

Pittsburg County, Oklahoma
COUNTY PURCHASING OFFICE
 Pittsburg County Court House
 McAlester, Oklahoma
 Phone: (918) 423-4934

INVITATION TO BID

PLEASE REVIEW TERMS AND CONDITIONS ON REVERSE SIDE RELATING TO SUBMISSION OF THIS BID.

Notarized Affidavit completions and signature required on reverse side.

DATE ISSUED	4-Oct-21
PAGE 1 OF	

BID NUMBER BID # 4	BID CLOSING DATE AND HOUR October 28th, 2021 @ 10:00AM	REQUIRED DELIVERY DATE Days after award of Purchase Order
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TERMS:	DATE OF DELIVERY:
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Item	Quantity	Unit of issue	DESCRIPTION	Unit Price	Total
			<p>Board of County Commissioners wish to re-advertise for the following:</p> <p>Roof Repairs to the Pittsburg County Expo Center</p> <p>See Specifications Attached</p> <p><u>PLEASE MARK CLEARLY ON FRONT OF SHIPPING ENVELOPE BID & BID NUMBER</u></p>		

TERMS AND CONDITIONS

1. Sealed bids will be opened in the Commissioner's Conference Room, Pittsburg County Courthouse, McAlester, Oklahoma, at the time and date shown on the invitation to bid form.
2. Late bids will not be considered. Bids must be received in sealed envelopes (one to an envelope) with bid number and closing date written on the outside of the envelope.
3. Unit prices will be guaranteed correct by the bidder.
4. Firm prices will be F.O.B. destination.
5. Purchases by Pittsburg County, Oklahoma, are not subject to state or federal taxes.
6. This bid is submitted as a legal offer and any bid when accepted by the County constitutes a firm contract.
7. Oklahoma laws require each bidder submitting a bid to a county for goods or services to furnish a notarized sworn statement of non-collusion. A form is supplied below.
8. Bids will be firm until delivered.

(DATE)

6 1291E#19

AFFIDAVIT: I, the undersigned, of lawful age, being first duly sworn on oath say that he (she) is the agent authorized by the bidder to submit the above bid. Affiant further states that the bidder has not been a party to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding; or with any state official or employee as to quantity; quality or price in the prospective contract or any other terms of said prospective contract; or in any discussions between bidders and any state official concerning exchange of money or other thing of value for special consideration in the letting of a contract; that the bidder/contractor has not paid, given or donated or agreed to pay, give or donate to any officer or employee of the State of Oklahoma (or other entity) any money or other thing of value, either directly or indirectly in the procuring of the award of a contract pursuant to this bid.

Subscribed and sworn before this _____ day
of _____ 20_____ (seal)

Firm: _____

My commission expires _____ Signed by: _____ Title: _____
(MANUAL SIGNATURE OF UNDERSIGNED)

NOTARY PUBLIC (CLERK OR JUDGE) Address: _____ Phone: _____

City: _____ State _____

Zip _____

NOTE: Other terms and conditions can be added at the discretion of the county officers.

RESOLUTION
22-071
To Advertise

The Board of County Commissioners, Pittsburg County, met in regular session on Monday, October 4, 2021.

WHEREAS, the Board of County Commissioners wish to advertise for the following:

Roof Repairs to the Pittsburg County Expo Center

A bid package containing complete specifications and an "Invitation to Bid" are available at the Pittsburg County Clerk's Office, 115 E. Carl Albert Pkwy, Room 103, McAlester, Oklahoma 74501 or online at pittsburg.okcounties.org.

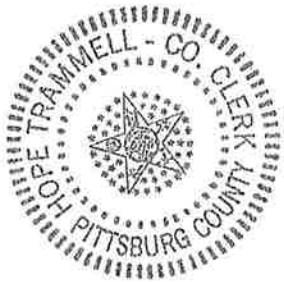
A mandatory pre-bid meeting will be held on October 14, 2021 at 2:00 p.m. at the Pittsburg County Expo Center, 4500 W US-270 in McAlester, Oklahoma.

THEREFORE, each competitive bid submitted to the County must be accompanied with an affidavit for filing with the competitive bid form, as required by 19 O.S. § 421.1(C).

Sealed bids will be received and filed with the Pittsburg County Clerk until Thursday, October 28, 2021 at 10:00 a.m. All bids received after 10:00 a.m. on Thursday, October 28, 2021 WILL NOT BE OPENED. Bids will be opened on Monday, November 1, 2021 at 10:00 a.m. in the Board of County Commissioners Conference Room, 115 E. Carl Albert Pkwy, McAlester, Oklahoma. The Board of County Commissioners, Pittsburg County, reserves the right to reject any and all bids and re-advertise.

BOARD OF COUNTY COMMISSIONERS
PITTSBURG COUNTY, OKLAHOMA

ATTEST:



CHAIRMAN

[Signature]

VICE CHAIRMAN

[Signature]

MEMBER

[Signature]

COUNTY CLERK

[Signature]

**INVITATION TO BID
PROJECT FOR THE
PITTSBURG COUNTY OF OKLAHOMA
EXPO CENTER ROOF REPAIRS**

1. Sealed bids for Bid Package - Roofing (L&M) will be received by the Owner, Pittsburg County of Oklahoma, at the Pittsburg County Clerk's Office, 115 E. Carl Albert Parkway, Suite 103, McAlester, OK 74501, until 10:00 a.m. Central Daylight Time on October 28, 2021. Said bids for furnishing all labor and materials for the Pittsburg County Expo Center Roof Repairs will be opened and read aloud in the Pittsburg County Commissioners Conference Room, 115 E. Carl Albert Parkway, Suite 100B, McAlester, OK during the Commissioners Meeting on November 1, 2021 at 10:00 a.m. Central Daylight Time. All interested parties are invited to attend.
2. A mandatory, pre-bid/site examination meeting is required of all contractors to inspect and fully inform themselves of existing conditions and limitations, including all items and specifications described in the bid documents. Said pre-bid meeting will be held on October 14, 2021 at 2:00 p.m. Central Daylight Time at the Pittsburg County Expo Center located at 4500 West US-270 in McAlester, OK.
3. The Owner reserves the right to waive any formalities and the right to reject any or all bids. No bidder may withdraw his bid within 30 days after the date of the bid opening. Bids received after 10:00 a.m. Central Daylight Time on October 28, 2021 will not be considered and will be not be opened.
4. Hard copies of the bidding documents will be handed out during the pre-bid meeting. **NOTE:** for a complete description of the bid package scope, refer to the bid package documents.
5. Each bidder must comply with the requirements of the Oklahoma Public Competitive Bidding Act, including attaching to the bid a certified check, cashier's check, surety bond, or irrevocable letter of credit issued by a financial institution insured by the FDIC in the amount of five percent (5%) of the bid, which shall be deposited with the County; completing other required documents; and meeting insurance requirements included in the bid package documents. Successful bidder will be required to submit a 100% performance, statutory, and warranty bond.

-END-

PROJECT MANUAL

Including Conditions of Contract and Specifications

FOR:

Expo Roof Project
Pittsburg County of Oklahoma
4500 West US-270
McAlester, OK 74501

DATE:

September 27, 2021

OWNER:

Pittsburg County, Oklahoma
115 E. Carl Albert Parkway
Room 100
McAlester, OK 74501

OWNER'S REPRESENTATIVES:

Commissioner Ross Selman
Commissioner Kevin Smith
Commissioner Charlie W. Rogers

Set # _____

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

PART 1 - Project: Pittsburg County Expo Roof

1.1 Receipt of Bids: 10/28/2021 at 10:00 AM CDT.

- A. The Owner invites bids on the form indicated in Section 00 41 00 for the above referenced project. The Owner may consider informal any bid not prepared and submitted in accordance with the provisions hereof and may waive any informalities or reject any and all bids. Any bid may be withdrawn prior to the scheduled time for the opening of the bids or authorized postponement thereof. Any bid received after the time and date specified shall not be considered. No bidder may withdraw a bid within sixty (60) days after the actual date of the opening thereof.
- B. Preparation of Bid: Each bid must be submitted on the prescribed form. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures. Each bid must be submitted in sealed envelopes addressed to the Owner and designated "Bid Proposal", bearing on the outside the name of the bidder, his address, the name of the project for which the bid is submitted and the date of the opening. Failure of these guidelines will cause bid to be rejected and considered non responsive. If forwarded by mail, the sealed envelopes containing the bid must be enclosed in another envelope addressed to the Owner at the designated location for opening the bids.
- C. Method of Bidding: The Owner invites the following bid(s):
1. BASE BID: Pittsburg County Expo Roof as indicated on drawings.
 - a. Total cost to complete project
 - b. Cost per square foot of decking repair
 2. ALTERNATE BID: Pittsburg County Expo Roof Coating
 - a. Total cost to complete project
 - b. Cost per square foot of decking repair
- D. Qualifications of Bidder: The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish to the Owner all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein.
- E. Time of Completion: Time of completion of this Contract is of importance to the Owner and may be considered in the award of the Contract. The Contractor shall state on his proposal the number of calendar days he will require to complete the project in its entirety. Payments on the Contract will be made as provided by the Contract. No payment will be made on the Contract within 30 days prior to the completion date set by the Contractor, unless there is an extended unforeseen delay, over which the Contractor has no control, such as severe or unseasonable weather, it shall be the Contractor's responsibility to request any extensions in time within the above time limit shall void any possible extension of the Contract time of completion. The Owner will be the judge as to whether a time extension is to be granted and so notify the Contractor.
- F. Conditions of Work: Each bidder must inform himself fully of the condition relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract.
- G. Addenda and Interpretations: No interpretation of the meaning of the plans, specifications or other

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

pre bid documents will be made to any bidder orally. Any and all such interpretations and any supplemental instruction will be in the form of written addenda to the specifications which, if issued, will be sent to all prospective bidders not later than three days prior to the date fixed for the opening of bids. Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.

- H. Laws and Regulations: The bidder's attention is directed to the fact that all applicable Federal Laws, State Laws, Municipal Ordinances, and the rules and regulations of all authorities that have jurisdiction over construction of the project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.
- I. Method of Evaluation: The monetary basis used for evaluating the bids will be the lowest total, including the bid item chosen by the Owner, or bid items that the Owner might elect to choose. Time of completion of this project may be considered in the award of this contract.
- J. Obligation of Bidder: At the time of the opening of bids each bidder will be presumed to have inspected the site and to have read and be thoroughly familiar with the Contract Documents (including all addenda). The failure or omission of any bidder to examine any form, instrument or document shall in no way relieve the bidder from any obligation in respect of this bid.
- K. Failure of Timely Order: The contractor is responsible for assuring the timely order of all materials specified. If a specified material or color of material cannot be delivered by the contract completion date, due to failure to order the material in a timely manner, the contractor will be responsible for supplying an equal or better material. The owner will be the sole determinant of the approved substitute material. The contractor will also be charged an amount equal to 5% of the value of the specified material. This amount will be credited to the owner through a change order to the contract. The word "material", as used in this section, includes all items specified in the specifications or shown on the drawings.
- L. Sub-bid Time Limit: So that Contractors may have adequate opportunity to evaluate sub-bids, it is recommended that the "Time Limit Plan" be honored; sub and material bids must have been submitted to Contractors four (4) hours prior to the time set for bid opening.
- M. Pre-Bid Conference: A mandatory pre-bid conference will be held on 10/14/2021 at 2 pm CDT at the project site.
- N. Access to building:
 - 1. During bidding the building may be open by appointment only.
 - 2. During construction special care should be taken as the building may be in operation during construction.
- O. Hazardous Materials: Do not bid or provide or install hazardous materials or products containing asbestos, polychlorinated biphenyl (PCB), lead in water piping, etc.
- P. Pre-Construction Conference: A pre-construction conference will be held two weeks prior to beginning any work on this project. After full execution of the contract and insurance certificate, the Contractor shall contact the Owner and set up a date, time and place to meet on site with the Contractor, his major subcontractors, Owner and Manufacturer. The purpose of this meeting will be to discuss schedules, procedures, special considerations, and any other pertinent items related to this project.

SECTION 00 21 13

INSTRUCTIONS TO BIDDERS

- Q. Buildings in Use: All areas to be reroofed will be in use during construction. Particular care for the safety of the occupants of the building shall be taken while working on site and in the vicinity of the building. Coordinate the work process with the Owner to avoid conflicts and potential hazards.

END OF SECTION

BID PROPOSAL FORM

PROJECT: Pittsburg County Expo Center Roof

DATE & TIME 10/28/2021 at 10:00 am CDT

TO: Ross Selman
Kevin Smith
Charlie W. Rogers
Pittsburg County Commissioners

ADDRESS: Pittsburg County of Oklahoma
Commissioners Office Room 100
115 E. Carl Albert Parkway
McAlester, OK 74501

BIDDER: _____

Pursuant to and in compliance with the proposed Contract Documents dated 09/27/2021, relating to the above referenced project, the undersigned, hereby proposes and agrees to fully perform the work within the time stated and in strict accordance with the proposed Contract Documents, and Addenda thereto, for the following sum of money:

- A. BASE BID: Pittsburg County Expo Retrofit Roof
All labor, materials, services, and equipment necessary for completion of the work shown on the drawings and in the Specifications.

_____ DOLLARS(\$ _____)
(Amount in Words Governs)

- 1. UNIT PRICES: The undersigned agrees, in case of variation of quantities from those shown or specified, the following unit prices will be used in adjusting the Contract price only if additional quantities are authorized in advance by the Owner. The following amount will be added to the Contract:
 - a. Cost per sq ft metal panel repair \$ _____
- 2. The undersigned agrees to the following:
 - a. To furnish all labor and materials as shown and specified.
 - b. To complete: BASE BID in _____ calendar days.
 - c. To work _____ working days per week.
 - d. To start work _____ days after notice of award of contract.

- B. ALTERNATE BID: Pittsburg County Expo Roof Coating
All labor, materials, services, and equipment necessary for completion of the work shown in the Specifications.

_____ DOLLARS(\$ _____)
(Amount in Words Governs)

1. UNIT PRICES: The undersigned agrees, in case of variation of quantities from those shown or specified, the following unit prices will be used in adjusting the Contract price only if additional quantities are authorized in advance by the Owner. The following amount will be added to the Contract:

a. Cost per sq ft metal panel repair \$ _____

2. The undersigned agrees to the following:
a. To furnish all labor and materials as shown and specified.
b. To complete: ALTERNATE BID in _____ calendar days.
c. To work _____ working days per week.
d. To start work _____ days after notice of award of contract.

C. Receipt is acknowledged of the following addenda:

No. _____	Dated _____
No. _____	Dated _____
No. _____	Dated _____

D. The Bidder attest and affirms that he is skilled and experienced in the use and interpretation of plans, specifications, addenda and related Bid Documents and, that he has carefully reviewed the plans, specifications, addenda and related Bid Documents for this project and has found them to be free of conflicts and/or ambiguities and sufficient for bidding and construction purposes. Further, he has carefully examined the site of the work, and, through his own personal observations, has satisfied himself as to the nature, location and requirements of the work; the character, quality and quantity of materials required; the difficulties likely to be encountered; the other items and/or conditions which may affect the satisfactory performance of the work. He has based his bid solely on these documents, and personal observations, and has not relied in any way on any explanation or interpretation, oral or written, from any source other than those written and issued by the Owner.

Bidder agrees that the Owner has the right to accept or reject any or all bids and to waive all informalities.

Bid Guarantee: Accompanying this proposal is a Certified or Cashier's Check or Bidder's Surety Bond made payable to the Owner for not less than 5% of the amount submitted herein. It is understood that the check or bond will be returned to the bidder, except that in the event of the Owner's acceptance of this Proposal, and the Bidder fails to execute a Contract and file Performance and Materials and Payment Bonds within ten days of the date of the Owner's acceptance; then, in that event, the Bidder's Check or Bond will become the property of the Owner because of the failure of the Bidder to comply with the specified requirement. Bid Bond is accompanied by Bonding Agent's Power-of-Attorney.

It is understood that, if accepted by the Owner, this proposal becomes part of the Contract Documents upon signing the Contract.

The undersigned agrees that this proposal shall not be withdrawn for a period of sixty days from the date of bid opening.

License Certification: The Bidder certifies that he meets all licensing requirements of this state and carries a Commercial Roofing Endorsement issued by and is in good standing with the State of Oklahoma Construction Industries Board and his Contractor License number is:

Respectfully Submitted,

By: _____
(Signature)

(Print)

(Title)

(Company)

Date _____, 20 ____

(Address)

(City, State Zip)

NON-COLLUSION AFFIDAVIT

Pittsburg County of Oklahoma
 115 E. Carl Albert Parkway
 McAlester, OK 74501

Any competitive bid submitted pursuant to the Public Competitive Bidding Act of 1974 to Pittsburg County of Oklahoma shall be accompanied by the sworn non-collusion statement shown below:

STATE OF OKLAHOMA)
)ss
 COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says:
 (Printed name of agent)

- 1. (s)he is the duly authorized agent of _____, the bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and state officials or employees, as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached;
- 2. (s)he is fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and has been personally and directly involved in the proceedings leading to the submission of such bid; and
- 3. neither the bidder nor anyone subject to the bidder's direction or control has been a party:
 - a. to any collusion among bidders in restraint of freedom of competition by agreement to bid at fixed price or to refrain from bidding.
 - b. to any collusion with any state official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract, nor
 - c. in any discussions between bidders and any state official concerning exchange of money or other thing of value for special consideration in the letting of a contract.

Agent's Signature _____ Title _____

Subscribed and sworn to before me this _____ day of _____, 20____.

 (Notary Public)

Notary # _____ Expires: _____

Reference: Title 74 O.S. 85.22

NON-KICKBACK AFFIDAVIT

Pittsburg County of Oklahoma
115 E. Carl Albert Parkway
McAlester, OK 74501

A. Except as provided in subsection B of this section, on every contract entered into by any county, municipality, school district, technology center school district or political subdivision of the state for an architect, contractor, engineer or supplier of construction materials of Twenty-Five Thousand Dollars (\$25,000.00) or more, shall be the following signed statement:

STATE OF OKLAHOMA)
) ss.
COUNTY OF)

The undersigned (architect, contractor, supplier or engineer), of lawful age, being first duly sworn, on oath says that this contract is true and correct. Affiant further states that the (work, service or materials) will be (completed or supplied) in accordance with the plans, specifications, orders or requests furnished the affiant.

Affiant further states that (s)he has made no payment directly or indirectly to any elected official, officer or employee of the State of Oklahoma, any county or local subdivision of the state, of money or any other thing of value to obtain or procure the contract or purchase order.

(Contractor, architect, supplier or engineer)

Attested to before me this _____ day of _____, 20_____.

B. Any county, municipality or school district executing a contract with any architect, contractor, supplier or engineer for construction work, services or materials which are needed on a continual basis from such architect, contractor, supplier or engineer under the terms of such contract, or executing more than one contract during the fiscal year with such architect, contractor, supplier or engineer, may require that the architect, contractor, supplier or engineer complete a signed affidavit as provided for in subsection A of this section which shall apply to all work, services or materials completed or supplied under the terms of the contract or contracts.

62 O.S. § 310.9.

BUSINESS RELATIONSHIP AFFIDAVIT

STATE OF _____)
) ss.
COUNTY OF _____)

_____, of lawful age, being first duly sworn, on oath says that (s)he is the agent authorized by the bidder to submit the attached bid. Affiant further states that the nature of any partnership, joint venture, or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with any other party to the project is as follows:

in effect or which existed within one (1) year prior to the date of this statement between any officer or director of the bidding company and any officer or director or any other party to the project is as follows:

Affiant further states that the names of all persons having any such business relationships and the positions they hold with their respective companies or firms are as follows:

(If none of the business relationships hereinabove mentioned exist, affiant should so state.)

Signature of Affiant

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

Notary Public

Notary Public Number: _____

My Commission Expires: _____

8/2017

GENERAL CONDITIONS

PART 1 - GENERAL

1.01 DEFINITIONS

1. The contract documents consist of the AGREEMENT, the GENERAL CONDITIONS of the contract, the DRAWINGS and the SPECIFICATIONS, including all revisions thereto.
2. The Owner, the Contractor, and the representatives shall be indicated as such throughout these documents. The term Contractor as used herein shall designate the successful bidder to whom the roof replacement contract for the various work is awarded. The term Owner shall be understood to be Pittsburg County of Oklahoma.
3. Index to the items of the GENERAL CONDITIONS:
 - 1.02 Owner Representatives Status
 - 1.03 Permits and Licenses
 - 1.04 Condition of the Site
 - 1.05 Verification of Dimensions and Elevations
 - 1.06 Superintendent
 - 1.07 Continuation of Owner's Operations
 - 1.08 Protection of Work and Property
 - 1.09 Material Storage and Cleanup
 - 1.10 Inspection of Work
 - 1.11 Inspection of Work in Progress and Upon Completion
 - 1.12 Separate Contracts
 - 1.13 Miscellaneous Utilities
 - 1.14 Changes or Extra Work
 - 1.15 Correction of Work Prior to Final Payment
 - 1.16 Correction of Work After Final Payment
 - 1.17 Deduction of Uncorrected Work
 - 1.18 Liens
 - 1.19 Job Conditions
 - 1.20 Workmanship
 - 1.21 Insulation
 - 1.22 Hot Materials
 - 1.23 Cold Materials
 - 1.24 Substitution of Specified Materials
 - 1.25 Roof Deck
 - 1.26 Insurance
 - 1.27 Safety and Ecology
 - 1.28 Anti-Discrimination in Employment
 - 1.29 Responsibility for Measurements and Quantities
 - 1.30 Pre-Job Meeting
 - 1.31 Discrepancies and Addenda
 - 1.32 Competency of the Bidder
 - 1.33 Disqualification of Bidders
 - 1.34 Payment

1.02 OWNER REPRESENTATIVE STATUS

- A. The Owner representative shall have general supervision and direction of the work and are the agents of the Owner in all matters pertaining to the work as provided in the Contract Documents. They have authority to stop the work whenever such stoppage may be necessary to insure 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.

1.03 PERMITS AND LICENSES

DIVISION 00 72 00

GENERAL CONDITIONS

- A. All permits and licenses of a temporary nature necessary to the lawful prosecution of the work shall be secured and paid for by the Contractor.

1.04 CONDITION OF THE 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.

1.05 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 and the Owner will not be responsible for their accuracy. Before proceeding with 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 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.

1.06 SUPERINTENDENT

- A. The Contractor shall keep a competent superintendent, satisfactory to the Owner, on the job at all times when work is in progress. The superintendent shall not be changed without notifying the Owner unless the superintendent ceases to be in the employment of the Contractor.
- B. The superintendent shall represent the Contractor in his 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 attention by the Owner.

1.07 CONTINUATION OF OWNER'S OPERATIONS

- A. The Contractor shall erect such barriers, tarpaulins, doors, etc. As maybe 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. A completion date will be established at the preconstruction meeting.

1.08 PROTECTION OF WORK AND PROPERTY

- A. The Contractor shall maintain adequate protection of all his work from damage and shall protect the Owner's and adjacent property from injury or loss arising from this contract. He shall provide and maintain at all times any danger signs, guards and/or obstructions necessary to protect the public and his workmen from any dangers inherent with or created by the work in progress. He shall hold the Owner harmless from any loss arising due to injury or accident to the public or his 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 material to protect roof surfaces at all times.
- B. Before starting any work protect all grounds, copings, paving and the exterior of all building surfaces where work will be performed.
- C. In those areas where materials and/or hot asphalt will be raised to the roof area a protective

GENERAL CONDITIONS

covering shall be placed from the base of the wall extending up and over the top edge of the roof. This covering 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 prior to the final inspection. The method of repair used must be acceptable to both the Owner and the Owner's Consultant.
- E. At no time will any equipment, materials or any other items be set on or stored on a new complete roofing section.

1.09 MATERIAL STORAGE AND CLEANUP

- A. The contractor shall keep the premises free from rubbish at all times and shall arrange his 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.
- B. The ground shall be raked clean and the building shall be broom cleaned. If the Contractor refuses at any time to remove his debris from the premises, or to keep the working area clean, such cleaning will be completed by the Owner and charged to the Contractor.
- C. The Contractor shall also remove drippage of bitumen or adhesive from all walls, window, floors, ladders and finished surfaces. Failure to do so when asked by the Owner will result in the work being done and charged to the Contractor.

1.10 INSPECTION OF WORK

- A. If the drawings or specifications require the inspection and approval of any work or process by the Owner, the Contractor shall give the Owner ample notice to allow for scheduling the inspection, which shall be made promptly to avoid delay of work. If any work should be covered up by the Contractor without required inspection or approval by the Owner it shall be uncovered at the Contractor's expense.
- B. Uncovering of work not originally inspected, or uncovering of questioned work may be ordered by the Owner 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 examination. If the work is proven correctly installed, all such expense shall be borne by the Owner.

1.11 INSPECTION OF WORK IN PROGRESS AND UPON COMPLETION

- A. As directed by the Owner's Representative, the contractor shall cut not more than 1 core, of approximately 144 square inches each, from every newly constructed built-up 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.
- B. In the event that such core cuts disclose any deficiency in materials, or soundness of construction, the contractor shall, at his own expense, apply additional materials or otherwise correct the deficiencies to the satisfaction of the Owner's Representative.
- C. Non-compliance 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. The Contractor understands that no materials containing asbestos will be used on this project.

GENERAL CONDITIONS

- D. Furthermore, 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 authorize the Owner's representative to periodically 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.

THE MANUFACTURERS FIELD REPRESENTATIVE SHALL BE RESPONSIBLE FOR:

- 1. Keeping the Owner's Representative informed on a periodic basis as to the progress and quality of the work.
 - 2. Calling to the attention of the contractor those matters which he considers to be in violation of the contract requirements.
 - 3. Reporting to the Owner's Representative 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 representatives.
 - 5. Supervising the taking of test cuts, and the restoration of such areas.
 - 6. Rendering any other inspection services which the Owner's Representative may designate.
 - 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.
 - 8. Inspections two (2) times per week of work in progress.
 - 9. The Manufacturers field representative shall be an employee of the manufacturer and not a distributor or agent.
- F. The presence and activities of the Manufacturer's field representative shall in no way relieve the Contractor of his contractual responsibilities.

1.12 SEPARATE CONTRACTS

- A. The Owner reserves the right to do work or to let other contractors in connection with the work. The Contractor shall afford other such contractors a reasonable opportunity to store their material and shall cooperate with them to the best of his ability to expedite the rapid completion of the work.
- B. If any portion of the Contractor's work depends upon the Owner's or other contractor's work, the Contractor shall inspect and approve such work before proceeding with his own. He shall promptly notify the Owner of any defects in such work that will render subsequent work unsuitable. His failure to so inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the execution of his work, except as for such defects that were not at that time observable and shall subsequently develop.

1.13 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. Any temporary lights necessary to the work shall be furnished by the Roofing 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 work.

GENERAL CONDITIONS

- D. Toilet facilities will be provided by the Contractor. Temporary toilets shall be the responsibility of the Contractor, unless the Owner approves otherwise at the Pre-construction meeting. The Contractor's workmen shall gain access to the roof from the exterior only.

1.14 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.
 - 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's representative. 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 material additional 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.

1.15 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's representative as failing to meet the intention 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.

1.16 CORRECTION OF WORK AFTER FINAL PAYMENT

- A. If the Owner's representative deems it inexpedient 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, not his ability for correcting them, and damage caused by them, as specified in 1.15.

1.18 LIENS

- A. The Contractor shall furnish the Owner a release in full of all liens arising out of this contract. 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 option furnish a bond to indemnify the Owner against all hazards 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 un-discharged, the Contractor shall refund to the Owner necessary funds to discharge such a lien including all cost and attorney's fees.

1.19 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

GENERAL CONDITIONS

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.

- B. 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.
- C. There is NO SMOKING allowed inside or outside the building and the Contractor shall be responsible for enforcement of this job rule at all times with his personnel. The Owner shall designate safe places for smoking at the preconstruction meeting.
- D. Under certain conditions it will be necessary and desirable to incorporate one or more of the following methods for removal of dirt, silt, gravel, debris, roof membrane and insulation from the roof surface in order to preserve the ecology, eliminate unsightly conditions and protect building surfaces:
 - 1. Roof vacuum systems
 - 2. Crane and hopper with dump truck system.
 - 3. Enclosed chutes with protective shrouds on building and ground surfaces and shrubbery.

These contingencies will be specified at the preconstruction conference.

- E. Ladders: When ladders are used on this project they must be in good condition. The ladder must also be secured at the roof line at all times while in use.

1.20 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 employed. All work shall be done in accordance with these specifications and shall meet the approval in the field of the Owner's representative.

Contractor's representative, job supervisor, shall have a complete copy of specifications and drawings on job site at all times.

1.23 COLD MATERIALS

- A. All cold materials, including sealants and roofing cements, shall be approved by the Owner.

1.24 SUBSTITUTION OF SPECIFIED MATERIALS

- A. Whenever a particular make of material or trade name is shown or specified herein, it shall be regarded as being indicative of the standard required. A Bidder who proposed to quote on the basis of an alternate material or system shall submit to the Owner's representative the following information, at least ten (10) days prior to the scheduled bid opening date. All tests listed in this specification must be performed between the standard system, and the proposed substitute. If any tests are not completed then only the standard system shall be accepted.

1.25 ROOF DECK

- A. Contractor shall notify the Owner of his designate on the job site of any unforeseen areas of defective decking. Where the damage is serious and extensive, it will be the Owner's responsibility to authorize removal and replacement of deteriorated decking. Where damage to the roof deck is found, the Owner shall ask the Roofing Contractor to make the necessary repairs at the unit cost

GENERAL CONDITIONS

established in the quote.

1.26 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.
- B. The Contractor agrees to indemnify and save the Owner 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, Sub-contractor and his or 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.
- C. If any work provided for or to be performed under any specifications is sub-let (as otherwise permitted by the terms of such specifications), the Contractor shall require the sub-contractors to maintain and furnish him with satisfactory evidence Workmen's Compensation, Employers' Liability and such other forms and amounts of insurance which Contractor deems reasonably adequate.
- D. In accordance with Item II, the Contractor shall maintain the following insurance:
- E. Workmen's Compensation and Employer's Liability Insurance affording, (a) protection under the Workmen's Compensation Law of the States in which the work is performed, and (b) Employer's Liability protection subject to a minimum limit of \$100,000.
- F. Comprehensive General Liability Insurance in amounts not less than: \$2,000,000.00

Bodily Injury	
\$500,000	Each Occurrence
\$500,000	Annual Aggregate

Property Damage	
\$500,000	Each Occurrence
\$500,000	Annual Aggregate

G. Contractual Liability

Bodily Injury	
\$500,000	Each Occurrence
\$500,000	Annual Aggregate

Property Damage	
\$500,000	Each Occurrence
\$500,000	Annual Aggregate

H. Personal Injury, with employment exclusion deleted:

\$1,000,000 Annual Aggregate

This insurance shall:

- 1. Include coverage for the liability assumed by the Contractor under Item I (Indemnity);
- 2. Include completed operation coverage which is to be kept in force by the Contractor for a

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GENERAL CONDITIONS

- period of not less than one year after completion of the work provided for or performed under these specifications;
3. Not be subject to any of the special property damage liability exclusions commonly referred to as the XCU exclusions pertaining to blasting or explosion, collapse or structural damage and underground property.
 4. 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 the Certificates of Insurance furnished by the contractor shall show by specific reference that each of the foregoing items have been provided for.
- I. Comprehensive Automobile Liability Insurance in the following minimum amounts:
- | | |
|------------------|--|
| Bodily Injury: | \$250,000 per person
\$500,000 per accident |
| Property Damage: | \$250,000 per accident |
- J. 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 for cancellation of any material change in the insurance.
- 1.27 SAFETY AND ECOLOGY
- A. Contractor shall conform to requirements as designated by the United States Federal Government (OSHA) and or other applicable safety codes or regulations.
- 1.28 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 contract, with respect to his hire, tenure, terms, conditions or privileges of employment because of his race, color, religion, national origin, or ancestry.
- 1.29 RESPONSIBILITY FOR MEASUREMENTS AND QUANTITIES
- A. The Bidding Contractors shall be solely responsible for the accuracy of all measurements and for estimating the material quantities required to satisfy these specifications.
- 1.30 PRE-JOB MEETING
- A. A pre-job meeting shall be held prior to the start of this project. This meeting shall include the Contractor, the Manufacturer's representative and the Owner's representative. The condition of the buildings and related grounds areas shall be recorded and the contractor shall be responsible for the correction and/or repair of any additional damage to the facilities resulting from the related work and in addition to the conditions noted at the pre-job meeting.
- 1.31 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 shall notify the Owner at once, who will send a written Addendum to all Bidders concerned. Oral instructions or decisions, unless confirmed by Addendum, will not be considered valid, legal or binding.
 - B. No extra will be authorized because of failure of the Contractor to include work called for in the Addenda in his bid.

GENERAL CONDITIONS

1.32 COMPETENCY OF THE BIDDER

- A. To enable the Owner to evaluate the competency and financial responsibility of Contractor, the low Bidder shall, when requested by the Owner, furnish the following information which shall be sworn to under oath by him or by a properly authorized representative of the Bidder:
1. The address and description of the Bidder's plant and place of business.
 2. The name and/or Articles of co-partnership or incorporation.
 3. Itemized list of equipment available for use on the project.
 4. A certified or authenticated financial statements, dated within sixty (60) days prior to the openings of the bids. The Owner may require that any items of such statements be further verified.
 5. A list of present contracts, including dollar values, percentage of completion and the names of all owners involved.
 6. Certification by the manufacturer that contractor is authorized to install systems specified herein.
 7. A statement regarding any past, present or pending litigation with an Owner.
 8. Such additional information as may be required that will satisfy the Owner that the Bidder is adequately prepared in technical experience, or otherwise to fulfill the Contract.
 9. Sufficient documents to ensure that the Contractor is in compliance with the current Fair Employment Practice requirements of the Owner.

1.33 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 bid or bids.
1. Failure to attend the mandatory 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 judgement of the Owner, might hinder or prevent the prompt completion of additional work if awarded.
 6. Being in arrears on existing contracts, in litigation with an owner, or having defaulted on a previous contract.
 7. Failure to comply with the submittals section of the specification.
 8. Contractor not operating under the same name or ownership for a minimum of five years.

1.34 APPLICATION FOR PAYMENTS

- A. At least ten days before the date established for each progress payment, the Contractor shall submit to the Owner an itemized Application for Payment for operations completed in accordance with the schedule of values. Prior to this submittal, the Contractor shall contact the Owner's Representative for on-site review of the proposed application. Upon approval by the Owners Representative, the Application for Payment shall be submitted to the Owner. Included shall be the data required to support the Contract's right to payment as may be required by the Owner, such as copies of requisitions from subcontractors and material suppliers, and reflecting retainage, if provided for elsewhere in the Contract Documents.
- B. Contract shall submit application in duplicate using AIA Document G702, Application and Certificate for Payment, May 1983 Edition. All blanks in the form must be completed and signature of Contractor and Notary Public must be original on each form.
- C. PROGRESS PAYMENTS: Based upon Applications for Payment submitted to the Owner by the

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GENERAL CONDITIONS

Contractor, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided in the Conditions of the Contract as follow:

On or about the fifteenth (15th) day of each month ninety percent (90%) of the proportion of the Contractor Sum properly allocable to labor, materials and equipment incorporated in the Work and ninety percent (90%) of the portion of the Contract Sum properly allocable to materials and equipment suitably stored at the site or at some other location agreed upon in writing by the parties, up to the first (1st) day of that month; less the aggregate of previous payments in each case; and upon Substantial Completion of the entire work, a sum sufficient to increase the total entire work, a sum sufficient to increase the total payments to ninety percent (90%) of the Contract Sum less such retainage as the Owner's Representative shall determine for all incomplete work and unsettled claims.

D. FINAL COMPLETION AND FINAL PAYMENT: Prior to final payment, the Contractor shall submit in duplicate to the Owner the following completed forms:

1. Contractors Affidavit of Release of Liens, AIA Document G706A
2. Consent of Surety to Final Payment, AIA G707
3. Contractor's Guarantee
4. Manufacturer' Guarantee

END OF SECTION

SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL

1.1 RELATED DOCUMENTS – Pittsburg County Expo Roof

- A. Attached GENERAL CONDITIONS, BID FORM, Component sections, forms a component part of this section.

1.2 SUMMARY OF WORK

- A. BASE BID: Retrofit installation of Kee membrane roof assembly over metal panel roof

1. Remove components determined by the owner to be inoperable down to the steel panels and patch holes with like kind and quality materials. Remove rake/edge details of all roofs.
2. Repair any panels determined not to be structurally sound. Mechanically attach panels to every structural purlin to prevent thermal expansion and contraction. Cut panels where overhang condition exists at roof edge. Remove ridge cap and install structural pressure treated lumber to match height of flat part of panels.
3. Mechanically attach flute fill iso and additional 1.5" ISO to panels per wind uplift calculations.
4. Adhere ½" HD woodfiber coverboard with joints staggered set in insulation adhesive with ¾" ribbon pattern spaced per wind uplift calculations.
5. Install 2x6 pressure treated wood nailers at all curbs, penetrations and roof edges to match insulation height.
6. Install pressure treated 5/8" plywood to all rise walls mechanically fastened to structural framing with exterior grade screws.
7. Set noncombustible mineral wool cant at all roof to rise wall and curb details in insulation adhesive.
8. Install 60 mil KEE thermoplastic membrane applied with low rise foam adhesive in ¾" ribbon pattern spaced per wind uplift calculations and allowed to rise before rolling fleece back membrane into adhesive terminating over roof edge and nailed off to cover nailer and 2" above cant.
9. Back roll immediately with weighted roller and again before adhesive has cured to ensure smooth and consistent appearance.
10. Install flashing membrane with foam adhesive extending 9" onto field and heat welded.
11. Install termination bar attached with fasteners at minimum 8" on center and apply elastomeric sealant at all rise wall.
12. Fabricate and install prefinished 22 ga. counterflashing at all rise walls fastened 6" o.c.
13. Fabricate and install kee-clad edge metal with 20 ga. continuous cleat and nailed staggered every 3" over cap sheet and weld unreinforced membrane stripping to metal.
14. Fabricate and install new 22 ga. pre-finished gutter/conductor heads with 20 ga. continuous cleat. Install pre-finished 22 ga. downspouts terminating on concrete splash blocks at grade and roof areas below.
15. Fabricate and install new soldered and water tight 22 ga. kee clad metal pitch pans with shaped caps and stripped in. Fill with 2" non-shrink grout and top with two-part pourable sealant. Caulk joints of finished pan and cap.
16. Prime substrate of walls, install self adhered membrane and flush profile wall panel system on rise walls as indicated on drawings.
17. Install KEE membrane on parapet walls and rise walls as indicated on drawings.
18. Provide appropriately sized omg pipeguard supports spaced max 8' o.c. for conduit.
19. Roofing contractor to act as prime and coordinate any roof related mechanical work.

- B. ALTERNATE BID: Application of synthetic rubber coating over existing metal roof panels.

1. Remove large ridge vents and fill voids with ¾" treated plywood ensuring substrate is structurally sound. Install new ridge cap and panel ridge termination to match existing.

SECTION 01 11 00

SUMMARY OF WORK

2. All necessary repairs must be done according to good construction practices, including the replacement of all metal that is deemed unsalvageable or unsafe. All panel fasteners must be checked and any loose fasteners must be tightened or, if necessary, replaced with oversized fasteners with neoprene washers.
3. All dirt, debris, oils and contaminants must be removed by the most effective method possible. High-pressure water washing (2000 psi minimum) is the preferred method when appropriate. When pressure washing is used, it should be done at a pressure suitable to remove embedded dirt and contaminants without damaging the substrate that is being cleaned. Care must also be taken to ensure that water does not intrude into the building. It is very important to note that inadequate preparation of corroded metal surfaces can lead to premature failure of the coating system.
4. After cleaning with TSP or Simple Green, ponding areas should be rinsed at least twice to be sure all contaminants are removed.
5. Repair gaps, holes and joints in the metal roof with appropriate patching materials. Dull all glossy surfaces by sanding to assure maximum adhesion. Wipe galvanized surfaces clean with MEK prior application.
6. After rust or oxidation has been removed, rusted surfaces should be primed immediately after cleaning to prevent rust or oxidation from reoccurring. Primer should be applied at the rate of 1/4 gallon per 100 sq. ft. (0.11 l/m²) over the rusted areas.
7. Create a watertight seal on all fastener heads by applying a heavy dab of urethane hybrid sealant to the tops of all fastener heads and allow to dry.
8. All large or excessive gaps between end laps and vertical seams must be closed or made flush with self-tapping screws. Backer rod, foam strips or urethane foam may be used to pre-fill voids larger than 1/4".
9. Apply brush grade seam sealer with 6" wide polyester reinforcement to all laps, rake transitions, gutter joints, fastener rows, ridge details, etc. ensuring saturation of polyester.
10. Apply gray base coat at rate of 1.5 gal/sq over entire roof surface and .5 gal/sq over vertical metal surfaces including all details previously treated with seam sealer.
11. Apply white top coat in a uniform manner at minimum application rate of 1.5 gal/sq and .5 gal/sq over vertical metal surfaces. Repeat on vertical surfaces until minimum thickness achieved.

1.2 INTENT OF THE SPECIFICATIONS

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

1.3 PROTECTION

- A. The contractor shall use every available precaution to provide for the safety of the property owner, visitors to the site, and all connected with the work under the Contract.
- B. All existing facilities both above and below ground shall be protected and maintained free of damage. Existing facilities shall remain operating during the period of construction unless otherwise permitted. All access roadways must remain open to traffic unless otherwise permitted.
- C. Barricades shall be erected to fence off all construction areas from operations personnel.
- D. Safety Requirements:

SECTION 01 11 00

SUMMARY OF WORK

1. All application, material handling, and associated equipment shall conform to and be operated in conformance with OSHA safety requirements.
2. Comply with federal, state, and local and owner fire and safety requirements.
3. Advise owner whenever work is expected to be hazardous to owner employees and/or operations.
4. Maintain a crewman as a floor guard whenever roof decking is being repaired or replaced and whenever any roofing is being removed.
5. Maintain proper fire extinguisher within easy access whenever power tools, roofing kettles, and torches are being used.
6. ALL SAFETY REQUIREMENTS OF THE BUILDING OWNER MUST BE FOLLOWED. NO EXCEPTIONS WILL BE PERMITTED.

1.4 HOUSEKEEPING

- A. Keep materials neat and orderly.
- B. Remove scrap, waste and debris from project area.
- C. Maintenance of clean conditions while work is in progress and cleanup when work is completed shall be in strict accordance with the "General Conditions" of this contract.
- D. Fire protection during construction.
- E. Follow all requirements established by the building owner.

END OF SECTION

SECTION 01 50 00
TEMPORARY FACILITIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide temporary services and utilities, including utility costs:
 - 1. Telephone. (As required)
 - 2. Toilet facilities.
 - 3. Material storage.

- B. Provide security and protection requirements:
 - 1. Fire extinguisher.
 - 2. Site enclosure barricades.
 - 3. Environmental protection.

- C. Provide personnel support facilities:
 - 1. Sanitary facilities.
 - 2. Drinking water.
 - 3. Cleaning and trash removal.

PART 2 - PRODUCTS - Not applicable to this section.

PART 3 - EXECUTION - Not applicable to this section.

END OF SECTION

SECTION 01 77 00
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. The following are pre-requisites to substantial completion. Provide the following:
 - 1. Punch list.
 - 2. Supporting documentation.
 - 3. Certification.

- B. Final payment request with supporting affidavits.
 - 1. Final payment request with supporting affidavits.
 - 2. Completed punch list.
 - 3. Warranties.
 - 4. Final release of liens.
 - 5. Release of surety.

- C. Provide a marked-up set of drawings including changes which occurred during construction.

- D. Provide the following closeout procedures:
 - 1. Submission of record documents.
 - 2. Submission of maintenance manuals.
 - 3. Final cleaning and touch up.
 - 4. Removal of temporary facilities.

PART 2 - PRODUCTS - Not applicable to this section.

PART 3 - EXECUTION - Not applicable to this section.

END OF SECTION

SECTION 02 25 29
CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

- A. Provide cutting and patching work to properly complete the work of the project, complying with requirements for:
 - 1. Visual requirements, including detailing and tolerances.
 - 2. Inspection, preparation, and performance.
 - 3. Cleaning.

- B. Do not cut and patch in a manner that would result in a failure of the work to perform as intended, decreased energy performance, increased maintenance, decreased operational life, or decreased safety.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Match existing materials for cutting and patching work with new materials conforming to protect requirements.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Inspect conditions prior to work to identify scope and type of work required. Protect adjacent work. Notify Owner of work requiring interruption to building services or Owner's operations.
- B. Perform work with workmen skilled in the trades involved. Prepare sample area of each type of work for approval.
- C. Cutting: Use cutting tools, not chopping tools. Make neat holes. Minimize damage to adjacent work. Check for concealed utilities and structure before cutting.
- D. Patching: Make patches, seams, and joints durable and inconspicuous. Comply with tolerance for new work.
- E. Clean work area and areas affected by cutting and patching operations.

END OF SECTION

SECTION 06 10 00
ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. Provide all labor, equipment, and materials to install wood, nails, bolts, framing anchors, rough hardware and other items needed for Rough Carpentry in this work and as shown in the drawings.
- B. Install new treated wood blocking at perimeter of roof areas as required to accommodate new insulation height.
- C. Replace damaged or rotten wood nailers as required to match existing per unit cost.

1.2 RELATED SECTIONS

- A. Section 07 22 00 – Roof and Deck Insulation
- B. Section 07 54 00 – Thermoplastic Membrane Roofing
- C. Section 07 60 00 - Flashing and Sheet Metal

1.3 DELIVERY AND STORAGE

- A. Time delivery and installation of carpentry work to avoid delaying other trades whose work is dependent on or affected by the carpentry work. Keep materials dry during delivery.
- B. Store lumber and plywood in stacks with provisions for air circulation within stacks. Protect bottom of stacks against contact with damp or wet surfaces.
- C. Protect exposed materials against water and wind. Remove damaged or unsuitable material from the job site.

1.4 QUALITY ASSURANCE

- A. Comply with governing codes and regulations. Use experienced installers.
- B. Lumber Standards: American Softwood Lumber Standards PS 20-70 by U.S. Department of Commerce.
- C. Plywood Standards: U.S. Product Standard PSI-74/ANSI A 199.1 or latest APA Performance Standards for American Plywood Association.
- D. Factory Marking: Mark each piece of lumber or plywood to indicate type, grade and agency providing inspection service.
- E. Size and Shape: Dress lumber 4 sides (S4S) and work to shapes and patterns shown. Nominal sizes shown and specified refer to undressed lumber dimensions.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Construction Lumber: Standard Grade Douglas Fir, Western Larch, Western Hemlock (WWPA or WCLB) or No. 2 dimension Southern Pine (SPIB).
- B. Exterior Type Plywood: APA rated sheathing, EXT.

SECTION 06 10 00
ROUGH CARPENTRY

- C. Bucks, Nailers, Blocking, Curb, Etc. Pressure treated with water-borne preservatives to comply with AWPB LP-2. After treatment kiln-dry lumber and plywood to a maximum moisture content, respectively, of 19% to 15%.
- D. Anchorage and Fastening: Proper type, size material and finish for each application.
- E. Quality: Sound, seasoned, well manufactured materials of longest practical lengths and sizes to minimize joining. Free from warp which cannot be easily corrected by anchoring and attachment. Discard material with defects which would impair quality of work.

PART 3 - EXECUTION

3.1 EXAMINATIONS

- A. Verify measurements and dimensions as shown before proceeding with carpentry work.
- B. Examine supporting structure and conditions under which carpentry work is to be installed. Do not proceed with installation until unsatisfactory conditions have been corrected.
- C. Correlate location of nailers, blocking and similar supports for attached work.
- D. Scribe and cope as required for accurate fit of carpentry work to other work.

3.2 PROTECTION

- A. Protect installed work from damage by other trades until acceptance of work.

3.3 INSTALLATION

- A. Provide decking, nailers, blocking, curbs, and sleepers where shown on the drawings or required for attachment of other work. Coordinate with location with other work involved; refer to shop drawings of such work.
- B. Attach to substrate securely as required to support applied loading. Countersink bolts and nuts flush with surfaces.
- C. Securely attach wood nailers to substrate in accordance with Factory Mutual Loss Prevention Data Sheet I-49 and as required by recognized standards.
- D. Provide washers under bolt heads and nuts in contact with wood.
- E. Do not wax or lubricate fasteners that depend on friction for holding power.
- F. Select fasteners of size that will not penetrate members where opposite side will be exposed to view or will receive finish material.
- G. Make tight connections between members. Install fasteners without splitting of wood; pre-drill as required. Do not drive threaded friction type fasteners; turn into place. Tighten bolts and lag screws at installation and re-tighten as required for tight connections prior to closing in or at completion of work.

END OF SECTION

ROOF AND DECK INSULATION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including the Conditions of the Contract and Division 07 Specification Sections apply to this section.

1.2 SUMMARY

- A. Section includes roof insulation over the properly prepared deck substrate.
- B. Related Sections:
 - 1. Section 07 54 00 – Thermoplastic Roofing
 - 2. Section 07 60 00 – Flashing and Sheet Metal

1.3 REFERENCES

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

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21. ASTM D2126 Standard Test Method for Response off Rigid Cellular Plastics to Thermal Humid Aging.
 22. ASTM D2178 Standard Specification for Asphalt Glass Felts used in Roofing and Waterproofing.
 23. ASTM D4601 Standard Specification for Asphalt-Coated Glass Fiber Base Sheet Used in Roofing.
 24. ASTM D5147 Standard Sampling and Testing Modified Bituminous Sheet Material.
- B. Cast Iron Soil Pipe Institute, Washington, D.C. (CISPI)
- C. Factory Mutual Research (FM):
1. Roof Assembly Classifications.
- D. National Roofing Contractors Association (NRCA):
1. Roofing and Waterproofing Manual.
- E. Underwriters Laboratories, Inc. (UL):
1. Fire Hazard Classifications.
- F. Warnock Hersey (WH):
1. Fire Hazard Classifications.
- G. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
- H. Steel Deck Institute, St. Louis, Missouri (SDI)
- I. Southern Pine Inspection Bureau, Pensacola, Florida (SPIB)
- J. Insulation Board, Polyisocyanurate (FS HH-I-1972)
- K. Insulation Board, Thermal (Fiberboard) (FS LLL-1-535B)

1.4 SUBMITTALS

- A. Product Data: Provide manufacturer's specification data sheets for each product.
- B. Provide approval letters from insulation manufacturer for use of their insulation within this particular roofing system type.
- C. Provide a sample of each insulation type.
- D. Shop Drawings
1. Submit manufacturer's shop drawings indicating complete installation details of tapered insulation system, including identification of each insulation block, sequence of installation, layout, drain 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.
- E. Certification
1. Submit roof manufacturer's certification that insulation fasteners furnished are acceptable to roof manufacturer.

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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 Section 07 55 00 of roofing specifications for pre-installation meeting requirements.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver products to site with seals and labels intact, in manufacturer's original containers, dry and undamaged.
- B. Store all insulation materials in a manner to protect them from the wind, sun and moisture damage prior to and during installation. Any insulation that has been exposed to any moisture shall be removed from the project site.
- C. Keep materials enclosed in a watertight, ventilated enclosure (i.e. tarpaulins).
- D. Store materials off the ground. Any warped, broken or wet insulation boards shall be removed from the site.

PART 2 – PRODUCTS

2.1 PRODUCTS, GENERAL

- A. Basis of Design: 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.
- B. Substitutions: Products proposed as equal to the products specified in this Section shall be submitted in accordance with Bidding Requirements and Division 01 provisions.
 1. Proposals shall be accompanied by a copy of the manufacturer's standard specification section.
 2. Equivalency of performance criteria, warranty terms, submittal procedures, and contractual terms will constitute the basis of acceptance.
 3. The Owner's decision regarding substitutions will be considered final. Unauthorized substitutions will be rejected.

2.2 INSULATION MATERIALS

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

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- b. Thickness: tapered, varies
- c. R-Value: Minimum 5.7 LTTR per inch.
- d. Compliances: UL, WH or FM listed under Roofing Systems Federal Specification HH-I-1972, Class 1.
2. Gypsum Fiber Roof Board ASTM C1278
 - a. Board Size: Four feet by four feet (4' x 4')
 - b. Thickness: One half inch(1/2")
 - c. Compliances: UL, WH, FM listed under Roofing Systems
3. High Density Fiberboard Roof insulation; ASTM C208
 - d. Qualities: Rigid, composed of interlocking fibers factory blended treated with asphalt on the all 6 sides.
 - e. Board Size: Four feet by four feet (4' x 4')
 - f. Thickness: Minimum One half inch(1/2")
 - g. Compliances: UL, WH, FM listed under Roofing Systems. Federal Specification LLL-I-535-B.

2.3 RELATED MATERIALS

- A. Fiber Cant and Tapered Edge Strips: Preformed rigid insulation units of sizes/shapes indicated, Rockwool, as per the approved manufacturer.
- B. Protection Board:
 1. Gypsum fiber roof board one half (1/2) inch.
 2. High Density Fiberboard one half (1/2) inch.
- C. Roof and Coverboard Adhesive: Dual-component, high rise 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).....22,000 to 60,000 cP.
 4. 2 `Peel Strength (ASTM D903).....17 lb/in.
 5. 3 `Flexibility (ASTM D816).....Pass @ -70°F

PART 3 – EXECUTION

3.1 EXECUTION, GENERAL

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

3.2 INSPECTOR OF SURFACES

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

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ROOF AND DECK INSULATION

8. Verify that temporary roof has been completed.

3.3 INSTALLATION

- A. Attachment with Insulation Adhesive Approved by Factory Mutual (FM).
 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. For Zone 1, apply insulation adhesive directly to the substrate using a ribbon pattern (4 equally spaced rows) with one half to three quarter (1/2-3/4) inch wide beads 12 inches o.c., using either the manual applicator or an automatic applicator, at a rate of one (1) gallon per one hundred (150) square feet per cartridge.
 3. For Zone 2 apply insulation adhesive directly to the substrate using a ribbon pattern (7 equally spaced rows) with one half to three quarter (1/2-3/4) inch wide beads 6 inches o.c.,
 4. For Zone 3 apply insulation adhesive directly to the substrate using a ribbon pattern (11 equally spaced rows) with one half to three quarter (1/2-3/4) inch wide beads 4 inches o.c., using either the manual applicator or an automatic applicator, at a rate of one (1) gallon per one hundred (150) square feet per cartridge.
 5. Immediately place insulation boards into wet adhesive. Do not slide boards into place. Do not allow the adhesive to skin over before installing insulation boards.
 6. 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. Place weights on boards until adhesive cures.
 7. 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 (1/4) inch away from the vertical surface.
 8. Tape joints of insulation as per manufacturer's requirements prior to installing roof assembly.

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

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THERMOPLASTIC MEMBRANE ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cold Applied Thermoplastic Roof System
- B. Accessories
- C. Edge Treatment and Roof Penetration Flashings

1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry.
- B. Section 07220 - Insulation Board: Insulation and fastening.
- C. Section 07620 - Sheet Metal Flashing and Trim: Weather protection for base flashings.

1.3 REFERENCES

- A. ASTM D 1079 Standard Terminology Relating to Roofing, Waterproofing and Bituminous Materials.
- B. ASTM D 6754 - Standard Specification for Ketone Ethylene Ester (KEE) Sheet Roofing.
- C. ASTM D 6757 - Standard Specification for Underlayment Felt Containing Inorganic Fibers Used in Steep-Slope Roofing.
- D. ASTM E 108 - Standard Test Methods for Fire Test of Roof Coverings
- E. Factory Mutual Research (FM): Roof Assembly Classifications.
- F. National Roofing Contractors Association (NRCA): Roofing and Waterproofing Manual.
- G. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - Architectural Sheet Metal Manual.
- H. Underwriters Laboratories, Inc. (UL): Fire Hazard Classifications.
- I. Warnock Hersey (WH): Fire Hazard Classifications.
- J. ANSI-SPRI ES-1 Wind Design Standard for Edge Systems used with Low Slope Roofing Systems.
- K. ASCE 7, Minimum Design Loads for Buildings and Other Structures
- L. UL - Fire Resistance Directory.
- M. FM Approvals - Roof Coverings and/or RoofNav assembly database.

1.4 DESIGN / PERFORMANCE REQUIREMENTS

- A. Perform work in accordance with all federal, state and local codes.
- B. Design Requirements:
 - 1. Uniform Wind Uplift Load Capacity
 - a. Installed roof system shall withstand negative (uplift) design wind loading

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THERMOPLASTIC MEMBRANE ROOFING

pressures complying with the following criteria.

- 1) Design Code: ASCE 7, Method 2 for Components and Cladding.
 - 2) Importance Category: IV
 - 3) Importance Factor of: 1.0
 - 4) Wind Speed: 120 mph
 - 5) Ultimate Pullout Value: 456 pounds per each of the fastener
 - 6) Exposure Category: B
 - 7) Design Roof Height: 20 feet.
 - 8) Minimum Building Width: 208 feet.
 - 9) Roof Pitch: 1 :12.
 - 10) Roof Area Design Uplift Pressure:
 - a) Zone 1 - Field of roof 15.5 psf
 - b) Zone 2 - Eaves, ridges, hips and rakes 26.1 psf
 - c) Zone 3 - Corners 39.3 psf
2. Snow Load: not to exceed original building design.
 3. Live Load: 20 psf, or not to exceed original building design.
 4. Dead Load:
 - a. Installation of new roofing materials shall not exceed the dead load capacity of the existing roof structure.
- C. Energy Star: Roof System shall comply with the initial and aged reflectivity required by the U.S. Federal Government's Energy Star program.
- D. Roof System membranes containing recycled or bio-based materials shall be third party certified through UL Environment.

1.5 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. Shop Drawings: Submit shop drawings including installation details of roofing, flashing, fastening, insulation and vapor barrier, including notation of roof slopes and fastening patterns of insulation and base modified bitumen membrane, prior to job start.
- C. 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.
- D. Verification Samples: For each membrane product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.
- E. 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

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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 ten years operating under current business name and certified by roof system manufacturer
- 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 Owner, submit Manufacturer's written approval of secondary components in list form, signed by an authorized agent of the Manufacturer.

1.7 PRE-INSTALLATION MEETINGS

- A. Convene minimum two weeks prior to commencing Work of this section.
- B. Review installation procedures and coordination required with related Work.
- C. Inspect and make notes of job conditions prior to installation:
 - 1. Record minutes of the conference and provide copies to all parties present.
 - 2. Identify all outstanding issues in writing designating the responsible party for follow-up action and the timetable for completion.
 - 3. Installation of roofing system shall not begin until all outstanding issues are resolved to the satisfaction of the Architect.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver and store products in manufacturer's unopened packaging with labels intact until ready for installation.
- B. Store all roofing materials in a dry place, on pallets or raised platforms, out of direct exposure to the elements until time of application. Store materials at least 4 inches above ground level and covered with "breathable" tarpaulins.
- C. Stored in accordance with the instructions of the manufacturer prior to their application or installation. Store roll goods on end on a clean flat surface except store KEE-Stone FB 60 rolls flat on a clean flat surface. No wet or damaged materials will be used in the application.
- D. Store at room temperature wherever possible, until immediately prior to installing the roll. During winter, store materials in a heated location with a 50 degree F (10 degree C) minimum temperature, removed only as needed for immediate use. Keep materials away from open flame or welding sparks.
- E. Avoid stockpiling of materials on roofs without first obtaining acceptance from the Architect/Engineer.
- F. Adhesive storage shall be between the range of above 50 degree F (10 degree C) and below 80 degree F (27 degree C). Area of storage shall be constructed for flammable

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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 Warranty, warranting that, if a leak develops in the roof during the term of this warranty, due either to defective material or defective workmanship by the installing contractor, the manufacturer shall provide the Owner, at the Manufacturer's expense, with the labor and material necessary to return the defective area to a watertight condition.
1. Warranty Period:
 - a. 15 + 15 years from date of acceptance. Requires mid period inspection.
- B. Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
1. Warranty Period:
 - a. 5 years from date of acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Garland Company, Inc. (The); 3800 E. 91st St., Cleveland, OH 44105. Phone 918-991-1210. Web Site: www.garlandco.com.
- B. Requests for substitutions will be considered in accordance with performance requirements.
- 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 Owner for approval prior to acceptance. Substitutions will not be accepted without prior written approval from the Owner.
 3. In making a request for substitution, the Bidder/Roofing Contractor represents that he/she 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.

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- f. Will reimburse the Owner for all redesign cost for accommodation of the substitution.
4. 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 contractor's request for manufacturer substitution.

2.2 COLD APPLIED THERMOPLASTIC ROOF SYSTEM

A. Thermoplastic Membrane(Field and Flashings): One ply bonded to the prepared substrate with foam Adhesive:

1. 60 mil thermoplastic, ketone ethylene ester (KEE) roofing membrane with polyester scrim. ASTM D6754
 - a. Breaking Strength, ASTM D 751, Proc. B, strip
 - 1) 375 lbf. (1,668 N)
 - b. Tear Strength ASTM D 751
 - 1) 120 lbf. min. (534 N)
 - c. Elongation at Break (%), ASTM D 751, Proc. B, Strip
 - 1) 40.0%

B. Membrane Adhesive:

1. Dual component, single bead (ribbon applied) urethane insulation/membrane adhesive.
 - a. Tensile Strength (ASTM D 412) 250 psi
 - b. Density (ASTM D 1875) 8.5 lbs./gal.
 - c. Viscosity (ASTM D 2556) 22,000 - 60,000 cP
 - d. Peel Strength (ASTM D 903) 17 lb./in.
 - e. Flexibility (ASTM D 816) Pass @ -70 deg. F (-56.7 deg. C)

2.3 ACCESSORIES:

- A. Roof Insulation: In accordance with Section 07220.
- B. Roof Insulation: Provide USG Securock for proper adhesion of the membrane in accordance with Section 07220.
- C. Nails and Fasteners: Non-ferrous metal or galvanized steel, except that hard copper nails shall be used with copper; aluminum or stainless steel nails shall be used with aluminum; and stainless steel nails shall be used with stainless steel, Fasteners shall be self-clinching type of penetrating type as recommended by the deck manufacturer. Fasten nails and fasteners flush-driven through flat metal discs not less than 1 inch (25 mm) diameter. Omit metal discs when one-piece composite nails or fasteners with heads not less than 1 inch (25 mm) diameter are used.
- D. Walkway Pads: As recommended and furnished by the membrane manufacturer set in approved adhesive to control foot traffic on roof top surface and provide a durable system compliant non-slip walkway.
- E. Urethane Sealant Hybrid: One part, non-sag sealant as approved and furnished by the membrane manufacturer for moving joints.
 1. Tensile Strength, ASTM D 412: 250 psi
 2. Elongation, ASTM D 412: 450%
 3. Hardness, Shore A ASTM C 920: 35
 4. Adhesion-in-Peel, ASTM C 92: 30 pli

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- F. Butyl Tape: 100% solids, asbestos free and compressive tape designed to seal as recommended and furnished by the membrane manufacturer.
- G. Non-Shrink Grout: All weather fast setting chemical action concrete material to fill pitch pans.
 - 1. Flexural Strength, ASTM C 78: (modified) 7 days 1100psi
 - 2. High Strength, ASTM C 109: (modified) 24 days 8400lbs (3810kg)
- H. Pitch Pocket Sealer: An asphaltic-polyurethane, low odor, 2 part liquid flashing material designed for pitch pans.
 - 1. Tensile Strength, ASTM D 412: 400 psi
 - 2. Elongation, ASTM D 412: 300%
 - 3. Density @77 deg. F 8.5 lb/gal typical
- I. Mineral Wool Cant: Continuous triangular cross Section made of fibrous mineral wool used as a cant strip as recommended and furnished by the membrane manufacturer.

2.4 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

- A. Pre-Manufactured Coping Cap and Splice Plate:
 - 1. Zinc-coated steel, ASTM A653, coating designation G-90, in thickness of 24 gauge, 22 gauge or 20 gauge, 36" to 48" by coil length, chemically treated, commercial or lock-forming quality.
 - 2. Aluminum, ASTM B209, alloy 3105-H14, in thickness of .040" nom. or .050" nom. or .063" nom
- B. Pre-Manufactured Coping Chairs
 - 1. Zinc-coated steel, ASTM A653, coating designation G-90, in thickness of 0.0635 nom./ 16 gauge, 36" to 48" by coil length, chemically treated, commercial or lock-forming quality.
- C. Pre-Manufactured Edge Metal Finishes:
 - 1. Exposed and unexposed surfaces for mill finish flashing, fascia, and coping cap, as shipped from the mill
 - 2. Exposed surfaces for coated panels:
 - a. Steel Finishes: fluorocarbon finish. Epoxy primer baked both sides, .2-.25 mils thickness as approved by finish coat manufacturer. Weathering finish as referred by National Coil Coaters Association (NCCA). Provided with the following properties.
 - 1) Pencil Hardness: ASTM D3363, HB-H / NCCA II-2.
 - 2) Bend: ASTM D-4145, O-T / NCCA II-19
 - 3) Cross-Hatch Adhesion: ASTM D3359, no loss of adhesion
 - 4) Gloss (60 deg. angle): ASTM D523, 25+/-5%
 - 5) Reverse Bend: ASTM D2794, no cracking or loss of adhesion
 - 6) Nominal Thickness: ASTM D1005
 - a) Primer: 0.2 mils
 - b) Topcoat, 0.7 mils min
 - c) Clear Coat (optional, only used with 22 ga. steel) 0.3 mils
 - 7) Color: Provide as specified. (Subject to minimum quantities)
- D. Flashing Boot - Flashing Boot: Kee pipe boot for sealing single or multiple pipe penetrations adhered in approved adhesives as recommended and furnished by the membrane manufacturer.
- E. Pitch pans, Rain Collar galvanized kee clad metal. All joints should be welded/soldered watertight. See details for design.

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

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Inspect and approve the deck condition, slopes and fastener backing if applicable, parapet walls, expansion joints, roof drains, stack vents, vent outlets, nailers and surfaces and elements.
- C. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.
- D. If substrate preparation and other conditions are the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

- A. General: Clean surfaces thoroughly prior to installation.
 - 1. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
 - 2. Surface corrosion shall be removed, and repairs to severely corroded areas made. Loose or inadequately secured decking shall be fastened, and irreparable or otherwise defective decking shall be replaced.
 - 3. Fill flutes to ensure consistent surface above panel legs.
 - 4. Suitable insulation shall be mechanically attached as recommended by the roof system manufacturer.
 - 5. Surface to receive roofing system shall be smooth, clean, free from loose gravel, dirt and debris, dry and structurally sound.
 - 6. Wherever necessary, all surfaces to receive roofing materials shall be power broom and vacuumed to remove debris and loose matter prior to starting work.
 - 7. Do not apply roofing during inclement weather. Do not apply roofing membrane to damp, frozen, dirty, or dusty surfaces.
 - 8. Fasteners and plates for fastening components mechanically to the substrate shall provide a minimum pull-out capacity of 456 lbs.per fastener.

3.3 INSTALLATION - GENERAL

- A. Install membranes and flashings in accordance with manufacturer's instructions and with the recommendations provided by the National Roofing Contractors Association's Roofing & Waterproofing Manual and applicable codes.
- B. General: Avoid installation of 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

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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

3.4 INSTALLATION COLD APPLIED ROOF SYSTEM

- A. Thermoplastic Membrane: Allow plies to relax before installing. Install in foam adhesive applied at the rate required by the manufacturer. Shingle sheets uniformly over the prepared substrate to achieve the number of plies specified. Shingle in proper direction to shed water on each large area of roofing.
 - 1. All field seams exceeding 10 feet in length shall be welded with an approved automatic welder.
 - 2. All field seams must be clean and dry prior to initiating any field welding. Remove foreign materials from the seams (dirt, oils, etc.) with acetone or authorized alternative. Use CLEAN WHITE COTTON cloths and allow approximately five minutes for solvents to dissipate before initiating the automatic welder. Do not use denim or synthetic rags for cleaning.
 - 3. Contaminated areas within a membrane seam will inhibit proper welding and will require a membrane patch or strip.
 - 4. All welding shall be performed only by qualified personnel to ensure the quality and continuity of the weld. The lap or seam area of the membrane may be intermittently tack welded to hold the membrane in place.
 - 5. The back interior edge of the membrane shall be welded first, with a thin, continuous weld to concentrate heat along the exterior edge of the lap during the final welding pass.
 - 6. Follow local code requirements for electric supply, grounding and surge protection. The use of a dedicated, portable generator is highly recommended to ensure a consistent electrical supply, without fluctuations that can interfere with weld consistency.
 - 7. Properly welded seams shall utilize a 1.5 inch wide nozzle, to create a homogeneous weld, a minimum of 1.5 inches in width.
- B. Fibrous Cant Strips: Provide non-combustible mineral wool cant strips at all wall/curb detail treatments where angle changes are greater than 45 degrees. Cant may be set in approved insulation adhesive.
- C. Wood Blocking and Nailers: Provide wood blocking and nailers as specified.
 - 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.
- D. Metal Work: Provide metal flashings, counter flashings, parapet coping caps and thru-wall flashings as specified in Section 076200. Install in accordance with the SMACNA "Architectural Sheet Metal Manual" or the NRCA Roofing Waterproofing manual.
- E. Termination Bar: Provide a metal termination bar at the terminus of all flashing sheets at

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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.

- F. Flashing Membrane:
1. Seal curb, wall and parapet flashings with an application of sealant 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. Adhere to the prepared substrate with specified flashing ply adhesive. Nail off at a minimum of 8 inches (203 mm) o.c. from the finished roof at all vertical surfaces.
 3. Coordinate counter flashing, cap flashings, expansion joints and similar work as specified.
 4. Coordinate roof accessories, miscellaneous sheet metal accessory items with the roofing system work.
 5. Secure the top edge of the flashing sheet using a termination and covered with an acceptable counter flashing.

- G. Roof Walkways: Provide walkways in areas indicated.

3.5 INSTALLATION EDGE TREATMENT AND ROOF PENETRATION FLASHING

- A. Fabricated Flashings: Fabricated flashings and trim are provided as specified in Section 07620.
1. Fabricated flashings and trim shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the Copper Development Association "Copper in Architecture - Handbook" as applicable.
- B. Metal Edge:
1. Inspect the nailers to assure proper attachment and configuration.
 2. Run membrane over the edge. Assure coverage of all wood nailers.
 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 adhesive. Fasten flange to wood nailers every 3 inches (76 mm) o.c. staggered.
 5. Install thermoplastic stripping with bonding adhesive terminating on field of roof and heat weld to edge metal and field.
- C. Roof Edge With Gutter:
1. Inspect the nailer to assure proper attachment and configuration. Increase slope at metal edge by additional degree of slope in first board.
 2. Run membrane over the edge. Assure coverage of all wood nailers.
 3. Install gutter and strapping.
 4. Install continuous cleat and fasten at 6 inches (152 mm) o.c.
 5. Install new metal edge hooked to continuous cleat and set in bed of roof adhesive. Fasten flange to wood nailer every 3 inches (76 mm) o.c. staggered.
 6. Install thermoplastic stripping with bonding adhesive terminating on field of roof and heat weld to edge metal and field.
- D. Wall Flashing below coping cap:
1. Minimum flashing height is 8 inches (203 mm) above finished roof height.
 2. Set cant in insulation adhesive. Run field membrane over cant a minimum of 2 inches (50 mm).
 3. Then install thermoplastic flashing membrane in foam adhesive. Run over top of parapet and nail off at 8 inches (203 mm) o.c. on the back side of the parapet wall.
 4. Heat weld over the thermoplastic field membrane, 9 inches (228 mm) on to the field of the roof.
 5. Heat weld a cover strip over all seams.

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- E. Pre-manufactured Snap-On Coping Cap:
1. Install miters first.
 2. Position base flashing ply over the wall edge covering nailers completely, fastening 8 inches on center. Install thermoplastic with proper material and procedure according to manufacturer's recommendations.
 3. Install minimum 16 gauge, 16 inch long by specified width anchor chair at 3" o.c.
 4. Install 6 inch wide splice plate by centering over 16 inch long by specified width anchor chair. Apply two beads of sealant to either side of the splice plate's center. Approximately 2 inches from the coping cap joint. Install Coping Cap by hooking outside hem of coping on outside face of anchor chair. Press downward on inside edge of coping until "snap" occurs and hem is engaged on the entire chair.
- F. Manufactured Wall Panel W/ Roof/Flashing (Slip Flashing):
1. Minimum flashing height is 8 inches (203 mm) above finished roof height. Prime vertical wall and allow to dry.
 2. Install 5/8" minimum pressure treated plywood sheathing to rise walls.
 3. Set cant in insulation adhesive. Run field membrane over cant a minimum of 2 inches (50 mm).
 4. Prime plywood at rate of .5 gal/sq and allow to dry.
 5. Install the thermoplastic flashing membrane in foam extending 9 inches (228 mm) on to the field of the roof and heat weld to field membrane.
 6. Install stainless or aluminum termination bar fastened at minimum of 8 inches (203 mm) o/c to achieve constant compression. Provide suitable sealant at the top edge.
 7. Install two-piece counterflashing/J-trim fastened above term bar every 12" o.c.
 8. Install self-adhered membrane to substrate ensuring full overlap at roof above and terminating over counterflashing below.
 9. Fasten the first manufactured wall panel vertically plumb with clips spaced max 2' o.c.
 10. Install adjoining panels by engaging the opposing interlocking seam and fastening as described above.
 11. Complete inside and outside corners by installing pre-fabricated corners or job site braking a full width panel to accommodate the corner, so that the sides engage the lock of the panels to the corner areas.
 12. Seal raw edges with manufacturer's recommended sealant.
 13. Fasten slip flashing to upper roof edge metal with a waterproof rivet every 24 inches (609 mm) o.c. to act as a counterflashing over the manufactured wall panel.
- G. Equipment Support:
1. Minimum curb height is 8 inches (203 mm) above finished roof height.
 2. Set cant in insulation adhesive. Run field membrane over cant a minimum of 2 inches (50 mm).
 3. Install the thermoplastic flashing membrane in foam over extending 9 inches (228 mm) on to the field of the roof.
 4. Install pre-manufactured cover. Fasten sides at 24 inches (609 mm) o.c. with fasteners and neoprene washers. Furnish all joint cover laps with butyl tape between metal covers.
 5. Set equipment on neoprene pad and fasten as required by equipment manufacturer.
- H. Curb Detail/Air Handling Station:
1. Minimum curb height is 8 inches (203 mm) above finished roof height.
 2. Set cant in insulation adhesive. Run field membrane over cant a minimum of 2 inches (50 mm).
 3. Install the thermoplastic flashing membrane in foam over extending 9 inches (228 mm) on to the field of the roof.
 4. Install pre-manufactured counterflashing with fasteners and neoprene washers or per manufacturer's recommendations.

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5. Set equipment on neoprene pad and fasten as required by equipment manufacturer.
- I. Pre-manufactured Curb For Equipment Support:
1. Minimum curb height is 8 inches (203 mm) above finished roof height.
 2. Set cant in insulation adhesive. Run field membrane over cant a minimum of 2 inches (50 mm).
 3. Install the thermoplastic flashing membrane in foam over extending 9 inches (228 mm) on to the field of the roof and heat weld.
 4. Install pre-manufactured cover. Fasten sides at 24 inches (609 mm) o.c. with fasteners and neoprene washers. Furnish all joint cover laps with butyl tape between metal covers.
 5. Set equipment on neoprene pad and fasten as required by equipment manufacturer.
- J. Exhaust Fan:
1. Minimum curb height is 8 inches (203 mm) above finished roof height.
 2. Set cant in insulation adhesive. Run field membrane over cant a minimum of 2 inches (50 mm).
 3. Install the thermoplastic flashing membrane in foam over extending 9 inches (228 mm) on to the field of the roof.
 4. Install metal exhaust fan over the wood nailers and flashing to act as counterflashing. Fasten per manufacturer's recommendation.
- K. Plumbing Stack:
1. Minimum stack height is 12 inches (609 mm).
 2. Run roof membrane over the entire surface of the roof. Seal the base of the stack with tube sealant.
 3. Install properly sized kee pipe boot heat welded to field.
 4. Install drawband around stack at top of boot.
 5. Caulk the drawband with elastomeric sealant.
- L. Heat Stack:
1. Minimum stack height is 12 inches (609 mm).
 2. Run roof membrane over the entire surface of the roof. Seal the base of the stack with tube sealant.
 3. Install properly sized sleeves with flanges set in bed of sealant.
 4. Install thermoplastic membrane target in adhesive and heat weld edge to field.
 5. Caulk the intersection of the stack and membrane with elastomeric sealant.
 6. Install new collar over cape. Weld collar or install stainless steel draw brand.
- M. Pitch Pocket Umbrella:
1. Run roof membrane over the entire surface of the roof. Seal the penetration with tube sealant.
 2. Place the pitch pocket over the penetration ensuring top of pitch pocket is level. Strip in flange of pitch pocket with thermoplastic membrane extending 9 inches (228 mm) on to the field of the roof and heat welded to field and pitch pocket.
 3. Fill pitch pocket half full with non-shrink grout. Let this cure and top off with 2 part pourable sealant.
 4. Caulk joint between roof system and pitch pocket with elastomeric sealant.
 5. Place a bonnet over the top of the pitch pocket and caulk the joints with sealant.

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.

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- 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: Manufacturer to provide field observations minimum two (2) times per week while work is being performed. 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 Representative employed full-time by 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.

END OF SECTION

SECTION 07 56 30
FLUID APPLIED ROOFING RESTORATION

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Metal Surface Roof Restoration
- B. Accessories

1.2 RELATED SECTIONS

- A. Section 06100 - Rough Carpentry: Roof blocking installation and requirements.
- B. Section 07620 - Sheet Metal Flashing and Trim: Metal cap flashing and expansion joints.
- C. Section 07620 - Sheet Metal Flashing and Trim: Weather protection for base flashings.
- D. Section 07710 - Manufactured Roof Specialties: Counter flashing gravel stops, and fascia, scuppers, gutters and downspouts.
- E. Section 15430 - Plumbing Specialties: Piping vents and roof drains.

1.3 REFERENCES

- A. ASTM C 78 - Standard Test Method for Flexural Strength of Concrete.
- B. ASTM C 92 - Standard Test Methods for Sieve Analysis and Water Content of Refractory Materials.
- C. ASTM C 109 - Standard Test Method for Compressive Strength of Hydraulic Cement Mortars.
- D. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
- E. ASTM C 1250 - Standard Test Method for Nonvolatile Content of Cold Liquid-Applied Elastomeric Waterproofing Membranes.
- F. ASTM D 5 - Standard Test Method for Penetration of Bituminous Materials.
- G. ASTM D 36 - Standard Test Method for Softening Point of Bitumen.
- H. ASTM D 43 - Standard Specification for Coal Tar Primer Used in Roofing, Dampproofing, and Waterproofing.
- I. ASTM D 71 - Standard Test Method for Relative Density of Solid Pitch and Asphalt.
- J. ASTM D 75 - Standard Practice for Sampling Aggregates.
- K. ASTM D 92 - Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester.
- L. ASTM D 93 - Standard Test Methods for Flash Point by Pensky-Martens Closed Cup Tester.
- M. ASTM D 113 - Standard Test Method for Ductility of Bituminous Materials.
- N. ASTM D 412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers-Tension.
- O. ASTM D 562 - Standard Test Method for Consistency of Paints Measuring Krebs Unit (KU)

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Viscosity Using a Stormer-Type Viscometer.

- P. ASTM D 624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers
- Q. ASTM D 816 - Standard Test Methods for Rubber Cements.
- R. ASTM D 1002 - Standard Test Method for Apparent Shear Strength of Single-Lap-Joint Adhesively Bonded Metal Specimens by Tension Loading (Metal-to-Metal).
- S. ASTM D 1370 - Standard Test Method for Contact Compatibility Between Asphaltic Materials (Oliensis Test).
- T. ASTM D 1475 - Standard Test Method For Density of Liquid Coatings, Inks, and Related Products.
- U. ASTM D 1863 - Standard Specification for Mineral Aggregate Used on Built-Up Roofs.
- V. ASTM D 1876 - Standard Test Method for Peel Resistance of Adhesives (T-Peel Test).
- W. ASTM D 2042 - Standard Test Method for Solubility of Asphalt Materials in Trichloroethylene.
- X. ASTM D 2196 - Standard Test Methods for Rheological Properties of Non-Newtonian Materials by Rotational (Brookfield type) Viscometer.
- Y. ASTM D 2240 - Standard Test Method for Rubber Property-Durometer Hardness.
- Z. ASTM D 2369 - Standard Test Method for Volatile Content of Coatings.
- AA. ASTM D 2939 - Standard Test Methods for Emulsified Bitumens Used as Protective Coatings.
- BB. ASTM D 3111 - Standard Test Method for Flexibility Determination of Hot-Melt Adhesives by Mandrel Bend Test Method.
- CC. ASTM D 3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
- DD. ASTM D 4209 - Standard Practice for Determining Volatile and Nonvolatile Content of Cellulosics, Emulsions, Resin Solutions, Shellac, and Varnishes.
- EE. ASTM D 4212 - Standard Test Method for Viscosity by Dip-Type Viscosity Cups.
- FF. ASTM D 4402 - Standard Test Method for Viscosity Determination of Asphalt at Elevated Temperatures Using a Rotational Viscometer.
- GG. ASTM D 4479 - Standard Specification for Asphalt Roof Coatings - Asbestos-Free.
- HH. ASTM D 5040 - Standard Test Methods for Ash Content of Adhesives.
- II. ASTM D 5420 - Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by Means of a Striker Impacted by a Falling Weight (Gardner Impact).
- JJ. ASTM E 1980 - Standard Practice for Calculating Solar Reflectance Index of Horizontal and Low-Sloped Opaque Surfaces
- KK. ASTM G 21 - Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi.

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- LL. SRI - Solar Reflectance Index calculated according to ASTM E 1980.
- MM. South Coast AQMD Standards.
- NN. SMACNA Architectural Sheet Metal Manual.
- OO. ANSI/SPRI ES-1 - Testing and Certification Listing of Shop Fabricated Edge Metal
- PP. National Roofing Contractors Association (NRCA) - Roofing and Waterproofing Manual.

1.4 SYSTEM DESCRIPTION

- A. Metal Surface Roof Restoration: Renovation work includes:
 1. Surface preparation: Remove loose flaking rust, dust, dirt, debris, secure all gaped panels and replace all loose fasteners with next size larger.
 2. Metal Flashings: Repair/Replace metal flashings, pitch pockets, etc.
 3. Primer: Spot prime rusted areas only. (For Revitalizer Metal and CPR systems only)
 4. Preparaton: Apply CPR Seam Sealer on seams, fasteners and around penetrations
 5. Base Coat: Apply CPR Base Coat over entire roof surface
 6. Top Coat: Apply CPR White over entire roof surface

1.5 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 1. Preparation instructions and recommendations.
 2. Storage and handling requirements and recommendations.
 3. Installation methods.
- C. Shop Drawings: Submit shop drawings including installation details of roofing, flashing, fastening, insulation and vapor barrier, including notation of roof slopes and fastening patterns of insulation and base modified bitumen membrane, prior to job start.
- D. LEED Submittals: Provide documentation of how the requirements of Credit will be met:
 1. List of proposed materials with recycled content. Indicate post-consumer recycled content and pre-consumer recycled content for each product having recycled content.
 2. Product data and certification letter indicating percentages by weight of post-consumer and pre-consumer recycled content for products having recycled content.
 3. Product reflectivity and emissivity criteria to qualify for one point under the LEED credit category, Credit 7.2, Landscape & Exterior Design to Reduce Heat Island - Roof.
- E. Verification Samples: For each product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, and color.
- F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
- 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.

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- B. **Manufacturer Qualifications:** Manufacturer: Company specializing in manufacturing products specified in this section with documented ISO 9001 certification and minimum twelve years and experience.
- 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 CONFERENCE

- A. Convene a pre-roofing conference approximately two weeks before scheduled commencement of roofing system installation and associated work.
- B. Require attendance of installers of deck or substrate construction to receive roofing, installers of rooftop units and other work in and around roofing which must precede or follow roofing work including mechanical work, Architect, Owner, roofing system manufacturer's representative.
- C. Objectives include:
 - 1. Review foreseeable methods and procedures related to roofing work, including set up and mobilization areas for stored material and work area.
 - 2. Tour representative areas of roofing substrates, inspect and discuss condition of substrate, roof drains, curbs, penetrations and other preparatory work.
 - 3. Review structural loading limitations of deck and inspect deck for loss of flatness and for required attachment.
 - 4. Review roofing system requirements, Drawings, Specifications and other Contract Documents.
 - 5. Review and finalize schedule related to roofing work and verify availability of materials, installer's personnel, equipment and facilities needed to make progress and avoid delays.
 - 6. Review required inspection, testing, certifying procedures.
 - 7. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including possibility of temporary roofing.
 - 8. Record conference including decisions and agreements reached. Furnish a copy of records to each party attending.

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

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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 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.
- B. Weather Condition Limitations: Do not apply roofing system during inclement weather or when a 40 percent chance of precipitation or greater is expected.
- C. Proceed with roofing work only when existing and forecasted weather conditions will permit unit of work to be installed in accordance with manufacturer's recommendations and warranty requirements.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.
- E. When applying materials with spray equipment, take precautions to prevent over spray and/or solvents from damaging or defacing surrounding walls, building surfaces, vehicles or other property. Care should be taken to do the following:
 - 1. Close air intakes into the building.
 - 2. Have a dry chemical fire extinguisher available at the jobsite.
 - 3. Post and enforce "No Smoking" signs.
- F. Avoid inhaling spray mist; take precautions to ensure adequate ventilation.
- G. Protect completed roof sections from foot traffic for a period of at least 48 hours at 75 degrees F (24 degrees C) and 50 percent relative humidity or until fully cured.
- H. Take precautions to ensure that materials do not freeze.
- I. Minimum temperature for application is 40 degrees F (4 degrees C) and rising for solvent based materials and 50 degrees F (10 degrees C) and rising for water based.

1.10 WARRANTY

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

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1. Warranty Period:
 - a. 5 plus 5 (10 years): 5 years from date of acceptance plus 5 additional years after required inspection by Garland.
- B. Installer is to guarantee all work against defects in materials and workmanship for a period indicated following final acceptance of the Work.
 1. Warranty Period:
 - a. 2 years from date of acceptance.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Basis of Design: Garland Company, Inc. (The), which is located at: 3800 E. 91st St.; Cleveland, OH 44105; Phone: (918)-991-1210
- B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 ROOF RESTORATION SYSTEM FOR METAL SURFACE ROOFS

- A. Cold Applied Roof Coating System:
 1. Primer: solvent based primer that promotes adhesion and prevents rust in conjunction with coating system as recommended by coating manufacturer
 2. Coating: Highly reflective multi-purpose, single-component solvent based SEBS, liquid waterproofing membrane.
 - a. Tensile Strength: ASTM D 412, 200 psi
 - b. Elongation: ASTM D 412, 200%
 - c. Density @ 77 degrees F (25 degrees C, ASTM D 1475) 9.0 lb./gal
 - d. Flash Point: ASTM D 93, 105 degrees F min. (40.6 degrees C)
 - e. Non-Volatile: ASTM D 1644, Typical 75%
 - f. VOC: 430 g/l
 - g. Reflectance: 0.77
 - h. Emittance: 0.86
 - i. SRI: 95
 3. Gray Base Coating: Multi-purpose, single-component solvent based SEBS, liquid waterproofing membrane.
 - a. Tensile Strength: ASTM D 412, 200 psi
 - b. Elongation: ASTM D 412, 200%
 - c. Density @ 77 degrees F (25 degrees C, ASTM D 1475) 9.0 lb./gal
 - d. Flash Point: ASTM D 93, 105 degrees F min. (40.6 degrees C)
 - e. Non-Volatile: ASTM D 1644, Typical 75%
 - f. VOC: 400 g/l
 4. Brush Grade Seam Coating to be used in conjunction with polyester reinforcement: Multi-purpose, single-component solvent based SEBS, liquid waterproofing sealer for details on a metal roof system.
 - a. Tensile Strength: ASTM D 412, 200 psi
 - b. Elongation: ASTM D 412, 200%
 - c. Density @ 77 degrees F (25 degrees C, ASTM D 1475) 9.12 lb./gal
 - d. Flash Point: ASTM D 93, 105 degrees F min. (40.6 degrees C)
 - e. Non-Volatile: ASTM D 1644, Typical 75%
 - f. VOC: 420 g/l
 5. Reinforcement: Polyester applied in base coat on seams and around penetrations only:
 - a. Tensile Strength: ASTM D 3786, 57.1 lbs
 - b. Elongation: ASTM D 3786, 61.65%

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- c. Mullen Burst: ASTM D 3786, 176 lbs.
- d. Nominal Thickness: 15 mills

2.3 ACCESSORIES:

- A. Urethane Sealant - One part, non-sag sealant as approved and furnished by the membrane manufacturer for moving joints.
 - 1. Tensile Strength, ASTM D 412: 250 psi
 - 2. Elongation, ASTM D 412: 950%
 - 3. Hardness, Shore A ASTM C 920: 35
 - 4. Adhesion-in-Peel, ASTM C 92: 30 pli
- B. Butyl Tape: 100% solids, asbestos free and compressive tape designed to seal as recommended and furnished by the membrane manufacturer.

2.4 EDGE TREATMENT AND ROOF PENETRATION FLASHINGS

- A. Flashing Boot - Neoprene pipe boot for sealing single or multiple pipe penetrations adhered in approved adhesives as recommended and furnished by the membrane manufacturer.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify that work penetrating the roof deck, or which may otherwise affect the roofing, has been properly completed.
- C. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 ROOF PREPARATION AND REPAIR

- A. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
- B. Repair all defects such as deteriorated roof panels, rust, pipe boots, etc.
- C. Remove all loose dirt and foreign debris from the roof surface. Do not damage roof panels in cleaning process.
- D. Clean and seal all parapet walls, gutters, rake metal, and ridge cap and repair any damaged metal where necessary. Seal watertight all fasteners, pipes, joints and penetrations where water could enter the building envelope.
- E. Clean the entire roof surface by removing all dirt, algae, paint, oil, talc, rust or foreign substance. Use a 10 percent solution of TSP (tri-sodium phosphate), Simple Green and warm water. Scrub heavily soiled areas with a brush. Rinse with fresh water to remove all TSP solution. Allow roof to dry thoroughly before continuing.
- F. Pre-Treatment of Known Growth - General Surfaces: Once areas of moss, mold, algae and other fungal growths or vegetation have been removed and surfaces have also been thoroughly cleaned, apply a biocide wash at a maximum spread rate of 0.2 gallons/square (0.08 liters/m), to guard against subsequent infection. Allow to dry onto absorbent surfaces before continuing with the application. On non-absorbent surfaces, allow to react before thoroughly rinsing to remove all traces of the solution.

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- G. Power washing of metal roof surfaces to remove all loose rust or scale is mandatory before application. Use a high-volume air broom or compressed air to remove residual dust rust perforations, etc. Deteriorated metal roof decks must be repaired or replaced prior to the application of the coating system.

3.3 INSTALLATION

- A. General Installation Requirements:
1. Install in accordance with manufacturer's instructions. Apply to minimum coating thickness required by the manufacturer.
 2. Cooperate with manufacturer, inspection and test agencies engaged or required to perform services in connection with installing the roof system.
 3. Insurance/Code Compliance: Where required by code, install and test the roofing system to comply with governing regulation and specified insurance requirements.
 4. Protect work from spillage of roofing materials and prevent materials from entering or clogging drains and conductors. Replace or restore work damaged by installation of the roofing system.
 5. All primers must be top coated within 24 hours of application. Re-prime if more time passes after priming.
 6. Keep roofing materials dry during application. Phased construction can be allowed as long as no, more than 7 days pass between coats excluding primers.
 7. Coordinate counter flashing, cap flashings, expansion joints and similar work with work specified in other Sections under Related Work.
 8. Coordinate roof accessories and miscellaneous sheet metal accessory items, including piping vents and other devices with work specified in other Sections under Related Work.
- B. Metal Surface Roof Restoration: Renovation work includes:
1. Surface Preparation: Remove loose flaking rust, dust, dirt, debris, secure all gaped panels and replace all loose fasteners with next size larger.
 - a. Remove rust by the most rigorous method suitable for the particular project and as approved by Garland.
 - b. Tighten all fasteners and verify that neoprene washers are in place.
 - c. Replace missing fasteners using oversize fasteners as necessary.
 - d. Seal all fastener heads by applying a heavy dab of compatible sealant to the tops and around of all fastener heads.
 - 1) CPR
 2. Flashings: Replace all pipe boots
 3. Primer:
 - a. Immediately after rust has been removed, apply Rust-Go Primer rust inhibitive primer over properly prepped rusted areas only at 1/4 gallon per 100 SF.
 4. Reinforcement: Base coat and treatment of field seams and around penetrations:
 - a. Application of CPR Seam Sealer on field seams, flashings and around penetrations and CPR Base Coat on the entire roof:
 - 1) Verify that the surface to be coated is properly prepared.
 - 2) Restore the surface to a suitable condition if roof surface becomes contaminated with dirt, dust or other materials that will interfere with adhesion of the coatings.
 - 3) Apply materials at specified dry film thickness.
 - 4) Apply CPR Seam Sealer to field seams, fasteners and around penetrations as required.
 - 5) After positioning reinforcement to roll out, apply CPR Base Coat about 8 inches wide to surface where reinforcement ply is to be applied at 1.5 gallons per 100 SF.
 - 6) Do not apply too far ahead of fabric so coating does not dry before fabric can be embedded.

SECTION 07 56 30
FLUID APPLIED ROOFING RESTORATION

- 7) Immediately roll a 6 inch width of reinforcement into wet coating.
 - 8) Use care to lay the fabric tight to the roof surface without air pockets, wrinkles, fishmouths, etc.
 - 9) After embedding reinforcement into the CPR Base Coat apply additional coating to completely saturate the fabric at 1.0 gallons per 100 SF.
 - 10) Apply saturation coat as soon as possible after embedding reinforcement.
 - 11) Keep the application saturated with CPR Base Coat to prevent plucking or snagging of reinforcement.
 - 12) Allow to dry for a minimum of 24 hours before applying finish coats.
5. Coating:
- a. Use special attention to coating flashings and other critical areas to build adequate membrane thickness.
 - b. Use multiple coats on verticals to prevent sagging.
 - c. Apply to Garland's minimum membrane thickness over the entire roof surface.
 - d. Material: Apply CPR White in a uniform manner at 1.5 gallons per 100 SF over the entire roof surface.
 - e. Use special attention to coating flashings and other critical areas to build adequate membrane thickness.
 - f. Use multiple coats on verticals to prevent sagging.
 - g. Apply to minimum recommended membrane thickness over the entire roof surface.

3.4 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.

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

3.6 FIELD QUALITY CONTROL

- A. Require attendance of roofing materials manufacturers' representatives at site during installation of the roofing system.
- B. Perform field inspection as required.
- C. Correct defects or irregularities discovered during field inspection.

3.7 FINAL INSPECTION

- A. At completion of roofing installation and associated work, meet with Contractor, Architect, installer, installer of associated work, roofing system manufacturer's representative and others directly concerned with performance of roofing system.
- B. Walk roof surface areas, inspect perimeter building edges as well as flashing of roof

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FLUID APPLIED ROOFING RESTORATION

penetrations, walls, curbs and other equipment. Identify all items requiring correction or completion and furnish copy of list to each party in attendance.

- C. Repair or replace deteriorated or defective work found at time above inspection as required to produce an installation that is free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
- D. Following the final inspection, provide written notice of acceptance of the installation from the roofing system manufacturer.

3.8 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

SECTION 07 60 00

FLASHING AND SHEET METAL

SECTION 1 - GENERAL

1.1 SECTION INCLUDES

- A. Flashing and Sheet Metal required preventing penetration of water through exterior shell of the building.

1.2 QUALITY ASSURANCE

- A. Qualification of Installers: At least one person shall be present at all times during execution of this work who is thoroughly trained and experienced in the materials and method required to fabricate and install the flashing and sheet metal work specified herein.
- B. Codes and Standards
 - 1. Comply with all pertinent codes and regulations, including ANSI SPRI ES-1.
 - 2. Comply with all pertinent recommendations of 1988 edition of "Architectural Sheet Metal Manual" of the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

1.3 SUBMITTALS

- A. Product Data: Submit manufacturer's product specifications, installation instructions and general recommendations for each specified sheet material and fabricated product.
- B. Shop Drawings: Submit shop drawings for review showing layout, joining, profiles, and anchorage of fabricated work, including major counter flashings, trim/fascia units.

1.4 PRODUCT HANDLING

- A. Protection: Protect flashing and sheet metal materials before and during installation.
- B. Replacements: In event of damage, make all repairs and replacements necessary.

PART 2 - PRODUCTS

2.1 MATERIALS AND GAUGES

- A. Where sheet metal is required, unless otherwise noted, it shall be 22 gauge Prefinished Galvalume conforming to ASTM A792 with AZ 55 coating designation and a Kynar 500 based fluoropolymer as provided by membrane manufacturer or pre-approved equal. Color selected by Owner.
- B. Shop Fabricated Edge Metal
 - 1. Zinc-coated steel, ASTM A653, coating designation G-90, in thickness of 22 gauge, 36" to 48" by coil length, chemically treated, commercial or lock-forming quality.
- C. Shop Fabricated Metal Finishes:
 - 1. Exposed and unexposed surfaces for mill finish flashing, fascia, and coping cap, as shipped from the mill
 - 2. Exposed surfaces for coated panels:

SECTION 07 60 00

FLASHING AND SHEET METAL

- a. Steel Finishes: fluorocarbon finish. Epoxy primer baked both sides, .2-.25 mils thickness as approved by finish coat manufacturer.
Weathering finish as referred by National Coil Coaters Association (NCCA).
Provided with the following properties
- 1) Pencil Hardness: ASTM D3363, HB-H / NCCA II-2.
 - 2) Bend: ASTM D-4145, O-T / NCCA II-19
 - 3) Cross-Hatch Adhesion: ASTM D3359, no loss of adhesion
 - 4) Gloss (60 deg. angle): ASTM D523, 25+/-5%
 - 5) Reverse Bend: ASTM D2794, no cracking or loss of adhesion
 - 6) Nominal Thickness: ASTM D1005
 - 7) Primer: 0.2 mils
 - 8) Topcoat, 0.7 mils min
 - 9) Color: Provide as specified.
- D. Counter flashings: 22 gauge Prefinished Galvalume conforming to ASTM A792 with AZ 55 coating designation and a Kynar 500 based fluoropolymer as provided by membrane manufacturer. Color selected by Owner.
- E. Manufactured Roof Specialties: Shop fabricated fascia, expansion joints, joint covers, coping caps, related flashings and trim are to be 22 gauge Prefinished Galvalume conforming to ASTM A792 with AZ 55 coating designation and a Kynar 500 based fluoropolymer and Kee-clad metal as provided by membrane manufacturer or pre-approved equal. Manufactured roof specialties shall conform to the detail requirements of SMACNA "Architectural Sheet Metal Manual" and/or the NRCA "Roofing and Waterproofing Manual" as applicable.
- F. Manufactured Coping: 22 gauge Prefinished Galvalume conforming to ASTM A792 with AZ 55 coating designation and a Kynar 500 based fluoropolymer provided by membrane manufacturer or pre-approved equal. Color selected by Owner.
- J. Pitch pans, Rain Collar 24 gauge kee clad All joints should be welded/soldered watertight. See details for design
- K. Termination Bar: 1/8" X 3/4" extruded Aluminum with slotted hole punched every 8" o.c.
- L. Metal Wall Panels:
1. General: Provide factory-formed metal wall panels designed to be field assembled by interlocking seams incorporating concealed anchor clips, allowing thermal movement.
 2. Concealed clip, interlocking flush seam wall panels as recommended by membrane manufacturer
 3. Materials: 22 gauge, Zinc-Coated (Galvanized) Steel Sheet, as per ASTM A653: G90 (Z275) coating designation; structural quality, grade 40 ksi (275 MPa)
 - a. Recycled Content: Provide steel sheet with average recycled content such that postconsumer recycled content plus one-half of preconsumer recycled content is at least 70 percent.
 - b. Texture: Smooth surface.
 - c. Exposed Coil-Coated Finish:
 - 1) 2-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat.
 - 2) Coating system shall provide nominal 1.0 mil (0.025 mm) dry film thickness, consisting of primer and color coat.

SECTION 07 60 00

FLASHING AND SHEET METAL

- a. Characteristics.
- 1) Fabrication: Panels shall be factory formed from specified metal.
 - 2) The standard profile shall be striated throughout the panel.
 - 3) Panel orientation: Vertical.
 - 4) Configuration: Panel shall be 13-inches- (330-mm-) wide nominal, with interlocking seams incorporating concealed anchor clips allowing thermal movement.
 - 5) Panel Depth (Concealed Leg Height): 1 inch (25 mm), nominal.
 - 6) Anchor clips: Clips shall be 22 gauge galvanized steel designed to allow thermal movement of the panel in each direction along the longitudinal dimension.
 - 7) Panel length: Up to 20 feet (6.1 m) maximum recommended length.

2.2 NAILS, RIVETS, AND FASTENERS

- A. Nails: Copper, Stainless Steel or Galvanized depending on application.
- B. Rivets: Copper, Aluminum, Stainless Steel or Galvanized depending on application.
- C. Exposed Fasteners and Washers: Stainless Steel Screws with covered neoprene gaskets.
- D. Unexposed Fasteners and Washers: Cadmium plated.

2.3 RELATED MATERIALS

- A. Flux: Raw Muriatic Acid killed with Zinc Chloride.
- B. Solder: Conform with current ASTM B-12. 50% tin and 50% lead.
- C. Burning Rod for Lead: Same composition as lead sheet.
- D. Joint Sealant: urethane hybrid sealant by membrane manufacturer or approved substitute.
- E. Coping Underlayment: self-adhered asphalt by membrane manufacturer or approved substitute

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify all existing work is complete to a point where this installation may commence.
- B. In the event of discrepancy, notify consultant. Do not proceed until discrepancies have been resolved.
- C. Field measure site conditions prior to fabricating work.

3.2 FABRICATION

- A. Shop fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA, and ANSI SPRI ES-1 and other industry practices.

SECTION 07 60 00

FLASHING AND SHEET METAL

- B. Fabricate for waterproof and weather-resistant performance; with expansion provisions for running work, sufficient to permanently prevent leakage, damage or deterioration of work.
- C. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels as indicated, with exposed edges folded back to form hems.

3.3 COUNTER FLASHING

- A. Install as indicated and described in details.

3.5 CLEANING

- A. Clean exposed metal surface removing substances which might cause corrosion of metal or deterioration of finish.

END OF SECTION



PITTSBURG COUNTY EXPO ROOF PROJECT

4500 WEST US-270, MCALESTER, OK 74501

MODEL CODES:

- 2015 INTERNATIONAL BUILDING CODE
- 2015 INTERNATIONAL EXISTING BUILDING CODE
- 2014 NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) 994
- 2015 INTERNATIONAL MECHANICAL CODE
- 2015 INTERNATIONAL ELECTRICAL CODE

GENERAL NOTES:

- ALL WORK SHALL BE MADE TO OCCUR IN THE ORDER OF THE SEQUENCE LISTED HEREIN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS AND FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS.
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GENERAL NOTES:

- VERIFY ALL ROOF JOISTS, TRUSSES, AND STRUCTURAL MEMBERS FOR DEFLECTION, CRACKING, AND CORROSION.
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AERIAL PHOTO
1" = 200'-0"



ROOFING PLAN
1" = 80'-0"

NOTES: ALL WORK SHALL BE MADE TO OCCUR IN THE ORDER OF THE SEQUENCE LISTED HEREIN.

Adam Ward
S.E., AIA, LEED AP
ARCHITECT
ADAM R. WARD, AIA
ARCHITECT



PITTSBURG COUNTY EXPO ROOF PROJECT
4500 WEST US-270, MCALESTER, OK 74501

REVISION NO.	DATE	DESCRIPTION

PROJECT NO.	24-01-001
DATE	04/24/2024
DRAWN BY	AW
CHECKED BY	AW
SCALE	AS SHOWN
SHEET DESCRIPTION	
ROOF PLAN	

A101

Adam Ward
 ARCHITECT
 4500 WEST US-270, MCALISTER, OK 74501
 P 58267133
 ADAM R. WARD, AIA
 ARC-IBCEC

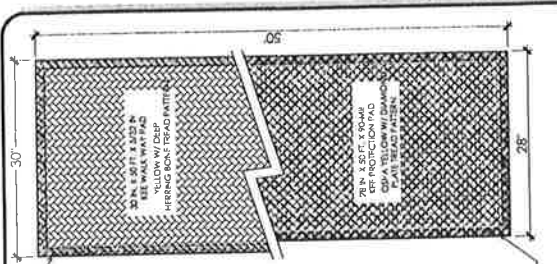


PITTSBURG COUNTY
EXPO ROOF PROJECT
 4500 WEST US-270, MCALISTER, OK 74501

REVISIONS	DATE	DESCRIPTION

PROJECT NO.	138
DATE	08.24.2021
DRAWN BY	AW
SCALE	AS NOTED
SHEET DESCRIPTION	
74143	

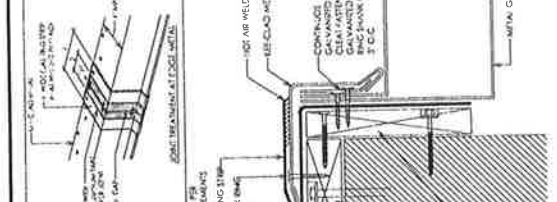
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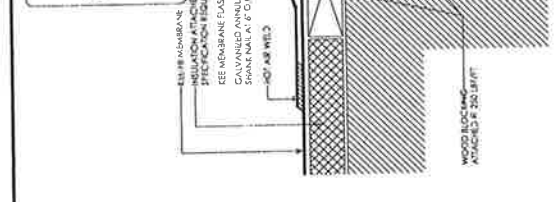
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4 N12



GUTTER FLASHING (SEE)
3 N12



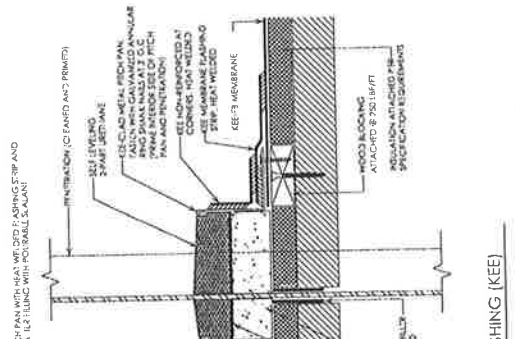
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2 N12



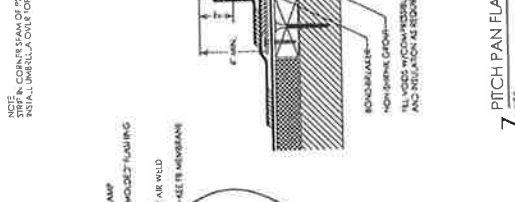
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1 N12



HEATED STACK FLASHING WITH METAL COLLAR (SEE)
5 N12



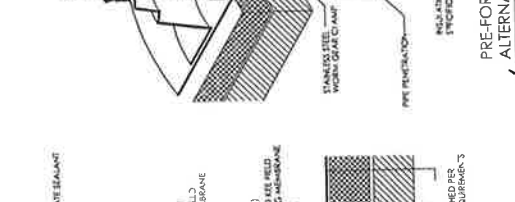
PREFORMED PIPE FLASHING ALTERNATE BASE RESTRAINT (SEE)
6 N12



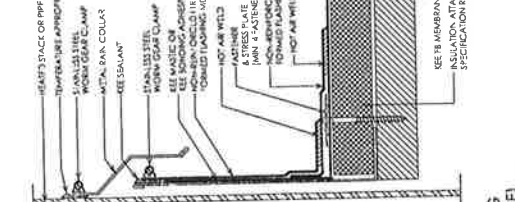
PITCH PAN FLASHING (SEE)
7 N12



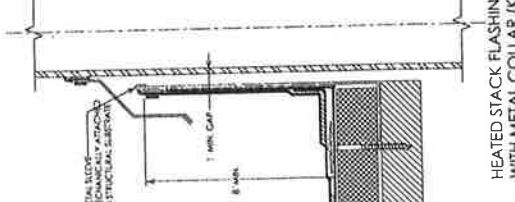
PREFORMED PIPE FLASHING ALTERNATE BASE RESTRAINT (SEE)
6 N12



WALL FLASHING (BLOCKING ALTERNATE T-BAR BASE RESTRAINT (SEE)
2 N12



WALL FLASHING (BLOCKING ALTERNATE TERMINATIONS (SEE)
1 N12



HEATED STACK FLASHING WITH METAL COLLAR (SEE)
5 N12