



Addendum No. 1
May 15, 2023

Prosser Hamilton Lab Bldg Roof Replacement
Washington State University
Prosser, WA

Project No.1933-2023
Washington State University
Facilities Services, Capital

**Addendum No. 1
May 15, 2023**

**Prosser Hamilton Lab Bldg Roof Replacement
Washington State University
Prosser, WA**

Bid Date: May 23, 2023

1. This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated April 27, 2023, and any prior addenda, as noted below.
2. Please acknowledge receipt of this addendum on the Form of Proposal.

This Addendum consists of twenty-one total pages including the following Attachments:

Pre-Bid Meeting 5/10/2023: Meeting Minutes
Pre-Bid Meeting 5/10/2023: List of Attendees
SECTION 00 42 13 – Form of proposal 5/15/2023
SECTION 07 53 23 – Thermoplastic Polyolefin Membrane (TPO) Roofing

Changes to prior Addenda: N/A

Changes to Bidding Requirements:

1-1. SECTION 00 11 13 – Advertisement for Bids

- Item 1. Replace “Remove approximately 25,000 square feet of existing roof material and insulation. Construct new parapets around perimeter to allow for new insulation installation of R-38 minimum, and re-slope to existing drains. Install new TPO roofing membrane. Substantial Completion shall be achieved by October 1, 2023. Proposals must be based on this contract time.”

*Make read “Remove approximately 25,000 square feet of existing roof material and insulation. Construct new parapets around perimeter to allow for new insulation installation of R-38 minimum, and re-slope to existing drains. Install new **EPDM** roofing membrane. Substantial Completion shall be achieved by October 1, 2023. Proposals must be based on this contract time.”*

- Item 2. Replace “Alternate 1: Substitute EPDM membrane system in place of TPO membrane system.”

*Make read “**Deductive** Alternate 1: Substitute **TPO** membrane system in place of **EPDM** membrane system.”*

1-2. SECTION 00 42 13 – Form of proposal

- Item 1. *Replace in its entirety Section 00 42 13 - Form of Proposal Part A: Base Bid & Alternate Bids, dated 5/15/2023.*

Changes to Specifications:

SP 1-1. SECTION 00 01 10 – Table of Contents

- Item 1. *Add to: DIVISION 07 – THERMAL AND MOISTURE PROTECTION; Section 07 54 00; Thermoplastic Polyolefin Membrane (TPO) Roofing.*

SP 1-2. SECTION 00 42 13 – Summary of Work

- Item 1. Replace “Remove approximately 25,000 square feet of existing roof material and insulation. Construct new parapets around perimeter to allow for new insulation installation of R-38 minimum, and re-slope to existing drains. Install new TPO roofing membrane. Substantial Completion shall be achieved by October 1, 2023. Proposals must be based on this contract time.”

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- Item 2. Replace “Alternate 1: Substitute EPDM membrane system in place of TPO membrane system.”

*Make read “**Deductive** Alternate 1: Substitute **TPO** membrane system in place of **EPDM** membrane system.”*

SP 1-3. SECTION 00 50 00 – Agreement between Owner and Contractor

- Item 1. Replace “Alternate 1: Substitute EPDM membrane system in place of TPO membrane system.”

*Make read “**Deductive** Alternate 1: Substitute **TPO** membrane system in place of **EPDM** membrane system.”*

SP 1-4. SECTION 07 54 00 –Thermoplastic Polyolefin Membrane (TPO) Roofing

Item 1. *Add in its entirety: Section 07 54 00; Thermoplastic Polyolefin Membrane (TPO) Roofing.*

END OF ADDENDUM No. 1



ATTACHMENT 13-A

PRE-BID MEETING MINUTES

***Hamilton Hall Roof Replacement
Prosser, Washington***

PRE BID MEETING

Meeting Date: 5/10/23

ATTENDING	<u>REPRESENTING</u>	<u>PHONE #</u>	<u>FAX</u>
See attached attendance list			

Attach a copy of the completed sign-in sheet(s) to the minutes.

Note: A Pre-printed agenda in the form of Pre-Bid meeting minutes indicates routine items discussed at these meetings in standard print. The actual discussions that occurred at the meeting are printed in *italics*. The meeting notes and minutes will be routed to plan holders with the addendum that follows this meeting.

PROJECT SPECIFICS

- Introductions
 - Project Manager – Adam Ferry
 - A/E – Palouse Design and Associates
- *Project Description*
- *The estimate for the project is \$575,000 - \$610,000*
- *Schedule for completion:*
 - Substantial completion by October 1, 2023
- Bid Form
 - *Bid Date is May 23, 2023*
 - *Review the Form of Proposal*
 - Note that MWBE is not a bid form requirement
 - *Discuss each of the alternates-*
 - *Alt 1 Substitute EPDM for TPO Membrane – Clarifications on Alternate are forthcoming*
- General
 - *This is an active campus. There are students, faculty and visitors who either will not be aware of construction or will be distracted. Contractors must routinely work around the pedestrian population on campus as well as control noise and other construction related activities to minimize the affect on the campus.*
 - *WSU is committed to a completely accessible campus. This means that when construction activities interfere with accessible pathways, that the General Contractor is responsible for putting in place temporary facilities (ramps, pathways, etc.,) to assure that all accessible pathways are available.*

ATTACHMENT 13-A**PRE-BID MEETING MINUTES**

- *Harassment in the workplace is not tolerated at WSU. All trades are required to conduct themselves such that harassment, real or perceived, does not occur. Offending individuals will be permanently removed from the project.*
- **Project Specific**
 - *Division 0, 1, 2, 6, 7*
 - *This is a optional Pre-Bid Meeting. Be sure to sign in as a General Contractor / Prime Bidder.*
 - *Refer to Section 00 21 13, "Low Responsible Bidder". Contractor responsibility will be evaluated. Be prepared to submit the required information within 48 hours of receipt of request.*
 - *Liquidated Damages are \$686.67 for both SC & FC*
 - *Discuss the building site.*
 - *Review the requirement(s) for haul routes and deliveries.*
 - *Discuss parking.*
 - *The Good Faith Survey - included*
 - *The General Contractor is to have a Superintendent on the project at all times that construction occurs.*
 - *Identify the day-to-day WSU on-site representative, Josh Goicoechea*
 - *The loading docks have to stay open at all times*

GENERAL ADMINISTRATION/MANAGEMENT

- **MWBE PARTICIPATION**

Washington State University is committed to the enhancement of opportunities for minority and women's owned and controlled firms in public contracting. While neither required nor a part of bidder responsiveness, the use of solicitation of minority and women's business enterprise firms is expressly encouraged.
- **PROJECT CLARIFICATIONS**
 - *O&M Manuals are required for "Substantial Completion".*
 - *As-Built Drawings are required for "Substantial Completion".*
- **ADDENDUM**
 - *Questions and substitution requests must be received May 15th*
 - *Addenda expected to be issued on May 16th*

PROJECT SITE VISIT

Contractors may arrange for a site visit by contacting Josh Goicoechea 509-715-7312 to coordinate access.

CONTRACTOR QUESTIONS

1. *Drawings and Specifications reference EPDM and NOT TPO. Will there be a clarification on this?*
 - a. *WSU Response: Yes WSU will issue an Addendum Clarifying the base and alternate scopes.*

ATTACHMENT 13-A**PRE-BID MEETING MINUTES**

Date recorded: 5/10/2023

Recorded by *insert name*: Adam Ferry

These minutes represent the author's understanding of discussions held and decisions reached at the meeting. Amendments to these notes should be submitted to the author within three (3) working days after issuance or these minutes will stand as written.



ATTACHMENT 13-A

PRE-BID MEETING MINUTES

Washington State University

**PRE BID MEETING
Prosser Hamilton Hall Roof Replacement
SIGN-IN SHEET
(Please Print)**

Name	Representing	Phone Number	Email Address
Adam Ferry Project Manager	WSU Facilities Services	509-335-9028	aferry@wsu.edu
Randy Cavanaugh	WSU Facilities Services	509-335-9019	Randy.cavanaugh@wsu.edu
Tyler Farrar	Axiom Division 7 Inc	360-354-3100	tyler@axiomd7.net
Levi Cavanah	Krueger Sheet Metal	509-489-0221	Levi@kruegersheetmetal.com
Don Pillers	Krueger Sheet Metal	509-489-0221	Don.Pillers@Kruegersheetmetal.com
Chris Cameron	Olympic Roofing		Chris@Olympicroofingllc.com
Chris Stritzke	Olympic Roofing		Cowboy@olympicroofingllc.com
JP Parks	Jimmy's Roofing	509-385-7323	jp.parks@jimmysroofing.com
Eila Tikka	JR Swigart Co Inc.	509-547-0628	Bids@jrswigart.com Kirk@jrswigart.com
<u>Ric Fernandez</u> (Not Present)	M.G. Wagner Co., Inc.	509-575-0934	ric@mgwagnerroofing.com
Brady Kincannon (Not Present)	D-Seven, LLC	206.409.1684	brady@d-sevennw.com
Josh Goicoechea (Not Present)	WSU Prosser Facilities Manager	509-715-7312	<u>jgoicoechea@wsu.edu</u>

Washington State University
Prosser Hamilton Lab Bldg Roof Replacement
Prosser, WA

Refer to Instructions to Bidders for bid submittal procedures.

Bidder's Firm Name: _____ Date: _____

To: Facilities Services, Capital
McCluskey Services Building, P.O. Box 641150
Washington State University
Pullman, Washington 99164-1150

Pursuant to and in compliance with the Advertisement for Bids and the Instructions to Bidders, the Bidder, having carefully examined the Contract Documents entitled "Prosser Hamilton Lab Bldg Roof Replacement" and having visited the Project site and examined the conditions affecting the Work, hereby proposes and agrees to provide all labor, materials, equipment, services, and incidentals necessary to complete the Work for the following stipulated sums:

A. BASE BID

_____ DOLLARS (\$_____),

B. UNIT PRICES – NOT USED

C. ALTERNATES

The Bidder proposes to modify the Base Bid by deleting from, or otherwise modifying the Work as further described by the Contract Documents for the following stipulated sums:

Alternate No. & Description

Deductive Alternate No. 1 – Substitute TPO membrane system in place of EPDM membrane system.

Deduct _____ DOLLARS (-\$_____),

For Alternates, which do not affect the Base Bid, indicate a zero (0) in the space provided for the Alternate.

D. REINSTATEMENT OF BID ALTERNATES

The Bidder agrees that Owner has the right to reinstate any Alternate not incorporated in the original Contract, for the sum originally proposed, provided Owner notifies the Bidder within 60 Days of Notice to Proceed.

E. SALES TAX

The Bidder agrees that the amounts indicated in the proposal do not include Washington State and local sales taxes except as required by the Instructions to Bidders.

F. CONTRACT PROVISIONS

Should the Bidder be notified of the acceptance of this proposal within 60 Days from the date set for the opening thereof or at any time thereafter before this proposal is withdrawn, the bidder agrees to execute a Contract for the Work and to furnish the required bonds.

1. TIME OF COMPLETION

The bidder agrees, if awarded a Contract for the Work, to complete the Work within the Contract Time specified.

2. LIQUIDATED DAMAGES

The bidder agrees that time is of the essence of the Contract and acknowledges that the amount of damages specified is a measure of the damages which the Owner will sustain should the Bidder fail to complete the Work within the Contract Time.

G. BID GUARANTEE

The Bidder agrees that the bid guarantee accompanying the Part A Form of Proposal is left in escrow with Owner, that the amount of the guarantee is the measure of the damages that Owner will sustain by failure of the bidder to execute a Contract for the Work and furnish required bonds, and that if the bidder fails to deliver said documents within 10 Days after receipt of notice of award to the bidder, the bid guarantee shall become the property of Owner.

H. MINORITY AND WOMEN'S BUSINESS ENTERPRISE (MWBE) PARTICIPATION

Owner is committed to the enhancement of opportunities for minority and women owned and controlled firms in public contracting. While neither required, nor a part of bidder responsiveness, the use or solicitation of minority and women business enterprises is expressly encouraged.

I. ADDENDA

The bidder hereby acknowledges receipt of Addendum by number(s):

J. PREVAILING WAGE CERTIFICATION

The bidder has not been determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries, or through a civil judgment entered by a court of limited or general jurisdiction, to have willfully violated, any provision of chapter 49.46, 49.48, or 49.52 RCW, as defined in RCW 49.48.82.

K. DECLARATION

The bidder represents and warrants that he/she possess the authority to sign for and bind bidder.

The Bidder declares under penalty of perjury under the laws of the State of Washington, that all of the foregoing information as recited is true and correct to the best of his/her knowledge.

Bidder's Firm Name: _____

Signed By: _____ Official Title: _____

Print Name: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Telephone: _____ Fax: _____

State of Washington Contractor's License Number: _____

Federal Tax Identification Number: _____

Email Address: _____

The firm represented by the above signature is a:

Sole Proprietorship _____

Partnership _____

Corporation _____

Other _____

State of Incorporation _____

END OF SECTION 00 42 13

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. The general provisions of the Contract, including Washington State University General Conditions for Washington State Facility Construction, Special Provisions and General Requirements, apply to the work specific in this section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Adhered membrane roofing system.
 - 2. Vapor Retarder.
 - 3. Roof Insulation.
 - 4. Base Flashing.
 - 5. Walkways.
 - 6. Fall Protection.
 - 7. Retrofit Roof Drains.

1.03 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roofing system. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Base flashing and membrane terminations.
 - 2. Tapered insulation including scopes.
 - 3. Roof plan showing orientation of membrane roofing.
 - 4. Insulation fastening patterns.
- C. Samples: For each product included in the roofing system.
- D. Installer Certificates: Signed by roofing system manufacturer certifying that installer is approved, authorized or licensed by manufacturer to install roofing system.
- E. Research/evaluation reports: For components of membrane roofing system.
- F. Field quality-control reports.

- G. Maintenance data: For roofing system to include in maintenance manuals.
- H. Material Safety Data Sheets for all chemicals used to WSU for review. This information must be made available to building occupants prior to their use on the roof.

1.04 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer that has specialized in installing roofing systems similar to those required for this project. Installer must be acceptable to or licensed by manufacturer of primary roofing material. The bidder shall provide documentation from the manufacturer of the roofing product of the following:
 - 1. The bidder shall have installed 200,000 square feet of warranted manufacturers roofing within the past five (5) calendar years.
 - 2. Completion of the Manufacturer's "Contractor" training course.
 - 3. Manufacturer's certification to install the product and meet warranty requirements.
 - 4. Proof of "Good Standing" with the Manufacturer.
- B. Manufacturer Qualifications: A qualified manufacturer that has FMG approval for membrane roofing system identical to that used for this Project.
- C. Fire Test-Response Characteristics: Provide labeled materials with the fire-test-response characteristics indicated as determined by testing identical products per test method below by UL, FMG or another testing and inspecting agency acceptable to authorities having jurisdiction. Materials shall be identified with appropriate markings of applicable testing and inspecting agency.
 - 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and roof slopes indicated.
- D. Pre-Installation Roofing Conference: Before the start of work, attend the Pre-Installation Roofing conference to review project requirements as described in Section 01 31 19.
- E. In addition to the bidder responsibility criteria above, the bidder must also meet the following relevant supplemental bidder responsibility criteria applicable to the project:

1.05 QUALITY CONTROL

- A. Contractor shall make the following items part of the Contractor's Quality Control Plan.
 - 1. Source Limitations: Obtain components for membrane roofing system from same manufacturer as roofing membrane.
 - 2. Contractor shall verify that all shop drawings, samples and other submittals are complete and have been reviewed by the Architect prior to beginning installation of membrane roofing.
 - 3. Prior to start of work, Contractor shall verify that materials are as specified and undamaged. Contractor shall inspect preparatory work and ensure that it is acceptable for subsequent follow on installation.
 - 4. Contractor shall have the manufacturer perform a final inspection of all installations prior to Substantial Completion to ensure the installation meets the manufacturer installation requirements, make all necessary corrections and ensure completion prior to calling the Owner for final inspection.

1.06 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's written instructions and warranty requirements.
- B. Contractor should coordinate with Facilities Services-Capital Project Manager. The Project Manager will be charged with interface with the university and all notifications to same and building occupants for when chemicals will be applied. Coordination should include: shut down of HVAC system; sealing air intakes; informing building occupants of chemical hazards and times of use; notifying chemically sensitive occupants and occupants with breathing difficulties; and coordination of possible alternate times for work to reduce impact on building occupants.
- C. It is recommended that a procedure be put in place to handle any IAQ complaints. This may involve Facilities Services-Capital Planning & Development Project Manager and EH&S. Consider using the Facilities Services-Capital Project Manager for response to IAQ complaints as needed.
- D. Contractor must have adequate spill supplies and a contingency plan for any spills of the chemicals being used.

- E. If fumes and/or odors become a problem, suggest the building air system be operating through the night, when work is not being done, to flush out and dilute odors before occupants return in the morning. Buildings will be occupied 24/7.

1.07 WARRANTY

- A. Special Warranty: Manufacturer's standard or customized form, without monetary limitation in which manufacturer agrees to repair or replace components of membrane roofing system that fail in materials or workmanship within specific warranty period or below specified wind speed. Peak gust wind speed coverage shall be 100 mph.
 - 1. Special warranty includes membrane roofing, base flashings, roof insulation, fasteners, vapor barrier/temporary roof, insulation adhesive cover boards, roofing accessories, and other components of membrane roofing system. Special warranty to include an R-Value Warranty term.
 - 2. Warranty Period: 20 years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 TPO MEMBRANE ROOFING – FULLY-ADHERED

- A. TPO Roofing Manufacturers:
 - 1. Carlisle SynTec Systems "Sure-Weld Adhered Roofing System".
 - 2. Substitutions: Per requirements of Section 00 21 13, Instructions to Bidders, Article 1.06, Specified Products.
- B. Thickness: 60 mils, nominal.
- C. Exposed Face Color: White.
- D. Membrane: Furnish Sure-Weld 60-mil thick, white reinforced Thermoplastic Polyolefin (TPO) membrane as needed to complete the roofing system. Membrane thickness over the reinforcing scrim (top-ply thickness) shall be nominal 15 mil thick or greater. Membrane sheets in rolls of 12', 10' or 8' and lengths of 100'. Provide Carlisle APEEL protective coating for all TPO membrane.
 - 1. Breaking Strength: FB 100-300 lbf minimum/FB 115 -400 lbf minimum.
 - 2. Tear Strength: 55 lbf/in minimum.
 - 3. Elongation: 25 percent.

2.02 AUXILIARY MEMBRANE ROOFING MATERIALS

- A. General: Auxiliary membrane roofing materials recommended by roofing system manufacturer for intended use and compatible with membrane roofing.
- B. Dens Deck Roof Board or approved equal; gypsum core with fiberglass mat surfaces both sides; 5/8 inch thickness; 4 feet x 8 feet panel size; weight of 2.5 lbs. per sq. ft.; 500 pounds per square inch compressive strength; FM Class I, flame spread/smoke developed 0/0 per ASTM E84.
- C. Sheet Flashing: 60 mil thick TPO, partially cured or cured, according to application.
- D. Seaming Material: Manufacturer's standard adhesive tape with release film.
- E. Bonding Adhesive: Manufacturer's Sure-Weld high-strength bonding adhesive. Adjoining sheets to be overlapped and joined together per manufacturer's requirements.
- F. Insulation and Re-Cover Board Adhesive: Manufacturer's standard two-component polyurethane, construction grade, low-rise expanding foam adhesive.
- G. Base Flashings: 60 mil unreinforced TPO. Use field sheet or match field sheet.
- H. Counterflashings: Pre-Finished Galvanized Steel – see Section 07 62 00.
- I. Miscellaneous Accessories: Provide lap sealant, water cutoff mastic, metal termination bars, metal battens, pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, reinforced TPO securement strips, T-joint covers, expansion joint support, in-seam sealants, termination reglets, cover strips, and other accessories.

2.03 VAPOR RETARDER/TEMPORARY ROOF

- A. 40 mil minimum composite air and vapor barrier/temporary roof consisting of 35 mils of self adhering rubberized asphalt laminated to a 5 mil polyethylene film. Adhere with manufacturer's standard adhesive installed

per manufacturer's recommendations.

2.04 ROOF INSULATION

- A. General: Preformed roof insulation boards manufactured or approved by TPO membrane roofing manufacturer, selected from manufacturer's standard sizes suitable for application, of minimum thickness of 2". Insulation securement shall be per manufacturer's recommendation.
- B. Polyisocyanurate Board Insulation: ASTM C 1289 Type II, Class I, Grade 2, felt or glass fiber mat facer on both major surfaces.
- C. Tapered Insulation: Provide factory tapered insulation boards fabricated to slope of 3/8" per 12" unless otherwise indicated.
- D. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
- E. Roof insulation layout and design to be confirmed by manufacturer/installer to meet all requirements of manufacturer's tapered insulation system and be specific to this project.

2.05 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with membrane roofing.
- B. Spray or extrude applied two component polyurethane, low rise expanding foam adhesive used for attaching approved insulations to compatible substrates.
- C. Protection Mat: Woven or non-woven polypropylene, polyolefin, or polyester fabric, water permeable and resistant to UV degradation, type and weight as recommended by roofing system manufacturer for application.

2.06 WALKWAYS

- A. Flexible Walkways: Factory formed, non porous, heavy duty, solid rubber, slip resisting, surface textured walkway pads, approximately 3/16" (5 mm) thick, and acceptable to membrane roofing system manufacturer. Secure walkway pads to roof as recommended by manufacturer.

2.07 FALL PROTECTION

- A. Fall Protection Anchor Points: Galvanized steel stanchions with steel base plate designed for anchorage over reinforced concrete and/or structural steel base; Guardian Fall Protection CB-18 or approved equal. Any welding to be in accordance with AWS Standards and performed by AWS/WABO certified welders. Special inspection per 2012 IBC as required.
- B. Provide fall protection anchors designed to resist at least 5,000 pounds applied in any direction at a height of approximately 8 inches above top of roof deck. Provide on-site testing of all fall protection devices that effectively measures applied tension force as recommended by the manufacturer.
- C. Install per manufacturer's written instructions for installations over reinforced concrete deck. Fall protection stanchions to be certified and tagged by fall protection manufacturer.

2.07 RETROFIT ROOF DRAINS

- A. A. Retrofit Roof Drains: Hercules Roof Drain, manufactured by OMG, Inc., Agawam, Massachusetts, 1-800-633-3800 or approved equal. Field Drains: One piece, 11 GA. spun aluminum, 12" drain stem length with cast aluminum strainer dome. Size varies and to field verified by contractor. Wall Drains: .080 thick aluminum, 10" stem with drains size to match existing.
- B. Install per manufacturer's written instructions, including all applicable installation and functional accessories.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with the following requirements and other conditions affecting performance of roofing systems:

1. Verify that roof openings and penetrations are in place and set and braced and that roof drains are securely clamped in place.
2. Verify that wood blocking, curbs and nailers are securely anchored to roof deck at penetrations and terminations and that nailers and built up framing match insulation thickness.

3.02 PREPARATION

- A. Clean substrate of dust, debris, moisture, old adhesives and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto other surfaces of construction.

3.03 VAPOR RETARDER INSTALLATION

- A. Install composite vapor retarder in a single layer over area to receive vapor retarder, side and end lapping each sheet a minimum of 2-1/2 inches. Bond vapor retarder to deck as follows:
 1. Apply adhesive at rate recommended by vapor retarder manufacturer. Seal laps with adhesive.
- B. Completely seal vapor retarder at terminations, obstructions and penetrations to prevent air movement into membrane roofing system according to manufacturers published details.

3.04 INSULATION INSTALLATION

- A. Coordinate installing membrane roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with membrane roofing system manufacturer's written instructions for installing roof insulation.
- C. Install tapered insulation under area of roofing to conform to slopes indicated.
- D. Install one or more layers of insulation under the area of roofing to achieve required thickness. Where insulation is 2 inches or greater, install 2 or more layers with joints of each succeeding layer staggered from joints of

previous layer a minimum of 6 inches in each direction.

- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict water.

3.05 ADHERED MEMBRANE ROOFING INSTALLATION

- A. Install membrane roofing over area to receive roofing according to membrane roofing system manufacturer's written instructions. Unroll membrane roofing and allow to relax before installing.
- B. Accurately align membrane roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- C. Bonding Adhesive: Apply to substrate and underside of membrane roofing at rate required by manufacturer and allow to partially dry before installing membrane roofing. Do not apply to splice area of membrane roofing.
- D. Adhesively fasten membrane roofing securely at terminations, penetrations, and perimeter of roofing.
- E. Adhesive Seam Installation: Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping membrane roofing according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of membrane roofing terminations.
- F. Replace material where tears, voids, and lapped seams in roofing occur, that does not comply with requirements.

3.06 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to membrane roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

- D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.
- E. Terminate and seal top of sheet flashings.

3.07 WALKWAY INSTALLATION

- A. Install walkway products in locations indicated. Adhere walkway products to substrate with compatible adhesive products according to manufacturer's written instructions.

3.08 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspection agency to perform inspections.
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion at or prior to Substantial Completion. Architect and Facilities Services-Capital Project Manager shall be in attendance. Contractor shall submit Final Inspection report to Facilities Services-Capital.
- C. Repair or remove and replace components of membrane roofing system where inspections indicate that they do not comply with specified requirements.

3.09 PROTECTING AND CLEANING

- A. Protect membrane roofing system from damage and wear during remainder of construction period.
- B. Correct deficiencies in or remove membrane roofing system that does not comply with requirements, repair substrates and repair or reinstall membrane roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

END OF SECTION 07 53 23