIEW BY MICHAEL BAKER.
- D. CHANGES TO SHOP DRAWINGS THAT ARE RE-SUBMITTED MUST BE CLOUDED OR SOMEHOW INDICATE THAT A CHANGE HAS BEEN MADE TO PREVIOUSLY ISSUED AND REVIEWED DRAWINGS. REVISED SHOP DRAWINGS PROVIDED WITHOUT CLOUDS OR CHANGES INDICATED WILL BE RETURNED WITHOUT REVIEW BY MICHAEL BAKER.
- E. THE CONTRACTOR IS TO PROVIDE THE ENGINEER WITH WRITTEN NOTICE OF DEVIATIONS OF ANY TYPE FROM THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS. THE NOTICE MUST BE RECEIVED PRIOR TO SHOP DRAWING SUBMITTAL. THE CONTRACTOR REMAINS LIABLE FOR ANY DEVIATION UNLESS REVIEWED BY THE ENGINEER AND ACKNOWLEDGED IN WRITING, PRIOR TO THE RECEIPT OF THE SHOP DRAWINGS.
- F. CONTRACTOR IS NOT RELIEVED OF ANY REQUIREMENT OF THE CONTRACT DOCUMENTS BY VIRTUE OF ENGINEER OR CONTRACTING OFFICER REVIEW OF SUBMITTALS.
- G. REVIEW OF SUBMITTALS BY MICHAEL BAKER INTERNATIONAL IS FOR GENERAL COMPLIANCE WITH THE CONTRACT DOCUMENTS ONLY AND IS NOT INTENDED AS APPROVAL.

CA-4 UNLESS NOTED OTHERWISE, ALLOW 10 BUSINESS DAYS FOR MICHAEL BAKER INTERNATIONAL'S REVIEW.

CA-5 A QUALIFIED TESTING AGENCY MUST PERFORM TESTS AND SPECIAL INSPECTIONS. UPON COMPLETION OF WORK, THE TESTING AGENCY MUST FURNISH A CERTIFICATE OF COMPLIANCE, SIGNED BY THE PROFESSIONAL ENGINEER RESPONSIBLE FOR MANGEMENT OF THE AGENCY. THE PROFESSIONAL ENGINEER MUST BE REGISTERED IN THE STATE IN WHICH THE PROJECT IS CONSTRUCTED.

STRUCTURAL WOOD

W-1 DESIGN, FABRICATION AND CONSTRUCTION OF WOOD FRAMING MUST CONFORM WITH:
- A. AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC) "TIMBER CONSTRUCTION MANUAL"
- B. NATIONAL FOREST PRODUCTS ASSOCIATION (NFPA) "NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION".

W-2 SAWN LUMBER MUST BE HEM FIR NO. 1 GRADED IN ACCORDANCE WITH THE NFPA NATIONAL DESIGN SPECIFICATION WITH THE FOLLOWING BASE DESIGN VALUES:
- A. Fb=950 PSI (BENDING – SINGLE MEMBER USE)
- B. Fv=75 PSI (HORIZONTAL SHEAR)
- C. Fc=1300 PSI (COMPRESSION PARALLEL TO GRAIN)
- D. E= 1,500,000 PSI (MODULUS OF ELASTICITY)

W-3 LAMINATED VENEER LUMBER (LVL) MUST BE VERTICALLY LAMINATED MEMBERS WITH THE FOLLOWING BASE DESIGN VALUES:
- A. Fb=<3100 PSI> PSI (BENDING)
- B. Fv=<285 PSI> (HORIZONTAL SHEAR)
- C. Fc=<3000 PSI> (COMPRESSION PARALLEL TO GLUE LINE)
- D. E= <2,100,000> (MODULUS OF ELASTICITY)

W-4 PLYWOOD SHEATHING MUST BE IN CONFORMANCE WITH AMERICAN PLYWOOD ASSOCIATION (APA) SPECIFICATIONS.
- A. SUB-FLOOR (TONGUE & GROOVE): 3/4" C-D GRADE, EXPOSURE 1, 32/16 SPAN RATING
- B. ROOF (TONGUE & GROOVE): 3/4" C-D GRADE, EXPOSURE 1, 24/48 SPAN RATING
- C. WALL: 3/4" C-D GRADE, EXPOSURE 1, 16/0 SPAN RATING
- D. INSTALL PANELS WITH A 1/8" CLEAR SPACING AT PANEL ENDS AND EDGE JOINTS.
- E. PROVIDE CONTINUOUS BLOCKING OF UNSUPPORTED PANEL EDGES OF WALL AND ROOF SHEATHING.
- F. ORIENTED STRAND BOARD (OSB) IS NOT PERMITTED.

W-5 METAL CONNECTORS USED MUST BE GALVANIZED.

W-6 CONNECTIONS FOR JOISTS, BEAMS, TRUSSES AND MANUFACTURED WOOD FRAMING TO BE MADE WITH APPROPRIATE METAL HANGERS, FRAMING ANGLES, CONNECTORS, STRAPS, ETC.
- A. BOLTS OR LAG SCREWS PER ASTM A 307 SPECIFICATIONS.
- B. NAILS TO BE COMMON NOT BOX. (NAILS TO BE GALVANIZED.)
- C. THE QUANTITY AND SIZE OF NAILS AND OTHER FASTENERS CONNECTING WOOD MEMBERS MUST NOT BE LESS THAN THE FASTENING SCHEDULE SET FORTH IN THE APPLICABLE BUILDING CODE.

W-7 PROVIDE CORROSION RESISTANT, LIGHT GAGE METAL FRAMING CONNECTORS AS INDICATED ON THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND IN THE SPECIFICATIONS. PROVIDE MAXIMUM NUMBER AND SIZE OF FASTENERS ACCORDING TO MANUFACTURERS WRITTEN INSTRUCTIONS. UNLESS NOTED OTHERWISE, PROVIDE CONNECTORS WITH THE FOLLOWING MINIMUM CAPACITIES:

A.	TENSILE CAPACITY:	500lbs
B.	PERPENDICULAR TO THE MEMBER:	200lbs
C.	PARALLEL TO THE MEMBER:	300lbs
D.	TRUSS HANGERS:	PER MANUFACTURER
E.	JOIST HANGERS:	500lbs

W-8 PROVIDE NAILED CONNECTIONS FOR PLYWOOD SHEATHING AS FOLLOWS:
- A. SUB-FLOOR: 8d NAILS SPACED 6" OC EDGE, 12" OC FIELD
- B. ROOF: 8d NAILS SPACED 6" OC EDGE, 12" OC FIELD
- C. WALL: 10d NAILS SPACED 6" OC EDGE, 12" OC FIELD

W-9 WOOD IN CONTACT WITH MASONRY, CONCRETE, EARTH, OR EXPOSED TO WEATHER IS TO BE PRESSURE TREATED.

W-10 CONTRACTOR MUST FIELD TREAT PRESSURE TREATED LUMBER THAT IS QLY CUT, NOTCHED OR DRILLED.

W-11 MEMBERS DESIGNATED AS TREATED ARE TO BE PRESERVATIVE TREATED WOOD USING WATER-BORNE PRESERVATIVES AND TREATED IN ACCORDANCE WITH THE AMERICAN WOOD-PRESERVERS' ASSOCIATION (AWPA) STANDARDS C2 AND C9 AS APPLICABLE.

DEMOLITION

DM-1 ALL WORK MUST BE PERFORMED IN STRICT COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE, LOCAL AND ENVIRONMENTAL PROTECTION AGENCIES CRITERIA AND GUIDELINES.

DM-2 CONTRACTOR AND ALL SUBCONTRACTORS MUST VISIT THE SITE AND THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONDITIONS THAT MAY AFFECT THE SCOPE OF THE WORK AND THE EXISTING CONDITIONS PRIOR TO PROCEEDING. ANY DISCREPANCIES DISCOVERED MUST BE BROUGHT TO THE ATTENTION OF THE [CONTRACTING OFFICER/ENGINEER] FOR CLARIFICATION AND/OR RESOLUTION DURING THE BID PHASE.

DM-3 ANY CONDITIONS DISCOVERED DURING CONSTRUCTION THAT APPEAR TO BE INCONSISTENT WITH THE PLANS AND DETAILS SHOWN IN THESE DRAWINGS MUST BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE [CONTRACTING OFFICER/ENGINEER].

DM-4 ALL EXISTING UTILITIES MAY NOT BE INDICATED ON THE DRAWINGS. PROCEED WITH CAUTION DURING DEMOLITION AND/OR NEW CONSTRUCTION. UNIDENTIFIED PIPES, CONDUITS, CABLES OR ANY OTHER ITEMS ENCOUNTERED MUST BE IMMEDIATELY REPORTED TO THE [CONTRACTING OFFICER/ENGINEER].

DM-5 EACH BUILDING OR STRUCTURE INDICATED FOR REMOVAL MUST BE DEMOLISHED OR DECONSTRUCTED TO THE LIMITS INDICATED.

DM-6 THE CONTRACTOR MUST VERIFY ALL EXISTING DIMENSIONS, ELEVATIONS, SHAPES AND SIZES OF EXISTING STRUCTURAL MEMBERS INDICATED TO BE REMOVED. THE ENGINEER MUST BE NOTIFIED IN WRITING OF ALL DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.

DM-7 CONTRACTOR AND ALL SUBCONTRACTORS MUST PROTECT ALL EXISTING ITEMS TO REMAIN. REPAIR AND/OR REPLACE ANY DAMAGED AREAS OR ITEMS NOT INDICATED TO BE REMOVED. REPAIR OF DAMAGED AREAS OR ITEMS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

DM-8 DEMOLITION OR DECONSTRUCTION WORK THAT PRODUCES VOIDS, HOLES OR INDENTATIONS IN THE EXISTING SUBGRADE MUST BE BACKFILLED AND COMPACTED. THE COST TO BACKFILL AND COMPACT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.

DM-9 AREAS NOT DESIGNATED TO BE DEMOLISHED OR DECONSTRUCTED AND REMOVED ARE EXISTING TO REMAIN. AREAS INDICATED "N.I.C." ARE "NOT IN CONTRACT."

DM-10 CONTRACTOR MUST SUBMIT A PLAN TO DEMOLISH OR DECONSTRUCT EACH STRUCTURE INDICATED TO BE REMOVED. THE DEMOLITION OR DECONSTRUCTION PLANS MUST BE SUBMITTED UNDER THE SEAL OF A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE STATE OF WHICH THE PROJECT IS LOCATED. THE PLAN MUST INDICATE THE ORDER OF BUILDINGS TO BE REMOVED, THE SEQUENCING OF THE WORK, PRECAUTIONS TO PROTECT EXISTING ITEMS TO REMAIN, AND PRECAUTIONS TO PROTECT THE SAFETY OF FACILITY STAFF, CONSTRUCTION STAFF, AND NEARBY INHABITANTS.

DM-11 CONTRACTOR MUST SUBMIT CHANGES TO THE DEMOLITION OR DECONSTRUCTION PLANS TO THE OWNER FOR APPROVAL BEFORE EXECUTING ANY WORK THAT WILL BE IMPACTED BY THE PLAN CHANGE.

DM-12 THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND ERECTION OF ALL TEMPORARY BRACING AND SHORING NECESSARY TO PREVENT MOVEMENT, SETTLEMENT, OR COLLAPSE OF THE STRUCTURE OR ELEMENT TO BE DEMOLISHED INCLUDING THE ADJACENT STRUCTURE TO REMAIN. THE CONTRACTOR MUST SUBMIT SHORING DRAWINGS AND SUPPORTING CALCULATIONS FOR REVIEW, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE IN WHICH THE PROJECT IS LOCATED.

DM-13 RELOCATE DEMOLISHED EQUIPMENT AND PROMPTLY REMOVE STRUCTURAL DEBRIS TO AVOID IMPOSING EXCESSIVE LOADS ON THE SUPPORTING STRUCTURE.

DM-14 DEMOLISH CONCRETE ELEMENTS IN SMALL SECTIONS. CUT CONCRETE AT INTERFACES WITH STRUCTURE TO REMAIN USING POWER-DRIVEN SAW OR HAND TOOLS. DO NOT USE POWER DRIVEN IMPACT TOOLS TO REDUCE VIBRATION ON THE STRUCTURE TO REMAIN AND AVOID DAMAGE TO THE REMAINING STRUCTURE.

DM-15 SAWCUT ALL EXISTING CONCRETE SLABS TO BE REMOVED. CORE DRILL HOLES ARE CORNERS BEFORE CUTTING TO ELIMINATE SAW OVERRUNS.

DM-16 PRIOR TO REMOVING ANY CONCRETE OR MASONRY WALL, THE CONTRACTOR MUST DETERMINE BY EXAMINING THE FLOOR OR ROOF FRAMING ABOVE THE WALL, WHETHER OR NOT IT IS A STRUCTURAL BEARING WALL. THIS PROCEDURE IS REQUIRED WHETHER OR NOT THE DRAWINGS INDICATE THE WALL TO BE LOAD-BEARING. THE ENGINEER MUST BE NOTIFIED, PRIOR TO REMOVAL, IF UNEXPECTED BEARING WALLS ARE DISCOVERED.

DM-17 WHERE EXISTING STEEL BEAMS OR BEARING WALLS ARE TO BE REMOVED, THE EXISTING STEEL BAR JOISTS MAY BE WELDED TO THE BEAM TOP FLANGE OR THE WALL BEARING PLATES. THE BEAMS OR BEARING PLATES SHOULD BE CUT AWAY FROM THE JOIST SEATS SO THAT THE JOIST SEATS REMAIN UNDAMAGED AND CAN BE REWELDED TO THE NEW SUPPORTS. DO NOT TORCH CUT THE WELDS DIRECTLY, AS THE THIN MATERIAL IN THE JOIST SEATS WILL BE DAMAGED.

DM-18 WHERE BEARING WALLS ARE TO BE REMOVED, ALL SLABS, JOISTS AND/OR BEAMS SUPPORTED BY THE WALL MUST BE RIGIDLY SHORED TO THE FLOOR OR GROUND BELOW PRIOR TO ANY WALL DEMOLITION. STEEL JOIST MUST BE SHORED FROM THE TOP CHORD ONLY, WITH THE SHORING NO FURTHER THAN TWO FEET FROM THE JOIST SUPPORT.

DM-19 WHERE OPENINGS IN EXISTING CMU WALLS ARE BEING FILLED, THE EXISTING LINTELS MUST REMAIN IN PLACE.

DM-20 WHERE OPENINGS IN EXISTING MASONRY WALLS (NON-LOAD AND LOAD-BEARING) ARE NO LONGER REQUIRED THEY ARE TO BE FILLED IN WITH NEW MASONRY.

DM-21 UPON COMPLETION OF THE DEMOLITION OR DECONSTRUCTION WORK FOR AN ITEM OR AREA TO BE REMOVED, THE PROFESSIONAL ENGINEER RESPONSIBLE FOR THE DEMOLITION OR DECONSTRUCTION PLAN MUST REVIEW CONDITIONS TO CONFIRM THAT IT IS SAFE TO ENTER THE AREAS AFFECTED BY THE WORK.

DM-22 FILL AND COMPACT ALL PITS, UTILITY TRENCHES, AND OTHER OPEN STRUCTURES NOT DESIGNATED FOR DEMOLITION OR DECONSTRUCTION. REFER TO CIVIL DRAWINGS FOR FILL AND COMPACTION REQUIREMENTS.

ABBREVIATIONS AND SYMBOLS

A/E	ARCHITECT/ENGINEER	K	KIP(S)
ABV	ABOVE	KB	KNEE BRACE
ADDL	ADDITIONAL	KCF	KIPS PER CUBIC FEET
ADJ	ADJACENT	KLF	KIPS PER LINEAR FOOT
AFF	ABOVE FINISHED FLOOR	KSF	KIPS PER SQUARE FEET
AHU	AIR HANDLING UNIT	KSI	KIPS PER SQUARE INCH
ALT	ALTERNATE	L	LENGTH
APPROX	APPROXIMATE(LY)	LAT	LATERAL
ARCH	ARCHITECT(URAL)	LBS	POUNDS
AT	ANTITERRORISM	ld	DEVELOPMENT LENGTH
AVG	AVERAGE	Ldh	HOOK DEVELOPMENT LENGTH
AWTS	AUTOMATIC WELDED THREADED STUDS	Lst	LAP SPLICE LENGTH
B PL	BASE PLATE OR BEARING PLATE	Lsc	LAP SPLICE LENGTH
B/	BOTTOM OF	LF	LINEAR FOOT
BD	BOARD	LL	LIVE LOAD
BF	BRACED FRAME	LLH	LONG LEG HORIZONTAL
BFF	BELOW FINISHED FLOOR	LLV	LONG LEG VERTICAL
BLDG	BUILDING	LONG	LONGITUDINAL
BLK	BLOCK(ING)	LP	LOW POINT
BLW	BELOW	LSH	LONG SIDE HORIZONTAL
BM	BEAM	LSV	LONG SIDE VERTICAL
BOT	BOTTOM	LWT	LIGHT WEIGHT
BRG	BEARING	MEP	MECHANICAL, ELECTRICAL, & PLUMBING
BS	BOTH SIDES	MATL	MATERIAL
BTWN	BETWEEN	MAX	MAXIMUM
CC	CENTER TO CENTER	MCJ	MASONRY CONTROL JOINT
CF	CUBIC FOOT OR CUBIC FEET	MECH	MECHANICAL
CFMF	COLD-FORMED METAL FRAMING	MEZZ	MEZZANINE
CIP	CAST IN PLACE	MFR	MANUFACTURE(R)
CJ	CONTROL JOINT/CONSTRUCTION JOINT	MID	MIDDLE
CJP	COMPLETE JOINT PENETRATION	MIN	MINIMUM
CL	CENTERLINE	MISC	MISCELLANEOUS
CLR	CLEAR OR CLEAR COVER	MULT	MULTIPLE
CMU	CONCRETE MASONRY UNIT	MO	MASONRY OPENING
COL	COLUMN	MTL	METAL
CONC	CONCRETE	MWT	MEDIUM WEIGHT
CONN	CONNECTION	NF	NEAR FACE
CONST	CONSTRUCTION	NIC	NOT IN CONTRACT
CONT	CONTINUOUS	NUM	NUMBER
CONTR	CONTRACTOR	NOM	NOMINAL
COORD	COORDINATE	NS	NEAR SIDE
CTR	CENTER(ED)	NTS	NOT TO SCALE
CY	CUBIC YARD	NWT	NORMAL WEIGHT
db	BAR DIAMETER	O/F	OUTSIDE FACE
DBA	DEFORMED BAR ANCHOR	OC	ON CENTER
DBL	DOUBLE	OD	OUTSIDE DIAMETER
DET	DETAIL	OPNG	OPENING
DIA	DIAMETER	OPP	OPPOSITE
DIAG	DIAGONAL	OH	OPPOSITE HAND
DIM	DIMENSION	OVH	OVERHEAD
DL	DEAD LOAD	OWJ	OPEN WEB STEEL JOIST
DN	DOWN	PAF	POWDER ACTUATED FASTENER
DTL	DETAIL	PC	PRECAST
DWG	DRAWING	PCF	POUNDS PER CUBIC FOOT
DWL	DOWEL	PCI	POUNDS PER CUBIC INCH
E/	EDGE OF	PEMB	PRE-ENGINEERED METAL BUILDING
EA	EACH	PERM	PERIMETER
EF	EACH FACE	PERP	PERPENDICULAR
EIFS	EXTERIOR INSULATION FINISH SYSTEM	PJP	PARTIAL JOINT PENETRATION
EJ	EXPANSION JOINT	PL	PLATE
ELEC	ELECTRICAL	PLF	POUNDS PER LINEAR FOOT
ELEV	ELEVATION(S)	POJ	PLANE OF JOIST
EMBED	EMBED(ED)(MENT)	PREFAB	PREFABRICATED
ENG	ENGINEER	PRL	PARALLEL
EOR	ENGINEER OF RECORD	PSF	POUNDS PER SQUARE FOOT
EQ	EQUAL	PSI	POUNDS PER SQUARE INCH
EQUIP	EQUIPMENT	PT	PRE/POST-TENSIONING
EST	ESTIMATED	PTW	PRESSURE TREATED WOOD
EW	EACH WAY	PVMT	PAVEMENT
EXCL	EXCLUDE(ING)	QTY	QUANTITY
(E)	EXISTING	RAD	RADIUS
EXP	EXPANSION	RE:	REFER TO
EXT	EXTERIOR	REINF	REINFORCEMENT
F/	FACE OF	REQD	REQUIRED
F/F	FACE TO FACE	REV	REVISE(ION)
FDN	FOUNDATION	RO	ROUGH OPENING
FF	FINISHED FLOOR	RTU	ROOF TOP UNIT
FL	FLOOR	SC	SLIP CRITICAL
FP	FIREPROOF(ING)	SCHED	SCHEDULE
FS	FAR SIDE	SECT	SECTION
FT	FOOT/FEET	SF	SQUARE FOOT
FTG	FOOTING	SHT	SHEET
GA	GAUGE/GAGE	SIM	SIMILAR
GALV	GALVANIZED	SL	SLOPE(D) OR SLOPING
GB	GRADE BEAM	SLV	SLEEVE
GC	GENERAL CONTRACTOR	SOG	SLAB ON GRADE
HORIZ	HORIZONTAL	SOD	SLAB ON METAL DECK
HP	HIGH POINT	SP	SPACE(S) OR SPACING
HSA	HEADED STUD ANCHOR	SPEC	SPECIFY OR SPECIFICATIONS
HT	HEIGHT	SQ	SQUARE
I/F	INSIDE FACE	SS	STAINLESS STEEL
ID	INSIDE DIAMETER	STD	STANDARD
IN	INCH(ES)	STIFF	STIFFENER
INCL	INCLUDE	STL	STEEL
INFO	INFORMATION	STRUCT	STRUCTURAL
INT	INTERIOR	SUSP	SUSPEND(ED) OR SUSPENSION
ISO JT	ISOLATION JOINT	SW	SELF WEIGHT
JST	JOIST	T&B	TOP AND BOTTOM
JT	JOINT	T/	TOP OF

TEMP	TEMPORARY	@	AT / AT EACH
THD	THREAD(ED)	( )°	DEGREE
THK	THICK(NESS)	Ø	DIAMETER
TL	TOTAL LOAD	#	NUMBER
TRANS	TRANSVERSE		
TRTD	TREATED		
TYP	TYPICAL		
UNO	UNLESS NOTED OTHERWISE		
VERT	VERTICAL		
VIF	VERIFY IN FIELD		
W	WIDTH		
W/	WITH		
W/C	WATER TO CEMENT RATIO		
W/O	WITHOUT		
WL	WIND LOAD		
WP	WORKING POINT		
WT	WEIGHT		
WWR	WELDED WIRE REINFORCEMENT		

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REGISTERED PROFESSIONAL ENGINEER
STRUCTURAL
SEAL

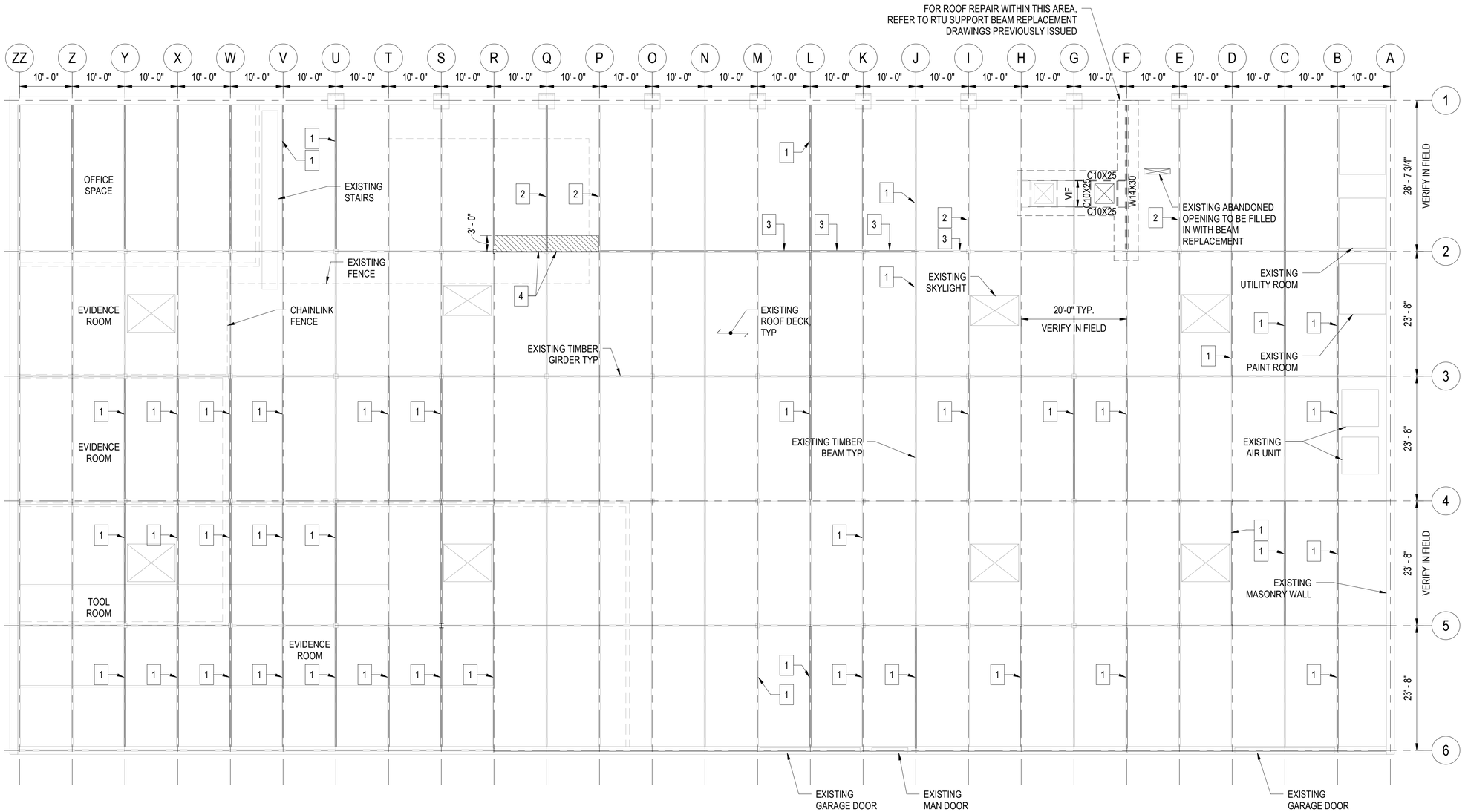
NO.	DATE	DESCRIPTION

REVISIONS

MAINTENANCE GARAGE ROOF REPAIR
552 ACADEMY AVENUE,
PROVINCE, RI 02908

STRUCTURAL DESIGN CRITERIA, & GENERAL NOTES

Project Number: 207520
Date: 07-30-25
Scale: AS NOTED
Sheet # S-001



1 ROOF FRAMING REPAIR PLAN

3/32" = 1'-0"

- CONTRACTOR MAY REUSE DECK BOARDS IN SOUND CONDITION.

1. EXISTING BEAM TO BE REINFORCED, SEE DETAIL 1&3/S-311
2. EXISTING REINFORCED BEAMS TO REPLACE NEW REINFORCEMENT, SEE DETAIL 2/S-311
3. EXISTING GIRDERS TO BE REINFORCED, SEE DETAIL 4&5/S-311
4. EXISTING DECK BOARDS TO BE REPLACED WITH NEW DECK BOARDS, SEE DETAIL 6/S-311

0 8'-0" 16'-0" 32'-0"

SCALE: 3/32" = 1'-0"

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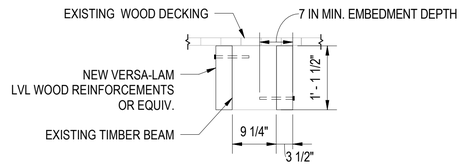
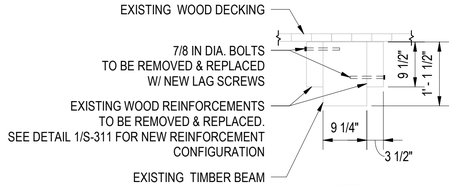
MAINTENANCE GARAGE ROOF REPAIR
552 ACADEMY AVENUE,
PROVIDENCE, RI 02908

ROOF FRAMING REPAIR PLAN

Project Number: **207520**
Date: **07-30-25**
Scale: **AS NOTED**
Sheet # **SF111**

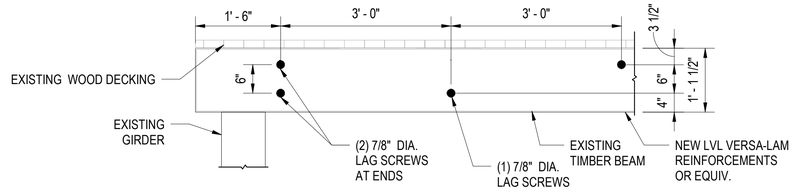


1 TIMBER BEAM W/ NEW LVL REINFORCEMENTS
3/4" = 1'-0"

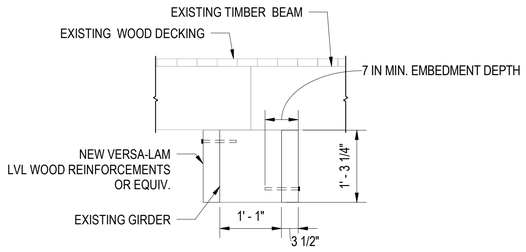


NOTE:
TEMPORARY SHORING TO BE USED DURING REMOVE & REPLACEMENT OF REINFORCEMENTS TO PREVENT EXISTING BEAM FROM FAILING.

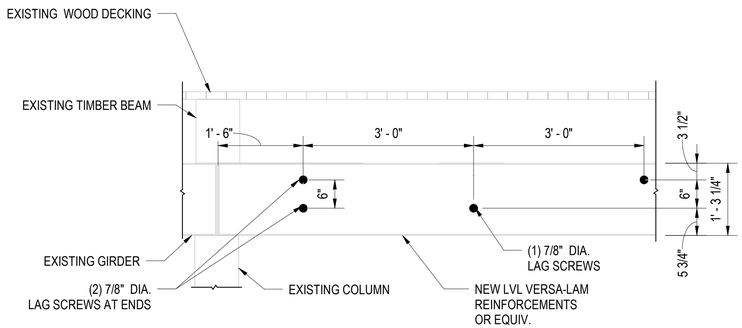
2 EXISTING TIMBER BEAM W/ REINFORCEMENTS
3/4" = 1'-0"



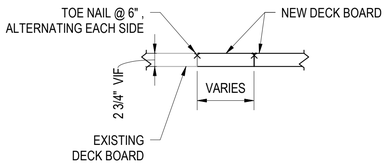
3 BEAM TO W/ NEW LVL CONN.
3/4" = 1'-0"



4 EXISTING GIRDER W/ NEW LVL REINFORCEMENT
3/4" = 1'-0"



5 GIRDER TO NEW LVL CONN.
3/4" = 1'-0"



6 ROOF DECK ATTACHMENT
3/4" = 1'-0"

0 8'-0" 16'-0" 32'-0"
SCALE: 3/32" = 1'-0"

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NO.	DATE	DESCRIPTION
		REVISIONS

MAINTENANCE GARAGE ROOF REPAIR
552 ACADEMY AVENUE,
PROVIDENCE, RI 02908

FRAMING REPAIR DETAILS

Project Number: **207520**
Date: **07-30-25**
Scale: **AS NOTED**
Sheet # **S-311**

ROOFING PROJECT MANUAL

&

SPECIFICATIONS

City of Providence
25 Dorrance Street
Providence, RI 02903

Project: **552 Academy Ave | Roof Replacement**

Roof Areas: **B & C**

Due: **TBD**

THIS DOCUMENT MUST REMAIN INTACT - DO NOT DETACH

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SECTION 010100

SUMMARY OF WORK

1. PART 1 - GENERAL

1.1. RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, General Requirements, bidding documents and drawings.

1.2. DESCRIPTION:

A. Furnish and install labor, roofing materials, insulation, flashings, and incidentals on the following designated roof areas; **City of Providence, 552 Academy Ave, Providence, RI 02908.**

B. <u>Base Bid – Roof Replacement:</u>

1 Refer to specification sections for additional information and installation guidelines.

2 Remove existing EPDM membrane, insulation, flashing and related metal components down to the existing wood deck and dispose of properly.

3 Mechanically attach two (2) layers of 2.6" (5.2" total) base layer of polyisocyanurate insulation at fastening pattern of 11 fasteners per board 4 x 8' board in Zone 1, 17 fasteners per board 4 x 8' board in Zone 2, 17 fasteners per board 4 x 8' board in Zone 3.

4 Install ½":12" tapered crickets between all drain locations. Install 4 x 4' tapered drain sumps at all drain locations.

5 Adhere ½" Dens-Deck Primed recovery board to polyisocyanurate insulation in high rise foam insulation adhesive at 12" o.c. ribbon beads.

6 Adhere one (1) ply of base sheet over the entire substrate in specified adhesive at two and half (2.5) gallons per square. (Using a weighted roller and 1/8" notched squeegee)

7 Adhere one (1) ply of mineral surfaced cap sheet over the entire substrate in specified adhesive at two and half (2.5) gallons per square. (Using a weighted roller and 1/8" notched squeegee). <u>Heat-weld all field and flashing seams/laps. Three-course vertical laps using Silver-Flash should mastic be needed.</u>

8 Apply two (2) coats of aluminized coating over the entire substrate. Allow thirty (30) days to cure. (30, 35, & 40 year)

9 Install new sleeper supports using continuous wood blocking attached to the structural wood deck to 8" above the finished roof height. Install two-ply flashing and stainless-steel caps.

10 At all base flashings, wall flashings, etc. apply two (2) plies of specified membrane (base & cap) in Flashing Bond.

11 Install new soldered 16 oz copper pitch pockets at existing locations. Fill with non-shrink grout and pourable sealer.

12 Furnish, raise, and install new drain assemblies at existing locations including drain bowls, clamping rings, bolts, leaders, and drain strainers.

13 Install new continuous pressure-treated wood blocking at the perimeter to accommodate new finished insulation.

14 Remove terracotta coping tiles. Install new wood blocking on top of the brick masonry wall. Install self-adhered underlayment over the blocking. Install pre-manufactured .040 Aluminum Kynar coated coping caps.

15 Install new pre-manufactured flash-less fascia, with base anchors set in two (2) beads of structural sealants, and metal components with .040 Kynar coated aluminum. Color to be selected by owner. Install new .040 Kynar coated coping at existing parapet locations. Remove existing terra-cotta copings.

16 *Roof B:* Saw cut mortar joints and install new 16 oz copper reglet-mounted counter flashings. Install counter flashing a minimum of 24" above the finished roof height.

17 *Roof C*: Install self-adhered underlayment to brick masonry wall. Attach.040 aluminum kynar wall panels to hat channels. Hat channels to be installed at 24" o.c.

18 Remove obsolete conduit and pipe boots at two locations.

19 Demo and remove seven (7) obsolete 3 x 3' curbs. Infill with new wood decking.

20 Replace all metal flashing components at stack penetration(s) including soldered copper sleeves at all plumbing stacks. Install two-ply target patch at all plumbing stack locations set in specified flashing mastic.

21 The contractor is required to provide a bid bond (10%). Payment & Performance bonds are required.

22 All roof areas will be secured in a watertight condition each day before the Contractor vacates the site. <u>There will be no exceptions!</u>

23 Unless otherwise noted, contractor shall provide and pay for all labor, materials, equipment, tools, construction machinery, water, heat, utilities, transportation and other facilities and services necessary for proper execution and completion of the work as required by The Contract Documents.

C. <u>Contractor Requirements & Responsibilities</u>

1 It is the contractor's responsibility to verify measurements, dimensions, and insulation thicknesses.

2 All roof areas will be secured in a watertight condition each day before the Contractor vacates the site. <u>There will be no exceptions!</u>

3 Contractor will be expected to meet requirements of, review and sign the Contractor Agreement

4 Contractor must have a current COI on file with the City of Providence before commencing work.

5 Change Orders must be in accordance with the Contractor Agreement

6 Lien's and Lien Release forms to be used in accordance with the Contractor Agreement

7 Hazardous Materials if encountered must not be disturbed and must be immediately brought to the attention of the Director of Public Property

8 Unless otherwise noted, contractor shall provide and pay for all labor, materials, equipment, tools, construction machinery, water, heat, utilities, transportation and other facilities and services necessary for proper execution and completion of the work as required by The Contract Documents.

1.3. INTENT OF THE SPECIFICATIONS:

A. The intent of these specifications is to describe the materials and methods of construction required for the performance of the work. In general, it is intended that the drawings shall delineate the detailed extent of the work. When there is a discrepancy between drawings, referenced specifications, and standards and this specification, this specification shall govern.

1.4. PROTECTION:

A. The Contractor shall use every available precaution to provide for the safety of property owner, visitors to the site, and all connected with the work under the specification.

B. All existing facilities both above and below ground shall be protected and maintained free of damage. Existing facilities shall remain operating during the period of construction unless otherwise permitted. All access roadways must remain open to traffic unless otherwise permitted.

C. Barricades shall be erected to fence off all construction areas from operations personnel.

D. Safety Requirements

1 All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA safety requirements.

2 Contractor to provide Owner with a detailed safety plan before the start of project.

3 Comply with federal, state, local and owner fire and safety requirements.

4 Advise owner whenever work is expected to be hazardous to owner employees and/or operations.

5 Maintain a crewman as a floor area guard whenever roof decking is being repaired or replaced.

6 Maintain proper fire extinguisher within easy access whenever power tools, roofing kettles, and torches are being used.

7 ALL SAFETY REQUIREMENTS OF THE BUILDING OWNER MUST BE FOLLOWED. NO EXCEPTIONS WILL BE PERMITTED. SAFETY ORIENTATION MEETING REQUIRED PRIOR TO PERFORMING ANY WORK.

1.5. HOUSEKEEPING:

A. Keep materials neat and orderly.

B. Remove scrap, waste and debris from project area.

C. Maintenance of clean conditions while work is in progress and cleanup when work is completed shall be in strict accordance with the "General Requirements" of this contract.

* * * END OF SECTION 01010 * * *

SECTION 010150

CONTRACTOR'S USE OF PREMISES

2. PART 1 - GENERAL

2.1. RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, General Requirements, bidding documents and drawings.

2.2. DESCRIPTION

A. Work included:

1 This Section applies to situations in which the Contractor or his representatives including, but not necessarily limited to, suppliers, subcontractors, employees, and field engineers, enter upon Owner's property.

2.3. QUALITY ASSURANCE

A. Promptly upon award of the Contract, notify all pertinent personnel regarding requirements of this Section.

B. Owner may require all personnel who will enter upon the Owner's property certify their awareness of and familiarity with requirements of this Section.

2.4. TRANSPORTATION FACILITIES

A. Provide adequate protection for curbs and sidewalks over which trucks and equipment pass to reach job site. If any damage occurs the contractor is responsible for repairs.

B. Contractor's vehicles:

1 Require Contractor's vehicles, vehicles belonging to employees of Contractor, and all other vehicles entering upon Owner's property in performance of Work of Contract, to use only the Access Route approved in advance by Owner.

2 Do not permit such vehicles to park on any street or other area of Owner's property except in the area approved by Owner as "Contractor's Parking Area."

2.5. LANDSCAPING

A. Provide adequate protection for trees, grass, shrubs and all other landscaping during set-up or construction. If any damage occurs the contractor is responsible for repairs as designated by the Owner.

2.6. FACILITY USAGE

A. Provide adequate protection for all interior and exterior portions of the building during set-up and construction. If any damage occurs the contractor is responsible for repairs as designated by the Owner.

B. Restrooms and other amenities of the building will only be used with permission of the Owner. If such authorization is given, the Contractor is responsible for maintaining cleanliness and repairs as designated by the Owner.

2.7. SECURITY

A. Restrict access of all persons entering upon the Owner's property to the Access Route and to the actual site of the work.

SECTION 011530

CHANGE ORDER PROCEDURE

3. PART 1 - GENERAL

3.1. RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, General Requirements, bidding documents and drawings. Change orders must be in accordance with the City of Providence Contractor Agreement

3.2. DESCRIPTION

A. Work included:

1 Make such changes in the Work, in the Contract Sum, in the Contract Time of Completion, or any combination thereof, as are described in written Change Orders signed by the Owner and the Designated Owner's representative and issued after execution of the Contract, in accordance with the provisions of this Section.

3.3. QUALITY ASSURANCE

A. Include within the Contractor's quality assurance program such measures as are needed to assure familiarity of the Contractor's staff and employees with these procedures for processing Change Order data.

3.4. SUBMITTALS

A. Make submittals directly to the Designated Owner's representative at his normal place of business.

B. Submit the number of copies called for under the various items listed in this Section.

3.5. PRODUCT HANDLING

A. Maintain a "Register of Bulletins and Change Orders" at the job site, accurately reflecting current status of all pertinent data.

B. Make the Register available to the Designated Owner's representative for review at his request.

3.6. PROCESSING CHANGES INITIATED BY THE OWNER

A. Should the Owner contemplate making a change in the Work or a change in the Contract Time of Completion, the Designated Owner's representative will issue a "Bulletin" to the Contractor.

1 Bulletins will be dated and will be numbered in sequence.

2 The Bulletin will describe the contemplated change, and will carry one of the following instructions to the Contractor:

a Make the described change in the Work at no change in the Contract Sum and no change in the Contract Time of Completion;

b Promptly advise the Designated Owner's representative as to credit or cost proposed for the described change. This is not an authorization to proceed with the change.

B. If the Contractor has been directed by the Designated Owner's representative to promptly advise him as to credit or cost proposed for the described change, the Contractor shall:

1 Analyze the described change and its impact on costs and time;

2 Secure the required information and forward it to the Designated Owner's representative for review;

3 Meet with the Designated Owner's representative as required to explain costs and, when appropriate, determine other acceptable ways to achieve the desired objective;

4 Alert pertinent personnel and subcontractors as to the impending change and, to the maximum extent possible, avoid such work as would increase the Owner's cost for making the change, advising the Designated Owner's representative in writing when such avoidance no longer is practicable.

3.7. PROCESSING CHANGES INITIATED BY THE CONTRACTOR

A. Should the Contractor discover a discrepancy among the Contract Documents or other cause for suggesting a change in the Work, a change in the Contract Sum, or a change in the Contract Time of Completion, he shall notify the Designated Owner's representative as required by pertinent provisions of the Contract Documents.

B. Upon agreement by the Designated Owner's representative that there is reasonable cause to consider the Contractor's proposed change, the Designated Owner's representative will issue a Bulletin in accordance with the provisions described in Article 1.6 above.

3.8. PROCESSING BULLETINS

A. Make written reply to the Designated Owner's representative in response to each Bulletin.

1 State proposed change in the Contract Sum, if any.

2 State proposed change in the Contract Time of Completion, if any.

3 Clearly describe other changes in the Work required by the proposed change, or desirable therewith, if any.

4 Include full backup data such as subcontractor's letter of proposal or similar information.

5 Submit this response in single copy.

B. When cost or credit for the change has been agreed upon by the Owner and the Contractor the Designated Owner's representative will issue a "Change Order" to the Contractor.

3.9. PROCESSING CHANGE ORDERS

A. Change Orders will be dated and will be numbered in sequence.

B. The Change Order will describe the change or changes, will refer to the Bulletin or Bulletins involved, and will be signed by the Owner and the Designated Owner's representative.

C. The Designated Owner's representative will issue three copies of each Change Order to the Contractor.

1 The Contractor promptly shall sign all three copies and return two copies to the Designated Owner's representative.

2 The Designated Owner's representative will retain one signed copy in his file and will forward one signed copy to the Owner.

D. Should the Contractor disagree with the stipulated change in Contract Sum or change in Contract Time of Completion, or both:

1 The Contractor promptly shall return two copies of the Change Order, unsigned by him, to the Designated Owner’s representative with a letter signed by the Contractor and stating the reason or reasons for the Contractor's disagreement.

2 The Contractor's disagreement with the Change Order shall not in any way relieve the Contractor of his responsibility to proceed with the change as ordered and to seek settlement of the dispute under pertinent provisions of the Contract Documents.

* * * END OF SECTION 011530 * * *

SECTION 014000

QUALITY CONTROL

4. PART 1 - GENERAL

4.1. RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, General Requirements, bidding documents and drawings.

4.2. QUALITY CONTROL

A. Contractor shall:

1 Be experienced in single-ply roofing.

2 Be acceptable by owner and roofing material manufacturer/supplier.

B. Roofing manufacturer shall:

1 Be an Associate Member in good standing with National Roofing Contractors Association (NRCA).

2 Be recognized in roofing, waterproofing and moisture survey industry.

3 Be approved by owner.

4 Material manufacturer/supplier must supply representative to perform periodic inspections throughout the course of the project. Written reports must be submitted to the owner's representative and copies to the contractor.

5 Material supplier providing the roofing warranty shall be ISO 9001: 2000 Certified.

a Certificate of Registration shall have listed: Design, Manufacturer and Distribution in the Scope of Approval and/or Activity.

C. Any deficiencies noted during inspections must be corrected by the contractor and approved in writing by the material manufacturer/supplier's representative.

4.3. FIELD QUALITY CONTROL

A. Dimensions in the construction documents are approximate and are used to describe the scope of work.

B. The contractor shall field measure in (in US measurement) all roof areas to verify the dimensions to order adequate material quantities to complete the work specified in these documents.

C. Any discrepancies found by the contractor during the bid process must be submitted in writing to the owner’s representative. Start of the project is notice to the owner that the contractor as verified all field dimensions and material quantities to complete the project.

4.4. RANDOM SAMPLING

A. During course of work, owner/owner's representative may secure samples of materials being used from containers at job site and submit them to an independent laboratory for comparison to specified material.

B. If test results prove that a material is not functionally equal to specified material:

1 Contractor shall pay for all testing.

2 Owner will charge Contractor a penalty up to 20 percent of contract price when all work has been completed before test results become known.

3 Owner will charge Contractor a penalty in proportion to amount of work completed before test results become known. Remaining work shall be completed with specified materials.

5. PART 2 - PRODUCTS

5.1. GENERAL

A. Comply with Quality Control, References, Specification, and Manufacturer's data. Where conflict may exist, more stringent requirements govern.

B. Provide primary products, including each type of roofing sheet bitumen, base flashings, miscellaneous flashing materials, and sheet metal components from a single manufacturer, which has produced that type of product successfully for not less than three (3) years. Provide secondary products (insulation, mechanical fasteners, lumber, etc.) only as recommended by manufacturer of primary products for use with roofing system specified.

* * * END OF SECTION 014000 * * *

SECTION 014210

ROOFING INSPECTION SERVICES

6. PART 1 - GENERAL

6.1. RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, General Requirements, bidding documents and drawings.

6.2. DESCRIPTION

A. Work included:

1 Provide roofing inspection services as specified herein and as needed for a complete and proper installation.

6.3. SUBMITTALS

A. Secure the designated Owner’s representative's advance approval of date and time for roof substrata inspection and pre-roofing meeting.

1 Notify the roofing inspection service, the roofing contractor, and other interested parties, and secure their agreement to attend.

2 At least three calendar days prior to the preroofing meeting, notify the designated Owner’s representative of the names of persons expected to attend.

B. Records:

1 Maintain a complete and legible file, in chronological order, containing a copy of each report, certificate, and other communication received relative to the work of this Section.

2 Upon completion of the work of this Section, deliver a copy of the complete file to the designated Owner’s representative.

7. PART 2 - PRODUCTS

7.1. ROOFING INSPECTION SERVICES

A. For the work of this Section, retain the roofing inspection services of company approved in advance by the designated Owner’s representative.

8. PART 3 - EXECUTION

8.1. PRE-ROOFING MEETING

A. Not less than three nor more than ten calendar days prior to scheduled start of roofing installation, conduct a roofing substrata inspection and pre-roofing meeting at the job site.

1 Designated Owner’s representative will be chairperson of the meeting, will take minutes of the meeting, and will record all agreements reached as a result of the inspection and meeting.

2 Visually inspect all substrata upon which roofing is scheduled to be applied.

a Determine general acceptability, and determine areas requiring further preparation.

b Determine acceptable remedies for unacceptable areas.

3 Discuss proposed schedule for installation of the roofing and reach agreement as to dates of start and finish of installation of the roofing.

4 Discuss proposed methods for installation of the roofing, and equipment and personnel to be used.

5 Discuss inspection methods to be used, reports to be issued by the roofing inspector, responsibilities and limits of responsibilities of the roofing inspector, and potential problems arising from use of methods not agreed to in the pre-roofing meeting.

8.2. INSPECTION DURING ROOFING INSTALLATION

A. Verify that materials delivered to the job site are those approved by the designated Owner's representative for use on this Work.

8.3. REPORTS

A. Make daily written reports of roofing inspection activities, delivering copies to the roofing contractor and others as agreed in the pre-roofing meeting.

B. Upon completion of the roofing installation, compile a comprehensive report covering activities performed under this Section, and deliver a copy of the report to the:

1 Designated Owner's representative;

2 Owner;

3 Roofing contractor; and

4 Others as agreed in the project meetings.

8.4. LIMITS OF ROOFING INSPECTOR'S RESPONSIBILITIES

A. During progress of the roofing installation, the roofing inspector is required to:

1 Make visual observations and compile reports described in this Section;

2 Advise the roofing contractor's representative on the job as to unacceptable methods and unacceptable results when so observed by the roofing inspector.

B. In connection with the roofing installation, "unacceptable methods and unacceptable results" mean methods and results other than:

1 Those recommended by the manufacturer of the approved roofing system materials.

2 Those required by pertinent regulations of governmental agencies having jurisdiction;

3 Those required by these Specifications; and

4 Those agreed upon in the pre-roofing meeting.

C. The roofing inspector is not empowered to:

1 Act for, or in lieu of, representatives of the governmental agencies having jurisdiction;

2 Give directions to the Contractor or workmen on the job;

3 Revise any part of the Contract Documents; or

4 Approve any change in the methods agreed upon in the pre-roofing meeting.

D. Failure of the roofing inspector to observe unacceptable methods or unacceptable results during progress of the Work will not absolve the Contractor from his responsibility to complete the Work in accordance with the specified requirements and the agreed methods.

* * * END OF SECTION 014210 * * *

SECTION 016000

MATERIAL AND EQUIPMENT

9. PART 1 - GENERAL

9.1. RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, General Requirements, bidding documents and drawings.

9.2. DELIVERY, STORAGE AND HANDLING

A. Delivery of Materials

1 Deliver materials to jobsite in new, dry, unopened and well-marked containers showing product and manufacturer's name.

2 Deliver materials in sufficient quantity to allow continuity of work.

B. Storage of Materials

1 Store adhesives and ply sheets in dry area protected from water or extreme humidity.

2 Store ply sheets on ends only where possible; on sloped roofs, store flat parallel to joists. Discard rolls which have been flattened, creased, or otherwise damaged.

3 Stack insulation on pallets.

4 Remove plastic packing shrouds. Cover all stored materials with canvas tarpaulin top to bottom. Secure tarpaulin.

5 Rooftop storage: Disperse material on roof to avoid structure overloading.

C. Material Handling

1 Handle all materials on site to avoid bending, tearing, or other damage during transportation and installation.

2 Material handling equipment shall be selected and operated so as not to damage existing construction or applied roofing. Do not operate or situate material handling equipment in locations that will hinder smooth flow of vehicular or pedestrian traffic.

D. Environmental Requirements

1 Do not work in rain, snow or in presence of water.

* * * END OF SECTION 016000 * * *

SECTION 017000

CONTRACT CLOSE-OUT

10. PART 1 - GENERAL

10.1. RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, General Requirements, bidding documents and drawings.

10.2. DESCRIPTION

A. Work included:

1 Provide an orderly and efficient transfer of the completed Work to the Owner.

10.3. QUALITY ASSURANCE

A. Prior to requesting inspection by the Project Manager, use adequate means to assure that the Work is completed in accordance with the specified requirements and is ready for the requested inspection.

10.4. PROCEDURES

A. Substantial Completion:

1 All roofing materials and components are in place and watertight according to specifications with alternates approved by Designated Owner's representative and Building Owner.

2 Roofing Contractor will notify designated Owner's representative of substantial completion. Within a reasonable time after receipt of notification, the designated Owner's representative will inspect to determine status of completion.

3 Should the designated Owner's representative determine that the Work is not substantially completed:

a The Designated Owner's representative will promptly notify the Contractor, giving the reasons, therefore.

b Roofing Contractor will remedy the deficiencies and notify the Designated Owner's representative when ready for reinspection.

c The Designated Owner's representative will reinspect the Work.

B. Final Completion:

1 Designated Owner's representative will prepare and submit a written statement at final completion.

2 Certify that:

a Contract Documents have been reviewed;

b Work has been inspected for compliance with the Contract Documents;

c Work has been completed in accordance with the Contract Documents;

d Equipment and systems have been tested as required, and are operational;

e Work is completed and ready for final inspection.

3 The Designated Owner’s representative will make an inspection to verify status of completion.

4 Should the Designated Owner’s representative determine that the Work is incomplete or defective:

a The Designated Owner’s representative will promptly notify the Contractor, in writing, listing the incomplete or defective work.

b Remedy the deficiencies promptly,and notify the Designated Owner’s representative when ready for reinspection.

5 When the Designated Owner’s representative determines that the Work is acceptable under the Contract Documents, he will request the Contractor to make close-out submittals.

C. Close-out submittals include, but are not necessarily limited to:

1 Project Record Documents described in Section 01720, if part of specification;

2 Operation and maintenance data for items so listed in pertinent other Sections of these Specifications, and for other items when so directed by the Project Manager;

3 Warranties and bonds;

4 Evidence of payment and release of liens;

5 List of subcontractors, service organizations, and principal vendors, including names, addresses, and telephone numbers where they can be reached for emergency service at all times including nights, weekends, and holidays.

D. Final adjustment of accounts:

1 Submit a final statement of accounting to the Project Manager, showing all adjustments to the Contract Sum.

2 If so required, the Designated Owner’s representative will prepare a final Change Order showing adjustments to the Contract Sum which were not made previously by Change Orders.

10.5. INSTRUCTION

A. Instruct the Owner's personnel in proper operation and maintenance of systems, equipment, and similar items which were provided as part of the Work.

* * * END OF SECTION 017000 * * *

SECTION 024113

SELECTIVE DEMOLITION AND SALVAGE

11. PART 1 GENERAL

11.1. RELATED DOCUMENTS:

A. Documents affecting work of this Section include, but are not necessarily limited to, General Requirements, bidding documents and drawings.

11.2. DEMOLITION AND SALVAGE

A. SUMMARY

1 This portion of the specification governs the demolition, salvaging (to the extent specified by building owner), and disposal of materials resulting from the demolition.

B. APPLICABLE ROOF SECTIONS:

1 Roof Areas to be covered under this section:

12. PART 2 - PRODUCTS (NOT APPLICABLE)

13. PART 3 - EXECUTION

13.1. DEMOLITION

A. Demolition operations shall be performed in such a manner that no damage to existing facilities or injury to persons will result from the performance of the Work.

B. The contractor shall review and visually survey areas marked for demolition before beginning demolition.

C. The use of equipment or wrecking devices shall be subject to the approval of building owner; however, such approval does not relieve the contractor of responsibilities described above.

13.2. PREPARATION

A. Protection:

1 Contractor shall be responsible for protection of property during course of work. Lawns, shrubbery, paved areas, and building shall be protected from damage. Repair damage at no extra cost to owner.

2 Single-ply roofing, flashings, and insulation shall be installed and sealed in a watertight manner on same day of installation or before arrival of inclement weather.

3 At start of each workday, drains within daily work area shall be plugged. Plugs to be removed at end of each workday or before arrival of inclement weather.

4 At end of each working day, partial installation shall be sealed with water stops along edges to prevent water entry.

5 Preparation work shall be limited to those areas that can be covered with installed roofing material on same day or before arrival of inclement weather.

6 Provide at site, prior to commencing removal of debris, a dumpster or dump truck to be located where directed by owner. Construct an enclosed chute from roof for removal of debris from roof area. Protect building surfaces at chute/set-up areas with tarpaulin.

Remove dumpster from premises when full and empty at approved dumping or refuse area. Deliver empty dumpster to site for further use. Upon job completion, dumpster/chute shall be removed from premises. Spilled or scattered debris shall be cleaned up immediately. Removed material to be disposed from roof as it accumulates.

7 Arrange work sequence to avoid use of newly constructed roofing for storage, walking surface, and equipment movement. Move equipment and ground storage areas as work progresses.

13.3.HAZARDOUS MATERIALS

A. Hazardous Materials if encountered must not be disturbed and must be immediately brought to the attention of the Senior Project Manager.

13.4.SALVAGE

A. Material as specified and recovered from demolition operations shall remain the property of building owner. With the owner's permission, other materials shall become the property of the contractor. Material salvaged for building owner shall be placed in storage areas designated by building owner. Material that is not salvaged for building owner shall be removed from the site or discarded in an on-site disposal area designated by building owner.

* * * END OF SECTION 024113 *

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Supply and install Rough Carpentry work as indicated.

1.02 RELATED SECTIONS

1. Section 01 01 00 - General Conditions & SOW
2. Section 07 22 00 – Roof Deck, Insulation & Coverboard
3. Section 07 55 00 – Modified Bituminous Roofing
4. Section 07 62 00 – Sheet Metal Flashing and Trim

1.03 SUBMITTALS

A. LEED Submittals: Submit in accordance with Division 01.

1.04 QUALITY ASSURANCE

A. All work shall be performed in accordance with the local codes and the most current DSA requirements. Where there is a question between the specifications, Owners Representative/Contractor shall conform to the most constrictive requirement.

B. Douglas fir, larch or hemlock structural and framing lumber shall be graded in accordance with the "Standard Grading Rules" of the West Coast Lumber Inspection Bureau (WCLIB) or the "Western Lumber Grading Rules" of the Western Wood Products Association (WWPA) latest editions.

C. Redwood structural and framing lumber shall be graded in accordance with "Standard Specifications for Grades of California Redwood Lumber" of the Redwood Inspection Service, latest edition.

D. Each piece of lumber shall bear official grade mark of the association under whose rules it was graded, or official grade mark of another recognized grading agency using grading rules herein specified.

E. All 2x structural and framing members shall be air-dried to a moisture content not to exceed 19% before use.

F. Work of this Section shall comply with provisions of current edition of UBC and Title 24, see Section 01 45 29: Testing and Laboratory Services.

G. Plywood shall conform to requirements of "Product Standard PS 1-83 issued by the U.S. Department of Commerce and shall be grade marked by a recognized grading agency (APA and PTL).

H. Each piece of preservative treated lumber shall be identified by the Quality Mark of an approved inspection agency in accordance with Title 24, see Section 01 54 29: Testing and Inspection.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Lumber: Structural and framing lumber shall be of the following species and grades unless noted otherwise on the drawings:

	USE	SPECIES	GRADE
1.	Subfloor, wall sheathing, roof sheathing and ceiling stripping.	Douglas Fir	"Construction" Board, Structural #1 only WCLIB; WWPA
2.	Beams, girders and truss members (5" and thicker, rectangular, width more than 2" greater than thickness) where exposed as finish members.	Douglas Fir WWPA	Select Structural
3.	Joists, rafters, lintels, posts, mullions and members(2” to 4” thick, 2” to 4” wide)	Douglas Fir	“Structural No. 1 Structural Light Framing, WCLIB;
4.	Other lumber (2" to 4" thick, 2" to 4" wide) not specified in subparagraph 5 above.	Douglas Fir	"Structural No. 1" and Framing WCLIB; WWPA
5.	Framing lumber (2" to 4" thick, 5" and wider).	Douglas Fir	"No. 1" and better Joists and Planks, WCLIB; WWPA.
6.	Mudsills and plates in contact with soil. treated	Douglas Fir	Same as subparagraphs 5 and 6.
7.	Sills or plates resting on concrete or masonry surfaces 6" or less above soil or finish grade.	Douglas Fir treated	Same as subparagraphs 5 and 6.
8.	Sills, foundations plates & sleepers which rest on concrete, masonry foundations, or are laid on concrete on concrete slab in direct contact with soil.	Douglas Fir treated	Same as subparagraphs 4 and 5.
9.	Miscellaneous nailing strips and blocks embedded in concrete or masonry.	Douglas Fir treated	Same as subparagraphs 4 and 5.

B. Plywood: Plywood used for structural purposes, shall be APA grade Structural I plywood. Other plywood used for non-structural purposes shall be exterior type, or Exposure 1.

C. Preservative Treated Wood:

1. Wood and plywood specified as treated wood shall be pressure treated wood in accordance with UBC 2303.1.8."

2. Seasoning: Treated lumber shall be air seasoned after treatment, for a minimum of 2 weeks before use.

3. Creosote shall not be used for treating wood in contact with painted or plastered surfaces.

4. When treated wood member has been notched, dapped, drilled or in any way cut into, such newly cut surfaces shall be painted with a heavy coat of same preservative material used in treatment of wood member.

D. Fire Retardant Protection: Wood and plywood specified as "Fire Retardant Protected Wood" shall be treated by approved methods and materials, and shall be dried, following treatment, to a maximum moisture content as follows: Solid sawn lumber 2" in thickness or less to 19%; and plywood to 15%.

E. Plywood subflooring shall be "Underlayment", Group 1, Exposure 1; of thickness indicated.

F. Mineral Fiber Panels: Shall be asbestos free, thickness as indicated.

G. Reused Materials: Sound lumber and timber which has been used for formwork may not be reused for stress carrying or non-stress carrying members. May not be used in any construction other than formwork.

PART 3 - EXECUTION

3.01 FASTENINGS

A. Nails and Spikes:

1. Use only common wire nails or spikes.

2. Whenever necessary to prevent splitting, holes shall be prebored for nails and spikes.

3. Nails in plywood shall not be overdriven.

4. Machine Applied Nailing: Use of machine nailing is subject to a satisfactory jobsite demonstration for each project and approval by the Project Owners Representative or Structural Engineer. Approval is subject to continued satisfactory performance. Machine nailing will not be approved in 5/16" plywood. If nailheads penetrate outerply more than would be normal for a hand hammer or if minimum allowable edge distances are not maintained, performance will be deemed unsatisfactory and material may be scrapped.

B. Lag Screws:

1. When placing lag screws in a wood member, prebore lead hole as recommended in CBC Title 24, CCR.

2. Lag screws which bear on wood shall be fitted with standard steel plate washers under head. Lag screws shall be screwed and not driven into place.

3. Lag screws applied in moisture rich environments or “wet” timber shall be galvanized to prevent degredation of both the lag screw and the material.

C. Bolts:

1. Lumber and timber to be fastened together with bolts shall be clamped together and holes for bolts bored true to line.

2. Bolts shall be fitted with steel plates or standard cut washers under heads and nuts. Bolts shall be tightened when installed and again just before completion of work.
3. Bolts applied in moisture rich environments or “wet” timber shall be galvanized to prevent degredation of both the bolt and the material.

D. Wood Screws: When placing wood screws, lead holes shall be prebored as recommended in CBC Title 24. Wood screws shall be appropriately selected for the application and treated as necessary to prevent corrosion

E. Framing Anchors: Framing anchors, joist hangers, ties and other mechanical fastenings shall be galvanized or have a rust-inhibitive coating. Nails and fastenings shall be of type recommended by manufacturer.

3.02 ERECTION

A. Stud Walls, Partitions and Furring:

1. Wood stud walls, partitions and vertical furring shall be constructed of members of size and spacing indicated. Provide single plate at bottom and double plate at top unless otherwise indicated. Interior, nonbearing non-shear partitions may be capped with a single top plate, installed to provide overlapping at corners and at intersections with other wall and partitions or by metal ties as detailed.

2. Walls and partitions shall have horizontal staggered blocking not less than 2" nominal thickness and same width as studs, fitted snugly, and nailed into studs. Blocking shall be at mid-height of partition or not more than 7'-0" on center vertically. Install wood backing on top of top plate wherever necessary for nailing of lath or gypsum board.

3. Walls, partitions and furred spaces shall have 2" nominal thickness wood firestops, same width as space to be firestopped, at ceiling line, mid-height of partition and at floor line. Firestops at floor line are not required when floor is concrete. If width of opening is such that more than one piece of lumber is necessary, provide 2 thicknesses of 1" nominal material laid with staggered joints.

4. Firestops shall be placed in all stud walls and partitions, including furred spaces, so that maximum dimension of any concealed space is not over 10'-0".

5. Corners, and where wood stud walls and wood vertical furring meet, shall be formed of triple studs. Openings in stud walls and partitions shall have headers as indicated and a minimum of 2 studs at jambs, one stud of which may be cut to support header in bearing.

6. Where wood masonry or concrete walls intersect, end stud shall be fastened at top, bottom and midheight with one 1/2" diameter bolt through stud and embedded in masonry or concrete a minimum of 4". Bolts shall have washers under nuts.

7. Sills under bearing, exterior or shear walls shall be bolted to concrete with 5/8" rd. by 12" long bolts spaced not more than 4'-0" on center. There shall be a bolt

within 9" of each end of each piece of sill. Sills shall be placed and leveled with shims and washers placed and nuts tightened to level bearing after which space between sill and concrete shall be dry packed with cement grout. Non-bearing interior plates may be fastened to concrete with low velocity powder driven fasteners provided Structural Engineer's approval is obtained in writing, prior to use.

B. Beams, Girders and Joists:

1. Ends of wood beams, girders and joists which are 2'-0" or less above finished outside grade and which abut, but do not enter concrete or masonry walls, as well as wood blocking used in connection with ends of those members shall be treated with wood preservative.

2. Where wood beams, girders and joists enter masonry or concrete walls 2'-0" or less above outside wall, metal wall boxes or equivalent moisture barriers shall be provided between wood and masonry or concrete.

C. Furring: Where metal furring is not indicated or specified, provide wood furring at all points indicated and required for concealing conduit, piping, structural framing or other unfinished materials. Wood furring shall be 2x studs of required width. Vertical members contacting concrete or masonry shall be attached as specified for anchoring interior wood stud partitions.

D. Nailing Strips and Plates:

1. Provide wood nailing strips, plates and blocking indicated or required. Nailing strips in connection with metal work shall be bolted to metal. Wood nailing blocks for securing grounds shall be built into concrete, or masonry.

2. Nailing schedule shall comply to Title 24, see Division 01: Testing and Laboratory Services.

E. Wood Backing: Provide wood backing as indicated and as required to receive plumbing, electrical fixtures and equipment, cabinets, door stop plates and other fixed equipment.

END OF SECTION

SECTION 072200
ROOF DECK AND INSULATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

1.2 SUMMARY

A. Section includes roof insulation over the properly prepared deck substrate.

1.3 REFERENCES

A. American Society for Testing and materials (ASTM):
1. ASTM A167 Standard Specification for Stainless and Heat-Resisting Chromium Nickel Steel Plate, Sheet and Strip.
2. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvanized) by the Hot-Dip Process.
3. ASTM B29 Standard Specification for Refined Lead.
4. ASTM B32 Standard Specification for Solder Metal.
5. ASTM C165 Standard Test Method for Measuring Compressive Properties of Thermal Insulation.
6. ASTM C208 Standard Specification for Cellulosic Fiber Insulation Board.
7. ASTM C209 Standard Test Method for Cellulosic Fiber Insulating Board.
8. ASTM C272 Standard Test Method for Water Absorption of Core Materials for Structural Sandwich Constructions.
9. ASTM C1396 Standard Specification for Gypsum Wallboard.
10. ASTM C518 Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
11. ASTM C578 Standard Specification for Perlite Thermal Insulation Board.
12. ASTM C728 Standard Test Methods for Fire Test of Roof Coverings.
13. ASTM C1289 Standard Specification for Faced Rigid Polyisocyanurate Thermal Insulation.
14. ASTM D5 Standard Test Method for Penetration of Bituminous Materials.
15. ASTM D36 Standard Test Method for Softening Point of Bitumen (Ring and Ball Apparatus).
16. ASTM D312 Standard Specification for Asphalt Used in Roofing.
17. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers-Tension.
18. ASTM D1621 Standard Test Method for Compressive Properties of Rigid Cellular Plastics.
19. ASTM D1622 Standard Test Method for Apparent Density of Rigid Cellular Plastics.
20. ASTM D1863 Standard Specification for Mineral Aggregate Used on Built-Up Roofs.
21. ASTM D2126 Standard Test Method for Response off Rigid Cellular Plastics to Thermal Humid Aging.
22. ASTM D2178 Standard Specification for Asphalt Glass Felts used in Roofing and Waterproofing.
23. ASTM D4601 Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.
24. ASTM D5147 Standard Sampling and Testing Modified Bituminous Sheet Material.

B. Cast Iron Soil Pipe Institute, Washington, D.C. (CISPI)

C. Factory Mutual Research (FM):
   1. Roof Assembly Classifications.

D. National Roofing Contractors Association (NRCA):
   1. Roofing and Waterproofing Manual.

E. Underwriters Laboratories, Inc. (UL):
   1. Fire Hazard Classifications.

F. Warnock Hersey (WH):
   1. Fire Hazard Classifications.

G. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

H. Steel Deck Institute, St. Louis, Missouri (SDI)

I. Southern Pine Inspection Bureau, Pensacola, Florida (SPIB)

J. Insulation Board, Polyisocyanurate (FS HH-I-1972)

1.4 SUBMITTALS

A. Product Data: Provide manufacturer's specification data sheets for each product in accordance with Division 01 Section Submittal Procedures. 01300.

B. Provide approval letters from insulation manufacturer for use of their insulation within this particular roofing system type.

C. Provide a sample of each insulation type.

D. Shop Drawings
   1. Submit manufacturer's shop drawings indicating complete installation details of tapered insulation system, including identification of each insulation block, sequence of installation, layout, drain/scupper locations, roof slopes, thicknesses, crickets and saddles.
   2. Shop drawing shall include: Outline of roof, location of drains/scuppers, complete board layout of tapered insulation components, thickness and the average "R" value for the completed insulation system.

E. Certification
   1. Submit roof manufacturer's certification that insulation fasteners furnished are acceptable to roof manufacturer.
   2. Submit roof manufacturer's certification that insulation furnished is acceptable to roofing manufacturer as a component of roofing system and is eligible for roof manufacturer's system warranty.

1.5 QUALITY ASSURANCE

A. Fire Classification, ASTM E-108.

B. Manufacturer's Certificate: Certify that roof system furnished is approved by Factory Mutual, in accordance with ASTM E108, Class A for external fire and meets local or nationally recognized building codes.

C. Manufacturer's Certificate: Certify that the roof system is adhered properly to meet or exceed the requirements of FM.

D. Pre-installation meeting: Refer to Division 07 roofing specifications for pre-installation meeting requirements.

1.6 DELIVERY, STORAGE AND HANDLING

A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.

B. Store all insulation materials in a manner to protect them from the wind, sun and moisture damage prior to and during installation. Any insulation that has been exposed to any moisture shall be removed from the project site.

C. Keep materials enclosed in a watertight, ventilated enclosure (i.e. tarpaulins).

D. Store materials off the ground. Any warped, broken or wet insulation boards shall be removed from the site.

PART 2 – PRODUCTS

2.1 PRODUCTS, GENERAL

A. Basis of Design: Johns Manville / GAF. Materials, manufacturer's product designations, and/or manufacturer's names specified herein shall be regarded as the minimum standard of quality required for work of this Section. Meet or exceed all manufacturer and contractor/fabricator quality and performance criteria specified.

B. Substitutions: Products proposed as equal to the products specified in this Section shall be submitted in accordance with Bidding Requirements.
   1. Proposals shall be accompanied by a copy of the manufacturer's standard specification section. Substitution requests containing specifications without licensed engineer certification shall be rejected for non-conformance.
   2. Include a list of three (3) projects of similar type and extent, located within a one hundred mile radius from the location of the project. In addition, the three projects must be at least five (5) years old and be available for inspection by the Architect, Owner or Owner's Representative.
   3. Equivalency of performance criteria, warranty terms, submittal procedures, and contractual terms will constitute the basis of acceptance.
   4. The Owner's decision regarding substitutions will be considered final. Unauthorized substitutions will be rejected.
   5. Substitutions must be submitted ten (10) days prior to bid opening.

2.2 INSULATION MATERIALS

A. Thermal Insulation Properties and Approved Insulation Boards.

1. Rigid Polyisocyanurate Roof Insulation; ASTM C1289:
    a. Qualities: Rigid, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers.
    b. Board Size: Four by four feet (4' x 4')
    c. Thickness: Two (2) layers of 2.6", Total 5.2"
    d. Compliances: RI Building Code
        e. Acceptable Product: Johns Manville ENRGY 3 / GAF

2. Tapered Polyisocyanurate Roof Insulation; ASTM C1289:
    a. Qualities: Factory Tapered, closed cell polyisocyanurate foam core bonded to heavy-duty glass fiber mat facers.
    b. Field: Roof A: 1/4" tapered insulation. Roof B: Flat in the field. Contractor to verify all structural/tapered slopes and quantities.
    c. Crickets: Roofs A & B: 1/2":12" slope
    d. Drain Sumps: Roofs A & B: 4 x 4'
    e. Install tapered crickets and saddles between all drains and scuppers, and on the upslope side of all curbs to ensure positive drainage. Use a 2:1 length to width ratio per NRCA recommendations.
    f. Compliances: RI Building Code
    g. Acceptable Product: Johns Manville ENRGY 3 / GAF

3. Gypsum Roof Board:
    a. Qualities: Nonstructural, noncombustible, homogenous composition panel.
    b. Board Size: Four by four feet (4' x 4').
    c. Thickness: ½"
    d. Compliances: RI Building Code
    e. Acceptable Product: Dens-Deck Primed

2.3 RELATED MATERIALS

A. Fiber Cant and Tapered Edge Strips: Performed rigid insulation units of sizes/shapes indicated, matching insulation board or of perlite or organic fiberboard, as per the approved manufacturer. Use tapered edge along perimeter wood blocking to create an acceptable transition, as necessary.

B. Recovery Board Insulation Adhesive: Dual-component, high-rise foam adhesive as recommended by insulation manufacturer.
    1. Tensile Strength (ASTM D412)……250 psi
    2. Density (ASTM D1875)……..8.5 lbs./gal.
    3. Viscosity (ASTM D2556)……22,000 to 60,000 cP.
    4. 2 `Peel Strength (ASTM D903)…..17 lb/in.
    5. 3 `Flexibility (ASTM D816)……Pass @ -70°F
    6. **Refer to the specific wind uplift calcs associated with each deck type/elevation for specific adhesives, ribbon sizes and installation requirements.**

C. Fasteners: Corrosion resistant screw fastener as recommended by Factory Mutual and the roofing membrane manufacturer.
    1. Factory Mutual Tested and Approved with three (3) inches coated disc for length required to penetrate wood deck one inch.
    2. **Refer to the specific wind uplift calcs associated with each deck type/elevation for specific fastener sizes and installation requirements.**

PART 3 – EXECUTION

3.1 EXECUTION, GENERAL

A. Comply with requirements of Division 01 Section “Common Execution Requirements.”

3.2 INSPECTOR OF SURFACES

A. Roofing contractor shall be responsible for preparing an adequate substrate to receive insulation.
   1. Verify that work which penetrates roof deck has been completed.
   2. Verify that wood nailers are properly and securely installed.
   3. Examine surfaces for defects, rough spots, ridges, depressions, foreign material, moisture, and unevenness.
   4. Do not proceed until defects are corrected.
   5. Do not apply insulation until substrate is sufficiently dry.
   6. Broom clean substrate immediately prior to application.
   7. Use additional insulation to fill depressions and low spots that would otherwise cause ponding water.

3.3 INSTALLATION

A. Attachment with Mechanical Fasteners
   1. Approved insulation board shall be fully attached to the wood deck with an approved mechanical fastening system. As a minimum, the amount of fasteners shall be in accordance with wind uplift requirements.
   2. Filler pieces of insulation require at least two fasteners per piece if size of insulation is less than four square feet.
   3. Spacing pattern of fasteners shall be as per manufacturer’s recommendations to meet the uplift requirements. Placement of any fastener from edge of insulation board shall be a minimum of three inches, and a maximum of six (6) inches.
   4. Minimum penetration into deck shall be as recommended by the fastener manufacturer. There is a one (1) inch minimum for metal, wood and structural concrete decks where not specified by the manufacturer.
   5. The specified flat/tapered insulation, and recovery board must be **simultaneously** fastened to the wood deck per manufacturer’s Wind Uplift calculations.
   6. All fasteners and fastening patterns must meet the specific wind uplift requirements, as described in manufacturer’s Wind Uplift Calculations referenced. Zone 1 – 11 fasteners per 4 x 8’ board, Zone 2 - 17 fasteners per 4 x 8’ board, 22 fasteners per 4 x 8’ board

3.4 CLEANING

A. Remove debris and cartons from roof deck. Leave insulation clean and dry, ready to receive roofing membrane.

3.5 CONSTRUCTION WASTE MANAGEMENT

A. Remove and properly dispose of waste products generated during installation. Comply with requirements of authorities having jurisdiction.

END OF SECTION

SECTION 075200
MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Cold Applied 2-Ply Asphalt Roofing

1.2 RELATED SECTIONS

A. Section 07220 - Insulation & Coverboard: Insulation and fastening.

B. Section 07620 - Sheet Metal Flashing and Trim: Weather protection for base flashings.

1.3 REFERENCES

A. ASTM D 41 - Standard Specification for Asphalt Primer Used in Roofing, Dampproofing, and Waterproofing.

B. ASTM D 312 - Standard Specification for Asphalt used in Roofing.

C. ASTM D 451 - Standard Test Method for Sieve Analysis of Granular Mineral Surfacing for Asphalt Roofing Products.

D. ASTM D 1079 Standard Terminology Relating to Roofing, Waterproofing and Bituminous Materials.

E. ASTM D 1863 Standard Specification for Mineral Aggregate Used as a Protective Coating for Roofing.

F. ASTM D 2822 Standard Specification for Asphalt Roof Cement.

G. ASTM D 5147 Standard Test Method for Sampling and Testing Modified Bituminous Sheet Materials.

H. ASTM D 6162 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.

I. ASTM E 108 - Standard Test Methods for Fire Test of Roof Coverings

J. Factory Mutual Research (FM): Roof Assembly Classifications.

K. National Roofing Contractors Association (NRCA): Roofing and Waterproofing Manual.

L. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - Architectural Sheet Metal Manual.

M. Underwriters Laboratories, Inc. (UL): Fire Hazard Classifications.

N. Warnock Hersey (WH): Fire Hazard Classifications.

O. ANSI-SPRI ES-1 Wind Design Standard for Edge Systems used with Low Slope Roofing

Systems.

P. ASCE 7, Minimum Design Loads for Buildings and Other Structures

Q. UL - Fire Resistance Directory.

R. FM Approvals - Roof Coverings and/or RoofNav assembly database.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

A. Perform work in accordance with all federal, state and local codes.

B. Exterior Fire Test Exposure: Roof system shall achieve a UL, FM or WH Class rating for roof slopes indicated on the Drawings as follows:
1. Factory Mutual Class A Rating.
2. Underwriters Laboratory Class A Rating.
3. Warnock Hersey Class A Rating.

C. Design Requirements:
1. Uniform Wind Uplift Load Capacity
a. Installed roof system shall withstand negative (uplift) design wind loading pressures complying with the following criteria.
1) Design Code: ASCE 7-22 ASD
2) Importance Factor of: IV
3) Wind Speed: 137 mph
4) Ultimate Pullout Value: N/A
5) Exposure Category: C
6) Design Roof Height: 25 feet.
7) Minimum Building Width: 120 feet.
8) Roof Pitch: 1/4:12
9) Roof Area Design Uplift Pressure:
a) Zone 1' - Field of roof 33.6
b) Zone 1 - Field of roof 52.1
c) Zone 2 – Perimeter (Eaves, ridges, hips and rakes) 66.0
d) Zone 3 - Corners 66.0
e) Zone 1 Width – 15 feet
f) Zone 2 Width – 15 feet
g) Zone 3 Width – 5 feet
h) Zone 3 Length – 15 feet

1.5 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
1. Preparation instructions and recommendations.
2. Storage and handling requirements and recommendations.
3. Installation instructions.

C. Shop Drawings: Submit shop drawings including installation details of roofing, flashing, fastening, insulation, including notation of roof slopes and adhesion patterns of insulation and base modified bitumen membrane, prior to job start.

D. Design Pressure Calculations: Submit design pressure calculations for the roof area in accordance with ASCE 7 and local Building Code requirements. Include a roof system attachment analysis report, certifying the system's compliance with applicable wind load requirements before Work begins.

E. Verification Samples: For each modified bituminous membrane ply product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

F. Manufacturer's Certificates: Provide to certify products meet or exceed specified requirements.

G. Test Reports: Submit test reports, prepared by an independent testing agency, for all modified bituminous sheet roofing, indicating compliance with ASTM D5147. Testing must be performed at 77 deg. F. Tests at 0 deg. F will not be considered.

H. Manufacturer's Fire Compliance Certificate: Certify that the roof system furnished is approved by Factory Mutual (FM), Underwriters Laboratories (UL), Warnock Hersey (WH) or approved third party testing facility in accordance with ASTM E108, Class A for external fire and meets local or nationally recognized building codes.

I. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for periodic inspection and maintenance of all completed roofing work. Provide product warranty executed by the manufacturer. Assist Owner in preparation and submittal of roof installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on roofing and associated work.

1.6 QUALITY ASSURANCE

A. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified with documented ISO 9001 certification and minimum of twelve years of documented experience and must not have been in Chapter 11 bankruptcy during the last five years.

C. Installer Qualifications: Company specializing in performing Work of this section with minimum five years documented experience and a certified Pre-Approved Contractor with manufacturer specified. Installer shall produce evidence of completing 5 projects of similar scope within a 50 mile radius of this project.

D. Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work while roofing work is in progress.

E. Product Certification: Provide manufacturer's certification that materials are manufactured in the United States and conform to requirements specified herein, are chemically and physically compatible with each other, and are suitable for inclusion within the total roof system specified herein.

F. Source Limitations: Obtain all components of roof system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the roofing system Manufacturer. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.7 PRE-INSTALLATION MEETINGS

A. Convene minimum two weeks prior to commencing Work of this section.

B. Review installation procedures and coordination required with related Work.

C. Inspect and make notes of job conditions prior to installation:
   1. Record minutes of the conference and provide copies to all parties present.
   2. Identify all outstanding issues in writing designating the responsible party for follow-up action and the timetable for completion.
   3. Installation of roofing system shall not begin until all outstanding issues are resolved to the satisfaction of the Architect.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.

B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.

C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface except store KEE-Stone FB 60 rolls flat on a clean flat surface. No wet or damaged materials will be used in the application.

D. Store at room temperature wherever possible, until immediately prior to installing the roll. During winter, store materials in a heated location with a 50 degree F (10 degree C) minimum temperature, removed only as needed for immediate use. Keep materials away from open flame or welding sparks.

E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/Engineer.

F. Adhesive storage shall be between the range of above 40 degree F (4 degree C) and below 80 degree F (27 degree C). Area of storage shall be constructed for flammable storage.

1.9 COORDINATION

A. Coordinate Work with installing associated metal flashings as work of this section proceeds.

1.10 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.11 WARRANTY

A. Upon completion of the work, provide the Manufacturer's written and signed NDL Edge-to-Edge Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition.
   1. Warranty Period: **(Base Bid)**

a. 30 years from date of acceptance.
2. Warranty Period: **(Add Alternate)**
a. 35 years from date of acceptance.
3. Warranty Period: **(Add Alternate)**
a. 40 years from date of acceptance.

B. Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
1. Warranty Period:
a. 3 years from date of acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Basis of Design: The Garland Company, Inc.: 3800 E. 91st St.; Cleveland, OH 44105; Tel: 401-500-2901; Email: dwall@garlandind.com

B. Substitutions/pre-approved equals: Products proposed, as equal to the products specified in this Section shall be submitted in accordance with the specifications. Any substitutions must be submitted to the Owner ten (10) days prior to bid date.

C. A copy of the manufacturer's standard specification section shall accompany proposals. That specification section shall be signed and sealed by a professional engineer licensed in the state in which the installation is to take place. Substitution requests containing specifications without licensed engineer certification shall be rejected for non-conformance.

D. Include a list of three (3) projects of similar type and extent, located within a fifty-mile radius from the location of the project. In addition, the three projects must be at least five (5) years old and be available for inspection by the Architect, Owner or Owner's Representative.

E. Equivalency of performance criteria, warranty terms, inspection services, submittal procedures, and contractual terms will constitute the basis of acceptance. The burden of proof of equivalency is the responsibility of the submitting contractor.

F. The Owner's decision regarding substitutions will be considered final. Unauthorized substitutions will be rejected.

2.2 COLD APPLIED 2-PLY MODIFIED BITUMINOUS ASPHALT ROOFING

A. Base (Ply) Sheets: One ply bonded to the prepared substrate with cold adhesive.

B. Cap (Ply) Sheet: One ply bonded to the prepared substrate with cold adhesive.

C. Flashing Base (Ply) Sheet: One ply bonded to the prepared substrate with cold adhesive.

D. Flashing Cap (Ply) Sheet: One ply bonded to the prepared substrate with cold adhesive.

E. Surfacing: Requires 30 day wait before applying.
1. Surface Coatings: two (2) coats of aluminized coating

2.3 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

A. Pitch pans, Rain Collars and Plumbing Sleeves shall be fabricated from 20oz (567gram)

copper. All joints should be welded/soldered watertight. See details for design.

B. Drain Flashings should be 4lb (1.8kg) sheet lead formed and rolled.

C. Fabricated Flashings: Fabricated flashings and trim are specified in Section 07620.
   1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the CDA Copper Development Association "Copper in Architecture - Handbook" as applicable.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Inspect and approve the deck condition, slopes and fastener backing if applicable, parapet walls, expansion joints, roof drains, stack vents, vent outlets, nailers and surfaces and elements.

C. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.

D. If substrate preparation and other conditions are the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. General: Clean surfaces thoroughly prior to installation.
   1. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
   2. Fill substrate surface voids that are greater than 1/4 inch wide with an acceptable fill material.
   3. Roof surface to receive roofing system shall be smooth, clean, free from loose gravel, dirt and debris, dry and structurally sound.
   4. Wherever necessary, all surfaces to receive roofing materials shall be power broom and vacuumed to remove debris and loose matter prior to starting work.
   5. Do not apply roofing during inclement weather. Do not apply roofing membrane to damp, frozen, dirty, or dusty surfaces.
   6. Prime decks where required, in accordance with requirements and recommendations of the primer and deck manufacturer.

B. Poured reinforced concrete
   1. Shall be smooth, dry, clean and free of ice/frost, projections and depressions. Concrete shall be fully cured and the surface shall be broom cleaned and free of release/curing agents prior to commencement of work.
   2. Prepared concrete surfaces for roofing or insulation by priming with asphalt/concrete primer conforming to ASTM D 41. Apply at a rate of approx. 1 gallon/100 sq. ft. (.4 L/m2). All primed areas shall be fully dried before proceeding with the application of the roof system.

3.3 INSTALLATION - GENERAL

A. Install modified bitumen membranes and flashings in accordance with manufacturer's instructions and with the recommendations provided by the National Roofing Contractors

Association's Roofing & Waterproofing Manual, the Asphalt Roofing Manufacturers Association, and applicable codes.

B. General: Avoid installation of modified bitumen membranes at temperatures lower than 40-45 degrees F. When work at such temperatures unavoidable use the following precautions:
   1. Take extra care during cold weather installation and when ambient temperatures are affected by wind or humidity, to ensure adequate bonding is achieved between the surfaces to be joined. Use extra care at material seam welds and where adhesion of the applied product to the appropriately prepared substrate as the substrate can be affected by such temperature constraints as well.
   2. Unrolling of cold materials, under low ambient conditions must be avoided to prevent the likelihood of unnecessary stress cracking. Rolls must be at least 40 degrees F at the time of application. If the membrane roll becomes stiff or difficult to install, it must be replaced with roll from a heated storage area.
   3. Use weighted lawn roller to fully embed all modified membrane field sheets to the substrate.

C. Commence installation of the roofing system at the lowest point of the roof (or roof area), working up the slope toward the highest point. Lap sheets shingle fashion so as to constantly shed water

3.4 INSTALLATION COLD APPLIED ROOF SYSTEM

A. Base Ply: Cut cap ply sheets into 18 foot lengths and allow plies to relax before installing. Install in cold adhesive applied at the rate required by the manufacturer. Shingle sheets uniformly over the prepared substrate to achieve the number of plies specified. Shingle in proper direction to shed water on each large area of roofing.
   1. Lap ply sheet ends 8 inches. Stagger end laps 12 inches minimum.
   2. Solidly bond to the base layers with specified cold adhesive at the rate of 2 to 2-1/2 gallons per 100 square feet.
   3. Roll must push a puddle of adhesive in front of it with adhesive slightly visible at all side laps. Care should be taken to eliminate air entrapment under the membrane.
   4. Install subsequent rolls of modified across the roof as above with a minimum of 4 inch side laps and 8 inch staggered end laps. Lay modified membrane in the same direction as the underlayers but the laps shall not coincide with the laps of the base layers.
   5. Allow cold adhesive to set for 5 to 10 minutes before installing the top layer of modified membrane.
   6. Extend membrane 2 inches beyond top edge of all cants in full moppings of the cold adhesive as shown on the Drawings.

B. Cap Ply: Cut cap ply sheets into 18 foot lengths and allow plies to relax before installing. Install in cold adhesive applied at the rate required by the manufacturer. Shingle sheets uniformly over the prepared substrate to achieve the number of plies specified. Shingle in proper direction to shed water on each large area of roofing.
   1. Lap ply sheet ends 8 inches. Stagger end laps 12 inches minimum.
   2. Solidly bond to the base layers with specified cold adhesive at the rate of 2 to 2-1/2 gallons per 100 square feet.
   3. Roll must push a puddle of adhesive in front of it with adhesive slightly visible at all side laps. Care should be taken to eliminate air entrapment under the membrane.
   4. Install subsequent rolls of modified across the roof as above with a minimum of 4 inch side laps and 8 inch staggered end laps. Lay modified membrane in the same direction as the underlayers but the laps shall not coincide with the laps of the base

layers.

5. Allow cold adhesive to set for 5 to 10 minutes before installing the top layer of modified membrane.
6. Extend membrane 2 inches beyond top edge of all cants in full moppings of the cold adhesive as shown on the Drawings.
7. All side and end lap seams are to be hot air welded.

C. Fibrous Cant Strips: Provide non-combustible perlite or glass fiber cant strips at all wall/curb detail treatments where angle changes are greater than 45 degrees. Cant may be set in approved cold adhesives, hot asphalt or mechanically attached with approved plates and fasteners.

D. Wood Blocking, Nailers and Cant Strips: Provide wood blocking, nailers and cant strips as specified in Section 06114.
1. Provide nailers at all roof perimeters and penetrations for fastening membrane flashings and sheet metal components.
2. Wood nailers should match the height of any insulation, providing a smooth and even transition between flashing and insulation areas.
3. Nailer lengths should be spaced with a minimum 1/8 inch gap for expansion and contraction between each length or change of direction.
4. Nailers and flashings should be fastened in accordance with Factory Mutual "Loss Prevention Data Sheet 1- 49, Perimeter Flashing" and be designed to be capable of resisting a minimum force of 200 lbs/lineal foot in any direction.

E. Metal Work: Provide metal flashings, counter flashings, parapet coping caps and thru-wall flashings as specified in Section 07620. Install in accordance with the SMACNA "Architectural Sheet Metal Manual" or the NRCA Roofing Waterproofing manual.

F. Termination Bar: Provide a metal termination bar or approved top edge securement at the terminus of all flashing sheets at walls and curbs. Fasten the bar a minimum of 8 inches (203 mm) o/c to achieve constant compression. Provide suitable, sealant at the top edge if required.

G. Flashing Base Ply: Install flashing sheets by the same application method used for the base ply.
1. Seal curb, wall and parapet flashings with an application of mastic and mesh on a daily basis. Do not permit conditions to exist that will allow moisture to enter behind, around or under the roof or flashing membrane.
2. Prepare all walls, penetrations, expansion joints and where shown on the Drawings to be flashed with required primer at the rate of 100 square feet per gallon. Allow primer to dry tack free.
3. Adhere to the underlying base ply with specified flashing ply adhesive unless otherwise specified. Nail off at a minimum of 8 inches (203 mm) o.c. from the finished roof at all vertical surfaces.
4. Solidly adhere the entire flashing ply to the substrate. Secure the tops of all flashings that are not run up and over curb through termination bar fastened at 6 inches (152 mm) O.C. and sealed at top.
5. Seal all vertical laps of flashing ply with a three-course application of trowel-grade mastic and fiberglass mesh.
6. Coordinate counter flashing, cap flashings, expansion joints and similar work with modified bitumen roofing work as specified.
7. Coordinate roof accessories, miscellaneous sheet metal accessory items, including piping vents and other devices with the roofing system work.

8. Secure the top edge of the flashing sheet using a termination bar only when the wall surface above is waterproofed, or nailed 4 inches on center and covered with an acceptable counter flashing.

H. Flashing Cap Ply: Install flashing cap sheets by the same application method used for the base ply.
1. Seal curb, wall and parapet flashings with an application of mastic and mesh on a daily basis. Do not permit conditions to exist that will allow moisture to enter behind, around or under the roof or flashing membrane.
2. Prepare all walls, penetrations, expansion joints and where shown on the Drawings to be flashed with required primer at the rate of 100 square feet per gallon. Allow primer to dry tack free.
3. Adhere to the underlying base flashing ply with specified flashing ply adhesive unless otherwise specified. Nail off at a minimum of 8 inches (203 mm) o.c. from the finished roof at all vertical surfaces.
4. Coordinate counter flashing, cap flashings, expansion joints and similar work with modified bitumen roofing work as specified.
5. Coordinate roof accessories, miscellaneous sheet metal accessory items with the roofing system work.
6. All stripping shall be installed prior to flashing cap sheet installation.
7. Heat and scrape granules when welding or adhering at cut areas and seams to granular surfaces at all flashings.
8. Secure the top edge of the flashing sheet using a termination bar only when the wall surface above is waterproofed, or nailed 4 inches on center and covered with an acceptable counter flashing.
9. All side and end lap seams are to be hot air welded.

I. Surface Coatings: Apply roof coatings in strict conformance with the manufacturer's recommended procedures.

3.5 INSTALLATION EDGE TREATMENT AND ROOF PENETRATION FLASHING

A. Surface Mounted Counterflashing:
1. Minimum flashing height is 8 inches (203 mm) above finished roof height. Maximum flashing height is 24 inches (609 mm). Prime vertical wall at a rate of 100 square feet per gallon and allow to dry.
2. Set cant in bitumen. Run all field plies over cant a minimum of 2 inches (50 mm).
3. Install base flashing ply covering wall set in bitumen with 6 inches (152 mm) on to field of the roof.
4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure and aluminize.
5. Apply butyl tape to wall behind flashing. Secure termination bar through flashing, butyl tape and into wall. Alternatively use caulk to replace the butyl tape.
6. Secure counterflashing set on butyl tape above flashing at 8 inches (203 mm) o.c. and caulk top of counterflashing.

B. Reglet Mounted Counterflashing:
1. Minimum flashing height is 8 inches (203 mm) above finished roof height. Maximum flashing height is 24 inches. Prime vertical wall at a rate of 100 square feet per gallon and allow to dry.
2. Set cant in bitumen. Run all field plies over cant a minimum of 2 inches (50 mm).

3. Install base flashing ply covering wall set in bitumen with 6 inches (152 mm) on to field of the roof.
4. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure and aluminize.
5. Apply butyl tape to wall behind flashing. Secure termination bar through flashing, butyl tape and into wall. Alternatively use caulk to replace the butyl tape.
6. Cut reglet in masonry one joint above flashing.
7. Secure reglet counterflashing with expansion fasteners and caulk reglet opening.

C. Base Flashing For Non-Supported Deck:
1. Inspect the nailer to assure proper attachment and configuration. The wood cant strip should be mechanically attached to the vertical and horizontal wood nailers.
2. Install compressible insulation in neoprene cradle between wall and vertical wood nailer.
3. Prime vertical wall at a rate of 100 square feet per gallon and allow to dry.
4. Install base flashing ply covering entire wall and wrapped to top of wood nailer with 6 inches (152 mm) on to field of the roof. Nail membrane at 8 inches (203 mm) o.c.
5. Install a second ply of modified flashing ply in bitumen over the base flashing ply, 9 inches (228 mm) on to the field of the roof. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure and aluminize.
6. Attach counterflashing through wall flashing at a spacing of 24 inches (609 mm) o.c.

D. Exhaust Fan:
1. Minimum curb height is 8 inches (203 mm) above finished roof height. Prime vertical at a rate of 100 square feet per gallon and allow to dry.
2. Set cant in bitumen. Run all plies over cant a minimum of 2 inches (50 mm).
3. Install base flashing ply covering curb with 6 inches (152 mm) on to field of the roof.
4. Install a second ply of modified flashing ply installed over the base flashing ply, 9 inches (228 mm) on to field of the roof. Attach top of membrane to top of wood curb and nail at 8 inches (203 mm) o.c. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure and aluminize.
5. Install metal exhaust fan over the wood nailers and flashing to act as counterflashing. Fasten per manufacturer's recommendation.

E. Passive Vent/Air Intake:
1. Minimum curb height is 8 inches (203 mm) above finished roof height. Prime vertical at a rate of 100 square feet per gallon and allow to dry.
2. Set cant in bitumen. Run all plies over cant a minimum of 2 inches (50 mm).
3. Install base flashing ply covering curb with 6 inches (152mm) on to the field of the roof.
4. Install a second ply of modified flashing ply installed over the base flashing ply, 9 inches (228 mm) on to field of the roof. Attach top of membrane to top of wood curb and nail at 8 inches (203 mm) o.c. Apply a three-course application of mastic and mesh at all vertical seams and allow to cure and aluminize.
5. Install passive vent/air intake over the wood nailers and flashing to act as counterflashing. Fasten per manufacturer's recommendations.

F. Roof Drain:
1. Plug drain to prevent debris from entering plumbing.
2. Taper insulation to drain minimum of 24 inches (609 mm) from center of drain.
3. Run roof system plies over drain. Cut out plies inside drain bowl.
4. Set lead/copper flashing (30 inch square minimum) in 1/4 inch bed of mastic. Run

lead/copper into drain a minimum of 2 inches (50 mm). Prime lead/copper at a rate of 100 square feet per gallon and allow to dry.
5. Install base flashing ply (40 inch square minimum) in bitumen.
6. Install modified membrane (48 inch square minimum) in bitumen.
7. Install clamping ring and assure that all plies are under the clamping ring.
8. Remove drain plug and install strainer.

G. Plumbing Stack:
1. Minimum stack height is 12 inches (609 mm).
2. Run roof system over the entire surface of the roof. Seal the base of the stack with elastomeric sealant.
3. Prime flange of new sleeve. Install properly sized sleeves set in 1/4 inch (6 mm) bed of roof cement.
4. Install base flashing ply in bitumen.
5. Install membrane in bitumen.
6. Caulk the intersection of the membrane with elastomeric sealant.
7. Turn sleeve a minimum of 1 inch (25 mm) down inside of stack.

H. Heat Stack:
1. Minimum stack height is 12 inches (609 mm).
2. Run roof system over the entire surface of the roof. Seal the base of the stack with elastomeric sealant.
3. Prime flange of new sleeve. Install properly sized sleeves set in 1/4 inch (6 mm) bed of roof cement.
4. Install base flashing ply in bitumen.
5. Install modified membrane in bitumen.
6. Caulk the intersection of the membrane with elastomeric sealant.
7. Install new collar over cape. Weld collar or install stainless steel draw brand.

I. Pitch Pocket Umbrella:
1. Run all plies up to the penetration.
2. Place the pitch pocket over the penetration and prime all flanges.
3. Strip in flange of pitch pocket with one ply of base flashing ply. Extend 6 inches (152 mm) onto field of roof.
4. Install second layer of modified membrane extending 9 inches (228 mm) onto field of the roof.
5. Fill pitch pocket half full with non-shrink grout. Let this cure and top off with pourable sealant.
6. Caulk joint between roof system and pitch pocket with roof cement.
7. Place a watershedding type bonnet over the top of the pitch pocket and clamp the top with a drawband collar. Caulk the upper edge of the band with an elastomeric sealant.

J. Liquid Flashing:
1. Mask target area on roof membrane with tape.
2. Clean all non-porous areas with isopropyl alcohol.
3. Apply 32 wet mil base coat of liquid flashing over masked area.
4. Embed polyester reinforcement fabric into the base coat of the liquid flashing.
5. Apply 48-64 wet mil top coat of the liquid flashing material over the fabric extending 2 inches (51 mm) past the scrim in all directions.
6. Apply minerals immediately or allow the liquid flashing material to cure 15-30 days and then install reflective coating.

3.6 PROTECTION

A. Provide traffic ways, erect barriers, fences, guards, rails, enclosures, chutes and the like to protect personnel, roofs and structures, vehicles and utilities.

B. Protect exposed surfaces of finished walls with tarps to prevent damage.

C. Plywood for traffic ways required for material movement over existing roofs shall be not less than 5/8 inch (16 mm) thick.

D. In addition to the plywood listed above, an underlayment of minimum 1/2 inch (13 mm) recover board is required on new roofing.

E. Special permission shall be obtained from the Manufacturer before any traffic shall be permitted over new roofing.

3.7 FIELD QUALITY CONTROL

A. Inspection: Provide manufacturer's daily field observations and a final inspection upon completion of the Work.
   1. Daily field observations shall be performed by a Technical Representative employed full-time by the manufacturer and whose primary job description is to assist, inspect and approve roofing installations for the manufacturer.
   2. Daily roofing progress reports must include; photographic documentation of work in-progress and written statements of compliance with details/shop drawings, weather conditions, and any discrepancies found during inspection.
   3. Progress reports must be published to an online database accessible to the Owner/Architect at no additional cost.
   4. Provide a final report from the Technical Representative, certifying that the roofing system has been satisfactorily installed according to the project specifications, approved details and good general roofing practice.
   5. Warranty shall be issued upon manufacturer's acceptance of the installation.

3.8 SCHEDULES

A. Base (Ply) Sheet (30 Year Base Ply): **(Base Bid)**
   1. 80 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing base sheet reinforced with a dual fiberglass reinforced scrim, performance requirements according to ASTM D 5147.
      a. Tensile Strength, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 225 lbf/in XD 225 lbf/in
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 39.0 kN/m XD 39 kN/m
      b. Tear Strength, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 300 lbf XD 300 lbf
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 1335 N XD 1335 N
      c. Elongation at Maximum Tensile, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 7% XD 7%
         2) 50 mm/min. @ 23 +/- 2 deg. C MD 7% XD 7%
      d. Low Temperature Flexibility, ASTM D 5147, Passes -30 deg. F (-34.4 deg. C)

B. Base (Ply) Sheet (35- & 40-Year Base Ply): **(Add Alternate)**:
   1. 80 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing base sheet reinforced with a fiberglass and polyester composite scrim, performance requirements according to ASTM D 5147.
      a. Tensile Strength, ASTM D 5147
         1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 310 lbf/in XD 310 lbf/in

2) 50 mm/min. @ 23 +/- 2 deg. C MD 54.25 kN/m XD 54.25 kN/m

b. Tear Strength, ASTM D 5147
   1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 650 lbf XD 650 lbf
   2) 50 mm/min. @ 23 +/- 2 deg. C MD 2891 N XD 2891 N

c. Elongation at Maximum Tensile, ASTM D5147
   1) 2 in/min. @ 73.4 +/- 3.6F MD 8% XD 8%
   2) 50 mm/min. @ 23 +/- 2 deg. C MD 8% XD 8%

d. Low Temperature Flexibility, ASTM D 5147, Passes -30 deg. F (-34.4 deg. C)

e.

C. Cap (Ply) Sheet (30 Year Cap Ply): **(Base Bid)**

1. 155 mil SBS (Styrene-Butadiene-Styrene) mineral surfaced, rubber modified roofing membrane reinforced with a fiberglass and polyester composite scrim. ASTM D 6162, Type III Grade G
   a. Tensile Strength, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 310 lbf/in XD 310 lbf/in
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 54.25 kN/m XD 54.25 kN/m
   b. Tear Strength, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 500 lbf XD 500 lbf
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 2224 N XD 2224 N
   c. Elongation at Maximum Tensile, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 8% XD 8%
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 8% XD 8%
   d. Low Temperature Flexibility, ASTM D 5147, Passes -30 deg. F (-34 deg. C)

D. Modified Cap (Ply) Sheet: (35 Year Cap): **(Add Alternate)**

1. 160 mil SBS (Styrene-Butadiene-Styrene) rubber modified membrane incorporating post-consumer recycled rubber and reinforced with a fiberglass and polyester composite scrim. ASTM D 6162 Type III Grade G
   a. Tensile Strength, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 550 lbf/in XD 500 lbf/in
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 96.25 kN/m XD 87.5 kNm
   b. Tear Strength, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 575 lbf/in XD 570 lbf
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 2557 N XD 2535 N
   c. Elongation at Maximum Tensile, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 10% XD 10%
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 10% XD 10%
   d. Low Temperature Flexibility, ASTM D 5147, Passes -30 deg. F (-34.44 deg. C)
   e. Recycled Content (Pre-Consumer): 2%
   f. Recycled Content (Post-Consumer): 12%
   g. Bio-Based Content: 1%

E. Modified Cap (Ply) Sheet (40 Year Cap): **(Add Alternate)**

1. 145 mil mineral surfaced, polyurethane modified roofing membrane with fire retardant characteristics, and dual fiberglass reinforced scrim. ASTM D 6163, Type III Grade G
   a. Tensile Strength, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 205 lbf/in XD 215 lbf/in
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 36.0 kN/m XD 38 kN/m
   b. Tear Strength, ASTM D 5147
      1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 300 lbf XD 300 lbf
      2) 50 mm/min. @ 23 +/- 2 deg. C MD 1334 N XD 1334 N

c. Elongation at Maximum Tensile, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 4.7% XD 5.0%
2) 50 mm/min. @ 23 +/- 2 deg. C MD 4.7% XD 5.0%
d. Low Temperature Flexibility, ASTM D 5147, Passes 0 deg. F (-18 deg. C)

F. Interply Adhesive:
1. Rubberized, polymer modified cold process asphalt roofing bitumen V.O.C. compliant ASTM D 3019. Performance Requirements:
a. Non-Volatile Content ASTM D 4479 70%
b. Density ASTM D1475 8.9 lbs./gal.
c. Viscosity Stormer ASTM D562 400-500 grams
d. Flash Point ASTM D 93 100 deg. F min. (37 deg. C)
e. Slope: up to 3:12

G. Flashing (Ply) Sheet (30 Year Base Ply): **(Base Bid)**
1. 80 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing base sheet reinforced with a dual fiberglass reinforced scrim, performance requirements according to ASTM D 5147.
a. Tensile Strength, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 225 lbf/in XD 225 lbf/in
2) 50 mm/min. @ 23 +/- 2 deg. C MD 39.0 kN/m XD 39 kN/m
b. Tear Strength, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 300 lbf XD 300 lbf
2) 50 mm/min. @ 23 +/- 2 deg. C MD 1335 N XD 1335 N
c. Elongation at Maximum Tensile, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 7% XD 7%
2) 50 mm/min. @ 23 +/- 2 deg. C MD 7% XD 7%
d. Low Temperature Flexibility, ASTM D 5147, Passes -30 deg. F (-34.4 deg. C)

H. Flashing Base (Ply) Sheet (35- & 40-Year Base Ply): **(Add Alternate)**:
1. 80 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing base sheet reinforced with a fiberglass and polyester composite scrim, performance requirements according to ASTM D 5147.
a. Tensile Strength, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 310 lbf/in XD 310 lbf/in
2) 50 mm/min. @ 23 +/- 2 deg. C MD 54.25 kN/m XD 54.25 kN/m
b. Tear Strength, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 650 lbf XD 650 lbf
2) 50 mm/min. @ 23 +/- 2 deg. C MD 2891 N XD 2891 N
c. Elongation at Maximum Tensile, ASTM D5147
1) 2 in/min. @ 73.4 +/- 3.6F MD 8% XD 8%
2) 50 mm/min. @ 23 +/- 2 deg. C MD 8% XD 8%
d. Low Temperature Flexibility, ASTM D 5147, Passes -30 deg. F (-34.4 deg. C)

I. Flashing Ply Adhesive:
1. Brush grade flashing adhesive.
a. Non-Volatile Content ASTM D 4479 70 min.
b. Density ASTM D 1475 8.6 lbs./gal. (1kg/l)
c. Flash Point ASTM D 93 100 deg. F (37 deg. C)

J. Flashing Cap (Ply) Sheet (30 Year Cap): **(Base Bid)**
1. 155 mil SBS (Styrene-Butadiene-Styrene) mineral surfaced, rubber modified roofing

membrane reinforced with a fiberglass and polyester composite scrim. ASTM D 6162, Type III Grade G
a. Tensile Strength, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 310 lbf/in XD 310 lbf/in
2) 50 mm/min. @ 23 +/- 2 deg. C MD 54.25 kN/m XD 54.25 kN/m
b. Tear Strength, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 500 lbf XD 500 lbf
2) 50 mm/min. @ 23 +/- 2 deg. C MD 2224 N XD 2224 N
c. Elongation at Maximum Tensile, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 8% XD 8%
2) 50 mm/min. @ 23 +/- 2 deg. C MD 8% XD 8%
d. Low Temperature Flexibility, ASTM D 5147, Passes -30 deg. F (-34 deg. C)

K. Flashing Modified Cap (Ply) Sheet (35 Year Cap): **(Add Alternate)**
1. 160 mil SBS (Styrene-Butadiene-Styrene) rubber modified membrane incorporating post-consumer recycled rubber and reinforced with a fiberglass and polyester composite scrim. ASTM D 6162 Type III Grade G
a. Tensile Strength, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 550 lbf/in XD 500 lbf/in
2) 50 mm/min. @ 23 +/- 2 deg. C MD 96.25 kN/m XD 87.5 kNm
b. Tear Strength, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 575 lbf/in XD 570 lbf
2) 50 mm/min. @ 23 +/- 2 deg. C MD 2557 N XD 2535 N
c. Elongation at Maximum Tensile, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 10% XD 10%
2) 50 mm/min. @ 23 +/- 2 deg. C MD 10% XD 10%
d. Low Temperature Flexibility, ASTM D 5147, Passes -30 deg. F (-34.44 deg. C)
e. Recycled Content (Pre-Consumer): 2%
f. Recycled Content (Post-Consumer): 12%
g. Bio-Based Content: 1%

L. Flashing Modified Cap (Ply) Sheet (40 Year Cap): **(Add Alternate)**
1. 145 mil mineral surfaced, polyurethane modified roofing membrane with fire retardant characteristics, and dual fiberglass reinforced scrim. ASTM D 6163, Type III Grade G
a. Tensile Strength, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 205 lbf/in XD 215 lbf/in
2) 50 mm/min. @ 23 +/- 2 deg. C MD 36.0 kN/m XD 38 kN/m
b. Tear Strength, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 300 lbf XD 300 lbf
2) 50 mm/min. @ 23 +/- 2 deg. C MD 1334 N XD 1334 N
c. Elongation at Maximum Tensile, ASTM D 5147
1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 4.7% XD 5.0%
2) 50 mm/min. @ 23 +/- 2 deg. C MD 4.7% XD 5.0%
3) Low Temperature Flexibility, ASTM D 5147, Passes 0 deg. F (-18 deg.

M. Surfacing:
1. Surface Coatings (Requirement for Base Bid and Alternates):
a. Surfacing:
1) Garla-Brite: ASTM D 2824 aluminum coating non-fibered aluminum roof coating non-fibered aluminum roof coating having the following characteristics:
a) Flash Point 103 deg. F (39 deg. C) min.

b) Weight/Gallon 7.9 lbs./gal. (1.0 g/cm3)

END OF SECTION

SECTION 076100

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED SECTIONS

A. Division 7 Section “Roof Insulation & Recovery Board”
B. Division 7 Section “Modified Bituminous Membrane Roofing”.

1.2 REFERENCES

A. American Society for Testing and Materials (ASTM)

1. ASTM A653 Standard Specification for Steel Sheet, Zinc-Coated (galvanized) or Zinc-Iron Alloy-Coated (galvannealed) by the Hot-Dip Process.

2. ASTM A792 Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy Coated by the Hot-Dip Process.

3. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

4. ASTM B221 Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

5. ASTM D692 Standard Specification for Coarse Aggregate for Bituminous Paving Mixtures.

6. ASTM B32 Solder Metal

7. ASTM B486 Paste Solder

8. ASTM D226 Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing

9. ASTM D486 Asphalt Roof Cement, Asbestos-free

B. American National Standards Institute and Single Ply Roofing Institute (ANSI/SPRI)

1. ANSI/SPRI ES-1 Testing and Certification Listing of Pre-Manufactured Fabricated Edge Metal and Pre-Manufactured Metal Coping Cap.

C. Warnock Hersey International, Inc., Middleton, WI (WH)

D. Factory Mutual Global (FM)

E. Underwriters Laboratories (UL)

F. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)

1. 1993 Edition Architectural Sheet Metal Manual

G. National Roofing Contractors Association (NRCA)

1. Roofing and Waterproofing Manual

H. American Society of Civil Engineers (ASCE)

1. ASCE 7-05 Minimum Design Loads for Buildings and Other Structures.

I. FS QQ-L-201 - Specification for Lead Sheet

J. FS O-F-506 - Flux, Soldering, Paste and Liquid

1.4 SUBMITTALS

A. Submit under provisions of this specification.

B. Product Data: Provide manufacturer's specification data sheets for each product.

C. Submit two samples, 12 x 12 inch in size illustrating typical external corner, internal corner, valley, junction to vertical dissimilar surface, material and finish.

D. Shop Drawings

1. For manufactured and ANSI/SPRI approved pre-manufactured metal edge fascia and pre-manufactured metal coping cap system, and all other sheet metal fabrications.

2. Shop drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashing, termination's, and installation details.

3. Indicate type, gauge and finish of metal.

E. Sample Warranty

1. Provide an unexecuted copy of the warranty specified for this Project, identifying the terms and conditions required of the Manufacturer and the Owner. Warranty shall be provided from one manufacturer and part of a total Edge-to-Edge roof warranty that includes the polyurethane modified membrane roof system and pre-fabricated metal edge system.

F. Certification

1. Submit roof manufacturer's certification that metal fasteners furnished are acceptable to roof manufacturer.

G. Manufacturer's Product Data

1. Metal material characteristics and installation recommendations.

2. Submit color chart prior to material ordering and/or fabrication so that equivalent colors to those specified can be approved.

1.5 QUALITY ASSURANCE

A. Reference Standards

1. Comply with details and recommendations of SMACNA Manual for workmanship, methods of joining, anchorage, provisions for expansion, etc.

B. If required, fabricator/installer shall submit work experience and evidence of adequate financial Responsibility. The owner's representative reserves the right to inspect fabrication facilities in determining qualifications.

C. Successful contractor must obtain all components of roof system from a single manufacturer including any roll good materials if required. Any secondary products that are required, which cannot be supplied by the specified manufacturer, must be recommended and approved in writing by primary manufacturer prior to bid submittal.

D. Manufacturer shall have in place a documented, standardized method for maintaining quality control such as ISO-9001 approval.

E. The roof material manufacturer shall conduct all required daily inspections of work in progress as described herein and shall furnish written documentation of all such inspections.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in manufacturer's original, unopened containers or packages with labels intact and legible.

B. Stack pre-formed and pre-finished material to prevent twisting, bending, or abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.

C. Prevent contact with materials which may cause discoloration or staining.

1.7 JOB CONDITIONS

A. Determine that work of other trades will not hamper or conflict with necessary fabrication and storage requirements for pre-formed metal roofing system.

B. Protection:

1. Provide protection or avoid traffic on completed roof surfaces.

2. Do not overload roof with stored materials.

3. Support no roof-mounted equipment directly on the roofing system.

C. Ascertain that work of other trades which penetrates the roof or is to be made watertight by the roof, is in place and approved prior to installation of roofing.

1.8 DESIGN AND PERFORMANCE CRITERIA

A. ANSI/SPRI ES-1 / Factory Mutual (Pre-manufactured Metal Edge Fascia System)

1. ANSI/SPRI ES-1 test reports must be submitted for specific project wind uplift requirements per Section 1.16 Design and Performance Criteria within Modified Bituminous Membrane Roofing specification. **Edge metal system must be ANSI/SPRI ES-1 compliant, as required by IBC.**

B. Thermal expansion and contraction:

1. Completed metal edge fascia and cant dam system shall be capable of withstanding unlimited thermal expansion and contraction of components caused by changes in temperature without buckling, producing excess stress on structure, anchors or fasteners, or reducing performance ability.

1.9 WARRANTIES

A. Material Manufacturer's Warranty

1. Pre-finished metal material shall require a written 20-year non-prorated warranty covering fade, chalking and film integrity. The material shall not show a color change greater than 5 NBS color units per ASTM D-2244 or chalking excess of 8 units per ASTM D-659. If either occurs material shall be replaced per warranty, at no cost to the Owner.

2. Warranty shall include the modified roof system, pre-manufactured metal edge fascia system, flashings and the transition between all systems, and shall be an Edge-to-Edge roof warranty; provided by one manufacturer.

3. Provide a manufacturer’s Edge-to-Edge roof warranty: Warranted materials shall be free of defects in material and workmanship for five (5) years after shipment. The manufacturer will also furnish their standard decorative finish warranty.

4. At the request of the Owner, the Manufacturer will provide an annual inspection. The request for annual inspections shall be applicable for the life of the warranty.

B. Contractor's Warranty

1. The Contractor shall provide the Owner with a notarized written warranty assuring that all sheet metal work including caulking and fasteners to be watertight and secure for a period of two (2) years from the date of final acceptance of the building. Warranty shall include all materials and workmanship required to repair any leaks that develop.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Pre-Manufactured Metal Edge System: R-Mer Force Fascia; The Garland Co., Cleveland, OH.

1. RMF Fascia with 7.25” face shall be .040 Kynar finished aluminum with extruded aluminum base frame, as specified in the details and calculations provided.

2. Include one (1) tube of Green-Lock Sealant XL (2 beads) per 10' section to seal the base frame on the horizontal substrate.
3. All submittals for approved equals shall conform to Sections 1.5 Quality Assurance and 1.8 Design & Performance Criteria.
4. Provide a manufacturer's Edge-to-Edge roof warranty. Warranted materials shall be free of defects in material and workmanship for five years after shipment. The manufacturer will also furnish their standard finish warranty.
5. Fascia extenders, scuppers and all other trim components and accessories shall be fabricated from 0.040" aluminum with Kynar finish.
6. Color to be selected by Owner from manufacturer's standard color range.

B. Basis of Design: Pre-Manufactured Snap-On Coping: manufactured by The Garland Co., Cleveland, OH.

1. Copings shall be .040" (<24" stretch-out) or .050" (>24" stretch-out) Kynar coated aluminum. Cant dam, coping chairs and hat channels shall be 22 ga. galvanized and continuous for the entire roof edge.
2. All submittals for approved equals shall conform to Sections 1.5 Quality Assurance and 1.8 Design & Performance Criteria.
3. Provide a manufacturer's Edge-to-Edge roof warranty. Warranted materials shall be free of defects in material and workmanship for five years after shipment. The manufacturer will also furnish their standard decorative finish warranty.
4. Fascia extenders, conductor heads, downspouts and all other accessories shall be fabricated from 0.040" aluminum with Kynar finish or approved equal.
5. Color to be selected by Owner from manufacturer's standard color range.

D. Pitch pockets shall be 20 oz. copper, and have all corners soldered, and a continuous 4" wide minimum deck flange at corners.

E. Miscellaneous Metals and Flashings:

1. Surface Mounted Counterflashings: Kynar finished Aluminum, 0.040 inch thick.

2. Drip Edge; Kynar finished Aluminum, 0.040 inch thick

3. Equipment Slip Flashing: Mill finished Aluminum, 0.040 inch thick.

4. Flat Stock - Custom Fabricated Trim: Kynar finished Aluminum, 0.040 inch thick.

5. Solder for Stainless Steel: ASTM B 32, Grade Sn60, used with an acid flux of type recommended by stainless-steel sheet manufacturer; use a noncorrosive rosin flux over tinned surfaces.

6. Solder for Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead.

7. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened. Exposed fasteners shall have a neoprene or other suitable weatherproofing washer.

8. Asphalt Mastic: SSPC-Paint 12, solvent-type asphalt mastic, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil dry film thickness per coat.

9. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

10. Sealing Tape: Pressure sensitive, 100 percent solids, polyisobutylene compound sealing tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape.

11. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.

12. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.

13. Roofing Cement: ASTM D 4586, Type I, asbestos free, asphalt based.

14. Zinc-Coated Steel Sheet: ASTM A526, 0.20% copper, 26 gage (0.0179"); designation G90 hot-dip galvanized, mill phosphatized.

15. Stainless Steel Sheet: Type 302/304, ASTM A167, 26 gage, (0.0217"), annealed except dead soft where fully concealed by other work, 2D (dull) finish.

16. Copper Sheet: ASTM B370, 20 oz., temper HOO (cold-rolled).

17. Lead-Coated Copper Sheet: ASTM B101. Type I, Class A (12-15 1 lb. of lead coating per 100 sq. ft.), 17.1 oz. (0.022").

18. Zinc Alloy Sheet: Zinc with 0.6% copper and 0.14% titanium; 0.27" thick (21 gauge); standard (soft) temper, mil finish.

2.2 RELATED MATERIALS

A. Metal Primer: Zinc chromate type.

B. Plastic Cement: ASTM D 4586

C. Sealant: As required by material manufacturer.

D. Lead: Meets Federal Specification QQ-L-201, Grade B, four (4) pounds per square foot.

E. Solder: ANSI/ASTM B32; 95/05 type.

F. Flux: FS O-F-506.

G. Underlayment: Ply of specified base flashing modified membrane or approved equal.

H. Fasteners:

1. Nails and Fasteners: Non-ferrous metal or hot dipped galvanized fasteners complying with ASTM A153 and connectors complying with ASTM A653, Class

G185; Type 304 or Type 316 stainless steel fasteners and connectors shall be used with new generation of pressure-treated wood; except that hard copper nails shall be used with copper; aluminum or stainless steel nails shall be used with aluminum; and stainless steel nails shall be used with stainless steel. Fasteners shall be self-clinching type of penetrating type as recommended by the manufacturer of the wood blocking/nailer material. Nails and fasteners shall be flush-driven through flat metal discs of not less than one (1) inch diameter. Omit metal discs when one-piece composite nails or fasteners with heads not less than one (1) inch diameter are used.

2. Fastening shall conform to ANSI/SPRI ES-1 and/or Factory Mutual 1-90 requirements or as stated on section details, whichever is more stringent and per the manufacturer's requirements.

I. Metal Termination Bars:

1. Shall be heavy flat bar aluminum unless otherwise recommended by membrane manufacturers.

2. Material shall be .125" x 1" (minimum) aluminum conforming to ASTM B-221, mill finish. Bars shall have holes for fasteners at 6" o.c. maximum.

PART 3 - EXECUTION

3.1 PROTECTION

A. Isolate contact areas of dissimilar metals with heavy asphalt or other approved coating, specifically made to stop electrolytic action.

3.2 GENERAL

A. Install work watertight, without waves, warps, buckles, fastening stress, or distortion, allowing for expansion and contraction.

B. Fastening of metal to walls and wood blocking shall comply with ANSI-SPRI ES-1, SMACNA Architectural Sheet Metal Manual, Factory Mutual 1-90 wind uplift specifications and/or manufacturer's recommendations whichever is of the highest standard.

C. All accessories or other items essential to the completeness of sheet metal installation, whether specifically indicated or not, shall be provided and of the same material as item to which applied.

D. Pre-manufactured metal edge fascia system's continuous base frame shall be secured to the side of the wood blocking.

E. Metal fascia exteners shall be secured to wall or wood blocking at the bottom edge with a continuous cleat. Cleats shall be at least one gauge heavier than the metal it secures. Both pieces shall be secured at 6" on center.

3.3 INSPECTION

A. Verify roof openings, curbs, pipes, sleeves, ducts, or vents through roof are solidly set, cant strips and reglets are in place, and nailing strips located.

B. Verify membrane termination and base flashings are in place, sealed, and secure.

C. Beginning of installation means acceptance of existing conditions.

D. Field measure site conditions prior to fabricating work.

3.4 SHOP FABRICATED SHEET METAL

A. Installing Contractor shall be responsible for determining if the sheet metal systems are in general conformance with roof manufacturer's recommendations.

B. Metal work shall be shop fabricated to configurations and forms in accordance with recognized sheet metal practices.

C. Hem exposed edges.

D. Angle bottom edges of exposed vertical surfaces to form drip.

E. All corners for sheet metal shall be lapped with adjoining pieces fastened and set in sealant.

F. Joints for pre-manufactured metal edge fascia system, and metal edge fascia extenders shall be formed with a 3/8” opening between sections. The joints of the metal edge fascia system and the metal edge fascia extenders shall be offset a minimum of twelve (12) inches. The joint openings shall be backed by an internal drainage plate formed to the profile of fascia piece. The pre-manufactured metal edge fascia system and metal fascia extenders shall be embedded in two rows of butyl sealant over the internal drainage plate. The internal drainage plate shall be embedded in two rows of butyl sealant over the continuous cant dam and fastened through the opening between the sections and loose locked to the drip edges.

G. Joints for counterflashings shall be overlapped a minimum of 3”, and counterflashings shall extend 4” below the roof flashing termination bar.

H. Install sheet metal to comply with ANSI/SPRI, FM, SMACNA and NRCA standards, and per the manufacturer’s instructions.

END OF SECTION 07600

SECTION 07 42 14.001

METAL WALL PANELS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This section includes pre-formed flat seam wall panel system complete with anchor clips, fasteners, flashing, and trim.

B. Related Sections:
1. Section 07 05 00 – Common Work Results for Thermal and Moisture Protection

C. Related Work Specified Elsewhere:
1. Division 05 Section – Structural Steel
2. Division 05 Section – Steel Joists
3. Division 05 Section – Cold Formed Metal Framing
4. Division 05 Section – Metal Fabrications
5. Division 06 Section – Rough Carpentry
6. Division 07 Section – Roof and Deck Insulation
7. Division 07 Section – Sheet Metal Flashing and Trim
8. Division 07 Section – Above-Grade Vapor Barriers

1.3 REFERENCES

A. American Iron and Steel Institute (AISI):
1. Specification for the Design of Cold-Formed Steel Structural Members.
2. American Society for Testing and Materials (ASTM): B.
3. ASTM A240 Specification for Heat Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels: C.
4. ASTM A792 Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
5. ASTM A875 Specification for Steel Sheet, Zinc-5% Aluminum Alloy-Coated by the Hot-Dip Process.
6. ASTM B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate
7. ASTM B370 Specification for Copper and Sheet and Strip for Building Construction
8. ASTM E283 Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
9. ASTM E331 Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Air Pressure Differences

10. ASTM E331 Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Uniform Static Air Pressure Difference

B. Sheet Metal and Air Conditioning Contractors National Association (SMACNA):
1. Architectural Sheet Metal Manual

1.4 SUBMITTALS FOR REVIEW

A. Shop Drawings: Show wall panels (and roofing system, if applicable) with flashings and accessories in elevations, sections and details. Include metal thickness and finishes, panel lengths, joining details, anchorage details, flashings and special fabrication provisions for termination and penetrations. Indicate relationships with adjacent and interfacing work. Indicate fastener types and spacing; and provide fastener pullout values. Shop drawings must be completed by the wall panel manufacturer's engineering department. Any and/or all changes recommended by the successful bidder must be approved by the manufacturer in writing prior to submittal.

B. Product Data: Include manufacturer's detailed material and system description, concealed anchor clips, sealant and closure installation instructions, and finish specifications. Indicate fastener types and spacing; and required fastener pullout values.

C. Samples: Provide full-size samples of the following materials and system components. Samples shall be of identical material type, thickness, panel width, and material grade/alloy as the system specified for this project.
1. Submit sample of panel section, at least 4" long x full panel width showing panel profile and also a sample of color selected.
2. Submit sample of foam closure strips to fit inside and outside specified panel profile.
3. Submit sample of panel fasteners.

D. Specimen Warranty: Provide an unexecuted copy of the warranty specified for this Project, identifying the terms and conditions required of the Manufacturer and the Owner.

E. Any material submitted as equal to the specified material must be accompanied by a report signed and sealed by a professional engineer licensed in the state in which the installation is to take place. This report shall show that the submitted equal meets the Design and Performance criteria in this specification. Substitution requests submitted without licensed engineer approval will be rejected for non-conformance.

1.5 SUBMITTALS FOR INFORMATION

A. Design and Test Reports: Provide the following certified test reports from an independent testing laboratory:
1. Independent laboratory testing report for system design load and seam integrity.
2. A letter from an officer of the manufacturing company certifying that the materials furnished for this project are the same as represented in tests and supporting data.
3. Manufacturer's verifications that the panels are factory roll formed.
4. ASTM E283 Test results must clearly demonstrate compliance with the performance requirements specified in article 1.9 ASTM E331 Test Report.

5. ASTM E330 Test results must clearly demonstrate compliance with the performance requirements specified in article 1.9.
6. ASTM E331 Test results must clearly demonstrate compliance with the performance requirements specified in article 1.9.

B. Mill production reports certifying that the metal thicknesses are within allowable tolerances of the nominal or minimum thickness or gauge specified.

C. Design Loads: Submit copy of manufacturer's minimum design load calculations according to ASCE 7, Method 2 for Components and Cladding. In no case shall the design loads be taken to be less than those detailed in Design and Performance Criteria article.

D. Qualification Data for Wall System Installer: Refer to Quality Assurance Article below.

E. Certification of work progress inspection frequency: Refer to Quality Assurance Article below.

F. Pre-installation Conference Proceedings: Refer to Quality Assurance Article below.

G. Test Reports: Submit third party validation of environmental claims, prepared by UL Environment, for all metal wall panels containing recycled content and/or bio based content.

1.6 CONTRACT CLOSEOUT SUBMITTALS

A. General: Comply with Requirements of Division 01 Section Closeout Submittals.

B. Special Project Warranty: Provide specified warranty for the Project, executed by the authorized agent of the Manufacturer.

C. Wall Panel Maintenance Instructions: Provide a manual of manufacturer's recommendations for maintenance of installed systems.

D. Insurance Certification: Assist Owner in preparation and submittal of wall installation acceptance certification as may be necessary in connection with fire and extended coverage insurance on wall panel system installation and associated work.

E. Demonstration and Training Schedule: Provide a schedule of proposed dates and times for instruction of Owner's personnel in the maintenance requirements for completed wall panel system installation work. Refer to Part 3 for additional requirements.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Engage an Installer who has completed the Manufacturer's Approved Contractor course and is currently certified for the installation of the specified system.

B. If required, fabricator/installer shall submit work experience and evidence of adequate financial Responsibility. The Owner's representative reserves the right to inspect fabrication facilities in determining qualifications.

C. Source Limitations: Obtain all components of the wall panel system from a single manufacturer. Secondary products that are required shall be recommended and approved in writing by the Manufacturer.

1. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.
2. Manufacturer shall have direct authority and control over all fabrication of steel components as well as the raw materials used in their fabrication.

D. Source Quality Control: Manufacturer shall have in place a documented, standardized quality control program such as ISO-9001 approval.

E. Engage the Manufacturer's Field Representative to conduct required periodic inspections of work in progress as described herein and shall furnish written documentation of all such inspections.

F. Manufacturer shall provide the Owner project with a written statement that they will provide a site inspection every [1] days that confirms that the project is being constructed as specified, by an experienced, full time employee of the company.

G. Alternate Manufacturers: The following manufacturer criteria must be submitted. Alternate systems will not be considered for approval unless each of these items has been submitted for review at least 10 business days prior to bid opening.
1. Submit each item listed in article 1.4 (A through E) for evaluation of the proposed system.
2. Tests shall have been made for identical systems within the ranges of specified performance criteria.
3. Empirical calculations for wall performance shall only be acceptable for positive loads.
4. A list of a minimum of five (5) jobs where the proposed alternate material was used under similar conditions. The reference list shall include date of project, size of project, project address, and telephone number of architect/owner contact.
5. A financial statement demonstrating a minimum of a 3:1 ratio of assets to liabilities.
6. A written statement from the manufacturer stating that they will provide the building owner with a daily site inspection for a minimum of one (1) hour per day by an experienced, full time employee of the company.
7. A written statement from the manufacturer stating that they will provide the engineer of record with a daily site inspection by an experienced full time employee of the company.
8. A written statement from a corporate officer of the manufacturing company stating that he or she has reviewed the specifications and confirms that the proposed system meets or exceeds all performance requirements listed as well as meets the panel size, gauge, weight, clip design, sealant design, uplift pressures and height of the vertical seam.
9. A copy of manufacturer's warranty.
10. Proof that the manufacturer has been in business for a minimum number of years equal to the warranty period required for this project.

1.8 PRE-INSTALLATION CONFERENCE

A. Convene a pre-installation conference approximately two (2) weeks before scheduled commencement of system installation and associated work.

B. Require attendance of installer of each component of associated work which must precede or follow wall panel work (including mechanical or electrical work if any), Architect, Owner, system manufacturer's representative, and other representatives directly concerned with performance of the Work, including (where applicable) Owner's insurers, testing agencies and governing authorities.

C. Objectives of conference to include:
   1. Review foreseeable methods and procedures related to work, including set up and mobilization areas for stored material and work area.
   2. Tour representative areas of building, inspect and discuss condition of substrates, penetrations and other preparatory work performed by others.
   3. Review structural loading limitations of wall framing and inspect for unacceptable variations in planarity.
   4. Review system requirements (drawings, specifications and other contract documents).
   5. Review required submittals both completed and yet to be completed.
   6. Review and finalize construction schedule related to work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
   7. Review required inspection, testing, certifying and material usage accounting procedures.
   8. Review weather and forecasted weather conditions and procedures for unfavorable conditions, including possibility of temporary wall protection (if not mandatory requirement).
   9. Record discussion of conference including decisions and agreements (or disagreements) reached. Furnish copy of record to each party attending. If substantial disagreements exist at conclusion of conference, determine how disagreements will be resolved and set date for reconvening conference.
   10. Review notification procedures for weather or non-working days.

D. The Owner's Representative will be designate one of the conference participants to record the proceedings and promptly distribute them to the participants for record.

E. The intent of the conference is to resolve issues affecting the installation and performance of wall panel work. Do not proceed with work until such issues are resolved the satisfaction of the Owner and Engineer of Record. This shall not be construed as interference with the progress of Work on the part of the Owner or Engineer of Record.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Manufacturer's Responsibilities:
   1. All panels shall be shipped from the manufacturer with a strippable film or similar packaging material separating the individual panels to minimize flexing, stressing, scratching or otherwise damaging the material during transit to the job.
   2. Fully cover steel with tarpaulins or similar protective cover during transit to prevent dirt and debris from coming in contact with the finished goods.

B. Installer's Responsibilities:
   1. Stack pre-finished materials to prevent twisting, bending, abrasion and denting and elevate one end to facilitate moisture run-off.
   2. Unload wall panels using a boom or crane, supporting the panels in at least two locations during lifting, and never lift more than three panels at a time.
   3. Protect moisture-sensitive materials and water-based from the weather.
   4. Inspect materials upon delivery. Reject and remove physically damaged or marred material from project site.

1.10 PROJECT CONDITIONS

A. Determine that work of other trades will not hamper or conflict with necessary fabrication and storage and protection requirements for wall panel system.
   1. Protection:

a. Protect completed work from subsequent construction operations. Comply with Manufacturer's recommendations.
b. Do not encumber the site with stored materials or equipment.
c. Do not support wall-mounted equipment directly on the wall panel system.

B. Ascertain that work of other trades which penetrates the wall or is to be made watertight by the wall is in place an approved prior to installation.

1.11 DESIGN AND PERFORMANCE CRITERIA

A. Thermal Expansion and Contraction:
1. Completed metal wall panel and flashing system shall be capable of withstanding expansion and contraction of components caused by changes in temperature without buckling, producing excess stress on structure, anchors or fasteners, or reducing performance ability.
2. The design temperature differential shall be not less than <insert design temperature differential [200] °F.
3. Interface between panel and clip shall provide for unlimited thermal movement in each direction along the longitudinal direction.

B. Uniform wind load capacity:
1. Installed wall panel system shall withstand negative design wind loading pressures complying with the following criteria. Anchor clips shall be installed exactly as specified in article 3.

Specifier Note: Attach results of the ASCE 7 minimum design load calculations, as submitted, to this specification. Detailed drawings showing the specific wind pressure zones shall accompany the calculations.

a. Design Code: ASCE 7, Method 2 for Components and Cladding.
b. Safety Factor: 1.67 after any load reduction or material stress increase.
c. Category III Building with an Importance Factor of 1.0
d. Wind Speed: 140 mph
e. Ultimate Pullout Value: [Contact Garland sales rep.] pounds per each of the two fasteners holding the panel anchor to the wall substrate or framing system.
f. Exposure Category: D
g. Wall Height: 6 feet.
h. Minimum Building Width: 80'5" feet.

Wall Area Design Wind Pressure:
Zone 4 – 57.0 psf.
Zone 5 – 85.9 psf.

2. Capacity shall be determined using uniform static air pressure method in accordance with ASTM E330. Allowable safe working loads shall be determined by dividing the ultimate test load by the safety factor specified above.

C. ASTM E283: Static pressure air infiltration (doors, windows, curtain walls):
1. Pressure Leakage Rate
a. 1.57 PSF 0.0033 cfm/sq. ft.
b. 6.24 PSF 0.0056 cfm/sq. ft.
c. 12.0 PSF 0.062 cfm/sq. ft.
d. 15.0 PSF 0.064 cfm/sq. ft
e. 20.0 PSF 0.074 cfm/sq. ft.

D. ASTM E330: Uniform static load test for structural performance for 1 ½" panel profile:

Test results must provide an allowable pressure of no less than:

1. 42 lbs/sqft. For 3'-0" spans
2. 52 lbs/sqft for 1'-0" span

E. ASTM E331: Static pressure water infiltration (doors, windows, curtain walls):

1. Pressure Result:
   a. 5 Gal./Hr. per S.F. and Static No Leakage
   b. Pressure of 20.0 Psf. For 15 minutes.

1.12 WARRANTIES

A. Manufacturer shall execute a single warranty covering of the following criteria. Multiple-source warranties are not acceptable.

1. Manufacturer's ten (10) year watertight warranty.
2. Manufacturer's standard twenty (20) year finish warranty covering checking, crazing, peeling, chalking, fading, or adhesion.
3. Installer's two (2) year warranty covering wall panel system installation.
4. Warranties shall commence on date of Substantial Completion.
5. Provide a single warranty by a single approved manufacturer for roof areas, wall areas, and transitions between the two systems, if applicable.

1.13 MANUFACTURER'S INSPECTIONS

A. When the project is in progress, the wall panel system manufacturer will inspect the work not less than [insert number] days per week. In addition, the manufacturer will:

1. Keep the Architect or Owner informed as to the progress and quality of the work as observed.
2. Provide periodic job site inspections a minimum of [1] day per week.
3. Report to the Architect in writing any failure or refusal of the Contractor to correct unacceptable practices called to the Contractor's attention.
4. Confirm after completion that manufacturer has observed no applications procedures in conflict with the specifications other than those that may have been previously reported and corrected.

PART 2 – PRODUCTS

2.1 PRODUCTS, GENERAL

A. Refer to Division 01 Section "Common Product Requirements."

B. Basis of Design: Materials, manufacturer's product designations, and/or manufacturer's names specified here in shall be regarded as the minimum standard of quality required for work of this Section. Comply with all manufacturer and contractor/fabricator quality and performance criteria specified in Part 1.

C. Substitutions: Products proposed as equal to the products specified in this Section shall be submitted in accordance with Bidding Requirements and Division 01 provisions.

1. Proposals shall be accompanied by a copy of the manufacturer's standard specification section. That specification section shall be signed and sealed by a professional engineer licensed in the state in which the installation is to take place. Substitution requests containing specifications without licensed engineer certification shall be rejected for non-conformance.
2. Include a list of three (3) projects of similar type and extent, located within a one hundred mile radius from the location of the project. In addition, the three

projects must be at least five (5) years old and be available for inspection by the Architect, Owner or Owner's Representative.

3. Equivalency of performance criteria, warranty terms, submittal procedures, and contractual terms will constitute the basis of acceptance.
4. The Owner's decision regarding substitutions will be considered final. Unauthorized substitutions will be rejected.

2.2 ACCEPTABLE MANUFACTURERS

A. The design is based upon R-MER Wall Pan wall panel systems engineered and manufactured by

The Garland Company
3800 East 91st Street
Cleveland, Ohio 44105
Telephone: (800) 762-8225
Website: www.garlandco.com

B. Site Formed Panels: Bidder will not be allowed to supply panels formed at the job-site on portable roll formers; metal panels must be factory pre-manufactured and engineered for this project.

2.3 METAL WALL PANEL SYSTEM

A. General
1. The products, quality, and performance criteria specified shall be regarded as the minimum standard of quality required for the project.
2. Basis of Design: R-MER Wall Pan System manufactured by The Garland Company, Cleveland, OH.

B. Materials
1. Panel material: .040" thickness aluminum, 3105-H14 alloy, smooth as per ASTM B209-96.
2. Flashing and flat stock material: Fabricate in profiles indicated on drawings of same material, thickness, and finish as wall panel system, unless indicated otherwise.

C. Finish on surfaces:
1. Exposed surfaces for coated panels:
   a. Two coat coil applied, baked-on full-strength (70% resin) fluorocarbon coating system (polyvinylidene fluoride, PVF2), applied by manufacturer's approved applicator.
   b. Coating system shall provide nominal 1.0 mil dry film thickness, consisting of primer and color coat.
   c. Color shall be a standard color to be selected by owner.

   Color: Selected by owner.
2. Unexposed surfaces for coated panels shall be baked-on polyester coating with .20 - .30 dry film thickness (TDF).
3. Exposed and unexposed surfaces for uncoated panels shall be as shipped from the mill.

D. Characteristics:
1. Fabrication: Panels shall be factory roll-formed from the specified metal. Field rolled panels will not be allowed. 1.
2. Configuration: Interlocking flush/flat seams incorporating concealed anchor clips. Through fastened or exposed fastener systems are not acceptable.

3. Panel seam legs shall be one and one half (1 ½) inch nominal concealed depth behind the panel face. Seam shall allow for expansion and contraction of panels due to thermal changes. 3. Anchor clips: Clips shall be 22 gauge galvalume steel designed to allow thermal movement of the panel in each direction along the longitudinal dimension.
4. Panel Width (Seam Spacing): 12" nominal.
5. Panel lengths: Full length without joints to the extent as is practical.
6. Profile of panel face shall have mesa's every two (2) on center continuous throughout panel which are a minimum of one and one half (1 ½) inches wide. These will absorb thermal stresses, reduce oil canning, and provide aesthetic appeal.
   Profile of panel face shall have a single Vee-groove reveal located three (3) inches in from each panel seam. These will absorb thermal stresses, reduce oil canning, and provide aesthetic appeal.
   Profile of panel face shall have a double Vee-groove reveal located in the center of each panel face. These will absorb thermal stresses, reduce oil canning, and provide aesthetic appeal.
   Profile of the panel face shall be flat and free from any mechanical finishes.
   Profile of the panel face shall be flat and free from any mechanical finishes. A nominal three fourths (3/4) inch thick expanded polystyrene insulation board shall be adhered to the inner cavity of the panel.

E. Accessories:
   1. Fasteners:
      a. Concealed fasteners: Corrosion resistant steel screws, #10 x 1" long, pancake head, Phillips drive.
   2. Provide all miscellaneous accessories for complete installation.

2.4 ACCESSORY PRODUCTS

A. Sealant:
   1. Acceptable product:
      a. Concealed Application: Non-curing butyl sealant or equal.
   2. Colors: As selected by architect from sealant manufacturer's standard selection.

B. Wall Substrate:
   1. Install ¾" high x 24 gauge (minimum) galvanized steel during hat sections to wall structural substrate. Hat sections shall be installed perpendicular to panel seams, and shall be spaced in accordance with manufacturer's wind uplift calculations.
   2. Install 16 gauge galvanized steel zee furring sections to the wall structural substrate. Zee sections shall be installed perpendicular to panel seams, and shall be spaced thirty (30) inches on center (maximum) to accommodate to the panel anchor clip spacing given in article 3.2 C.

C. Underlayment:
   1. Underlayment shall be one ply of 60 mil HydroShell self-adhesive membrane. Seams shall be lapped in accordance with manufacturer's recommendations.

1.5 FABRICATION

A. Shop fabricate metal panels and flashing components to the maximum extent possible, forming metal work with clear, sharp, straight, and uniform bends and rises. Hem exposed edges of flashings.

B. Form flashing components from full single width sheet in minimum ten (10’-0”) feet sections. Provide shop fabricated, mitered corners, joined using closed end pop rivets and joint sealant.

C. Fabricate panels and related sheet metal work in accordance with approved shop drawings and applicable standards.

PART 3 – EXECUTION

3.1 EXECUTION, GENERAL

A. Comply with requirements of Division 01 Section “Common Execution Requirements.”

3.2 PREPARATION

A. Inspection: Examine the alignment and placement of the building structure and substrate. Correct any objectionable warp, waves or buckles in the substrate before proceeding with installation of the pre-formed metal panels.

B. Pre-installation conference: Prior to beginning metal wall panel work, convene a pre-installation conference as specified in Part 1 of this Specification.

C. It is understood that the ongoing operations of the Owner area of a critical nature as to leak sensitivity. Do not work on more wall area than can be restored completely watertight in one day.

3.3 INSTALLATION, GENERAL

A. Install wall system when the atmospheric dry bulb temperature is minimum forty (40) degrees Fahrenheit and rising.

B. Install all components of the wall system in exact accordance with the manufacturer’s standard published procedures as applicable to these project conditions and substrates.

3.4 WALL PANEL INSTALLATION

A. Comply with all details and install wall panel materials and flashings in accordance with approved Manufacturer’s details and manufacturer’s product data within specified erection tolerances.

B. Directly over the completed wall substrate, install metal wall panels. All panels will be fastened into the structural substrate with concealed anchor at 36” on center maximum spacing along each panel seam.

C. Isolate dissimilar metals and masonry or concrete from metals with bituminous coating. Use gasketed fasteners where required to prevent corrosive action between fastener, substrate, and panels.

D. Coordinate flashing and sheet metal work to provide weathertight conditions at wall panel terminations. Fabricate and install in accordance with standards of SMACNA Manual.

E. Limit exposed fasteners to extent indicated on details.

F. Seal laps and joints in accordance with system manufacturer’s product data.

G. Installed system shall be true to line and plane and free of dents, and physical defects. In light gauge panels with wide flat surfaces, some oil canning may be present. Oil canning does not affect the finish or structural integrity of the panel and is therefore not cause for rejection.

H. Form joints in linear sheet metal to allow for one fourth (1/4) inch minimum expansion at twenty (20'-0") feet on center maximum and eight (8'-0") feet from corners.

I. At joints in linear sheet metal items, set sheet metal items in two (2) one fourth (1/4) inch beads of butyl sealant. Extend sealant over all metal surfaces. Mate components for positive seal. Allow no sealant to migrate onto exposed surfaces.

3.5 CLEANING

A. Clean installed work in accordance with the manufacturer's instructions.

B. Replace damaged work than cannot be restored by normal cleaning methods.

3.6 CONSTRUCTION WASTE MANAGEMENT

A. Remove and properly dispose of waste products generated during construction. Comply with requirements of authorities having jurisdiction.

3.7 FINAL INSPECTION

A. At completion of installation and associated work, meet with Contractor, Architect, installer, installer of associated work, Owner, system manufacturer's representative, and other representatives directly concerned with performance of system.

B. Inspect work and flashing of penetrations, walls, curbs and other equipment. List all items requiring correction or completion and furnish copy of list to each party in attendance.

C. Repair or replace deteriorated or defective work found at time above inspection as required to a produce an installation which is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

D. Notify the Owner/Owner's Representative upon completion of corrections.

E. Following the final inspection, provide written notice of acceptance of the installation from the system manufacturer.

F. Immediately correct leakage during construction. If the Contractor does not respond within twenty four (24) hours, the Owner will exercise rights to correct the Work under the terms of the Conditions of the Contract.

3.8 DEMONSTRATION AND TRAINING

A. At a time and date agreed to by the Owner, instruct the Owner's facility manager, or other representative designated by the Owner, on the following procedures:
   1. Troubleshooting procedures
   2. Notification procedures for reporting leaks or other problems
   3. Maintenance
   4. The Owner's obligations for maintaining the warranty in effect and force
   5. The Manufacturer's obligations for maintaining the warranty in effect and force

END OF SECTION 07 42 14.001

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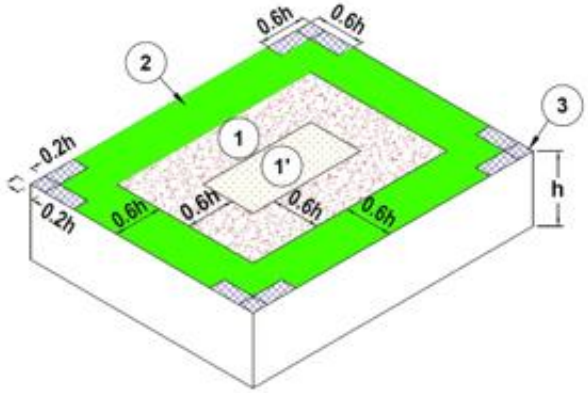
Preliminary Pressure Calculations

Date	2/19/2025	EBLANCO 7.3	
Sales Rep	Dan Wall		
Project Name	City of Providence - 552 Academy Ave	City	Providence
Roof Sections	L Roof	State	RI

Design Code	ASCE 7-16 ASD	Base Velocity Pressure	23.2	psf	Gcpi = 0.55	
Exposure Category	C	Roof Type	Gable			
Risk Cat. , Importance Factor	IV , 1	Edge Zones				
Wind Speed	137 mph	Zone 1 width	=	15'-0"		
Design Roof Height:	25 ft	Zone 2 width	=	15'-0"		
Minimum Building Width:	140 ft	Zone 3 width	=	5'-0"		
Roof Pitch (X, Y)	0.25 : 12	Zone 3 length	=	15'-0"		
Roof Angle	1.19 deg		=			
Parapet ≥ 36" Entire Roof	No		=			
Deck Type	Steel					

Notes:

Zone Image



Zone Pressures (psf)

Zone 1'	Zone 1	Zone 2	Zone 3			Wall Perimeter Zone 4	Wall Corner Zone 5
33.6	52.1	66.0	86.9			38.2	45.2

Notes:

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Coping

		Date	2/19/2025
		Sales Rep	Dan Wall
Project Name	City of Providence - 552 Academy Ave	City	Providence
Roof Sections	L Roof	State	RI

ANSI/SPRI ES-1 COPING PRELIMINARY DESIGN

Project Data

Design Wind Speed:	137.00	mph
Roof Eave Height:	25.00	feet
	+	
Tallest Parapet:	0.00	feet
	=	
Metal Edge Eave Height:	25.00	feet
Exposure Category:	C	
Importance Classification:	IV	

Design Wind Pressure — ASCE 7-16 ASD

Basic Velocity Pressure:	23.16	psf
Horizontal Design Pressure:	45.17	psf
Vert. Design Pressure:	86.86	psf

ES-1 Tested Coping System

Product Designation:	ES-C050-16-60-16	
System Description:	R-Mer Edge Snap on Coping 16" x 0.050" Alum w/ 16 GA Anchor Chairs at 60" o.c.	
Maximum Tested Front Load:	86	psf
Max. Vertical Front Dim.:	6	inches
Maximum Tested Top Load:	220	psf
Max. Vertical Width:	16.00	inches
Maximum Tested Rear Load:	129.1	psf
Max. Vertical Rear Dim.:	4.00	inches

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Fascia

		Date	2/19/2025
		Sales Rep	Dan Wall
Project Name	City of Providence - 552 Academy Ave	City	Providence
Roof Sections	L Roof	State	RI

ANSI/SPRI ES-1 FASCIA PRELIMINARY DESIGN

Project Data

Design Wind Speed:	137	mph
Roof Eave Height:	25.00	feet
+		
Tallest Parapet:	0.00	feet
=		
Metal Edge Eave Height:	25.00	feet
Exposure Category:	C	
Importance Classification:	IV	

Design Wind Pressure — ASCE 7-16 ASD

Basic Velocity Pressure:	23.16	psf
Horizontal Design Pressure:	45.17	psf

ES-1 Fascia Load

Vertical Face Dimension:	7.25	inches
Fascia Design Load:	75.43	psf

ES-1 Tested Fascia System

Product Designation:	MEA-RMF-Fascia725-A40
System Description:	R-Mer Force Fascia 7.25" x 0.040" Aluminum w/ RMEBF-700 Base Frame

Maximum Tested Load:	470	psf
Max. Vertical Face Dim.:	7.25	inches

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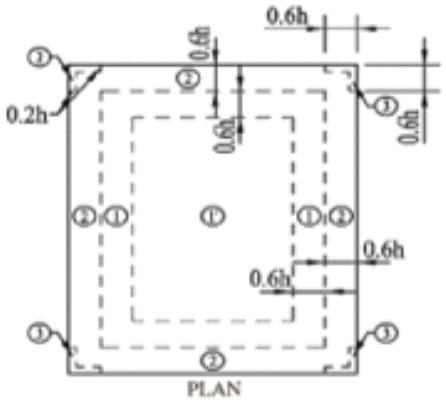
Preliminary Pressure Calculations

Date	7/31/2025	TPERKINS 7.6	
Sales Rep	Dan Wall		
Project Name	City of Providence - 552 Academy Ave	City	Providence
Roof Sections	Roof C	State	RI

Design Code	ASCE 7-22 ASD	Base Velocity Pressure	23.1	psf	Gcpi = 0.55	
Exposure Category	C	Roof Type	Gable			
Risk Category	IV	Edge Zones				
Wind Speed	137 mph	Zone 1 width =	15'-0"			
Design Roof Height:	25 ft	Zone 2 width =	15'-0"			
Minimum Building Width:	120 ft	Zone 3 width =	5'-0"			
Roof Pitch (X, Y)	0.25 : 12	Zone 3 length =	15'-0"			
Roof Angle	1.19 deg	=				
Parapet ≥ 36" Entire Roof	Yes	=				
		Zone Image a =	15'-0"			
Deck Type	Wood					

Notes:



Zone Pressures (psf)

Zone 1'	Zone 1	Zone 2	Zone 3			Wall Perimeter	Wall Corner
33.6	52.1	66.0	66.0			35.6	41.9

Notes:

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Coping

		Date	7/31/2025
		Sales Rep	Dan Wall
Project Name	City of Providence - 552 Academy Ave	City	Providence
Roof Sections	Roof C	State	RI

ANSI/SPRI ES-1 COPING PRELIMINARY DESIGN

Project Data

Design Wind Speed:	137.00	mph
Roof Eave Height:	25.00	feet
	+	
Tallest Parapet:	4.00	feet
	=	
Metal Edge Eave Height:	29.00	feet
Exposure Category:	C	
Importance Classification:	IV	

Design Wind Pressure — ASCE 7-22 ASD

Basic Velocity Pressure:	23.86	psf
Horizontal Design Pressure:	43.19	psf
Vert. Design Pressure:	89.48	psf

ES-1 Tested Coping System

Product Designation:	ES-C050-16-60-16	
System Description:	R-Mer Edge Snap on Coping 16" x 0.050" Alum w/ 16 GA Anchor Chairs at 60" o.c.	
Maximum Tested Front Load:	86	psf
Max. Vertical Front Dim.:	6	inches
Maximum Tested Top Load:	220	psf
Max. Vertical Width:	16.00	inches
Maximum Tested Rear Load:	129.1	psf
Max. Vertical Rear Dim.:	4.00	inches

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Fascia

		Date	7/31/2025
		Sales Rep	Dan Wall
Project Name	City of Providence - 552 Academy Ave	City	Providence
Roof Sections	Roof C	State	RI

ANSI/SPRI ES-1 FASCIA PRELIMINARY DESIGN

Project Data

Design Wind Speed:	137	mph
Roof Eave Height:	25.00	feet
+		
Tallest Parapet:	4.00	feet
=		
Metal Edge Eave Height:	29.00	feet
Exposure Category:	C	
Importance Classification:	IV	

Design Wind Pressure — ASCE 7-22 ASD

Basic Velocity Pressure:	23.86	psf
Horizontal Design Pressure:	43.19	psf

ES-1 Fascia Load

Vertical Face Dimension:	7.25	inches
Fascia Design Load:	72.12	psf

ES-1 Tested Fascia System

Product Designation:	MEA-RMF-Fascia725-A40
System Description:	R-Mer Force Fascia 7.25" x 0.040" Aluminum w/ RMEBF-700 Base Frame

Maximum Tested Load:	470	psf
Max. Vertical Face Dim.:	7.25	inches

SECTION 061516 - WOOD ROOF DECKING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes
   1. Solid-sawn, glued-laminated wood roof decking

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.
   1. For preservative-treated wood products, include chemical treatment manufacturer's written instructions for handling, storing, installing, and finishing treated material.

1.3 INFORMATIONAL SUBMITTALS

A. Research/Evaluation Reports: For glued-laminated wood roof decking indicated to be of diaphragm design and construction, from ICC-ES.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Schedule delivery of wood roof decking to avoid extended on-site storage and to avoid delaying the Work.

B. Store materials under cover and protected from weather and contact with damp or wet surfaces. Provide for air circulation within and around stacks and under temporary coverings. Stack wood roof decking with surfaces that are to be exposed in the final Work protected from exposure to sunlight.

PART 2 - PRODUCTS

2.1 WOOD ROOF DECKING, GENERAL

A. General: Comply with DOC PS 20 and with applicable grading rules of inspection agencies certified by ALSC's Board of Review.

2.2 SOLID-SAWN WOOD ROOF DECKING

A. Standard for Solid-Sawn Wood Roof Decking: Comply with AITC 112.

B. Balsam fir, Douglas fir-larch, Douglas fir-larch (North), hem-fir, hem-fir (North), southern pine, spruce pine-fir (North), western hemlock, or western hemlock (North).

C. Southern pine.

D. Roof Decking Nominal Size: 3 by 6.

E. Roof Decking Grade: Select(ed) Decking or Select Dex.

F. Grade Stamps: Factory mark each item with grade stamp of grading agency. Apply grade stamp to surfaces that are not exposed to view.

G. Moisture Content: Provide wood roof decking with 15 percent maximum moisture content at time of dressing.

H. Face Surface: Smooth.

I. Edge Pattern: Vee grooved.

2.3 ACCESSORY MATERIALS

A. Fastener Material: Hot-dip galvanized steel.

B. Sealants: Latex, complying with applicable requirements in Section 079200 "Joint Sealants" and recommended by sealant manufacturer and manufacturer of substrates for intended application.

1. Bostik; Arkema
2. May National Associates, Inc; a subsidiary of Sika Corperation
3. Percora Corporation
4. Permathane; a Holcim brand
5. Tremco Incorporated

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install solid-sawn wood roof decking to comply with AITC 112.

1. Locate end joints for two-span continuous lay-up.

B. Apply joint sealant to seal roof decking at exterior walls at the following locations:

1. Between roof decking and supports located at exterior walls.
2. Between roof decking and exterior walls that butt against underside of roof decking.

3. Between tongues and grooves of roof decking over exterior walls and supports at exterior walls.

3.2 PROTECTION

A. Provide water-resistive barrier over roof decking as the Work progresses to protect roof decking until roofing is applied.

END OF SECTION 061516

SECTION 061800 - GLUED-LAMINATED CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Structural glued-laminated timber.
2. Timber connectors.
3. Factory finishing.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Certificates of Conformance: Issued by a qualified testing and inspecting agency indicating that structural glued-laminated timber complies with requirements in ANSI A190.1.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: An AITC- or APA-EWS-licensed firm.

B. General: Comply with provisions in AITC 111.

C. Individually wrap members using plastic-coated paper covering with water-resistant seams.

PART 2 - PRODUCTS

2.1 STRUCTURAL GLUED-LAMINATED TIMBER

A. General: Provide structural glued-laminated timber that complies with ANSI A190.1 and ANSI 117 or research/evaluation reports acceptable to authorities having jurisdiction.

1. Factory mark each piece of structural glued-laminated timber with AITC Quality Mark or APA-EWS trademark. Place mark on surfaces that are not exposed in the completed Work.
2. Provide structural glued-laminated timber made with wet-use adhesive complying with ANSI A190.1.

B. Species and Grades for Structural Glued-Laminated Timber: Southern pine that complies with structural properties shown on the plans.

C. Species and Grades for Beams:

1. Species and Beam Stress Classification: Southern pine, 24F-1.8E, 26F-1.9E, 28F-2.1E.
2. Lay-up: Either balanced or unbalanced.

D. Appearance Grade: Architectural, complying with AITC 110.

2.2 TIMBER CONNECTORS

A. Halfen USA, Inc.

B. Simpson Strong Tie Co., Inc.

C. UPS Structural Connectors

D. Provide bolts, 3/4 inches (19 mm) unless otherwise indicated, complying with ASTM A307, Grade A (ASTM F568M, Property Class 4.6); nuts complying with ASTM A563 (ASTM A563M); and, where indicated, flat washers.

E. Materials: Unless otherwise indicated, fabricate from the following materials:

1. Structural-steel shapes, plates, and flat bars complying with ASTM A36/A36M.
2. Round steel bars complying with ASTM A575, Grade M 1020.
3. Hot-rolled steel sheet complying with ASTM A1011/A1011M, Structural Steel, Type SS, Grade 33.

F. Finish steel assemblies and fasteners with rust-inhibitive primer, 2-mil (0.05-mm) dry film thickness.

G. Hot-dip galvanize steel assemblies and fasteners after fabrication to comply with ASTM A123/A123M or ASTM A153/A153M.

2.3 MISCELLANEOUS MATERIALS

A. End Sealer: Manufacturer's standard, transparent, colorless wood sealer that is effective in retarding the transmission of moisture at cross-grain cuts and is compatible with indicated finish.

B. Penetrating Sealer: Manufacturer's standard, transparent, penetrating wood sealer that is compatible with indicated finish.

2.4 FABRICATION

A. Shop fabricate for connections to greatest extent possible, including cutting to length and drilling bolt holes.

B. Camber: Fabricate horizontal and inclined members of less than 1:1 slope with either circular or parabolic camber equal to 1/500 of span.

C. End-Cut Sealing: Immediately after end cutting each member to final length, apply a saturation coat of end sealer to ends and other cross-cut surfaces, keeping surfaces flood coated for not less than 10 minutes.

D. Seal Coat: After fabricating, sanding, and end-coat sealing, apply a heavy saturation coat of penetrating sealer on surfaces of each unit.

E. Factory Finishing:

1. Water repellent.
2. Film-forming two-coat urethane.
3. Semitransparent stain.
4. Solid-color stain.
5. Paint.
6. Color: Match existing.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Erect structural glued-laminated timber true and plumb and with uniform, close-fitting joints. Provide temporary bracing to maintain lines and levels until permanent supporting members are in place.

1. Handle and temporarily support glued-laminated timber to prevent surface damage, compression, and other effects that might interfere with indicated finish.

B. Cutting: Avoid extra cutting after fabrication. Where field fitting is unavoidable, comply with requirements for shop fabrication.

C. Fit structural glued-laminated timber by cutting and restoring exposed surfaces to match specified surfacing.

1. Predrill for fasteners using timber connectors as templates.
2. Finish exposed surfaces to remove planning or surfacing marks.
3. Coat cross cuts with end sealer.

3.2 ADJUSTING

A. Repair damaged surfaces after completing erection. Replace damaged structural glued-laminated timber if repairs are not approved by Architect.

3.3 PROTECTION

A. Do not remove wrappings on individually wrapped members until they no longer serve a useful purpose, including protection from weather, sunlight, soiling, and damage from work of other trades.

1. Slit underside of wrapping to prevent accumulation of moisture inside the wrapping.

END OF SECTION 061800