



Building 1600 Roof Project
Bid Document
Bid # 2223-11

[Bid specifications](#)

ADVERTISEMENT FOR BIDS

Sealed bids for Building 1600 Roof Project for:

Southwest Wisconsin Technical College

1800 Bronson Blvd.

Fennimore, WI 53809

Will be received by:

Southwest Wisconsin Technical College
Attn: Josh Bedward - Facilities Manager
1800 Bronson Blvd.
Fennimore, WI 53809

UNTIL 1:00 P.M., Thursday, April 6th, 2023, after which they will be opened publicly and read aloud. Bids received after the time set for receipt of bids will not be accepted.

BID SECURITY/BOND in the amount of five percent (5%) of the maximum amount of the Bid must accompany each Bid as described in the Instructions to Bidders in the Project Manual.

The Owner reserves the right to waive irregularities and to reject any or all Bids. No Bid may be withdrawn until 60 days after the time stated for receipt of Bids.

All bidding contractors are required to attend a Mandatory Pre-Bid Meeting to be held **at 10:00 A.M., Friday, March 24th, 2023, at Southwest Tech –Building 400 Rm. #430, 1800 Bronson Blvd, Fennimore, WI 53809.**

To reserve a set of **specifications**, contact Bill at **608-469-4075**. Project Specifications will be distributed at the Mandatory Pre-Bid Meeting.

Table of Contents

Section 001010	Summary of Work.....	4
Section 002513	Prebid Meeting	6
Section 004110.01	Contractor's Qualification Statement	7
Section 004110.02	Bid Form	10-16
Section 007200	General Conditions	17
Section 072200	Roof Deck and Insulation	38
Section 07550	Modified Bituminous Membrane Roofing	46
	Payment And Performance Bond.	33
	Agreement.	68
	Drawing Set & Details.	71

SECTION 00 10 10 - SUMMARY OF WORK

PART 1 – GENERAL

1.0 WORK BY CONTRACTOR

- A. Perform roofing projects to roof areas indicated at the Southwest Wisconsin Technical College.
 - 1. Health Science Center – 1600 Building

PART 2 – PRODUCTS

2.0 SYSTEM CONFIGURATION

Following is a brief description of the materials specified in this project. The actual material descriptions with required performance factors and or characteristics are fully described in the respective sections contained in this specification. Unless otherwise stated, the Contractor will be allowed to furnish only the material that meets or exceeds the standards, performance criteria and subsequent conditions listed in the bid proposal and/or construction plans.

- A. Roof Replacement on Health Science Center (1600 Building) (Base Bid)
 - 1) Recovery board shall be ½” thick high density asphalt impregnated wood fiberboard insulation board mechanically attached.
 - 2) Roof membrane system shall be SA Base and a cap ply of Stress Ply Mineral modified torch cap sheet.
 - 3) Roof flashings are two plies consisting of a base and Mineral surfaced modified bitumen membrane.
 - 4) New 24 ga metal at perimeter edge and projections. No Exposed Flashings
 - 5) All other accessories and as specified in this document.

PART 3 – SCOPE OF WORK

3.0 WORK PERFORMED BY CONTRACTOR

- A. **Base Bid 1-** as shown in the project drawings, remove existing roofing system as specified below and install a new multi-ply roof system that provides a 30 year "watertight" warranty.

Base Bid #1 – New Modified Torch System

1. Remove existing EPDM membrane system exposing the top layer of coverboard.
2. Inspect the existing coverboard and insulation and replace any wet with new to meet the existing height.
3. At parapet walls, add additional wood blocking to reach a minimum of 8” flashing heights.
4. Inspect the drain bowls and repair/replace any failed drain bowls and components at unit cost.
5. Install DensDeck Prime insulation board, mechanically fastened to Metal Deck
6. Prime Recovery Board with SA Primer
7. Install 1 (One) Layer of Self Adhered Base Sheet throughout Field of Roof
8. Install 1 (One) Layer of Torch Applied Mineral Cap Sheet throughout Field of Roof
9. Install 1 (One) Layer of Self Adhered Base Sheet and 1(One) layer of Torch Applied Mineral Cap Sheet for Flashings.
10. Install New 24ga Sheet Metal to Coping Caps, Perimeters, Counter Flashings, etc.
11. Install New Pitch Pockets and Lead Flashings
12. Provide a 30 year manufacturer's warranty.

PART 4 – WORK PERFORMED BY OTHERS

4.0 Work By Owner

- A. Owner will assist in providing contractor for electrical work as deemed necessary.
- B. Owner will assist in providing contractor for plumbing of drains as deemed necessary.

End of section

Alternate #1 – New Modified Flood & Gravel System

1. Remove existing EPDM membrane system exposing the top layer of coverboard.
2. Inspect the existing coverboard and insulation and replace any wet with new to meet the existing height.
3. At parapet walls, add additional wood blocking to reach a minimum of 8” flashing heights.
4. Inspect the drain bowls and repair/replace any failed drain bowls and components at unit cost.
5. Install New 1/2” wood fiber coverboard, mechanically fastened to Metal Deck.
6. Install top layer of 1/2" high density asphalt impregnated wood fiber recovery board set in solid moppings of hot type III asphalt adhesive.
7. Install 2 (Two) plies of HPR GlasFelts in Type III Hot Asphalt.
8. Install 1 (One) Ply of Stress Ply Plus in Type III Hot Asphalt.
9. Flashing Membranes shall consist of 1 (One) Ply of StressBase 80 and 1 (one) Ply of StressPly Plus FR Mineral set in Type III Hot Asphalt.
10. Install the new flood coat and gravel surfacing in Type III Hot Asphalt.
11. Install new 24ga. Prefinished sheet metal throughout the perimeter and projections as shown in the detailed drawings and as specified. Maximum allowable face is 8”. All sheet metal must extend down to the field of the roof. **NO EXPOSED FLASHINGS ALLOWED.**
12. Provide a 30 year manufacturer's warranty.

SECTION 00 25 13 – PRE-BID MEETING

PART 1 – GENERAL

Pre-Bid Meeting- Bidders are required to attend a Pre-bid Meeting convened by the Owner's Representative to discuss the specified project.

Time: 10:00 A.M. (Central Time)

Date: Friday, March 24th, 2023,

Meeting Location: Southwest Wisconsin Technical College
Building 400, Room 430
1800 Bronson Blvd
Fennimore, WI 53809.

SECTION 00 41 10.01 –CONTRACTOR'S QUALIFICATION STATEMENT

The undersigned certified that the information provided herein is true and sufficiently complete so as not to be misleading.

Submitted to:
Southwest Wisconsin Technical College
Bid #2223-11
1800 Bronson Blvd.
Fennimore, WI 53809

Submitted by (Firm Name): _____

Address: _____

Principal Office Location: _____

Qualification Statement Submitted for – 1600 Building Roofing Project.

Our company is qualified and approved by the specified manufacturer to install the specified roofing system.

Print Name and Title _____

Signature _____

Contractor Information

Please provide the following information concerning your organization:

Type of Entity:

Corporation _____

Partnership _____

Individual _____

Other _____

Name of Principal, Owners or Partners and years of service

Has the organization been under current ownership for the minimum of 5 years required for this project? _____

Number of years this organization has been in business _____

Have members of this organization operated under former names/businesses?

Yes _____ No _____ Please list them

Insurance and Bonds

Please list names of current insurance carrier:

Please list names of bonding company/agent utilized for projects constructed during the last five years:

Claims and Suits

Has your organization ever failed to complete any construction work it has been awarded? Yes _____ No _____

Within the last five years, has any officer or principal of your organization ever been an officer or principal of another organization when it failed to complete a construction contract? (If the answer is yes, please describe in full.) Yes _____ No _____

Has there been in the last ten years, or is there now pending or threatened, any litigation, arbitration, investigation, or governmental or regulatory proceeding involving claims in excess of \$100,000 or requesting a declaratory judgment or injunctive relief with respect to the construction or operation of any building which your firm, its principals, predecessors or affiliates constructed? Yes____No____

Are all city, county, state and Federal taxes of any type, including real estate, FICA and Workmen's Compensation paid to date? Yes____No____

Is there any potential claim, demand, litigation, arbitration, investigation, governmental proceeding or regulatory proceeding involving your firm, or its principals, predecessors or affiliates? Yes____No____

If the answer to either of the preceding questions is "Yes," please describe in full in an attachment.

In addition to the litigation, arbitration, investigation or governmental or regulatory proceeding referred to in the preceding paragraphs, is there any litigation, arbitration, investigation or governmental or regulatory proceeding now pending or threatened to which your firm is or may be a party, or are you aware of any potential claim or demand, which might otherwise affect the capacity of your firm to perform with respect to your involvement with the Owner, whether or not it concerns other work which you have undertaken? If so, please describe in full. Yes____No____

Bankruptcy

Has your firm, its principals, predecessors, or affiliates been the subject of any proceeding under the federal bankruptcy laws or any other proceedings under state or federal law in which a court or government agency has assumed jurisdiction over any of the assets or business of your firm, its principals, predecessors or affiliates? If so, please identify the proceedings, the court or governmental body and the date such jurisdiction was assumed in an attachment. Yes____No____

I swear that all the information provided in the above submitted Contractor's Qualification Statement is true.

_____(signed) Principle/Owner

Printed Name

Date

SECTION 00 41 10.02 – BID FORM

The Contractor Qualification Statement and Bid Bond-

The Contractor Qualification Statement and Bid Bond of 5% of the project price, **will be submitted in a separate sealed envelope marked-**

**Southwest Wisconsin
Technical College
Bid #2223-11
Bid Bond and Contractor Qualification Statement
1800 Bronson Blvd
Rm 430
Fennimore, WI 53809**

The Contractor Qualification Statement and Bid Bond envelope will be required to be submitted at the same time as the Sealed Project Bid and in a separate envelope from the Bid Form.

The contractor's Bid Bond and Contractor Qualification Statement envelope will be opened prior to the opening and reading of the Contractor's Bid Envelope.

Only bidding contractors that have submitted the Bid Bond and Contractor's Qualification Statement will have their bids opened and recorded.

Owner: Southwest Wisconsin Technical College

Project Title: Building 1600 Roof Project

Bid Data:

Bid Due Date: Thursday, April 6th, 2023; 1:00 p.m. C.S.T

Deliver Bid in a sealed envelope marked.

**Southwest Wisconsin
Technical College**

Bid#2223-11
1800 Bronson Blvd
Rm 430
Fennimore, WI 53809

Bid Opening: Thursday, April 6th, 2023; 1:00 p.m. C.S.T

ACKNOWLEDGEMENT

In preparing and submitting this Bid, the undersigned (Bidder) attests to have carefully examined the Bidding Documents relating to the Work, become acquainted with the site and all other conditions relevant to the Work, and made all evaluations and investigations necessary to achieve a full understanding of any difficulties which may be encountered when performing the Work.

Base Bid 1 – 1600 Building – Health Science Center Roof: New Modified Torch System

The undersigned hereby agrees to furnish all labor, required materials other than the materials listed on the Omnia Partners, Public Sector (U.S. Communities Government Purchasing Alliance) List of Materials, equipment, tools, delivery charges, taxes, permits, services, bonds, and all other things necessary or appropriate to effect the proper and complete execution of the Project Work for the lump sum of:

A. _____ Dollars \$ _____

The total amount of the materials listed on the Omnia Partners, Public Sector (U.S. Communities) Purchasing List of Materials:

B. _____ Dollars \$ _____

Total Bid (A and B) _____ Dollars \$ _____

The Bidder submits here with a Bid Bond in the amount of Five percent (5%) of the base bid lump sum amount pursuant to, and in accordance with Instructions to Bidders in the Bidding Documents.

The undersigned agrees that in the event the Contract work cannot be completed by the date specified, and the Owner does not grant an extension of the completion date, the work shall be postponed temporarily with the undersigned agreeing to take sole physical and financial responsibility for all efforts required to ensure the premises associated with the work are in a suitable condition, as judged by the Owner, during such postponement of work. The undersigned further agrees to hold harmless the Owner for physical and financial responsibilities required to resume work after such postponement and agrees that the Owner will permit work to resume only during that time allotted by the Owner.

The undersigned agrees that if he is the successful Bidder, to enter into an agreement (Contract) with the Owner in accordance with the conditions and requirements set forth in the Instructions to Bidders in the Bidding Documents.

UNIT PRICE SCHEDULE

The undersigned submits herein a cost breakdown for additional or extra work that may be required in addition to the base bids. This is to set forth the unit costs of extra work or the deletion of work:

1. Replacing deteriorated rough carpentry where required:

2 X 4	\$_____per linear foot
2 X 6	\$_____per linear foot
2 X 8	\$_____per linear foot
2. Spot replacement of Wet Insulation	\$_____per board foot

3. Replacing wood blocking \$_____per ten (10) board ft

4. Replacing damaged/broken drain bowl collar \$_____per drain ring.

5. Replacing damaged/broken drain bowls (connection/disconnection by others). \$_____per drain

ADDENDA

The undersigned hereby acknowledges receipt of the following addenda which shall become part of the Contract Documents:

Addendum Number (1) Dated_____

Addendum Number (2) Dated_____

Authorized Company Signature_____

Company _____

Omnia Partners, Public Sector List of Materials

To Be Submitted with Building 1600 Roof Project Bid Form

It is the intent of Southwest Wisconsin Technical College to purchase materials for the 2023 Health Science Center Roof Project, Specification located in Fennimore, WI at locations specified in the project documents, in the county of Grant in the state of Wisconsin directly from Garland/DBS, Inc., based upon the Agency's participation in the OMNIA Partners, Public Sector (U.S. Communities) Program for Roofing Supplies and Services, Waterproofing and related Products and Services as prices and awarded to Garland/DBS, Inc., resulting from the competitively solicited Invitation for Bid #PW1925 issued by Racine County, Wisconsin.

As a bidder on the Project, you are required to fill in your order quantities for the following materials as listed below:

Product #	Product Name	Unit / Size	Coverage Rate	Quantity
4150	SA Base IV	roll	100 sq ft	
4384	StressPly IV Plus Mineral	roll	75 sq ft	
7425-S	SilverFlash	5 gal	2-3 gal/100 sq	
7110-3	Flashing Bond	5 gal	2-3 gal/100 sq	
2135	Tuff Stuff Sealant	Tube		
9322	Garla-Flex	Tube		
2143	Seal Tite- Pitch Pan Sealant	2 gal	6- 6"x6"x2" pans	
SSFS24STD	24 gauge Galvanized Sheet Metal (Standard Color Match)	4'x 10' sheet	Flat Stock - Standard Color	
7630-5	SA Base Primer	5 gal	½ Gal/100 sq.ft.	

PLEASE NOTE:

1. It is the responsibility of the bidder to obtain any product-related information and pricing from the Garland representative prior to bid submission.
2. The bidder takes full responsibility for the material quantities entered above. Any additional materials required to complete the Project, over and above the quantities submitted by the bidder in this addendum, will be billed to the bidder directly and will not be the responsibility of the Agency.
3. Material quantities will be cross-referenced to an expected Project take-off to verify accuracy. Any bids that have material quantities substantially below or above the anticipated requirements for the Project will be rejected unless a detailed explanation is provided.
4. Associated shipping charges for listed materials will bill directly to the bidder.

Owner: Southwest Wisconsin Technical College

Project Title: Building 1600 Roof Project

Bid Data:

Bid Due Date: Thursday, April 6th, 2023; 1:00 p.m. C.S.T

Deliver Bid in a sealed envelope marked.

**Southwest Wisconsin
Technical College**

Bid#2223-11

1800 Bronson Blvd

Rm 430

Fennimore, WI 53809

Bid Opening: Thursday, April 6th, 2023; 1:00 p.m. C.S.T

ACKNOWLEDGEMENT

In preparing and submitting this Bid, the undersigned (Bidder) attests to have carefully examined the Bidding Documents relating to the Work, become acquainted with the site and all other conditions relevant to the Work, and made all evaluations and investigations necessary to achieve a full understanding of any difficulties which may be encountered when performing the Work.

Alternate #1 – 1600 Building – Health Science Center Roof: New Modified Flood & Gravel System

The undersigned hereby agrees to furnish all labor, required materials other than the materials listed on the Omnia Partners, Public Sector (U.S. Communities Government Purchasing Alliance) List of Materials, equipment, tools, delivery charges, taxes, permits, services, bonds, and all other things necessary or appropriate to effect the proper and complete execution of the Project Work for the lump sum of:

C. _____ Dollars \$ _____

The total amount of the materials listed on the Omnia Partners, Public Sector (U.S. Communities) Purchasing List of Materials:

D. _____ Dollars \$ _____

Total Bid (A and B) _____ Dollars \$ _____

The Bidder submits here with a Bid Bond in the amount of Five percent (5%) of the base bid lump sum amount pursuant to, and in accordance with Instructions to Bidders in the Bidding Documents.

The undersigned agrees that in the event the Contract work cannot be completed by the date specified, and the Owner does not grant an extension of the completion date, the work shall be postponed temporarily with the undersigned agreeing to take sole physical and financial responsibility for all efforts required to ensure the premises associated with the work are in a suitable condition, as judged by the Owner, during such postponement of work. The undersigned further agrees to hold harmless the Owner for physical and financial responsibilities required to resume work after such postponement and agrees that the Owner will permit work to resume only during that time allotted by the Owner.

The undersigned agrees that if he is the successful Bidder, to enter into an agreement (Contract) with the Owner in accordance with the conditions and requirements set forth in the Instructions to Bidders in the Bidding Documents.

UNIT PRICE SCHEDULE

The undersigned submits herein a cost breakdown for additional or extra work that may be required in addition to the base bids. This is to set forth the unit costs of extra work or the deletion of work:

6. Replacing deteriorated rough carpentry where required:

2 X 4	\$_____per linear foot
2 X 6	\$_____per linear foot
2 X 8	\$_____per linear foot
7. Spot replacement of Wet Insulation	\$_____per board foot

8. Replacing wood blocking \$_____per ten (10) board ft

9. Replacing damaged/broken drain bowl collar \$_____per drain ring.

10. Replacing damaged/broken drain bowls (connection/disconnection by others). \$_____per drain

ADDENDA

The undersigned hereby acknowledges receipt of the following addenda which shall become part of the Contract Documents:

Addendum Number (1) Dated_____

Addendum Number (2) Dated_____

Authorized Company Signature_____

Company_____

Omnia Partners, Public Sector List of Materials

To Be Submitted with Building 1600 Roof Project Bid Form

It is the intent of Southwest Wisconsin Technical College to purchase materials for the 2023 Health Science Center Roof Project, Specification located in Fennimore, WI at locations specified in the project documents, in the county of Grant in the state of Wisconsin directly from Garland/DBS, Inc., based upon the Agency's participation in the OMNIA Partners, Public Sector (U.S. Communities) Program for Roofing Supplies and Services, Waterproofing and related Products and Services as prices and awarded to Garland/DBS, Inc., resulting from the competitively solicited Invitation for Bid #PW1925 issued by Racine County, Wisconsin.

As a bidder on the Project, you are required to fill in your order quantities for the following materials as listed below:

Product #	Product Name	Unit / Size	Coverage Rate	Quantity
4376	StressPly Plus	roll	100 sq ft	
4411-80	StressBase 80	roll	150 sq ft	
4377	StressPly Plus FR Mineral	roll	75 sq ft	
4122	HPR GlasFelt	roll	500 sq ft	
7425-S	SilverFlash	5 gal	2-3 gal/100 sq	
7110-3	Flashing Bond	5 gal	2-3 gal/100 sq	
2135	Tuff Stuff Sealant	Tube		
9322	Garla-Flex	Tube		
2143	Seal Tite- Pitch Pan Sealant	2 gal	6- 6"x6"x2" pans	
SSFS24STD	24 gauge Galvanized Sheet Metal (Standard Color Match)	4'x 10' sheet	Flat Stock - Standard Color	
4840-6	GarMesh 6" Roll	6" x 150'	75 s. ft./Roll	
7619-5	Garla-Prime VOC	5 gal	.5 gal/sq	

PLEASE NOTE:

1. It is the responsibility of the bidder to obtain any product-related information and pricing from the Garland representative prior to bid submission.
2. The bidder takes full responsibility for the material quantities entered above. Any additional materials required to complete the Project, over and above the quantities submitted by the bidder in this addendum, will be billed to the bidder directly and will not be the responsibility of the Agency.
3. Material quantities will be cross-referenced to an expected Project take-off to verify accuracy. Any bids that have material quantities substantially below or above the anticipated requirements for the Project will be rejected unless a detailed explanation is provided.

4. Associated shipping charges for listed materials will bill directly to the bidder.

SECTION 00 72 00 - GENERAL CONDITIONS

PART 1 — GENERAL

1.1 DEFINITIONS

- A. The contract document consists of the AGREEMENT, the GENERAL CONDITIONS of the contract, the DRAWINGS and the SPECIFICATIONS, including all revisions hereto.
- B. The Owner, the Contractor and the Owner's Representative shall be indicated as such throughout these documents. The term Contractor as used herein shall designate the successful bidder to whom the roof contract is awarded.
- C. The term Owner shall be understood to be Southwest Wisconsin Technical College
- D. The term Owner's Representative shall be understood to mean the representative of the primary material manufacturer.

1.2 OWNER'S REPRESENTATIVE STATUS

- A. The Owner's Representative shall have general Rights of Inspection of the work and is the agent of the Owner in all matters pertaining to the work as provided in the Contract Documents. The Owner's Representative has the authority to stop work whenever such stoppage may be necessary to ensure the proper execution of the contract and shall have authority to reject any and all materials, whether worked or unworked, if such materials are not in accordance with the plans and specifications.

1.3 CONDITION OF SITE

- A. The bidders shall visit the site before submitting their bids and determine the field conditions affecting their work. In considering the bids, the Owner will assume that the bidders are aware of all items, pertinent to their work and have made allowance for same in their bids.

1.4 VERIFICATION OF DIMENSIONS AND ELEVATIONS

- A. Dimensions and elevations indicated on the drawings in reference to existing structures or utilities are the best available data obtainable but are not guaranteed by the Owner's Representative and the Owner's Representative will not be responsible for their accuracy. Before bidding on any work dependent upon the data involved, the Contractor shall field check and verify all dimensions, grades, lines, levels, or other conditions of limitations at the site to avoid construction errors. If any work is performed by the Contractor or any of his/her sub-contractors prior to adequate verification or applicable data, any resultant extra cost for adjustment of work as required to conform to existing limitations, shall be assumed by the Contractor without reimbursement or compensation by the Owner.

1.5 PROTECTION OF OWNER'S OPERATIONS

- A.** The Contractor shall erect such barriers, tarpaulins, doors, etc., as may be necessary to protect the Owner's operations while work is in progress. Any such openings that are essential to carrying on the work shall be securely closed by the Contractor when not in use to protect the Owner's operations.

1.6 PROTECTION OF WORK AND PROPERTY

- A.** The Contractor shall maintain adequate protection of all his/her work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. He/she shall provide and maintain at all times any danger signs, guards and/or obstructions necessary to protect the public and his/her workmen from any dangers inherent with or created by the work in progress. He/she shall hold the Owner harmless from any loss arising due to injury or accident to the public or his/her workmen, or from theft of materials stored at the job site. All materials will be stored in locations other than on roof surfaces except as necessary and shall then be placed on plywood or other type of material to protect the roof surface at all times.
- B.** Before starting any work, the Contractor shall protect all grounds, copings, paving and exterior of all buildings where work will be performed.
- C.** In those areas where materials and/or hot asphalt will be raised to the roof area, a protective covering shall be placed from the base of the wall extending up and over the top edge of the roof. This coverage shall be wide enough to assure that the exterior walls do not become stained or soiled during roofing operations.
- D.** Any areas of the building or grounds which have become stained or damaged in any way shall be repaired or replaced by the Contractor prior to the final inspections. The method of repair used must be acceptable to both the Owner and the Owner's Representative.

1.7 MATERIAL STORAGE AND CLEAN-UP

- A.** The Contractor shall keep the premises free from rubbish at all times and shall arrange his/her material storage so as not to interfere with the Owner's operations. At the completion of the job, all the unused material and rubbish shall be removed from the site. The ground shall be raked clean and the building shall be broom cleaned. If the Contractor refuses at any time to remove his/her debris from the premises, or to keep the working area clean, such cleaning will be completed by the Owner and deducted from the balance due the Contractor.
- B.** The Contractor shall also remove drippage of bitumen or adhesive from all walls, windows, floors, ladders and finished surfaces. Failure to do so will result in the work being done by others and the cost shall be deducted from the balance due the Contractor.

- C.** Materials must be delivered with manufacturer's label intact and legible. Labels must be affixed to the outside of the package stating the type of product, name and address of the manufacturer. All materials shall be stored and protected against weather, vandalism, and theft. Any materials found to be damaged or missing shall be replaced by the Contractor at no cost to the Owner.

1.8 INSPECTION OF WORK

- A.** Where the drawings or specifications require the inspection and approval of any work in progress by the Owner's Representative, the Contractor shall give that Representative ample notice to allow for scheduling the inspection, which shall be made promptly to avoid delay of work. If work has progressed without the required inspections or approval by the Representative, it shall be uncovered for inspection at the Contractor's expense.
- B.** Uncovering of work not originally inspected, or uncovering questioned work may be ordered by the Owner's Representative and it shall be done by the Contractor. If examination proves such work to be incorrectly done or not done in accordance with the plans and specifications, the Contractor shall bear all cost of the reexamination. If the work is proven correctly installed, all such expense shall be born by the Owner.

1.9 INSPECTION OF WORK IN PROGRESS AND UPON COMPLETION

- A.** If directed by the Owner's Representative, the Contractor shall cut not more than four (4) cores, of approximately 200 square inches each, from every newly constructed roof area, in order to establish the amount of materials used per square foot, and shall restore all such areas to sound and watertight conditions as prior to the core testing.
- B.** In the event that such core cuts disclose any deficiency in materials, or soundness of construction, the Contractor shall, at his/her own expense, apply additional materials or otherwise correct the deficiencies to the satisfaction of the Owner's Representative.
- C.** Noncompliance with the terms of this specification and ensuing contract can result in either the cancellation of the contract, or complete replacement of the defective areas at the Contractor's expense. In the event of cancellation, the Owner will not be obligated to compensate the Contractor for any work undertaken in a defective manner.
- D.** Damages caused by water infiltration resulting from the failure of the Contractor to secure each day's work in a weather tight manner, will be corrected at the Contractor's expense. Included as damages will be all labor costs incurred by the Owner as a result of such water infiltration.
- E.** The Owner will require the Owner's Representative to examine the work in progress, as well as upon completion, in order to ascertain the extent to which the materials and procedures conform to the requirements of these specifications and to the published instructions of the Manufacturer.

- F.** The authorized Owner's Representative shall be responsible for:
- 1.** Keeping the Owner informed on a periodic basis as to the progress and quality of the work;
 - 2.** Calling to the attention of the Contractor those matters he/she considers to be in violation of the contract requirements;
 - 3.** Reporting to the Owner any failure or refusal of the Contractor to correct unacceptable practices;
 - 4.** Conducting preliminary and subsequent job-site meetings with the Contractor's official job representative;
 - 5.** Supervising the taking of test cuts, and the restoration of such areas;
 - 6.** Rendering any other inspection services which the Owner may designate; and
 - 7.** Certifying, after completion of the work, the extent to which the Contractor has complied with these specifications as well as to the published instructions of the Manufacturing Company.
- G.** The presence and activities of the Owner's Representative shall in no way relieve the Contractor of his/her contractual responsibilities.

1.10 MISCELLANEOUS UTILITIES

- A.** Electrical power will be furnished by the Owner for small tools only. All connections to the electrical system will be furnished by the Contractor.
- B.** Water for concrete, mortar, washing and drinking purposes will be furnished by the Owner. Any connections to the water system shall be completed by the Contractor.
- C.** At the completion of the work, or when the above connections are no longer required, the Contractor shall remove all connections and leave the facilities in a condition at least as satisfactory as prior to the commencement of his/her work.
- D.** Toilet facilities will be provided by the Contractor. The Contractor will be responsible for supplying a portable toilet on the job-site. The Contractor's personnel are not permitted to enter the building without proper authorization from the Owner or Owner's Representative.

1.11 CHANGES OR EXTRA WORK

- A.** The Owner may, without invalidating the original contract, order such changes or additions as may from time to time be deemed desirable. In so doing, the contract price shall be adjusted, as stated below, with all work being done under the conditions of the original contract except for such adjustments in extension of time as may be acceptable to the Owner. The value of such extra work shall be determined in one of the following ways:
 - 1 .** By firm price adjustment;
 - 2 .** By cost plus with a guaranteed maximum;
 - 3 .** By cost with a fixed fee; or
 - 4 .** By unit cost.
- B.** If agreement is reached that the extra cost shall be handled as per methods 2, 3, or 4, the Contractor shall keep and compile a correct amount of the cost together with such vouchers, etc., as may be necessary to substantiate same for presentation to the Owner. The Owner's Representative shall have authority to make minor job changes or additions as may be necessary to expedite the job providing such changes do not involve additional material cost. No major change or addition shall be made except upon receipt by the Contractor of a signed order from the Owner authorizing such a change. No claims for an extra to the contract price shall be valid unless so authorized.
- C.** All work covered by unit prices submitted by the Contractor in his/her proposal must be covered by a written work order. The Owner's Representative will prepare the work order in triplicate covering the quantity of work and the total cost of the work. The work order which will be written at the end of the each day, will be signed by the Owner's Representative and the Contractor's foreman and/or superintendent.

1.12 CORRECTION OF WORK PRIOR TO FINAL PAYMENT

- A.** The Contractor shall promptly remove any work that does not meet the requirements of the plans and specifications or is incorrectly installed or otherwise disapproved by the Owner or the Owner's Representative as failing to meet the intent of the plans and specifications. The Contractor shall promptly replace any such work without expense to the Owner and shall bear the cost of making good all work of other contractors, or the Owner, destroyed or damaged by such removal or replacement.

1.13 CORRECTION OF WORK AFTER FINAL PAYMENT

- A.** The Contractor shall guarantee all materials and workmanship for two (2) years from date of final payment of the contract by the Owner. Any defects which may arise during this

period shall be promptly repaired by the Contractor including any damage done to the Owner's property due to such defects.

1.14 DEDUCTION FOR UNCORRECTED WORK

- A.** If the Owner deems it unacceptable to have the Contractor correct work which has been incorrectly done, a deduction from the contract price shall be agreed upon therefore. Such a deduction from the contract price shall in no way affect the Contractor's responsibility for defects which may occur nor his/her ability for correcting them, and damage caused by them.

1.15 LIENS

- A.** The Contractor shall, if required by the Owner, furnish him/her with a release in full of all liens arising out of this contract or in lieu thereof, and receipts in full for all materials and labor on the job. In either case, the Contractor shall furnish an affidavit that the liens or receipts include all the labor and material for which a lien could be filed. In lieu of the above, the Contractor may at his/her option furnish a bond to indemnify the Owner against all hazard of liens. Neither part nor final payment shall in any way release the Contractor from the above obligation and in the event that part or full payment has been made and any lien remains undischarged, the Contractor shall refund to the Owner the necessary funds to discharge such a lien including all cost and attorney's fees.

1.16 JOB CONDITIONS

- A.** All surfaces to be covered shall be smooth, dry, and free from dirt, debris, and foreign material before any of this work is installed. Pumping equipment shall be located on the ground at a safe distance from building; the location being subject to the approval of the Owner. The Contractor shall be responsible for guarding against fires, and shall provide suitable fire extinguishers conveniently located at the site. Competent operators shall be in attendance at all times equipment is in use. Materials shall be stored neatly in areas designated by the Owner and dispersed so as to present a minimum fire hazard. Loads placed on the roof at any point shall not exceed the safe load for which the roof is designed.
- B.** There is NO SMOKING allowed inside any buildings and the Contractor shall be responsible for enforcement of this job rule at all times with his/her personnel.
- C.** The Contractor should be aware of Owner's property when tearing off the existing roof. This is required for removal of dirt, silt, debris, roof membrane and insulation from the roof surface in order to preserve the ecology, eliminate unsightly conditions and protect building surfaces. Specific locations will be discussed at the pre bid conference.
- D.** Rolled Roofing Materials: All rolled roofing materials must be stored standing on end on a pallet or otherwise raised off of the roof. The materials are to be covered in a proper manner to assure that they will not become wet prior to application. Any materials that

become wet or damaged must be removed from the job-site and replaced at the Contractor's expense.

- E.** Ladders: Any ladders used on this project must be in good condition. The ladder must also be secured at the roof line at all times while in use. All ladders must be O.S.H.A. approved.
- F.** No drugs or alcoholic beverages are permitted on the grounds.
- G.** The Contractor shall place necessary barriers and/or protection around or under all work areas where his/her operations involve risk of injury to plant personnel.
- H.** The Contractor will also protect the building structure from damage in the process of the job. In the event that damage does occur to any property or equipment, or the Owner's work in process, notification must be made within two (2) working days of the incidents to the Owner and Owner's Representative.
- I.** During the progress of the job, if waste material and rubbish are found or damage resulting from the Contractor's operations is found, or the Contractor does not comply with the requirement by keeping the premises free of accumulations and correct the damage, it shall be the Owner's prerogative to hire personnel to do so; and the cost of this work will be deducted from the balance due the Contractor.
- J.** Existing roof top equipment walls, windows, etc. shall be completely protected by masking or other effective methods. Any mastics or asphalt must be cleaned off metal surfaces.
- K.** The Contractor is responsible for protecting all materials from the elements. If any material, such as insulation, becomes wet, it cannot be installed and must be replaced at the Contractor's expense. NOTE: Insulation and rolled roofing materials must be covered with waterproof tarps at the end of each work day. Plastic wrappers supplied by the insulation manufacturer are not acceptable substitutes for tarps. The Owner's Representative will reject any covering method or material which does not adequately protect roofing materials.
- L.** Anyone guilty of willful destruction or unlawful removal of company property will be dismissed from the job and is subject to prosecution by law.
- M.** Any lawns damaged by Contractor vehicles will be restored with a stand of grass at the Contractor's expense. Any damaged pavements will likewise be restored and at the Contractor's expense.

- N.** The Contractor must verify that all materials can be installed to accommodate the building design, pertinent codes and regulations, and the manufacturer's current recommendations.
- O.** The Contractor will ensure that all substrates are clean, dry, sound, smooth, and free of dirt, debris, and other contamination before any materials are supplied.
- P.** Any isolated areas that must be torn off and replaced will be built-up to the height of the existing roof prior to the installation of the new roofing membrane system.

1.17 WORKMANSHIP

- A.** All materials will be securely fastened and placed in a watertight, neat and workmanlike manner. All workmen shall be thoroughly experienced in the particular class or work upon which they are employed. All work shall be done in accordance with these specifications and shall meet the approval of the Owner or Owner's Representative. The Contractor's representative or job supervisor shall have a complete copy of specifications and drawings on the job-site at all times.
- B.** Contractor shall plan and conduct the operations of the work so that each section started on one day is complete and thoroughly protected before the close of work for that day.

1.18 INSULATION

- A.** Insulation shall have accurate dimensional stability so as to properly conform to the surfaces of the roof, cant, curbs, pipes, etc. Joints between boards shall be tight and insulation shall be held back ½" from vertical surfaces and sumps. Insulation shall be protected from the weather at all times. No more insulation shall be laid than can be completely covered with roof materials on the same day. A base sheet shall not be considered as a proper weather barrier.
- B.** Insulation that becomes wet during or after installation shall be removed and replaced with dry insulation. If roofing is in place, the roofing shall be also replaced. All replacing work shall be done at no added cost to the Owner.

1.19 ROOF DECK

- A.** Contractor shall notify the Owner or Owner's Representative of any unforeseen areas of wet insulation. Where the damage is serious and extensive, it will be the Owner's prerogative to authorize removal and replacement of deteriorated roofing, insulation and repair of the vapor barrier, if present. Where damage to the roof deck is found, the Contractor shall furnish the Owner with a unit price for removal and replacement of the damaged deck.

1.20 SAFETY

- A.** Contractor shall conform to requirements as designated by the United States Federal Government (O.S.H.A.). Contractor shall abide by all regulations as outlined in the O.S.H.A. handbook and shall have a handbook on location at all times.
- B.** Contractors hereby acknowledged that they and their workers have undergone Safety Training and shall at all times act in compliance with all NRCA recommended safety compliance rules and regulations.

1.21 INSURANCE

- A.** The following standard indemnity agreement and minimum insurance requirements are incorporated in the Specifications for all work performed by Contractors for the Owner, its affiliated and associated organizations or subsidiaries, hereinafter referred to as Owner.
 - 1.** THE CONTRACTOR AGREES TO INDEMNITY AND SAVE THE OWNER AND OWNER'S REPRESENTATIVE HARMLESS FROM AND AGAINST ANY AND ALL COSTS, LOSS AND EXPENSE, LIABILITY DAMAGES, OR CLAIMS FOR DAMAGES, INCLUDING COST FOR DEFENDING ANY ACTION, ON ACCOUNT OF ANY INJURY TO PERSONS (INCLUDING DEATH) OR DAMAGE TO OR DESTRUCTION OF PROPERTY OF THE OWNER, ARISING OR RESULTING FROM THE WORK PROVIDED FOR OR PERFORMED, OR FROM ANY ACT, OMISSION, OR NEGLIGENCE OF THE CONTRACTOR, SUBCONTRACTOR AND THEIR AGENTS OR EMPLOYEES. THE FOREGOING PROVISIONS SHALL IN NO WAY BE DEEMED RELEASED, WAIVED OR MODIFIED IN ANY RESPECT BY REASON OF ANY INSURANCE OR SURETY PROVIDED BY THE CONTRACTOR.
 - 2.** All sub-contractors are required to file Certificates of Insurance properly completed and signed by an authorized insurance company representative before their work commences on the job or job site. No monies will be paid until the acceptable certificates are on file with the Contractor. Such certificates shall provide that there will be no cancellation, reduction or modification of coverage without thirty (30) days prior written notice to the Contractor. In the event such certificates are not provided to the Contractor prior to commencement of work, Contractor's failure to demand such certificates shall not be deemed a waiver of Subcontractor's requirement to obtain the subject insurance.
 - 3.** The Contractor shall provide and maintain standard fire, extended coverage perils, vandalism and malicious mischief insurance to protect the interest of both the Contractor and the Owner for materials brought into the job or stored on the premises. Such insurance shall be for 100% of the insurable value of the work to be performed including all items of labor and materials incorporated therein,

materials stored at the job-site to be used in completing the work, and such other supplies and equipment incidental to the work as are not owned or rented by the Contractor, the cost of which are included in the direct cost of the work. This insurance shall not cover any tools, derricks, machinery, tar buckets, ladders, engines, workmen's quarters, boilers, pumps, wagons, scaffolds, forms, compressors, shanties, or other items owned or rented by the Contractor, the cost of which is not included in the direct cost of the work.

- 4.** In accordance with Section (1.21), the Contractor and subcontractor(s) shall maintain the following insurance:
 - a.** Workmen's Compensation and Employer's Liability Insurance affording:
 - 1) Protection under the Workmen's Compensation Law of the States in which the work is performed; and
 - 2) Employer's Liability protection subject to a minimum limit of \$100,000.
 - b.** Comprehensive General Liability Insurance in amounts not less than:
 - 1) Personal Injury: \$1,000,000 per person
(including bodily injury) \$1,000,000 per occurrence
 - 2) Property Damage: \$1,000,000 per occurrence
 - c.** Comprehensive Automobile Liability Insurance in the following minimum amounts:
 - 1) Bodily Injury \$1,000,000 per person
\$1,000,000 per occurrence
 - 2) Property Damage \$1,000,000 per occurrence
 - d.** This insurance shall:
 - 1) Include coverage for the liability assumed by the Contractor under this section (section 1.21.A.1) (Indemnity);
 - 2) Includes coverage for:
 - a) Premises, operations and mobile equipment liability.

- b) Completed operations and products liability.
 - c) Contractual liability insuring the obligation assumed by the subcontractor in this agreement.
 - d) Liability which subcontractor may incur as a result of the operations, acts or omissions of subcontractors, suppliers or material men and their agents or employees; and
 - e) Automobile liability including owned, non-owned and hired automobile.
- e. All coverage will be on an occurrence basis and on a form acceptable to the Contractor.
- 1) Include completed operation coverage which is to be kept in force by the Contractor for a period of not less than one year after completion of the work provided for or performed under these specifications;
 - 2) Not be subject to any of the special property damage liability exclusions commonly referred to as the exclusions pertaining to blasting or explosion, collapse or structural damage and underground property;
 - 3) Not be subject to any exclusion of property used by the insured or property in the case, custody or control of the insured or property as to which the insured for any purpose is exercising physical control; and
 - 4) The Certificates of Insurance furnished by the Contractor shall show by specific reference that each of the foregoing items have been provided for.
5. The Certificates of Insurance furnished by the Contractor as evidence of the Insurance maintained by him shall include a clause obligating the Insurer to give the Owner thirty (30) days prior written notice or cancellation of any material change in the insurance
6. The insurance coverage provided for this project shall name the Southwest Wisconsin Technical college, its officer's, its elected officials, employees, agents, and volunteers as additional insured.

1.22 WORK HOURS AND DAYS

- A.** When the Contract is awarded, the Contractor will contact the Owner's Representative to arrange the work schedule and the hours of the day that the workmen may be on the building. The job is to be bid under the assumption that all work will be performed on a straight time basis.

1.23 COMPLIANCE WITH LAWS

- A.** The Contractor shall give notices, pay all fees, permits and comply with all laws, ordinances, rules and regulations bearing on the conduct of work.

1.24 OWNER'S RULES

- A.** The Contractor and all his/her personnel/agent(s) shall abide by all rules created by the Owner. The Contractor must contact the Owner's Representative for specific information regarding the rules governing all operations of the project.
- B.** The Contractor shall properly notify all employees of conditions relating to roof areas with very poor condition and which will be worked on. After such notification, the Contractor must take all necessary precautions to ensure the safety of his/her employees as well as the building personnel.
- C.** THE CONTRACTOR SHALL "HOLD HARMLESS" THE MATERIAL MANUFACTURER, AGAINST ANY LITIGATION ARISING FROM ANY ACCIDENTS DURING THE COURSE OF THE CONTRACT.

1.25 SAFETY AND ECOLOGY

- A.** The Contractor(s) shall conform to the requirements as designated by the United States Federal Governments (e.g., O.S.H.A.).

1.26 ANTI-DISCRIMINATION IN EMPLOYMENT

- A.** Contractors and subcontractors shall not discriminate against any employees or applicant for employment, to be employed in performance of his/her contract, with respect to his/her hire, tenure, terms, conditions or privileges of employment because of his/her race, color, gender, sexual preference, religion, national origin, or ancestry.

PART 2 — INSTRUCTIONS TO BIDDERS

2.1 DIRECT PURCHASE OF MATERIALS

- A.** The Southwest Wisconsin Technical College is using the Omnia Partners, Public Sector program for Roofing Supplies and Services, Waterproofing and Related Products and Services, as priced by and awarded to Garland/DBS, Inc., resulting from the

competitively solicited Invitation For Bid #PW1925 issued by Racine County. The roofing installer is responsible for supplying the right quantity of these roofing materials to complete the Health Science Center 2023 Re Roof Project as detailed in this specification. All materials needed to complete this project that are not listed on the Omnia Government Purchasing List of Materials attachment provided in this specification, but that are required in this specification, must be supplied by the roofing installer and meet stated performance specification listed in this document.

- B.** The contractor is required to submit the Omnia Partners, Public Sector (U.S. Communities) Purchasing List of Materials attachment provided in this specification with their bids in the sealed envelope. The total dollar amounts of the direct purchased materials as detailed by the contractor combined with their project bid will be used as the total project bid price.
- C.** Bids submitted with roof membrane material products submitted as a substitution will be rejected and not read at the bid opening.

2.2 BID OPENINGS

- A.** Bids will be received until Thursday, April 6th, 2023; 1:00 p.m. C.S.T at the 400 Building Rm.430, 1800 Bronson Blvd., Fennimore, WI 53809. The bids will then be opened publicly and read aloud. Notice of award will be made by written correspondence.
- B.** Any Bidder may withdraw his/her bid at any time before the scheduled closing date of the bid by appearing in person or by sending an authorized representative of the Bidder. An appointment should first be scheduled by calling the Owner's Representative. The Bidder or his/her representative shall be asked to sign, in writing that the bid was returned to him/her. After the withdrawal from the contract, the Bidding Contractor may not resubmit them.
- C.** All bids shall include the following in two separate envelopes:
 - Bid Form and Material List
 - Bid Bond

2.3 QUESTIONS

- A.** Technical questions regarding this bid can be directed to: Bill Snow, The Garland Company; 608-469-4075, bsnow@garlandind.com
- B.** If the Contractor feels a conflict exists between what is considered good roofing practice and these specifications, he/she shall state in writing all objections prior to submitting bids.

- C. It is the Contractor's responsibility, during the course of the work, to bring to the attention of the Owner's Representative any defective membrane, insulation or deck discovered which has not been previously identified.

2.4 RESPONSIBILITY FOR MEASUREMENTS AND QUANTITIES

- A. The Bidding Contractors shall be solely responsible for all accuracy of all measurements and for estimating the material quantities required to satisfy these specifications.

2.5 DISCREPANCIES AND ADDENDA

- A. Should a Bidder find any discrepancies in the Drawings and Specifications, or should he be in doubt as to their meaning, he/she shall notify the Owner's Representative at once, who will send a written Addendum to all Bidders concerned. Oral instructions or decisions, unless confirmed by Addenda, will not be considered valid, legal or binding.
- B. No extras will be authorized because of the Contractor's failure to include work called for in the Addenda in his/her bid.
- C. It shall be the responsibility of all Bidders to call to the Owner's Representative's attention at the pre bid meeting, any discrepancies which may exist between or with any of the contract documents, or any questions which may arise as to their true meaning.
- D. Modifications to the specifications (if necessary) will be followed by an addendum; no verbal discussions or agreements shall be recognized.

2.6 COMPETENCY OF THE BIDDER

- A. To enable the Owner to evaluate the competency and financial responsibility of a Contractor, the low Bidder shall furnish the information indicated in the Contractor's Qualification Statement, which shall be sworn to under oath by him/her or by a properly authorized representative of the Bidder.

2.7 DISQUALIFICATION OF BIDDERS

- A. Any one or more of the following causes may be considered sufficient for the disqualification of a Bidder and the rejection of his/her bid(s):
 - 1. Failure to attend the pre bid meeting;
 - 2. Evidence of collusion among Bidders;
 - 3. Lack of responsibility as revealed by either financial, experience or equipment statements, as submitted;

4. Lack of expertise as shown by past work, and judged from the standpoint of workmanship and performance history;
5. Uncompleted work under other contracts which, in the judgment of the Owner, might hinder or prevent the prompt completion of additional work if awarded; or
6. Being in arrears on existing contracts, in litigation with an Owner, or having defaulted on a previous contract.

2.8 NOTICE OF AWARD

- A. The award of this contract for the work is contingent upon receipt of an acceptable bid. Multiple Base Bids are reviewed as separate independent bids and awarded as such. Any part of or all bids may be rejected. All bids shall be good for a period of sixty (60) days following the date the bids are due. The contract shall be deemed as having been awarded when the formal notice of acceptance of his/her proposal has been duly served upon the intended awardee by an authorized officer or agent of the Owner.

2.9 WARRANTY

- A. A written warranty which will commence from date of acceptance by Manufacturer must be supplied with the roof installation. This warranty will cover all defects in workmanship and materials. Damages caused by storm, vandalism and other trades are not included in the warranty. This warranty shall be from the manufacturer for a period of 30 years.
- B. A five (5) year workmanship warranty is required from the Contractor for all remedial maintenance done under the terms of this contract.

2.10 START AND COMPLETION DATE

- A. Work shall begin within thirty (30) days from the award of this contract, or as agreed upon by the parties.
- B. All work as required in these specifications and drawings shall be completed by September 1, 2023 or within sixty (60) days of the start date.
- C. Unless work is hampered by long periods of inclement weather, by due proof of material unavailability, or by strike, the Owner will assess a penalty in the amount of \$300.00 a day for each day beyond the agreed completion date.
- D. The Contractor is responsible for supplying trained workmen in proper numbers and for scheduling and laying out his/her work, so that it will be started and completed in a professional manner within the time period indicated on his/her Proposal form.

- E.** If the Contractor sets equipment onto the job-site without commencing work immediately, the action will be considered "Spiking the job" which is unacceptable and will be considered a breach of contract by the Contractor; thereby, the contract will be terminated and the Contractor at no cost to the Owner, must remove his/her equipment and possessions from the job-site upon notification by the Owner.

2.11 PAYMENT

- A.** Payment for materials shall only be made after the material has been delivered to the job-site. An invoice for the material must be presented to the Owner for payment. Materials are not to be delivered to the job-site until the project is ready to begin. The Contractor must provide a release of lien from the Material Manufacturer. Subsequent requests for payment can be made monthly. Final payment for the project will be made following completion, after the final inspection has been made and an invoice presented to the Owner. A 10% retainer shall be held until delivery of the warranty.
- B.** When the job in progress is interrupted for two (2) weeks or longer by causes beyond the Contractor's control such as a strike, weather, acts of God, etc., the Owner agrees to pay, upon request of the Contractor, a price equivalent to the percentage of work completed at that time. Regular progress payments shall be made for labor and/or materials.
- C.** Each invoice shall be accompanied by a detailed estimate of the amounts and values of labor expended and materials purchased up to the last day of the preceding month. The amount of the invoice shall not exceed ninety percent (90%) of the labor and material values estimated for the preceding month.
- D.** Such payments shall be viewed by both parties as progress payments and shall not in any way relieve the Contractor of performance obligations under this contract, nor shall such payments be viewed as approval or acceptance of work performed under this contract.
- E.** Final payment shall be withheld until all provisions of the specifications are met, including all necessary clean-up, and the Owner receives written verification of completion.
- F.** Upon completion of the job, the Owner, the Owner's Representative, and the Contractor will make final inspection of the work done, and the Owner's Representative will sign a completion slip authorizing final payments.
- G.** All payments for material used in the execution of this contract can be made by a check issued jointly, payable to the Contractor and Owner's Representative if requested by Owner's Representative.
- H.** If requested by the Owner and/or Owner's Representative, the Contractor shall provide a Letter of Credit from the bank to secure payment to material supplier.

- I.** If requested by the Owner and/or Owner's Representative, a certified check shall be paid by the Contractor to material supplier prior to release of order.
- J.** If requested by the Owner and/or Owner's Representative, a certified check shall be paid by the Contractor to material supplier via common carrier upon receipt of delivery.
- K.** Contractor shall have a pre-approved line of credit from the material supplier.
- L.** Final payment shall be made to the Contractor no later than thirty (30) days after job approval, providing the Contractor submits waivers of lien with his/her final invoice indicating that all suppliers have been paid.

2.12 PERFORMANCE AND PAYMENT BOND

- A.** The successful Contractor will be responsible for securing a performance and payment bond from an acceptable bonding company. The cost of the bond will be paid directly by the Contractor. Contractor has to identify his/her bonding company and agent, submitting this documentation with his/her proposal.
- B.** Financial documentation prescribed by the Owner to ensure that the Contractor is financially sound and capable of supporting the project to its conclusion.
- C.** If the successful Bidder is incorporated, an affidavit authorizing persons to sign for the Corporation. This should be in the form of minutes of the meeting of the Board of Directors, authorizing person or persons to sign for this contract work and indicating a quorum being present.

2.13 TERMINATION BY THE OWNER FOR CAUSE

- A.** The Owner may terminate the contract and finish the work by whatever reasonable method he/she deems expedient if the Contractor:
 - 1.** Persistently or repeatedly refuses to supply specified materials or to provide enough skilled workers to ensure the project will be completed within the time period indicated on his/her Proposal form;
 - 2.** Fails to make payment to sub-contractors and/or suppliers for labor and materials as stipulated in the contract documents; and
 - 3.** Is guilty of substantial breach of a provision of the contract documents.
- B.** When the Owner terminates the contract for any of the above reasons, the Contractor shall not be entitled to receive further payment until the work is finished. If the unpaid balance of the contract sum exceeds the cost of finishing the work, it will be paid to the Contractor. If the cost to finish the work exceeds the unpaid balance, the Contractor shall pay the difference to the Owner.

2.14 COMPLIANCE WITH LAWS

- A.** The Contractor shall give notices, pay all fees, permits and comply with all laws, ordinances, rules and regulations bearing on the conduct of work.

PART 3 — CONTRACTOR'S INSTRUCTIONS

3.1 TAXES

- A.** Contractor must comply with all state, federal and local taxes. The Contractor shall accept sole and exclusive responsibility for any and all state and federal taxes with respect to Social Security, old age benefits, unemployment benefits, withholding taxes and sales taxes.

3.2 CONTRACTOR'S LICENSE

- A.** All pertinent state and local licenses will be required.

3.3 QUALIFICATION OF BIDDERS

- A.** Provide Manufacturer's certification forms.

3.4 BUILDING PERMITS

- A.** The acquisition of the applicable permits and associated costs to obtain said permits will be the responsibility of the successful Contractor.

3.5 JOB COORDINATION

- A.** Contractor is responsible for daily communication with the Owner or Owner's Representative relating to areas of roof work in order that the Owner may adequately protect tenant's personal belongings, and the people themselves against possible damage or injury. Contractor is also responsible for policing and protecting areas involving removal and replacement of roof projections, defective decking or other work involving deck penetration.
- B.** Forty eight hours prior to starting of the project and/or delivery of materials, the Contractor shall notify: Josh Bedward, Facilities Manager/Master Electrician, SWTC 1600 Building (Health Science Center), 608-822-2754

3.6 CLEAN-UP

- A.** Accumulated debris shall be removed periodically to assure maximum safety and sanitation at all times. At completion of work, the Contractor shall remove all excess material and debris from the site and leave all roof surfaces free from accumulations of dirt, debris and other extraneous materials. The Contractor shall also remove any and all drippage of bituminous materials from the face of the buildings, floor, window, ladders and other finished surfaces.

3.7 SUPERINTENDENT

- A.** The Contractor shall keep a competent superintendent, satisfactory to the Owner and Owner's Representative, on the job at all times when work is in progress. The superintendent shall not be changed without notifying the Owner and the Owner's Representative unless the superintendent ceases to be in the employ of the Contractor.
- B.** The superintendent shall represent the Contractor in his/her absence and all directions and instructions given to the superintendent shall be as binding as if given directly to the Contractor.
- C.** The superintendent shall be responsible for the conduct of all the Contractor's employees on the premises and shall promptly take necessary measures to correct any abuses called to his/her attention by the Owner.

3.8 INSPECTIONS

- A.** Before any material applications are made, the Owner or his/her representative and the material supplier representative shall be available to ensure a complete understanding of the specification.
- B.** The accepted Material Manufacturer will have a representative on site a minimum of three (3) times a week to verify compliance with the specifications, answer questions that may arise and provide on-going inspection services.
- C.** A final inspection shall be conducted by Owner, Contractor, and the Owner's Representative upon being notified of completion of specified work and clean-up.

PART 4 — STATEMENT OF POLICY

4.2 GUARANTEES

- A.** A roofing guarantee is available for review from the Material Manufacturer for the roofing systems published in these specifications. The guarantee will be issued only upon completion of all the guarantee requirements by an approved Contractor. Such guarantees cannot be altered or amended, nor may any other warranties, guarantees or representations be made by an agent or employee of the Material Manufacturer unless

such alteration, amendment or additional representation is issued in writing and is signed by a duly authorized officer of the Material Manufacturer and sealed with the Material Manufacturer seal. This guarantee does not cover cosmetic deficiencies. THE MATERIAL MANUFACTURER WILL NOT BE RESPONSIBLE FOR ANY DAMAGES TO THE BUILDING OR ITS CONTENTS OR ANY OTHER CONSEQUENTIAL DAMAGES, AND ITS RESPONSIBILITY IS LIMITED TO REPAIRING LEAKS. The Contractor will warranty the roof to the Material Manufacturer for a period of Five (5) years. The Contractor will inspect the roof with the Owner's Representative 18 months and then annually after completion, and, at the Contractor's expense, correct any workmanship defects before the 60th month following completion of the project.

4.3 APPROVED CONTRACTORS

- A.** The roof systems must be applied only by those contractors who have received approval from the Material Manufacturer for such installations. No guarantees will be issued when installation has been performed by a non-approved contractor.

4.4 ROOFING SEQUENCE

- A.** Phase roofing is not acceptable. Any insulation or base layers laid in any one day must be covered with the properly installed roof system that same day. Failure to do so will void any warranties and no guarantee will be issued for the roofing system.

4.5 ACCEPTABILITY OF COMPLETED WORK

- A.** The acceptability of completed roofing work will be based on its conformance to the contract requirement. The Material Manufacturer is not obligated to accept non-conforming work, and such non-conforming work may be rejected. The rejected work shall be promptly replaced or corrected in a manner and by methods approved by the Material Manufacturer at the Contractor's expense. The Material Manufacturer will instruct the Contractor's foreman and work crew on the proper methods of installation of the roofing system and will follow-up on a regular basis to inspect the work being done. Any deficiencies from the specified work noted by the Material Manufacturer will be immediately reported to the Owner, along with recommended corrective actions necessary. The Material Manufacturer will not act in a supervisory capacity and will not be responsible for the Contractor's errors or omissions.

4.6 ENGINEERING AND ROOF DECK

- A.** The Material Manufacturer nor its representatives, practice engineering nor architecture. It makes no judgments on, and hereby disclaim any responsibility for the soundness of any roof deck or other structural component of buildings upon which its products are applied. Re-roofing and general building structuring require certification from a structural engineer that the structure will support additional weight over the existing.

4.7 ASBESTOS IDENTIFICATION

- A.** The Material Manufacturer routinely conducts roof surveys and inspections in order to provide recommendations and/or specifications for the use of its products. However, the MATERIALS MANUFACTURER IS NOT, NOR ARE ITS REPRESENTATIVES, CERTIFIED TO IDENTIFY, HANDLE OR MONITOR ASBESTOS IN ROOFING, DECKING OR INSULATION. THEREFORE, IT MAKES NO JUDGMENTS ON AND HEREBY DISCLAIMS ANY RESPONSIBILITY FOR IDENTIFYING, HANDLING OR MONITORING ASBESTOS. If a building owner suspects that an asbestos condition exists on or under the roof area in question, Material Manufacturer can recommend licensed laboratories and technicians that can identify, remove, dispose of, and monitor the project.

4.8 ASBESTOS LIMITATIONS

- A.** The Owner has been informed, acknowledges and agrees that Material Manufacturer is not engaged in the business of identifying, abating, encapsulating or removing asbestos or asbestos containing materials from the work site and has not agreed to do so herein.
- B.** IN CONSIDERATION OF THE PROVISION HEREOF, THE OWNER HEREBY AGREES TO INDEMNIFY, DEFEND AND HOLD HARMLESS THE MATERIAL MANUFACTURER, ITS OWNERS, OFFICERS, DIRECTORS, EMPLOYEES AND AGENTS, INCLUDING THE ENGINEER FROM AND AGAINST ANY AND ALL LIABILITIES, DAMAGES, LOSSES AND EXPENSES (INCLUDING BUT NOT LIMITED TO ATTORNEY'S FEES) ARISING OUT OF, OR RELATING TO, ANY CLAIMS, DEMANDS, OR CAUSES OF ACTION OF ANY KIND, ATTRIBUTABLE TO, ARISING OUT OF, OR RELATING TO THE PRESENCE OF ASBESTOS OR ASBESTOS-CONTAINING MATERIALS ON OR AT THE WORK SITE AND/OR THE ABATEMENT, ENCAPSULATION AND/OR THE REMOVAL THEREOF.

4.9 MOLD LIMITATIONS

- A.** The Garland Company makes no representation or warranty, express, implied, or otherwise, regarding mold, fungi, rust, corrosion or other bacteria or organism. Neither shall Garland have any duty to identify, nor accept any responsibility or liability for any claims associated with mold, fungi, rust, corrosion or other bacteria or organism related claims.

END OF SECTION

SECTION 07 22 00 - ROOF DECK AND INSULATION

PART 1 — GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A.** See Section 00 10 10 Summary of Work.

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 Insulating 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 of 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)
- K.** Insulation Board, Thermal (Fiberboard) (FS LLL-1-535B)

1.4 SUBMITTALS

- A.** Provide approval letters from insulation manufacturer for use of their insulation within this particular roofing system type.
- B.** Provide a sample of each insulation type.
- C.** 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 locations, roof slopes, thicknesses, crickets, and saddles.
 - 2.** Shop drawing shall include: Outline of roof, location of drains, complete board layout of tapered insulation components, thickness and the average "R" value for the completed insulation system.
- D.** 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, Underwriters Laboratories, Warnock Hersey or approved third party testing facility in accordance with ASTM E108, Class A for external fire and meets local or nationally recognized building codes.
- C.** 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.** Refer to Division 01 Section "Common Product Requirements."
- B.** Basis of Design: 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. Comply with all manufacturer and contractor/fabricator quality and performance criteria specified in Part 1.

2.2 INSULATION MATERIALS

- A.** Thermal Insulation Properties and Approved Insulation Boards.
 - 1.** Tapered Polyisocyanurate Roof Insulation; ASTM C1289:
 - a.** Qualities: Factory Tapered, closed cell polyisocyanurate foam core bonded to heavy duty glass fiber mat facers.

- b.** Thickness: Minimum 1"
 - c.** Tapered Slope: 1/8 per foot.
 - d.** R-Value: Minimum 6 per inch
 - e.** Compliances: UL, WH or FM listed under Roofing Systems
Federal Specification HH-I-1972, Class 1.
 - f.** Acceptable Products:
 - 1) H-Shield by Hunter
 - 2) Approved Equivalent
- 2.** High Density Fiberboard Roof Insulation; ASTM C208
 - a.** Qualities: Rigid, composed of interlocking fibers factory blended treated with asphalt on the top side.
 - b.** Board Size: Four feet by four feet (4' x 4')
 - c.** Thickness: Minimum .5"
 - d.** Compliances: UL, WH, FM listed under Roofing Systems. Federal Specification LLL-I-535-B.
 - e.** Acceptable Manufacturers:
 - 1) Celotex
 - 2) Temple Inland
 - 3) Approved Equivalent

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.
 - 1.** Acceptable Manufacturers:

- a.** The Garland Company, Inc.
 - b.** Celotex
 - c.** Approved Equivalent
- B.** Protection Board: Premolded semi-rigid asphalt composition board one half (½) inch.
- C.** Roof Board Joint Tape: Six (6) inches wide glass fiber mat with adhesive compatible with insulation board facers.
- D.** Roof Deck Insulation Adhesive: Two component, foam adhesive as recommended by insulation manufacturer and approved by FM indicated ratings.
 - 1.** Tensile Strength (ASTM D412).....250 psi
 - 2.** Density (ASTM D1875) 8.5 lbs./gal.
 - 3.** Viscosity (ASTM D2556)..... 16,000 to 24,000 cP.
 - 4.** 2 `Peel Strength (ASTM D903)17 lb/in.
 - 5.** 3 `Flexibility (ASTM D816).....Pass @ -70°F
- F.** Fasteners: Corrosion resistant screw fastener as recommended by roof membrane manufacturer.
 - 1.** Factory Mutual Tested and Approved with three (3) inches coated disc for 1-90 rating, length required to penetrate metal deck one inch.

PART 3 — EXECUTION

3.1 EXECUTION, GENERAL

- A.** Comply with requirements of Division 01 Section "Common Execution Requirements."

3.2 INSPECTION 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.
8. Verify that temporary roof has been completed.

3.3 INSTALLATION

A. Attachment with Hot Asphalt.

1. Ensure all surfaces are clean, dry, free of dirt, debris, oils, loose ore embedded gravel, unadhered coatings, deteriorated membrane and other contaminants that may inhibit adhesion.
2. Apply hot asphalt in a solid application at a rate of 30 gallons per square.
3. Immediately place insulation boards into hot asphalt. Do not slide boards into place.
4. Briefly step each board into place to ensure contact with the adhesive. Substrates with irregular surfaces may prevent the insulation board from making positive contact with the adhesive. Relief cuts or temporary weights may be required to ensure proper contact.
5. All boards shall be cut and fitted where the roof deck intersects a vertical surface. The boards shall be cut to fit a minimum of one quarter ($\frac{1}{4}$) inch away from the vertical surface.

B. Attachment with Mechanical Fasteners.

1. Approved insulation board shall be fully attached to the deck with an approved mechanical fastening system. As a minimum, the amount of fasteners shall be in accordance with manufacturer's recommendation for FM 1-90 system. Otherwise, a minimum of one fastener per two square feet shall be installed.
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 FM 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. For gypsum and cement-wood fiber decks, penetration shall be determined from pull-out test results with a minimum penetration of one and one-half (1 ½) inches.
5. Gypsum and cementitious wood fiber decks: Where the roof deck is visible from the building interior, the contractor shall ensure no penetration of fasteners through underside of the deck. Any holes or spalling caused by fastener installation shall be repaired by the roofing contractor. Where the new roof system thickness exceeds an amount so that a minimum of 1 ½ of penetration cannot be achieved with an Olympic NTB Fastener, or approved equivalent, then (and only then) toggle bolts may be used to secure installation to the deck.

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 07550
MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Hot Applied 3-Ply Asphalt Roofing StressPly

1.2 RELATED SECTIONS

- A. Section 07220 - Insulation Board: Insulation and fastening.

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 1970 - Specification for Sheet Materials, Self-Adhering Polymer Modified Bituminous, Used as Steep Roofing Underlayment for Ice Dam Protection.
- E. ASTM D 1079 Standard Terminology Relating to Roofing, Waterproofing and Bituminous Materials.
- F. ASTM D 1227 Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.
- G. ASTM D 1863 Standard Specification for Mineral Aggregate Used as a Protective Coating for Roofing.
- H. ASTM D 2178 Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing.
- I. ASTM D 2824 Standard Specification for Aluminum-Pigmented Asphalt Roof Coating.
- J. ASTM D 4586 Standard Specification for Asphalt Roof Cement, Asbestos-Free.
- K. ASTM D 4601 Standard Specification for Asphalt Coated Glass Fiber Base Sheet Used in Roofing.
- L. ASTM D 5147 Standard Test Method for Sampling and Testing Modified Bituminous Sheet Materials.

- M. ASTM D 6162 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.
- N. ASTM D 6163 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.
- O. ASTM D 6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
- P. ASTM D 6754 - Standard Specification for Ketone Ethylene Ester (KEE) Sheet Roofing.
- Q. ASTM D 6757 - Standard Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing.
- R. ASTM E 108 - Standard Test Methods for Fire Test of Roof Coverings
- S. Factory Mutual Research (FM): Roof Assembly Classifications.
- T. National Roofing Contractors Association (NRCA): Roofing and Waterproofing Manual.
- U. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - Architectural Sheet Metal Manual.
- V. Underwriters Laboratories, Inc. (UL): Fire Hazard Classifications.
- W. Warnock Hersey (WH): Fire Hazard Classifications.
- X. ANSI-SPRI ES-1 Wind Design Standard for Edge Systems used with Low Slope Roofing Systems.
- Y. ASCE 7, Minimum Design Loads for Buildings and Other Structures
- Z. UL - Fire Resistance Directory.

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. Underwriters Laboratory 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, Method 2 for Components and Cladding.

- 2) Importance Category:
 - a) I.
 - 3) Importance Factor of:
 - a) 1.0
 - 4) Wind Speed 90 mph
 - 5) Exposure Category:
 - a) B.
 - 6) Design Roof Height: 40 feet.
2. Live Load: 20 psf, or not to exceed original building design.
3. Dead Load:
- a. Installation of new roofing materials shall not exceed the dead load capacity of the existing roof structure.

1.5 SUBMITTALS

- A. 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.
- B. Recycled or Bio-Based Materials: Provide third party certification through UL Environment of roof System membranes containing recycled or bio based materials.
- C. 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.
- D. Manufacturer's Certificates: Provide to certify products meet or exceed specified requirements.
- E. Test Reports: Submit test reports, prepared by an independent testing agency, for all modified bituminous sheet roofing, indicating compliance with ASTM D5147.
- F. 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.
- G. 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 Garland Contractor.
- 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. 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 50 degree F (10 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 System 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 installer, 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 including Garland Metal Components.
 - 1. Warranty Period:
 - a. 30 years from date of acceptance. Requires mid period inspection.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Garland Company, Inc. (The); 3800 E. 91st St., Cleveland, OH 44105. ASD. Toll Free: 800-321-9336. Phone: 216-641-7500. Fax: 216-641-0633. Web Site: www.garlandco.com.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.
- C. The Products specified are intended and the Standard of Quality for the products required for this project. If other products are proposed the bidder must disclose in the bid the manufacturer and the products that they intend to use on the Project. If

no manufacturer and products are listed, the bid may be accepted only with the use of products specified.

1. Bidder will not be allowed to change materials after the bid opening date.
2. If alternate products are included in the bid, the products must be equal to or exceed the products specified. Supporting technical data shall be submitted to the Architect/ Owner for approval prior to acceptance.
3. In making a request for substitution, the Bidder/Roofing Contractor represents that it has:
 - a. Personally investigated the proposed product or method, and determined that it is equal or superior in all respects to that specified.
 - b. Will provide the same guarantee for substitution as for the product and method specified.
 - c. Will coordinate installation of accepted substitution in work, making such changes as may be required for work to be completed in all respects.
 - d. Will waive all claims for additional cost related to substitution, which consequently become apparent.
 - e. Cost data is complete and includes all related cost under his/her contract or other contracts, which may be affected by the substitution.
 - f. Will reimburse the Owner for all redesign cost by the Architect for accommodation of the substitution.
4. Architect/ Owner reserves the right to be the final authority on the acceptance or rejection of any or all bids, proposed alternate roofing systems or materials that has met ALL specified requirement criteria.
5. Failure to submit substitution package, or any portion thereof requested, will result in immediate disqualification and consideration for that particular contractors request for manufacturer substitution.

2.2 HOT APPLIED 3-PLY ASPHALT ROOFING - STRESSPLY,

- A. Base (Ply) Sheets: Two ply bonded to the prepared substrate with Interply Adhesive:
 1. HPR GlasFelts
- B. Modified Cap (Ply) Sheet: One ply bonded to the prepared substrate with Interply Adhesive.
 1. StressPly Plus
- C. Interply Adhesive: (1 and 2)
 1. Generic Type III Asphalt:
- D. Flashing Base Ply: One ply bonded to the prepared substrate with Interply Adhesive: except torch sheet.
 1. StressBase 80
- E. Flashing Cap (Ply) Sheet: One ply bonded to the prepared substrate with Interply Adhesive: except torch sheet.
 1. StressPly Plus FR Mineral

- F. Surfacing:
 - 1. Aggregate/Flood Coat
 - a. Hot Asphalt

2.3 ACCESSORIES:

- A. Roof Insulation: In accordance with Section 07220.
- B. Vapor Retarder: HPR Glasfelts, inorganic asphalt impregnated felts conforming to ASTM D 2178, Type IV. Install two fiberglass ply sheets in 25 lbs. (11.3kg) per square of bitumen, shingled uniformly to achieve two plies over the entire prepared substrate. Shingle in direction of slope of roof to shed water on each area of roof.
 - 1. Tensile Strength, ASTM D 2178
 - a. MD 44 lbf/in (7.7 kN/m) XD 44 lbf/in (7.7 kN/m)

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. Fasteners and plates for fastening components mechanically to the substrate shall provide a minimum pull-out capacity of 300 lbs. (136 k) per fastener. Base or ply sheets attached with cap nails require a minimum pullout capacity of 40 lb.

per nail.

7. Prime decks where required, in accordance with requirements and recommendations of the primer and deck manufacturer.

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.
- 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
- D. All slopes greater than 2:12 require back-nailing to prevent slippage of the ply sheets. Use ring or spiral-shank 1 inch cap nails, or screws and plates at a rate of 1 fastener per ply (including the membrane) at each insulation stop. Place insulation stops at 16 ft o.c. for slopes less than 3:12 and 4 feet o.c. for slopes greater than 3:12. On non-insulated systems, nail each ply directly into the deck at the rate specified above. When slope exceeds 2:12, install all plies parallel to the slope (strapping) to facilitate backnailing. Install 4 additional fasteners at the upper edge of the membrane when strapping the plies.

3.4 INSTALLATION HOT APPLIED ROOF SYSTEM

- A. Base/Felt Ply(s): Install base sheet or felt plies in twenty five (25) lbs (11.3kg) per square of bitumen shingled uniformly to achieve one or more plies over the entire prepared substrate. Shingle in direction of slope of roof to shed water on each area of roof. Do not step on base rolls until asphalt has cooled, fish mouths should be cut and patched.
 1. Lap ply sheet ends 8 inches (203 mm). Stagger end laps 2 inches (304mm) minimum.
 2. Install base flashing ply to all perimeter and projection details after membrane application.

3. Extend plies 2 inches beyond top edges of cants at wall and projection bases.
 4. Install base flashing ply to all perimeter and projection details.
 5. Allow the one ply of base sheet to cure at least 30 minutes before installing the modified membrane. However, the modified membrane must be installed the same day as the base plies.
- B. Modified Cap Ply(s): Solidly bond the modified membrane to the base layers with specified material at the rate of 25 to thirty 30 lbs. (11-13kg) per 100 square feet.
1. Roll must push a puddle of hot material in front of it with material slightly visible at all side laps. Use care to eliminate air entrapment under the membrane. Exercise care during application to eliminate air entrapment under the membrane.
 2. Apply pressure to all seams to ensure that the laps are solidly bonded to substrate.
 3. Install subsequent rolls of modified membrane as above with a minimum of 4 inch (101 mm) side laps and 8 inch (203 mm) end laps. Stagger end laps. Apply membrane in the same direction as the previous layers but stagger the laps so they do not coincide with the laps of the base layers.
 4. Apply hot material no more than 5 feet (1.5 m) ahead of each roll being embedded.
 5. Extend membrane 2 inches (50 mm) beyond top edge of all cants in full moppings of the specified hot material.
- 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 or Section 07710. 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 surfaces 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 hot material unless otherwise noted in these specifications. 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 sheet of flashing membrane to the substrate.
 - 5. Seal all vertical laps of flashing membrane with a three-course application of trowel-grade mastic and 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.
- H. Flood Coat/Aggregate:
 - 1. Install after cap sheets and modified flashing, tests, repairs, and corrective actions have been completed and approved.
 - 2. Apply flood coat materials in the quantities recommended by the manufacturer.
 - 3. Uniformly embed aggregate in the flood coat of cold adhesive at a rate recommended by the manufacturer.
 - 4. Aggregate must be dry and placed in a manner required to form a compact, embedded overlay. To aid in embedment, lightly roll aggregate.
- I. Flashing Cap Ply: Install flashing cap sheets by the same application method used for the cap 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.

- J. Surface Coatings: Apply roof coatings in strict conformance with the manufacturer's recommended procedures.
- K. Roof Walkways: Provide walkways in areas indicated on the Drawings.

3.5 CLEANING

- A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.
- B. Remove asphalt markings from finished surfaces.
- C. Repair or replace defaced or disfigured finishes caused by Work of this section.

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 field observations at start-up and at intervals of approximately 30 percent, 60 percent and 90 percent completion. Provide a final inspection upon completion of the Work.
 1. Warranty shall be issued upon manufacturer's acceptance of the installation.
 2. Field observations shall be performed by a Sales Representative employed full-time by the manufacturer and whose primary job description is to assist, inspect and approve membrane installations for the manufacturer.
 3. Provide observation reports from the Sales Representative indicating procedures followed, weather conditions and any discrepancies found during inspection.
 4. Provide a final report from the Sales Representative, certifying that the roofing system has been satisfactorily installed according to the project specifications, approved details and good general roofing practice.

3.8 SCHEDULES

- A. Base (Ply) Sheet:
 - 1. HPR Glasfelt: ASTM D 2178 Type IV, Asphalt saturated fiberglass felt.
 - a. Meets or Exceeds ASTM D 2178 Type IV Performance Criteria.
- B. Thermoplastic/Modified Cap (Ply) Sheet:
 - 1. StressPly Plus: 105 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing membrane incorporating recycled rubber and reinforced with a fiberglass and polyester composite scrim. ASTM D 6162, Type III Grade S
 - 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)
- C. Interply Adhesive:
 - 1. Generic Type III Asphalt: Hot Bitumen, ASTM D 312, Type III steep asphalt having the following characteristics:
 - a. Softening Point 185 deg. F - 205 deg. F
 - b. Flash Point 500 deg. F
 - c. Penetration @ 77 deg. F 15-35 units
 - d. Ductility @ 77 deg. F 2.5 cm
- D. Flashing Base Ply:
 - 1. StressBase 80: 80 mil SBS (Styrene-Butadiene-Styrene) rubber modified roofing base sheet reinforced with a fiberglass scrim, performance requirements according to ASTM D 5147.
 - a. Tensile Strength, ASTM D 5147
 - 1) 2 in/min. @ 0 +/- 3.6 deg. F MD 100 lbf/in XD 100 lbf/in
 - 2) 50 mm/min. @ -17.78 +/- 2 deg. C MD 17.5 kN/m XD 17.5 kN/m
 - b. Tear Strength, ASTM D 5147
 - 1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 110 lbf XD 100 lbf
 - 2) 50 mm/min. @ 23 +/- 2 deg. C MD 489 N XD 444 N
 - c. Elongation at Maximum Tensile, ASTM D 5147
 - 1) 2 in/min. @ 0 +/- 3.6 deg. F MD 4 % XD 4 %
 - 2) 50 mm/min. @ -17.78 +/- 2 deg. C MD 4 % XD 4 %
 - d. Low Temperature Flexibility, ASTM D 5147
 - 1) Passes -40 deg. F (-40 deg. C)
- E. Flashing Ply Adhesive:
 - 1. Generic Type III Asphalt: Hot Bitumen, ASTM D 312, Type III steep asphalt having the following characteristics:
 - a. Softening Point 185 deg. F - 205 deg. F

- b. Flash Point 500 deg. F
- c. Penetration @ 77 deg. F 15-35 units
- d. Ductility @ 77 deg. F 2.5 cm

F. Surfacing:

1. Flood Coat/Aggregate:

- a. Generic Type III Asphalt: Hot Bitumen, ASTM D 312, Type III steep asphalt having the following characteristics:
 - 1) Softening Point 185 deg. F - 205 deg. F
 - 2) Flash Point 500 deg. F
 - 3) Penetration @ 77 deg. F 15-35 units
 - 4) Ductility @ 77 deg. F 2.5 cm
 - 5) Roofing Aggregate: ASTM D 1863
 - a) Slag.
 - b) Pea gravel.
 - c) White spar.

2. Flashing Cap (Ply) Sheet:

- a. StressPly Plus FR Mineral: 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
 - 1) Tensile Strength, ASTM D 5147
 - a) 2 in./min. @ 73.4 +/- 3.6 deg. F MD 310 lbf/in XD 310 lbf/in
 - b) 50 mm/min. @ 23 +/- 2 deg. C MD 54.25 kN/m XD 54.25 kN/m
 - 2) Tear Strength, ASTM D 5147
 - a) 2 in./min. @ 73.4 +/- 3.6 deg. F MD 500 lbf XD 500 lbf
 - b) 50 mm/min. @ 23 +/- 2 deg. C MD 2224 N XD 2224 N
 - 3) Elongation at Maximum Tensile, ASTM D 5147
 - a) 2 in./min. @ 73.4 +/- 3.6 deg. F MD 8% XD 8%
 - b) 50 mm/min. @ 23 +/- 2 deg. C MD 8% XD 8%
 - 4) Low Temperature Flexibility, ASTM D 5147,
Passes -30 deg. F (-34 deg.)

END OF SECTION

SECTION 07550
MODIFIED BITUMINOUS MEMBRANE ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Torch Applied 2 Ply Roofing (2.15)(3.7)
- B. Accessories. (2.19)
- C. Roof Penetration Flashings. (2.20)

1.2 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 1970 - Specification for Sheet Materials, Self-Adhering Polymer Modified Bituminous, Used as Steep Roofing Underlayment for Ice Dam Protection.
- E. ASTM D 1079 Standard Terminology Relating to Roofing, Waterproofing and Bituminous Materials.
- F. ASTM D 1227 Standard Specification for Emulsified Asphalt Used as a Protective Coating for Roofing.
- G. ASTM D 1863 Standard Specification for Mineral Aggregate Used as a Protective Coating for Roofing.
- H. ASTM D 2178 Standard Specification for Asphalt Glass Felt Used in Roofing and Waterproofing.
- I. ASTM D 2824 Standard Specification for Aluminum-Pigmented Asphalt Roof Coating.
- J. ASTM D 4586 Standard Specification for Asphalt Roof Cement, Asbestos-Free.
- K. ASTM D 4601 Standard Specification for Asphalt Coated Glass Fiber Base Sheet Used in Roofing.
- L. ASTM D 5147 Standard Test Method for Sampling and Testing Modified Bituminous Sheet Materials.
- M. ASTM D 6162 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using a Combination of Polyester and Glass Fiber Reinforcements.
- N. ASTM D 6163 Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements.
- O. ASTM D 6164 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Polyester Reinforcements.
- P. ASTM D 6754 - Standard Specification for Ketone Ethylene Ester (KEE) Sheet Roofing.

Q. ASTM D 6757 - Standard Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing.

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

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

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

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

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

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

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

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

Z. UL - Fire Resistance Directory.

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

BB. FBC - Florida Building Code.

CC. Miami-Dade Building Code Compliance - N.O.A. (Notice of Acceptance).

DD. California Title 24 Energy Efficient Standards.

1.3 DESIGN / PERFORMANCE REQUIREMENTS

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

B. Design Requirements:

1. Uniform Wind Uplift Load Capacity

a. Installed roof system shall withstand negative (uplift) design wind loading pressures complying with the attached wind uplift calculations.

1.4 SUBMITTALS

A. 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.

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

C. 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.

1.5 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 Garland Contractor.

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.

1.6 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. Adhesive storage shall be between the range of above 50 degree F (10 degree C) and below 80 degree F (27 degree C). Area of storage shall be constructed for flammable storage.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Garland Company, Inc. (The); 3800 E. 91st St., Cleveland, OH 44105. ASD. Toll Free: 800-321-9336. Phone: 216-641-7500. Fax: 216-641-0633. Web Site: www.garlandco.com.

B. Requests for substitutions will be considered as long as substitutions are submitted to owner's representative for review and approval.

2.2 TORCH APPLIED ROOF SYSTEM

A. Base Self Adhered (Ply) Sheet: One ply, bonded to the prepared substrate with self-adhesive.

B. Modified Cap Torch Adhered (Ply) Sheet: One ply bonded to the prepared substrate with Torch.

C. Interply SA Primer Adhesive: Use over DenDecks Prime Recovery Board

D. Flashing Self Adhered Base Ply: One ply, bonded to the prepared substrate.

E. Flashing Cap Torch Adhered (Ply) Sheet: One ply bonded to the prepared substrate.

F. Flashing Ply SA Primer Adhesive:

2.3 ACCESSORIES:

- A. Roof Insulation: Provide DenDeck Prime, for proper adhesion of the self-adhered base sheet.
- B. Pitch Pocket Sealer - Two part, 100% solids, self-leveling, polyurethane sealant for filling pitch pans as recommended and furnished by the membrane manufacturer.
 - 1. Durometer, ASTM D 2240: 40-50 Shore
 - 2. Elongation, ASTM D 412: 250%
 - 3. Tensile Strength, ASTM D 412: 200 @ 100 mil
- C. Glass Fiber Cant - Glass Cant: Continuous triangular cross Section made of inorganic fibrous glass used as a cant strip.

2.4 ROOF PENETRATION FLASHINGS

- A. Pitch pans, Rain Collar 24 gauge stainless or 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. Liquid Flashing - Tuff-Flash: An asphaltic-polyurethane, low odor, liquid flashing material designed for specialized details unable to be waterproofed with typical modified membrane flashings.
 - 1. Tensile Strength, ASTM D 412: 400 psi
 - 2. Elongation, ASTM D 412: 300%
 - 3. Density @77 deg. F 8.5 lb/gal typical

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. Fill substrate surface voids that are greater than 1/4 inch wide with an acceptable fill material.
 - 2. Roof surface to receive roofing system shall be smooth, clean, free from loose gravel, dirt and debris, dry and structurally sound.
 - 3. Wherever necessary, all surfaces to receive roofing materials shall be power broom and vacuumed to remove debris and loose matter prior to starting work.
 - 4. Do not apply roofing during inclement weather. Do not apply roofing membrane to damp, frozen, dirty, or dusty surfaces.
 - 5. Fasteners and plates for fastening components mechanically to the substrate shall provide a minimum pull-out capacity of 300 lbs. (136 k) per fastener. Base or ply sheets attached with cap nails require a minimum pullout capacity of 40 lb. per nail.
 - 6. Prime decks where required, in accordance with requirements and recommendations of the primer and deck manufacturer.

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.

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

D. All slopes greater than 2:12 require back-nailing to prevent slippage of the ply sheets. Use ring or spiral shank 1 inch cap nails, or screws and plates at a rate of 1 fastener per ply (including the membrane) at each insulation stop. Place insulation stops at 16 ft o.c. for slopes less than 3:12 and 4 feet o.c. for slopes greater than 3:12. On non-insulated systems, nail each ply directly into the deck at the rate specified above. When slope exceeds 2:12 install all plies parallel to the slope (strapping) to facilitate

back nailing. Install 4 additional fasteners at the upper edge of the membrane when strapping the plies.

3.4 INSTALLATION TORCH APPLIED ROOF SYSTEM

A. Base Ply: Prior to installation sweep or blow away any dust, dirt or sand particles, on the surface that could interfere with adhesion.

1. Prime the roof cover board at the recommended coverage rate with SA Primer at a rate of 0.50 gal per 100 sq.ft. Allow the primer to dry before installing the base sheet but it should be tacky for the base sheet application.

2. Start Self Adhered Base Sheet application at the low point of the roof with appropriate roll width to offset side laps 18 inches (457 mm) from side laps of base sheet. Install flush to roof edge if over base sheet, otherwise turn the Self Adhered Base Sheet over the fascia minimum 2 inches (50 mm) and nail 9 inches (230 mm) o.c. At perimeter flashing extend the Self Adhered Base Sheet up a minimum of 8 inches (203 mm). Design so that side laps are against the flow of water.

3. Fold membrane back halfway lengthwise to remove the split release film. Press membrane securely into place and repeat with the opposite half of the membrane. Use a heavy, weighted roller over entire surface of the Self Adhered Base Sheet membrane to secure membrane. Work outwards to eliminate voids. When working with full rolls on large roofs, leave the membrane in position and remove the split release film from underneath the membrane.

4. Overlap side laps of subsequent Self Adhered Base Sheet membrane lengths 4 inches (100 mm) and end laps 8 inches (203 mm). Offset (stagger) end laps minimum 3 feet (0.9 m). Cut end laps at opposing diagonal corners at a 45 degree angle approximately 3 inches (76 mm) from the corners to minimize "T"-seams. Apply a bead or small trowel dab (quarter size) of Mastic at the edge of the angled cut to avoid a capillary.

5. Use of a hand-held hot air gun at joint area prior to rolling membrane to maximize adhesion. Apply a bead of Mastic, at all Self Adhered Base Sheet side and end laps to eliminate a capillary.

6. Use a heavy, weighted roller over the entire surface of Self Adhered Base Sheet to secure it in place and prevent voids, working outward from center of sheet.

7. Repeat the above steps to properly build 2 plies, as specified, of Self Adhered Base Sheet. 8. Don't leave the installed Self Adhered Base Sheet exposed to the weather; cover with Self Adhered Mineral cap sheet the same day.

B. Modified Cap Ply: Prior to installation sweep or blow away any dust, dirt or sand particles, on the Self Adhered Base Sheet that could interfere with adhesion.

1. Install Torch Applied Mineral Cap Sheet starting at the low point of the roof with an appropriate roll width to offset side laps from the underlying membrane a minimum of 18 inches (457 mm). Work with manageable lengths for proper handling. Position with salvage edge release strip at high side of roof. Install in shingle fashion, with no laps against the flow of water.

2. Once positioned, apply pressure and heat to properly secure Cap Sheet to Self-Adhered Base Sheets.

3. Use a heavy, weighted roller over the entire surface of the Torch Applied Mineral Cap Sheet to secure it in place and prevent voids, working outward from the center of the sheet.

4. Cut end laps at opposing diagonal corners at a 45 degree angle approximately 4 inches (100 mm) from the corners to minimize "T" seams. Use Mastic, trowel grade, over the full 8 inch (200 mm) width of each end lap prior to overlapping. Apply a uniform 1/8 to 1/4 inch (3 to 6 mm) troweling of the Mastic the full width of the end laps to the underlying membrane; then install the overlapping sheet.

5. Always apply Mastic the width of any overlap when applying the Self Adhered Mineral Cap Sheet over another mineral surface such as the Self Adhered Mineral Cap Sheet endlap.

6. Install Self Adhered Base Sheet and Self Adhered Mineral Cap Sheet at vertical and other flashing over the already installed Self Adhered Mineral Cap Sheet field plies.

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 in accordance with Garland's recommendations.

D. Wood Blocking, Nailers, and Cant Strips: Provide wood blocking, nailers and cant strips as specified.

E. Metal Work: Provide metal flashings, counter flashings, per specification and drawings.

F. Termination Bar: Provide 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: At all vertical and other flashing details, install Torch Applied Mineral Cap Sheet over the already installed Self Adhered Base ply.

1. Prime the horizontal surface with SA Primer at a rate of 0.5 gal per 100 sq.ft. and allowed to dry.

2. Over installed Torch Applied Mineral field plies apply a 3 foot (0.9 m) wide Self Adhered Base Sheet extending a minimum of 10 inches (254 mm) onto the field of the roof. Apply a uniform 1/8 to 1/4 inch (3 to 6 mm) thick troweling of Mastic, on to the existing Torch Applied Mineral field cap.

3. If adhesion is not sufficient on the laps apply Mastic at a 1/8 to 1/4 inch (3-6 mm) thick to fully seal laps before application of Torch Applied Mineral Cap Sheet.

4. Before installing Torch Applied Mineral flashing ply to mineral surfaced field ply, apply Mastic, wherever the membrane overlaps onto mineral surfacing. Proceed with Torch Applied Mineral cap sheet installation. Apply a 3 foot (0.9 m) wide Torch Applied mineral cap sheet, extending a minimum of 10 inches (254 mm) onto the field of the roof, being sure to cover the base ply.

5. Once the membrane has had a chance to bond, check all laps and joints for full adhesion. If the membrane can be lifted at any area it is not properly adhered. Use a seam probing tool to check for small voids at laps. If necessary, use appropriate hand-held hot air welding tool and seam roller to seal small un-bonded areas.

H. Flashing Cap Ply: Apply as specified for Flashing Base Ply.

3.5 INSTALLATION EDGE TREATMENT AND ROOF PENETRATION FLASHING

A. Metal Edge:

1. Inspect the nailer to assure proper attachment and configuration.
2. Run one ply over the edge. Assure coverage of all wood nailers. Fasten plies with ring shank nails at 8 inches (203 mm) o.c.
3. Install continuous cleat and fasten at 6 inches (152 mm) o.c.
4. Install new metal edge hooked to continuous cleat and set in bed of roof cement. Fasten flange to wood nailer every 3 inches (76 mm) o.c. staggered.
5. Prime metal edge at a rate of 100 square feet per gallon and allow to dry.
6. Strip in flange with base flashing ply covering entire flange in bitumen with 6 inches (152 mm) on to the field of roof. Assure ply laps do not coincide with metal laps.
7. 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.

3.6 CLEANING

A. Clean-up and remove daily from the site all wrappings, empty containers, paper, loose particles and other debris resulting from these operations.

B. Remove asphalt markings from finished surfaces.

C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.7 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.

3.8 FIELD QUALITY CONTROL

A. Inspection: Provide manufacturer's field observations at start-up and at intervals of approximately 30 percent, 60 percent and 90 percent completion. Provide a final inspection upon completion of the Work.

1. Warranty shall be issued upon manufacturer's acceptance of the installation.

2. Field observations shall be performed by a Sales Representative employed full-time by the manufacturer and whose primary job description is to assist, inspect and approve membrane installations for the manufacturer.
3. Provide observation reports from the Sales Representative indicating procedures followed, weather conditions and any discrepancies found during inspection.
4. Provide a final report from the Sales Representative, certifying that the roofing system has been satisfactorily installed according to the project specifications, approved details and good general roofing practice.

3.9 SCHEDULES

A. Base (Ply) Sheet:

1. 120 mil SBS Self Adhered (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 210 lbf/in XD 210 lbf/in
 - 2) 50 mm/min. @ 23 +/- 2 deg. C MD 36.75 kN/m XD 36.75 kN/m
 - b. Tear Strength, ASTM D5147:
 - 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 6% XD 6%
 - 2) 50 mm/min. @ 23 +/- 2 deg. C MD 6% XD 6%

B. Modified Cap (Ply) Sheet:

1. 145 mil mineral surfaced SBS and SIS Torch Applied (Styrene-Butadiene-Styrene and Styrene Isoprene-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 1,000 lbf/in XD 1,000 lbf/in
 - 2) 50 mm/min. @ 23 +/- 2 deg. C MD 175 kN/m XD 175 kN/m
- b. Tear Strength, ASTM D 5147
 - 1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 1,600 lbf XD 1,500 lbf
 - 2) 50 mm/min. @ 23 +/- 2 deg. C MD 7,117.1 N XD 6,672.3 N
- c. Elongation at Maximum Tensile, ASTM D 5147
 - 1) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 16.0% XD 16.0%
 - 2) 50 mm/min. @ 23 +/- 2 deg. C MD 16.0% XD 16.0%

C. Flashing Base Ply:

1. 120 mil SBS Self Adhered (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 210 lbf/in XD 210 lbf/in
 - 2) 50 mm/min. @ 23 +/- 2 deg. C MD 36.75 kN/m XD 36.75 kN/m
 - b. Tear Strength, ASTM D5147:
 - 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 6% XD 6%
 - 2) 50 mm/min. @ 23 +/- 2 deg. C MD 6% XD 6%

D. Flashing Cap (Ply) Sheet:

- a. 145 mil SBS and SIS Torch applied (Styrene-Butadiene-Styrene and Styrene-Isoprene 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 1) Tensile Strength, ASTM D 5147
 - a) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 1,000 lbf/in XD 1,000 lbf/in

- b) 50 mm/min. @ 23 +/- 2 deg. C MD 175 kN/m XD 175 kN/m
- 2) Tear Strength, ASTM D 5147
 - a) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 1,600 lbf XD 1,500 lbf
 - b) 50 mm/min. @ 23 +/- 2 deg. C MD 7,117.1 N XD 6,672.3 N
- 3) Elongation at Maximum Tensile, ASTM D 5147
 - a) 2 in/min. @ 73.4 +/- 3.6 deg. F MD 16.0% XD 16.0%
 - b) 50 mm/min. @ 23 +/- 2 deg. C MD 16.0% XD 16.0%
- 4) Low Temperature Flexibility, ASTM D 5147, Passes -40 deg. F (-40 deg. C)

END OF SECTION

**AGREEMENT
SOUTHWEST WISCONSIN TECHNICAL COLLEGE
2023 HEALTH SCIENCE CENTER ROOF PROJECT**

THIS AGREEMENT, made this _____ day of _____, 2023,
by and between the SOUTHWEST WISCONSIN TECHNICAL COLLEGE, FENNIMORE,
WISCONSIN, hereinafter called "Tech College" and _____
_____ doing business as
(A corporation) (A partnership) (An individual) of the City
of _____, County of _____ and State
of _____, hereinafter called "Contractor".

1. SCOPE

The contractor has made a proposal in writing to the Tech College Board to furnish the material, equipment, labor and everything necessary for the completion of the work herein mentioned for the Tech College, for the unit prices and within the time specified in the Contract Documents and according to the Contract Documents therefore on file in the Business Office and the Tech College has awarded the work to the Contractor according to law.

2. THE CONTRACT DOCUMENTS SHALL INCLUDE:

Summary of Work	Pg. 4
Pre-bid Meeting	Pg. 6
Contractor's Qualification Statement	Pg. 7
Bid Form	Pg. 10
General Conditions	Pg. 17
Roof Deck and Insulation	Pg. 38
Modified Bituminous Membrane Roofing	Pg. 46
Performance and Payment Bonds	Pg. 33
Agreement	Pg. 68
Plan Set	Pg. 71

3. THE CONTRACTOR

Will commence the work required by the CONTRACT DOCUMENTS within ten (10) calendar days after the date of the NOTICE TO PROCEED and will complete the same by the date set forth in the proposal of these CONTRACT DOCUMENTS.

4. THE CONTRACTOR

Agrees to perform all of the WORK described in the CONTRACT DOCUMENTS and comply with the terms therein for the various unit prices as set forth in the Proposal of these CONTRACT DOCUMENTS.

5. THE OWNER

Agrees to pay the CONTRACTOR in the manner and at such times as set forth and in such amounts as required by the CONTRACT DOCUMENTS.

6. THIS AGREEMENT

Shall be binding upon all parties hereto and their respective heirs, executor, administrators, successors, and assigns. IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, the Agreement of which shall be deemed an original on the date first above written.

OWNER:

SOUTHWEST WISCONSIN TECHNICAL COLLEGE, FENNIMORE, WISCONSIN

BY: _____

NAME: _____ Caleb White _____

TITLE: Vice President for Administrative Services

(SEAL)

ATTEST:

BY: _____

NAME: _____ Kelly Kelly _____

TITLE: Director of Fiscal Services/Controller

CONTRACTOR:

BY _____

NAME _____

ADDRESS _____

Subscribed and sworn to before me this

_____ day of _____, 20_____

Notary Public, _____ County

State of _____

My Commission expires _____

(Signature & Seal of Notary Public)

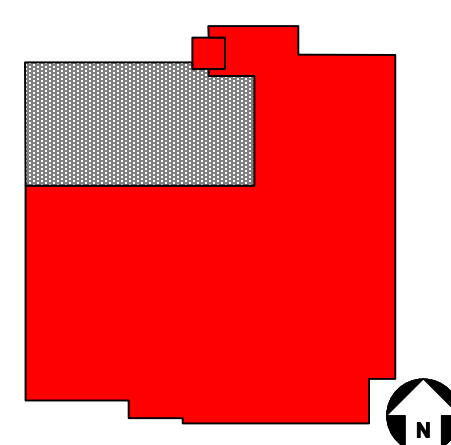
Scope of Work – Base Bid #1

- Tear Off & Preparation** – all bidding contractors are responsible to field measure and verify existing core data as needed to accurately bid the project.
1. Remove the existing roof system down to the top surface of Coverboard. Dispose of all debris in a certified landfill.
 2. Any wet insulation and Coverboard shall be replaced per the unit price found on the bid form. Proper change notice form must be submitted and signed for approval.
 3. At parapet walls, add additional wood blocking to reach a minimum of 8” flashing heights.
 4. Inspect the drain bowls and repair/replace any failed drain bowls and components at unit cost.
 5. Install DensDeck Prime insulation board, mechanically fastened to Metal Deck
 6. Prime Recovery Board with SA Primer
 7. Install 1 (One) Layer of Self Adhered Base Sheet throughout Field of Roof
 8. Install 1 (One) Layer of Torch Applied Mineral Cap Sheet throughout Field of Roof
 9. Install 1 (One) Layer of Self Adhered Base Sheet and 1(One) layer of Torch Applied MineralCap Sheet for Flashings.
 10. Install New 24ga Sheet Metal to Coping Caps, Perimeters, Counter Flashings, etc.
 11. Install New Pitch Pockets and Lead Flashings

PROJECT NOTES:

- All roof penetrations shall have a min. of 8" flashing heights.
- All crickets and saddles shall slope twice the field of the roof.
- All penetrations and perimeters shall receive new 24 ga. Prefinished sheet metal extended down to the field of the roof. **NO EXPOSED FLASHINGS ALLOWED. Owner to approve color.**

Southwest Wisconsin Technical College
1600 Building



N

legend

Details

Roof drain

Roof Curb

Plumbing stack

Scupper

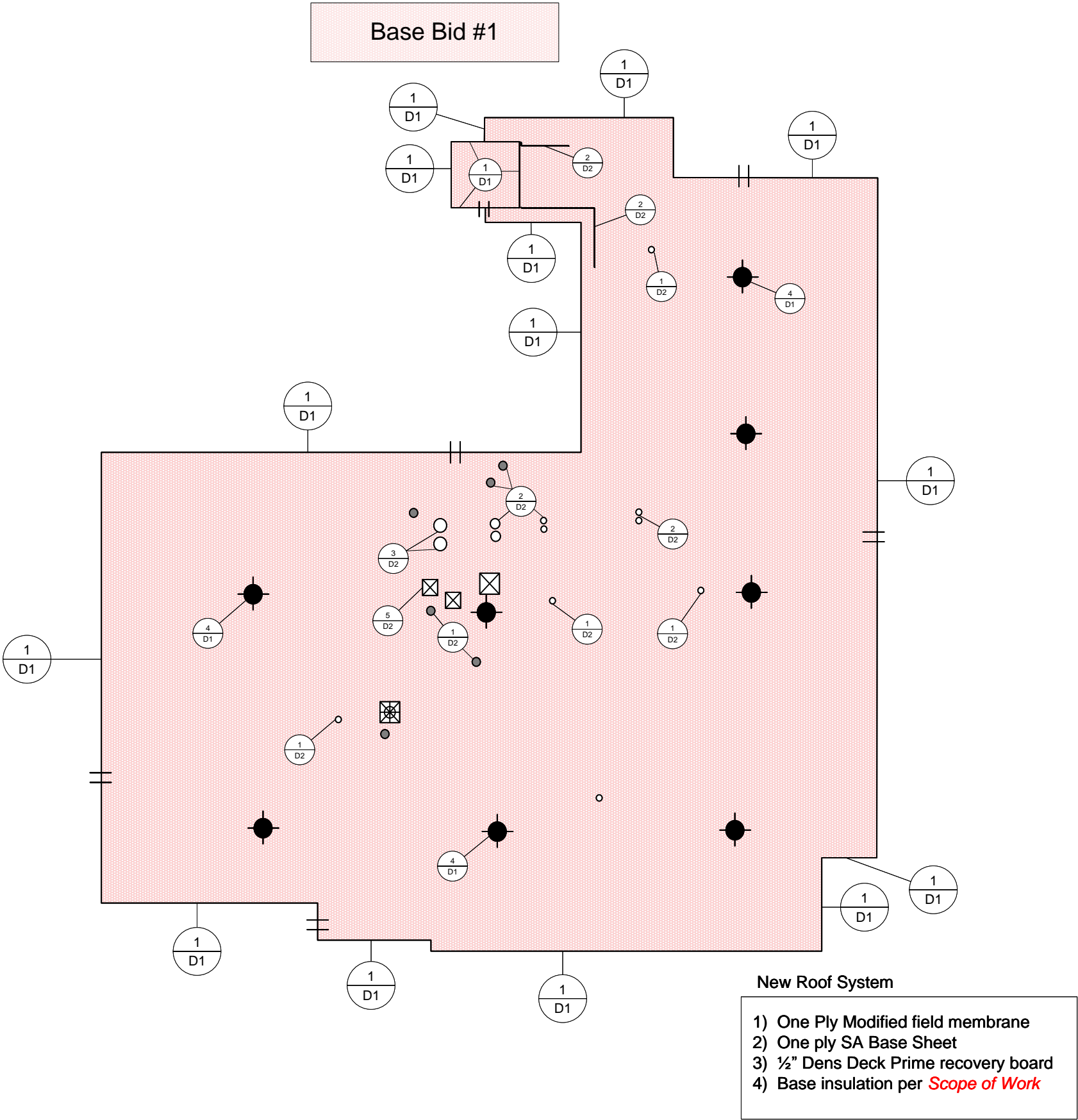
Conduit

Railing

Not In Contract

2023 Roof Replacement Project

Pre-bid Meeting: March 24th, 2023 Bids Due: April 06th, 2023



Project Dates
Start –June 2023
Finish – Aug 2023



THE INFORMATION CONTAINED HEREIN IS OF A PROPRIETARY NATURE AND IS SUBMITTED IN CONFIDENCE FOR USE BY THE CLIENTS APPROVED BY THE ORIGINATOR OF THIS DOCUMENT - ONLY. THE USE OF THESE DOCUMENTS FOR ANY OTHER PROJECTS, PURPOSE, LOCATION, PUBLICATION, REPRODUCTION OR DISTRIBUTION IN WHOLE OR PART, BY ANY INDIVIDUAL OR ORGANIZATION WITHOUT WRITTEN PERMISSION THE ORIGINATING COMPANY IS PROHIBITED. THE INFORMATION HEREIN REMAINS THE PROPERTY AND ITS USE OR DISCLOSURE TO OTHERS IS PROHIBITED FOR ANY USE NOT AUTHORIZED BY THE ORIGINATING COMPANY.

APPROVED
FOR BIDDING

Southwest Wisconsin Technical College
1800 Bronson Blvd, Fennimore, WI 53809

SHEET TITLE:
ROOF PLAN

SHEET NO.
A-1

Scope of Work – Alternate Bid #1

- Tear Off & Preparation** – all bidding contractors are responsible to field measure and verify existing core data as needed to accurately bid the project.
- 1.Remove existing EPDM membrane system exposing the top layer of coverboard.
 - 2.Inspect the existing coverboard and insulation and replace any wet with new to meet the existingheight.
 - 3.At parapet walls, add additional wood blocking to reach a minimum of 8” flashing heights.
 - 4.Inspect the drain bowls and repair/replace any failed drain bowls and components at unit cost.
 - 5.Install New 1/2” wood fiber coverboard, mechanically fastened to Metal Deck.
 - 6.Install top layer of 1/2" high density asphalt impregnated wood fiber recovery board set in solidmoppings of hot type III asphalt adhesive.
 - 7.Install 2 (Two) plies of HPR GlasFelts in Type III Hot Asphalt.
 - 8.Install 1 (One) Ply of Stress Ply Plus in Type III Hot Asphalt.
 - 9.Flashing Membranes shall consist of 1 (One) Ply of StressBase 80 and 1 (one) Ply of StressPlyPlus FR Mineral set in Type III Hot Asphalt.
 - 10.Install the new flood coat and gravel surfacing in Type III Hot Asphalt.
 - 11.Install new 24ga. Prefinished sheet metal throughout the perimeter and projections as shown inthe detailed drawings and as specified. Maximum allowable face is 8”. All sheet metal mustextend down to the field of the roof. **NO EXPOSED FLASHINGS ALLOWED.**

PROJECT NOTES:

- All roof penetrations shall have a min. of 8" flashing heights.
- All Crickets and Saddles shall slope twice the field of the roof.
- All penetrations and perimeters shall receive new 24 ga. Prefinished sheet metal extended down to the field of the roof. **NO EXPOSED FLASHINGS ALLOWED. Owner to approve color.**

Southwest Wisconsin Technical College
1600 Building

legend

- Details
- Roof drain
- Roof Curb
- Plumbing stack
- Scupper
- Conduit
- Railing

Not In Contract

2023 Roof Replacement Project

Pre-bid Meeting: March 24th, 2023

Bids Due: April 06th, 2023

Project Dates
Start –June 2023
Finish – Aug 2023



THE INFORMATION CONTAINED HEREIN IS OF A PROPRIETARY NATURE AND IS SUBMITTED IN CONFIDENCE FOR USE BY THE CLIENTS APPROVED BY THE ORIGINATOR OF THIS DOCUMENT - ONLY. THE USE OF THESE DOCUMENTS FOR ANY OTHER PROJECTS, PURPOSE, LOCATION, PUBLICATION, REPRODUCTION OR DISTRIBUTION IN WHOLE OR PART, BY ANY INDIVIDUAL OR ORGANIZATION WITHOUT WRITTEN PERMISSION THE ORIGINATING COMPANY IS PROHIBITED. THE INFORMATION HEREIN REMAINS THE PROPERTY AND ITS USE OR DISCLOSURE TO OTHERS IS PROHIBITED FOR ANY USE NOT AUTHORIZED BY THE ORIGINATING COMPANY.

APPROVED
FOR BIDDING

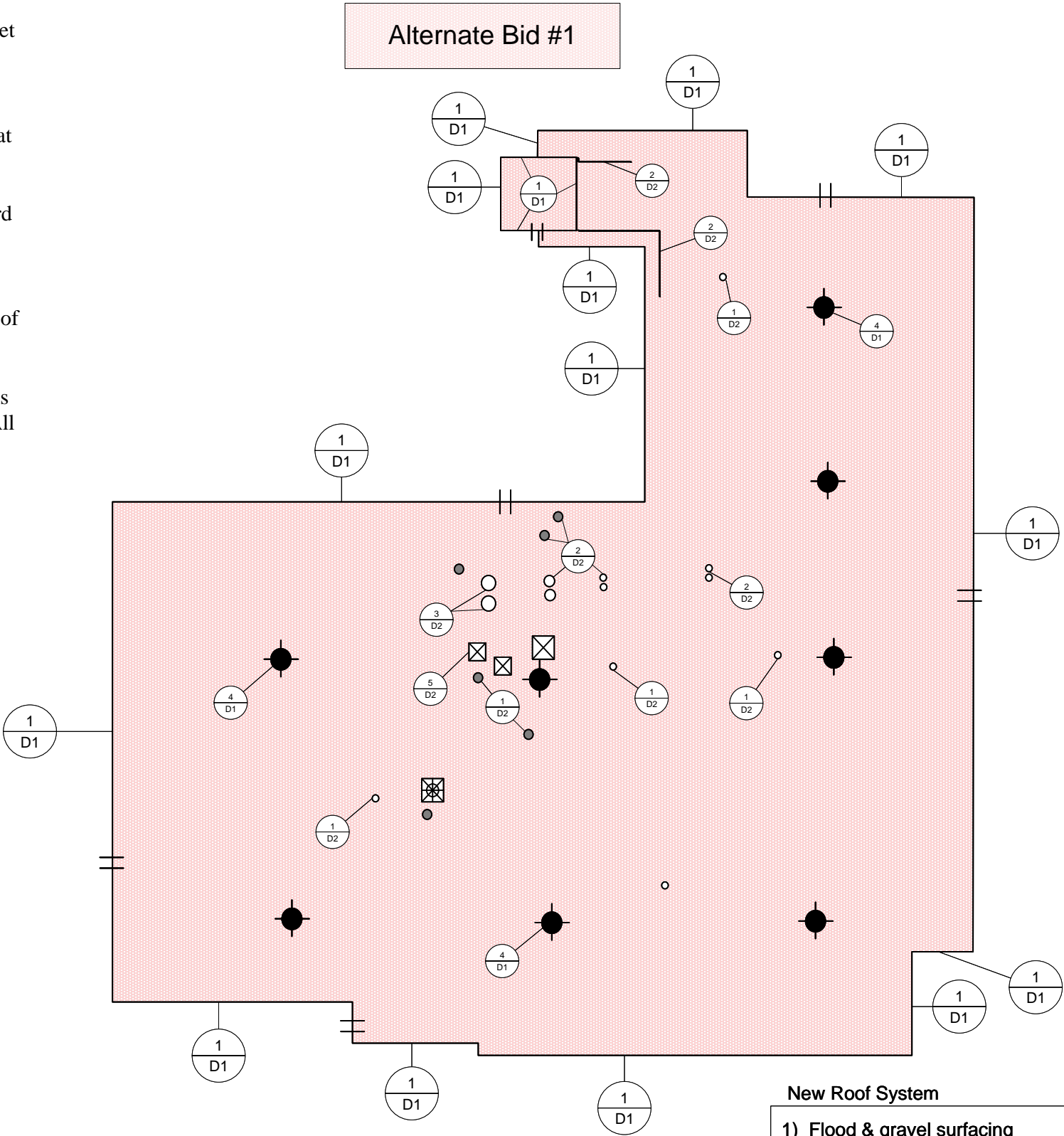
Southwest Wisconsin Technical College
1800 Bronson Blvd, Fennimore, WI 53809

SHEET TITLE:

ROOF
PLAN

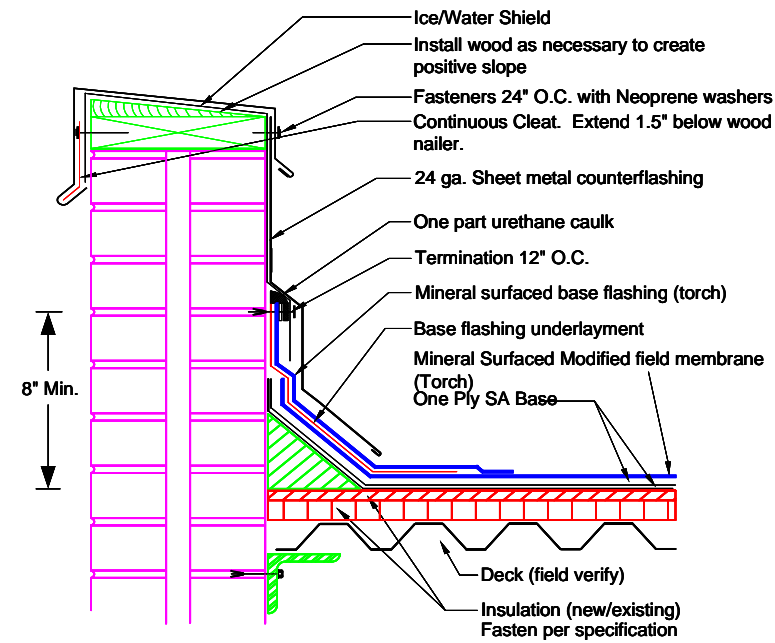
SHEET NO.

A-2

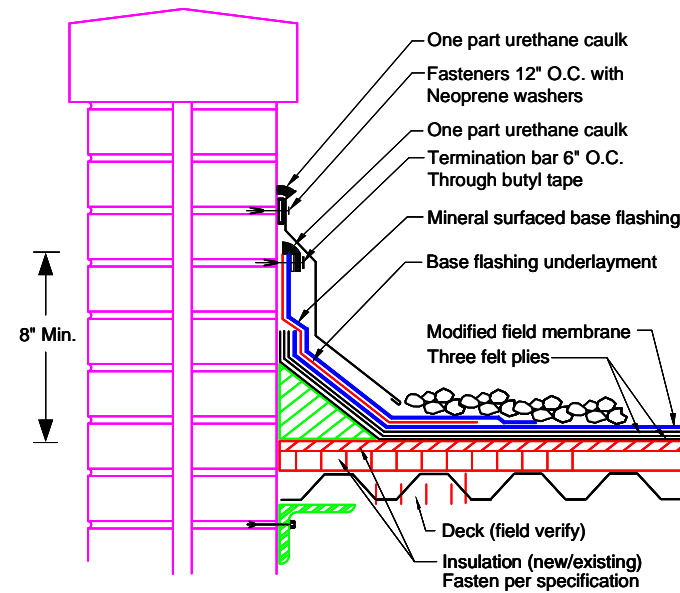


New Roof System

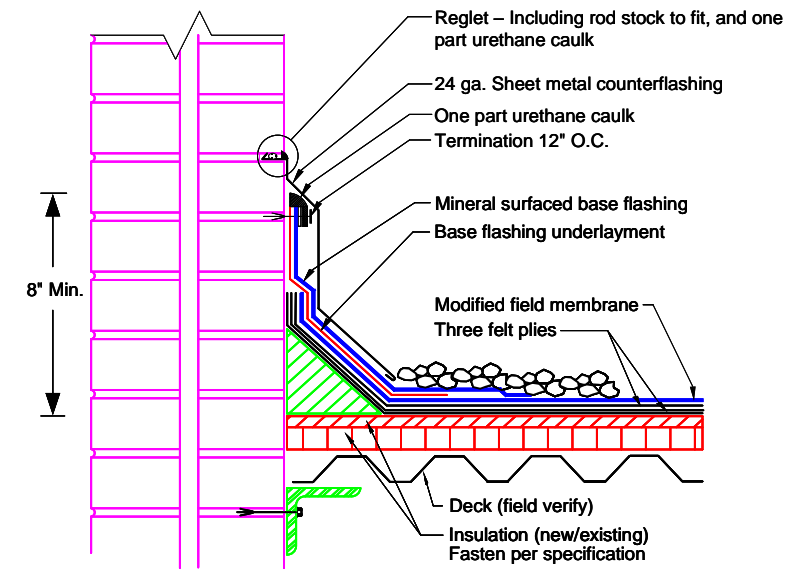
- 1) Flood & gravel surfacing
- 2) Modified field membrane
- 3) Two plies HPR Glasfelts
- 4) 1/2" wood fiber recovery board (2 layers)
- 5) Base insulation per *Scope of Work*



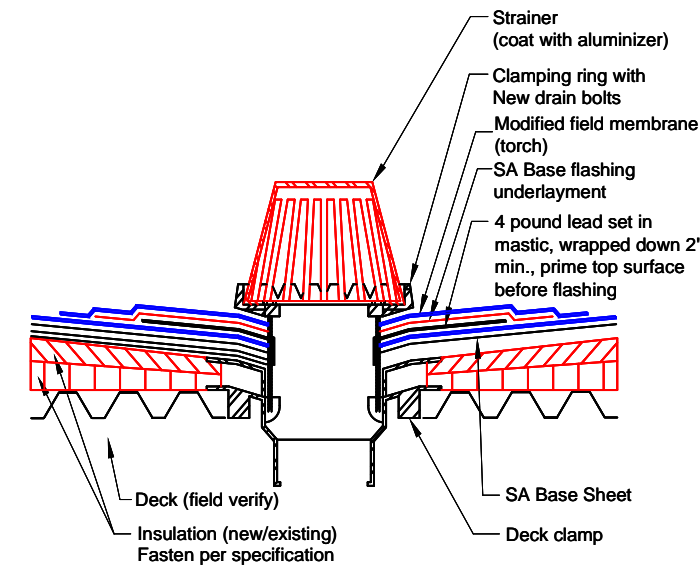
1
D1 Parapet Wall



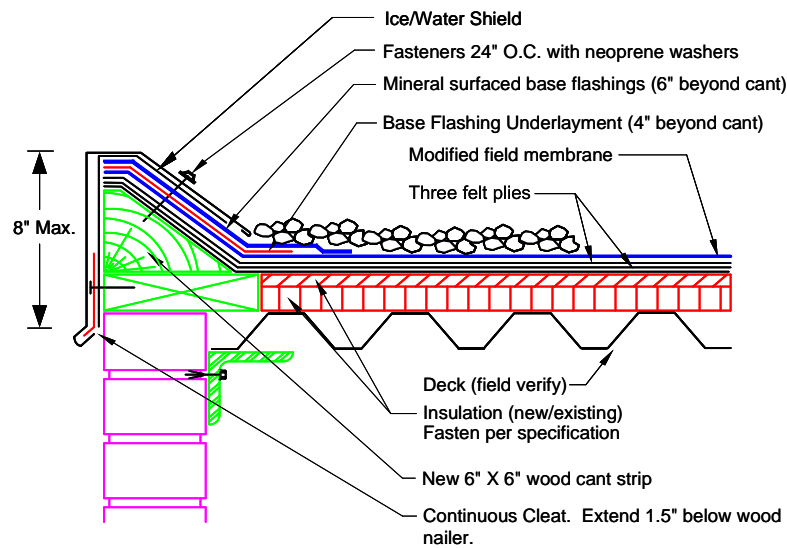
2
D1 Surface Mount



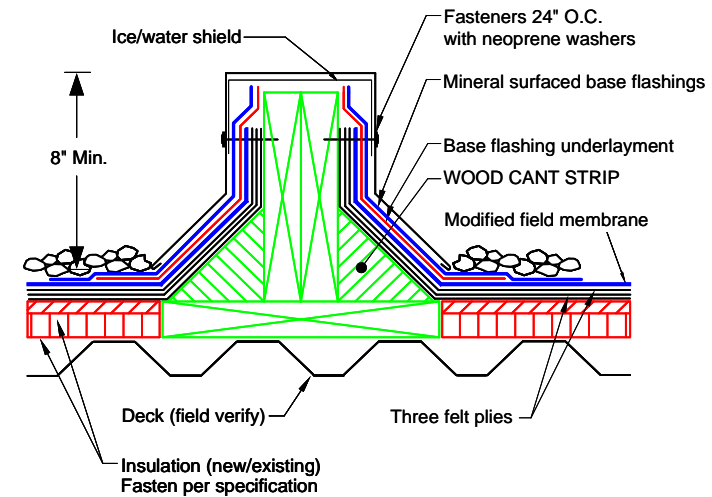
3
D1 Reglet



4
D1 Roof Drain



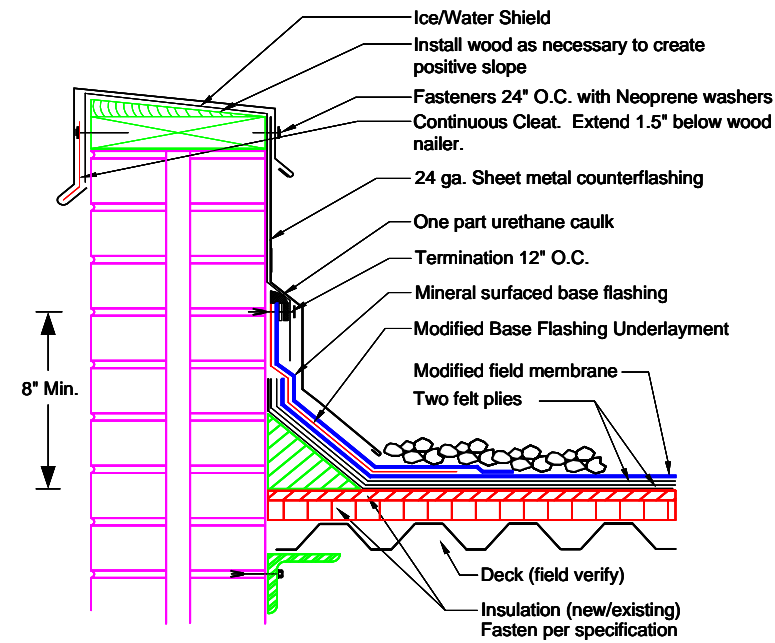
5
D1 Cant Edge



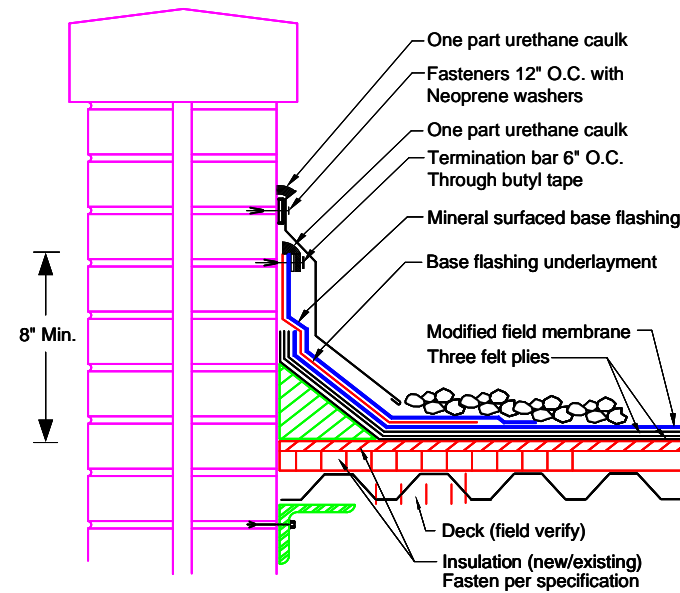
6
D1 Area Divider
Equipment Sleeper (3 or 4 vertical
Nailers. Request approval)

Detail Requirements

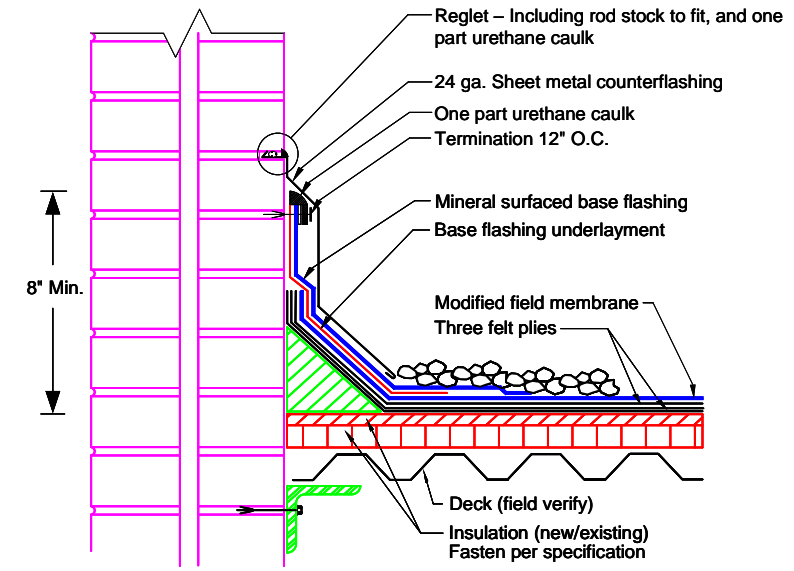
- 1) Details shown are representative of finished details. Contractors shall take into account existing insulation, new insulation, and the new roof system. Wood blocking shall be added to achieve the minimum flashing heights shown.
- 2) All one piece sheet metal fascia is limited to a maximum of 8". Any face metal extending beyond 8" must have two piece metal and two keeper strips.
- 3) Deck types vary between roof areas and buildings. Contractor must verify roof decks and apply details accordingly.
- 4) Base flashing underlayment shall extend Min. 4" beyond the cant, mineral surfaced flashings shall extend Min. 6" beyond the cant.
- 5) All sheet metal counterflashings shall be 24ga. Prefinished (owner to select color) and must extend down to the field of the roof. NO EXPOSED FLASHINGS ALLOWED.



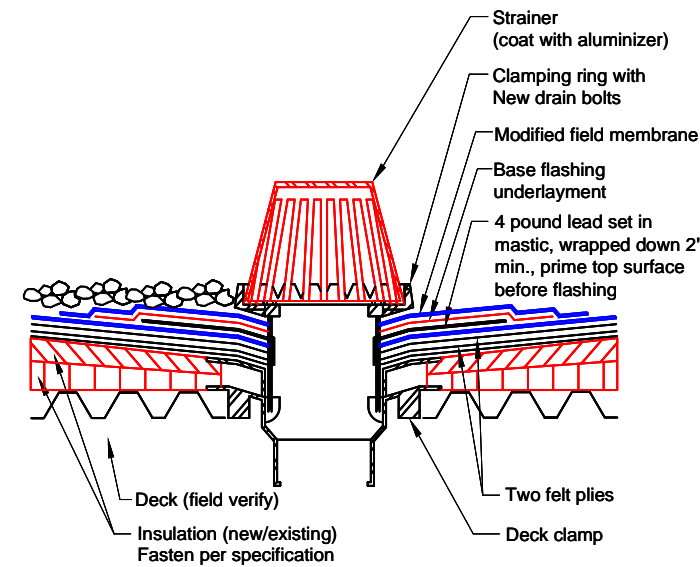
1
D1 Parapet Wall



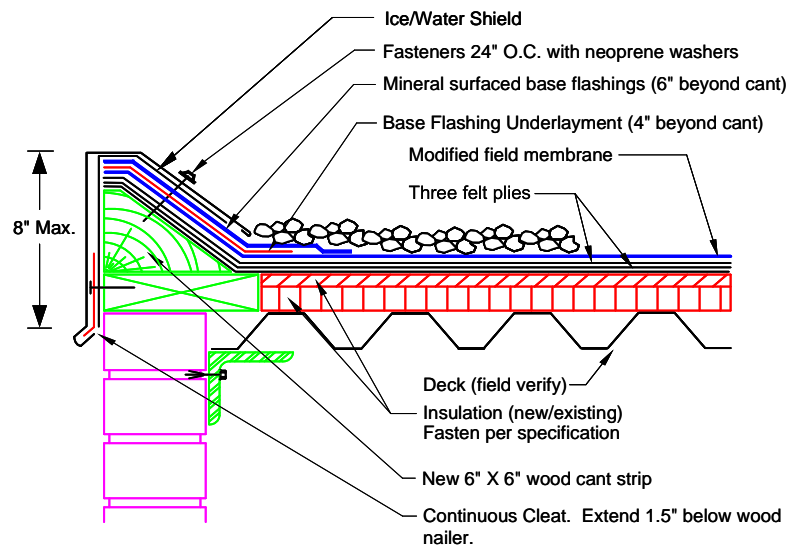
2
D1 Surface Mount



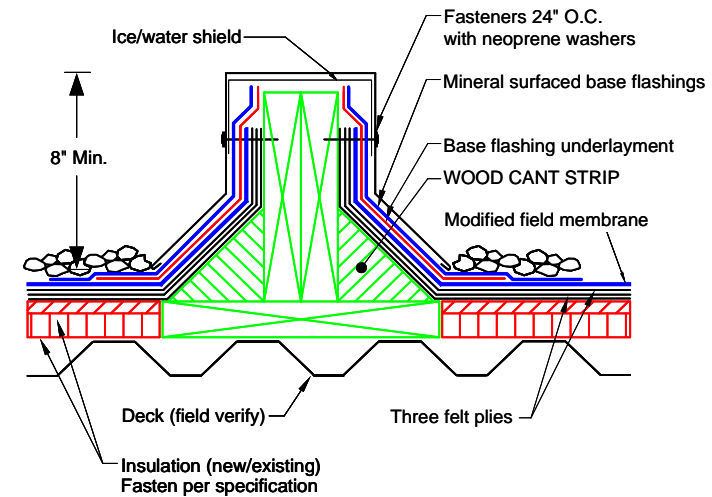
3
D1 Reglet



4
D1 Roof Drain



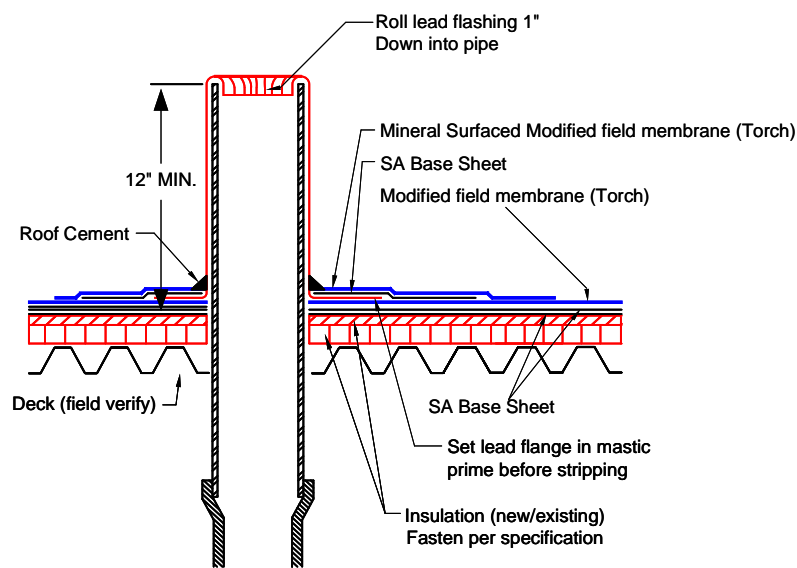
5
D1 Cant Edge



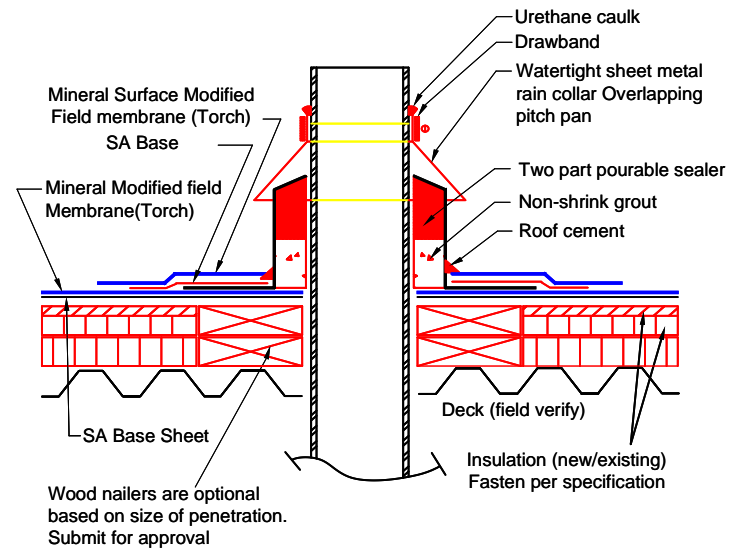
6
D1 Area Divider
Equipment Sleeper (3 or 4 vertical
Nailers. Request approval)

Detail Requirements

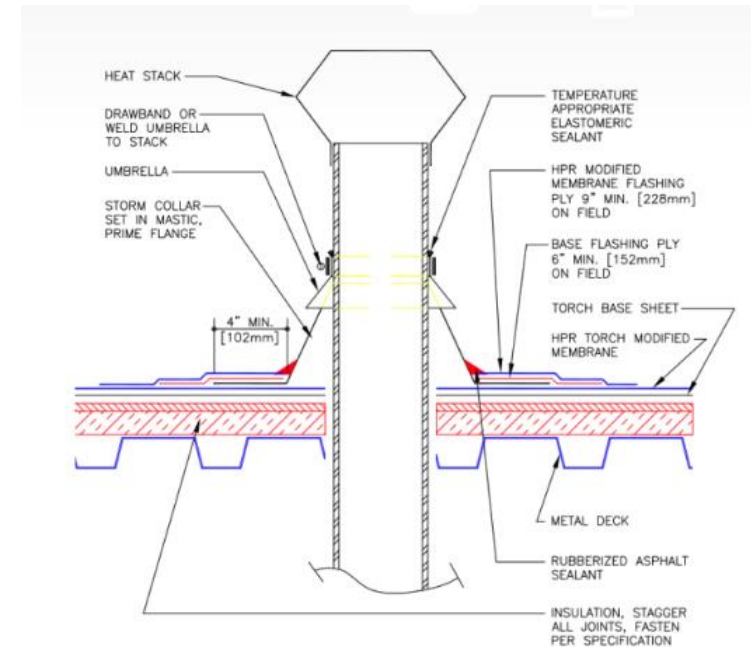
- 1) Details shown are representative of finished details. Contractors shall take into account existing insulation, new insulation, and the new roof system. Wood blocking shall be added to achieve the minimum flashing heights shown.
- 2) All one piece sheet metal fascia is limited to a maximum of 8". Any face metal extending beyond 8" must have two piece metal and two keeper strips.
- 3) Deck types vary between roof areas and buildings. Contractor must verify roof decks and apply details accordingly.
- 4) Base flashing underlayment shall extend Min. 4" beyond the cant, mineral surfaced flashings shall extend Min. 6" beyond the cant.
- 5) All sheet metal counterflashings shall be 24ga. Prefinished (owner to select color) and must extend down to the field of the roof. NO EXPOSED FLASHINGS ALLOWED.



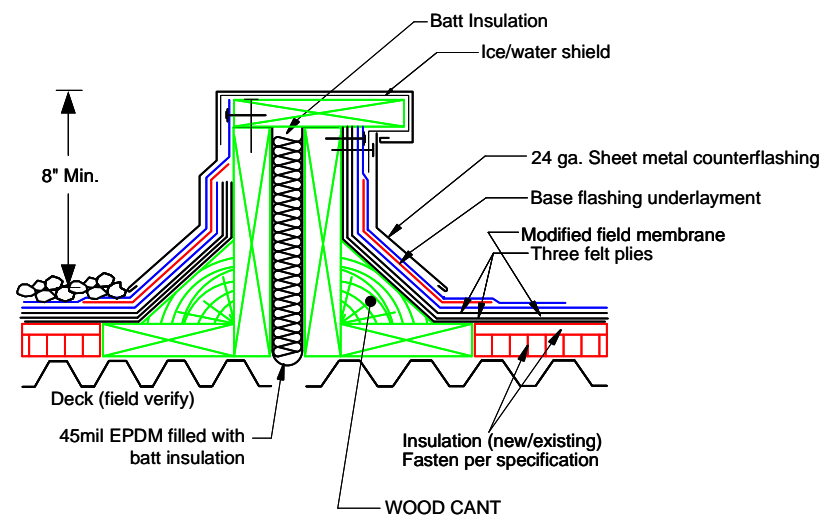
1 Plumbing Stack
D2



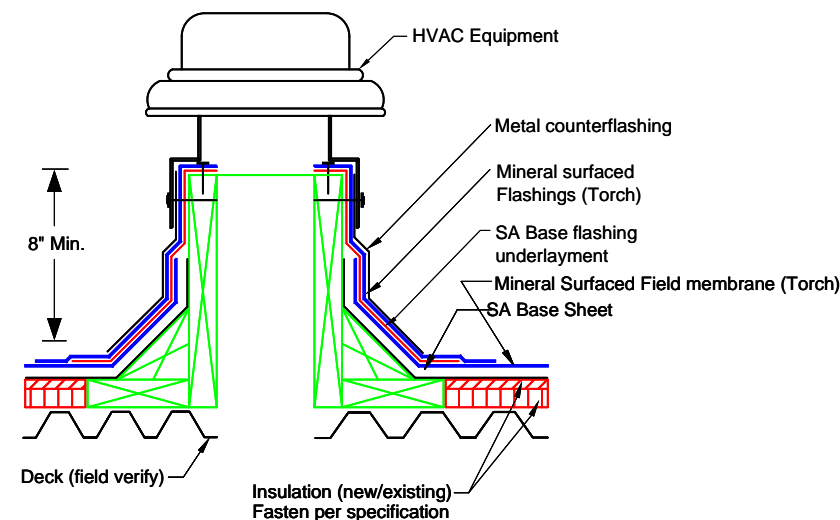
2 Pitch pan with rain collar
D2 All pitch pans require rain collars



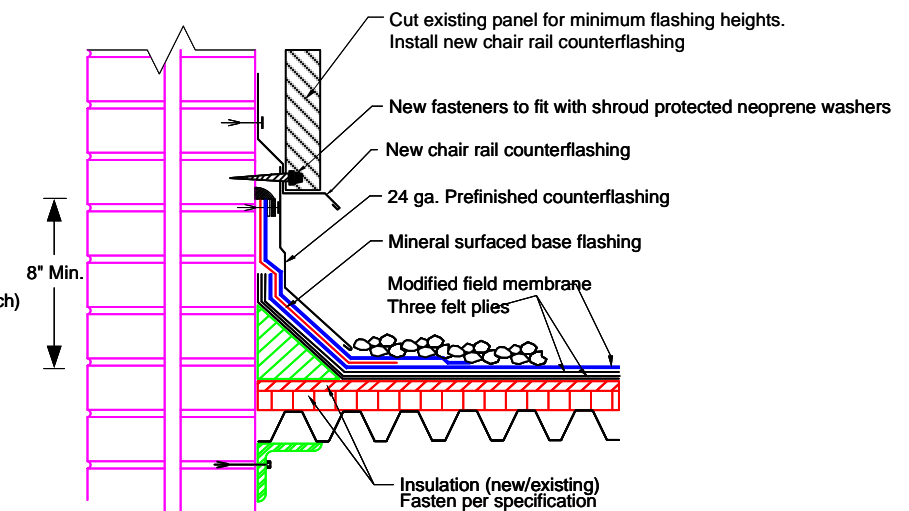
3 Heat Stack
D2



4 Expansion Joint
D2



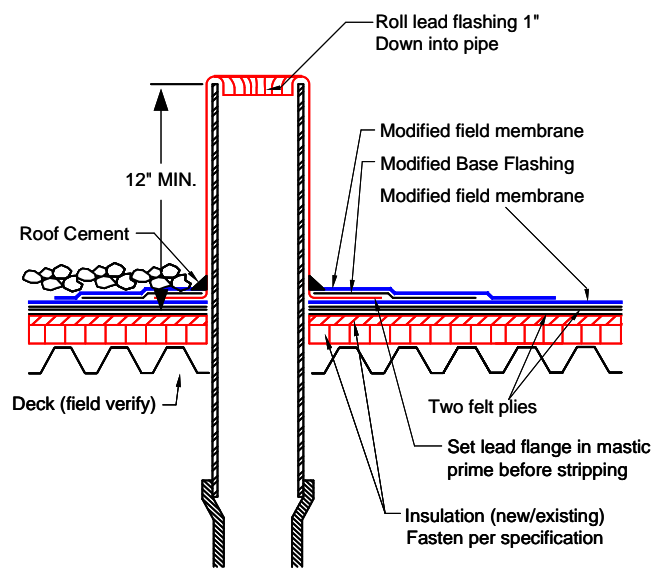
5 Roof Curb
D2



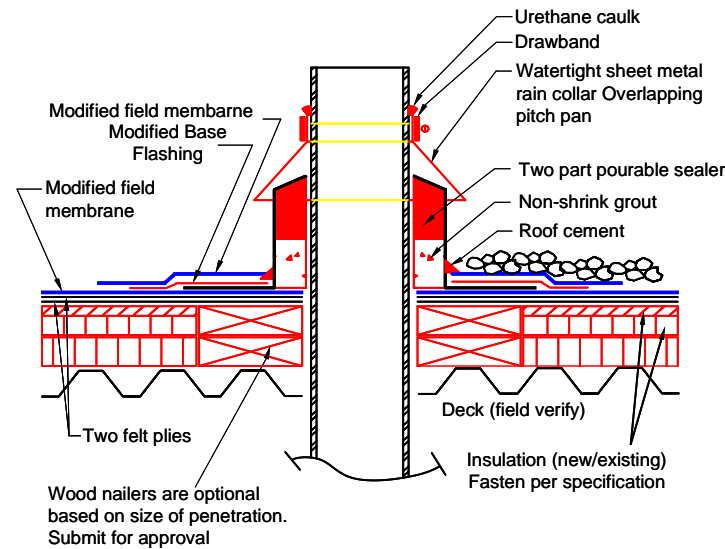
6 Existing Wall Panels
D2

Detail Requirements

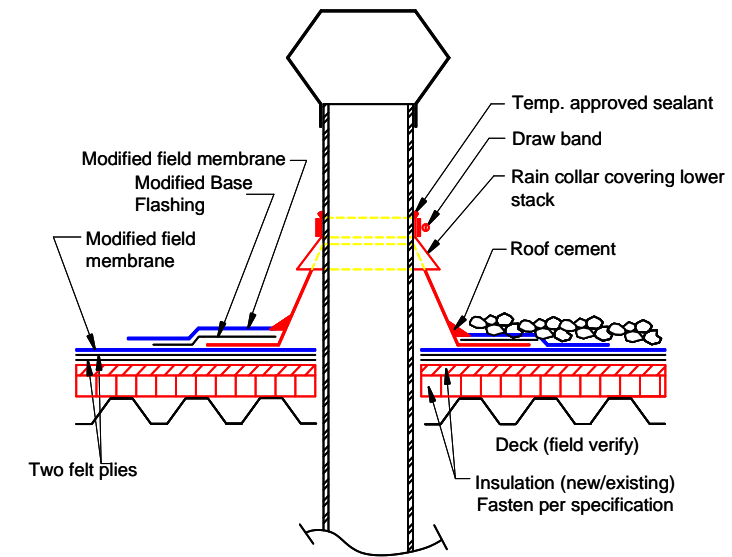
- Details shown are representative of finished details. Contractors shall take into account existing insulation, new insulation, and the new roof system. Wood blocking shall be added to achieve the minimum flashing heights shown.
- All one piece sheet metal fascia is limited to a maximum of 8". Any face metal extending beyond 8" must have two piece metal and two keeper strips.
- Deck types vary between roof areas and buildings. Contractor must verify roof decks and apply details accordingly.
- Base flashing underlayment shall extend Min. 4" beyond the cant, mineral surfaced flashings shall extend Min. 6" beyond the cant.
- All sheet metal counterflashings shall be 24ga. Prefinished (owner to select color) and must extend down to the field of the roof. NO EXPOSED FLASHINGS ALLOWED.



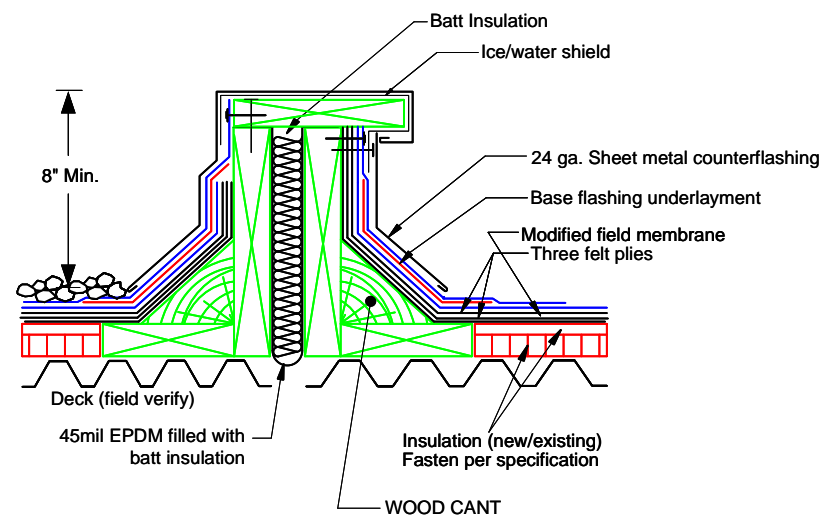
1 Plumbing Stack
D2



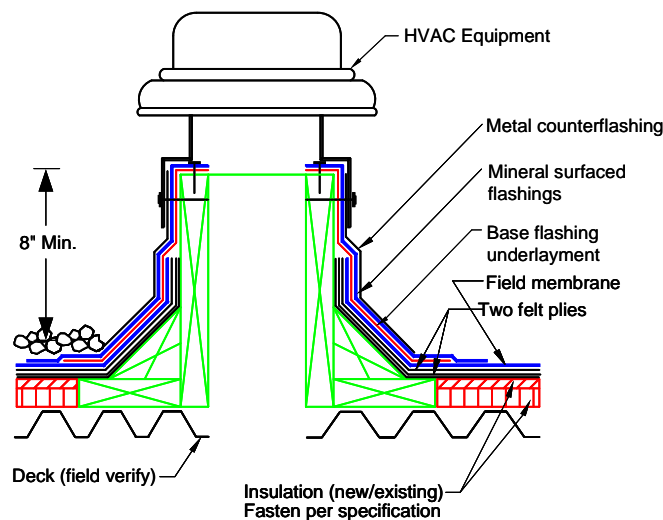
2 Pitch pan with rain collar
D2 All pitch pans require rain collars



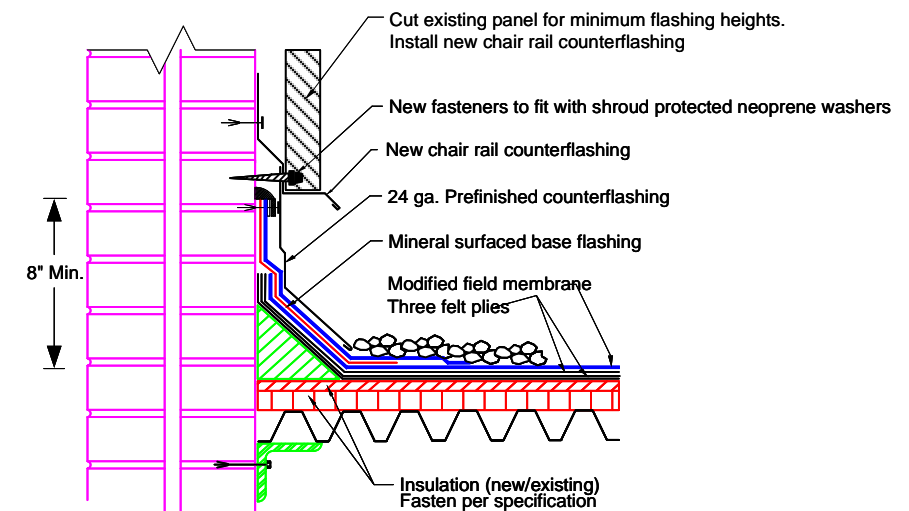
3 Heat Stack
D2



4 Expansion Joint
D2



5 Roof Curb
D2



6 Existing Wall Panels
D2

Detail Requirements

- Details shown are representative of finished details. Contractors shall take into account existing insulation, new insulation, and the new roof system. Wood blocking shall be added to achieve the minimum flashing heights shown.
- All one piece sheet metal fascia is limited to a maximum of 8". Any face metal extending beyond 8" must have two piece metal and two keeper strips.
- Deck types vary between roof areas and buildings. Contractor must verify roof decks and apply details accordingly.
- Base flashing underlayment shall extend Min. 4" beyond the cant, mineral surfaced flashings shall extend Min. 6" beyond the cant.
- All sheet metal counterflashings shall be 24ga. Prefinished (owner to select color) and must extend down to the field of the roof. NO EXPOSED FLASHINGS ALLOWED.