

Architect:

Dull Olson Weekes – IBI Group Architects, Inc.
907 SW Harvey Milk Street
Portland, Oregon 97205

April 25, 2019

**ADDENDUM NUMBER ONE
FOR
WEST TUALATIN VIEW ELEMENTARY SCHOOL ROOF REPLACEMENT**

This addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated **February 22, 2019** and any previously issued addenda as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

ITEM I - PROJECT MANUAL

01 23 00 – Alternates:

1. Add paragraph 1.05B to add Alternate No. 2 as indicated in the attached revised section.

07 53 00 – Elastomeric Membrane Roofing:

1. Revise Part 2.08 and Part 3.03 as indicated in the attached revised section.

ITEM II - PROJECT MANUAL

Sheet A1401:

1. Add General Note 5 as follows:

“5. COORDINATE WITH PORTLAND GENERAL ELECTRIC TO DISCONNECT OVERHEAD SERVICE AT THE POLE WHILE WORK IS BEING PERFORMED NEAR UTILITY LINE (FREE SERVICE). REQUEST PGE CUT SLACK OR TO RISE UP OVERHEAD SERVICE AT EXPENSE TO CONTRACTOR IF MORE HEAD ROOM TO PERFORM REROOFING WORK AS DESIRED. PGE SERVICE DESK REQUIRES ABOUT 3-WEEK ADVANCE NOTICE. COORDINATE WITH LOW-VOLTAGE UTILITY PROVIDER FOR OVERHEAD LOW-VOLTAGE UTILITY LINE BENEATH POWER LINE FOR REROOFING WORK AS REQUIRED.”

ITEM III – ATTACHMENTS

1. Specifications: 012300, 075300
2. Drawings: None

BIDDER SHALL NOTIFY ALL SUB-BIDDERS OF THIS ADDENDUM AND SHALL ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY INSERTING THE ABOVE ADDENDUM NUMBER IN THE SPACE PROVIDED ON THE BID FORM PRIOR TO SUBMITTING BIDS. FAILURE TO DO SO MAY SUBJECT BIDDER TO DISQUALIFICATION.

END OF ADDENDUM NUMBER ONE

SECTION 01 23 00
ALTERNATES
(Revised by Addendum No. 1)

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Description of Alternates.

1.02 DEFINITIONS

- A. Base Bid: Includes all work shown on Drawings and as specified, with the exception of the Work specifically included in Additive or Deductive Alternates listed herein.
- B. Alternate Bid: Amount proposed by bidders and stated on the Bid Form that will be either Added To or Deducted From the Base Bid amount if the Owner decides to accept a change in either scope of work or in products, materials, equipment, systems, or other installation methods as described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the alternate into the Work. No other adjustments are made to the Contract Sum.

1.03 ACCEPTANCE OF ALTERNATES

- A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.
 - 1. Evaluation of Alternate: Bid evaluation will be based on lowest total of base bid modified by Owner accepted alternates.
- B. Owner reserves the right to select any or all of the Alternates up to 90 days after award of Contract. If Owner so selects, the time for Substantial Completion will be correspondingly adjusted for those selected items only. Immediately following Award of Contract the Contractor shall prepare and distribute to each party involved notification of the status of each Alternate.
- C. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.
- D. Notification: Immediately following award of Contract, prepare and distribute to each party involved notification of the status of each alternate. Indicate whether alternates have been accepted, rejected or deferred for consideration at a later date.

1.04 PROCEDURES

- A. Alternates shall conform to the requirements of each Section of the Specifications which pertain to the scope of work contained within the Alternate.
- B. Refer to Drawings for details and other information related to the construction of Alternates where such construction is required by scope.
- C. Include as part of each Alternate miscellaneous devices, accessory objects and similar items incidental to or required for a complete installation, whether or not specifically mentioned as part of the Alternate.

1.05 SCHEDULE OF ALTERNATES

- A. Alternate No. 1 (Additive) - Roof Areas C, D, E, and F.
 - 1. All scope of work indicated in the documents for roof areas C, D, E, and F.
- B. **Alternate No. 2 (Additive) – Vapor Barrier / Temporary Roof.**
 - 1. **Option 1 or Option 2 as described in Section 07 53 00 Part 2.08 and Part 3.03. (ADD1)**

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 07 53 00
ELASTOMERIC MEMBRANE ROOFING
(Revised by Addendum No. 1)

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Elastomeric roofing membrane (EPDM), fully adhered.
- B. Deck level rigid insulation
- C. Plywood substrate board.
- D. Cover board.
- E. Flashings.
- F. Walkway pads.

1.02 RELATED REQUIREMENTS

- A. **Section 01 23 00 – Alternates. (ADD1)**
- B. Section 06 10 00 - "Rough Carpentry" for wood curbs, nailers, and sheathing.
- C. Section 07 01 50.19 - "Preparation for Re-Roofing" for methods of existing roof tear-off procedures and requirements.
- D. Section 07 62 00 - "Sheet Metal Flashing and Trim" for sheet metal flashing and trim integral with roofing.

1.03 REFERENCE STANDARDS

- A. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
- B. ASTM C1177/C1177M - Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
- C. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
- F. ASTM D4637/D4637M - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.
- G. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings.
- K. NRCA ML104 - The NRCA Roofing and Waterproofing Manual.
- L. UL 790 - Standard for Standard Test Methods for Fire Tests of Roof Coverings.

1.04 ADMINISTRATIVE REQUIREMENTS

- A. Coordinate with installation of associated counterflashings installed under other sections.

1.05 PREINSTALLATION CONFERENCE

- A. Preinstallation Meeting: Convene a preinstallation meeting prior to start of roofing operations.
 - 1. Meet with Owner, Architect, Consultant, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, and installers whose work interfaces with or affects roofing.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 - 3. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 - 5. Review structural loading limitations of roof deck during and after roofing.
 - 6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.

7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.06 SUBMITTALS

- A. See Section 01 30 00 - Administrative Requirements - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide data indicating membrane materials, flashing materials, insulation, fasteners, and cover board.
- C. Shop Drawings: Indicate joint or termination detail conditions, conditions of interface with other materials, setting plan for tapered insulation at roof drain sumps and scuppers, mechanical fastener layout, and walkway layout.
 1. Include fastening patterns for corner, perimeter and field-of-roof locations.
- D. Selection Samples: Manufacturer's full range of available colors for walkway pads.
- E. Samples for Verification: Submit two samples 6 by 6 inches in size illustrating the following:
 1. Sheet roofing of color required.
 2. Walkway pads of color required.
 3. Pre-fabricated flashing accessories.
- F. Manufacturer's Certificate: Provide certificate signed by membrane manufacturer. Certify that products meet or exceed specified requirements.
 1. Submit evidence of compliance with performance requirements.
 2. Submit manufacturer's system specific assembly letter.
- G. Manufacturer's Installation Instructions: Indicate membrane seaming precautions and perimeter conditions requiring special attention.
- H. Product Test Reports: For components of roofing system, tests performed by manufacturer and witnessed by a qualified testing agency.
- I. Manufacturer's Field Reports: Indicate procedures followed, ambient temperatures, humidity, wind velocity during application, and supplementary instructions given.
- J. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.
 1. Manufacturer's warranty is evidence of satisfactory inspection. Report shall be submitted if warranty cannot be issued because of improper workmanship, or if manufacturer's inspection noted any conditions requiring correction.
- K. Sample Warranties: For Manufacturer's and Installer's special warranties.
- L. Warranty: Submit manufacturer and installer warranties and ensure forms have been completed in Owner's name and registered with manufacturer.

1.07 QUALITY ASSURANCE

- A. Perform work in accordance with NRCA ML104 and manufacturer's instructions.
- B. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum twenty years of documented experience.
 1. The roofing membrane manufacturer must be an actual manufacturer of products used, no "Private Label" material, in which one company's name goes on a product manufactured by other is acceptable for this project.
 2. Manufacturer warranty shall be provided directly by the membrane manufacturer. Manufacturer must submit proof of Warranty Reserve Fund. No third party insurance backed warranties will be allowed.

- C. Installer Qualifications: Company authorized and trained by the membrane manufacturer to install the specified roof system and acquire the specified warranty, and specializing in performing the work of this section with minimum ten years of documented experience. Manufacturer to provide documentation stating that bidding contractors meet this qualification.
1. The installer shall be thoroughly experienced and be able to provide evidence of having at least ten years successful experience installing single ply EPDM roofing systems similar to the specified system(s).
 2. Installer shall, upon request, provide a reference list with owner contact information of at least five projects of comparable size and scope within a 50 mile radius of this project, having been completed within the last 12 months, which may be observed by representatives of the Owner.
 3. Installing contractor must have installed a minimum one million square feet of warranted roof systems by the submitted manufacturer. Manufacturer to provide documentation that bidding contractors meet this qualification.
 4. Crew Experience and Supervision: Provide adequate number of experienced workers regularly engaged in this type of work who are skilled in the application techniques of the materials specified. Provide at least one thoroughly trained and experienced foreman/superintendent on the job at all time roofing is in progress.

1.08 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products in manufacturer's original containers, dry, undamaged, with seals and labels intact, labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency marking, and directions for storing and mixing with other components.
- B. Store products in weather protected environment, clear of ground and moisture. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.09 FIELD CONDITIONS

- A. 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. Have necessary waterproof canvas or plastic sheeting readily available in case of emergency. The Contractor will be held liable for any damage to building interior due to Contractor's negligence.
- C. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- D. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed the same day.
- E. Adhesive applied roofing materials shall not be applied when dirt, dust, debris, oil, contaminants, etc. are present on the substrate being adhered to.

1.10 WARRANTY

- A. See Section 01 78 00 - Closeout Submittals, for additional warranty requirements.
- B. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.

1. Special warranty shall include all components of membrane roofing system, including membrane, base flashings, roof insulation, fasteners and plates, cover boards, roofing accessories, adhesives, sealants and other components or roofing system.
 2. Pro-Rated System Warranties will not be accepted.
 3. Warranty Period: 20 years from Date of Substantial Completion.
- C. Special Project Warranty: Submit roofing Installer's warranty, signed by Installer, covering Work of this Section, including all components of roofing system such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, and walkway pads for the specified warranty period.
1. Warranty Period: Two years from Date of Substantial Completion.

PART 2 PRODUCTS

2.01 PERFORMANCE REQUIREMENTS

- A. General Performance: Installed roofing and base flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roofing and base flashings shall remain watertight.
1. Accelerated Weathering: Roofing system shall withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
 2. Impact Resistance: Roofing system shall resist impact damage when tested according to ASTM D3746/D3746M or ASTM D4272/D4272M.
- B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field experience.
- C. IBC Basic Wind Speed Design Criteria: The completed membrane roofing system shall meet or exceed IBC Basic Wind Speed Design Criteria of 130 mph, 3 second gust duration, Exposure B, urban and suburban area. IBC uplift pressures shall be calculated in accordance with ASCE 7 "Minimum Design Loads for Buildings and Other Structures, but not less than the following:
1. Field-of-Roof Uplift Pressure: 30.4 psf.
 2. Perimeter Uplift Pressure: 51.0 psf.
 3. Corner Uplift Pressure: 76.7 psf.
- D. Exterior Fire-Test Exposure: ASTM E108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
- E. Fire-Resistance Ratings: Comply with fire-resistance-rated assembly designs indicated. Identify products with appropriate markings of applicable testing agency.

2.02 SYSTEM DESCRIPTION

- A. Roof Assembly at Roof Areas A and B:
1. Fully adhered EPDM roofing system adhered to cover board which is adhered with urethane insulation adhesive to top layer rigid insulation. Rigid insulation consists of 2-layers of 2-inch thick polyisocyanurate insulation. First layer of insulation is mechanically attached to the structure and the second layer is adhered with urethane insulation adhesive. Insulation layers are installed over a vapor barrier / temporary roof.
- B. Roof Assembly at Roof Area I:
1. Fully adhered EPDM roofing system adhered to cover board which is mechanically attached to structure.

2.03 MANUFACTURERS

- A. EPDM Membrane Materials:
1. Carlisle SynTec Systems, Inc; Sure-Seal EPDM: www.carlisle-syntec.com.
 2. Firestone Building Products, LLC; RubberGard Platinum: www.firestonebpco.com.
 3. Johns Manville; JM EPDM NR: www.jm.com.
 4. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 ROOFING MEMBRANE AND ASSOCIATED MATERIALS

- A. Elastic Sheet Membrane: Ethylene-propylene-diene-terpolymer (EPDM); non-reinforced; complying with minimum properties of ASTM D4637/D4637M.
 - 1. Thickness: 0.090 inch (90 mil), nominal.
 - 2. Color: Black.
- B. Seaming Materials:
 - 1. Field Seams: Minimum 6-inch splice tape.
 - 2. Base Flashing Seams: Minimum 3-inch splice tape.
- C. Elastic Sheet Membrane Flashing: EPDM sheet; conforming to the following:
 - 1. Thickness: 0.060 inch 60 mil, nominal.
 - 2. Color: Black.
 - 3. Products:
 - a. Carlisle SynTec Systems; Sure-Seal EPDM.
 - b. Firestone Building Products; RubberGard EPDM.
 - c. Johns Manville; JM EPDM NR 60 MIL.

2.05 PLYWOOD WALL SUBSTRATE BOARD AND COVER BOARDS/SUBSTRATE BOARDS

- A. Plywood Wall Substrate Board: As specified in Section 06 10 00 - Rough Carpentry.
- B. Cover Board and Substrate Board: Glass mat faced gypsum panels, ASTM C1177/C1177M, fire resistant type, 1/2 inch thick.
 - 1. Products:
 - a. Georgia-Pacific DensDeck Prime: www.gp.com/build.
 - b. USG Securock Glass-Mat Roof Board: www.usg.com.
 - 2. Dimension: 4 foot by 4 foot maximum.
 - 3. Method of Attachment: Installed in low rise foam adhesive.
 - a. Available Product: OlyBond 500 or approved equal.

2.06 INSULATION

- A. Polyisocyanurate Board Insulation: Rigid cellular foam, complying with ASTM C1289, Type II, Class 1, cellulose felt or glass fiber mat both faces; Grade 2 and with the following characteristics:
 - 1. Compressive Strength: 20 psi
 - 2. Board Size: 48 by 96 inch for mechanically attached applications only.
 - 3. Board Size: 48 by 48 for adhered applications.
 - 4. Board Edges: Square.
 - 5. Base Layer Method of Attachment: Mechanically fastened with approved fasteners and plates.
 - 6. Top Layer(s) Method of Attachment: Adhered in low rise foam adhesive.
 - 7. Manufacturer: As approved by membrane manufacturer.
 - 8. Provide preformed saddles, crickets, tapered edge strips and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
- B. Tapered Insulation: Provide factory-tapered insulation boards fabricated to slope of 1/4-inch per 12-inches, at locations indicated on Drawings.
- C. Provide preformed saddles, crickets, tapered edge strips and other insulation shapes as indicated on Drawings for sloping to drain.
- D. Tapered Edge Strip: Rigid polyisocyanurate board of 24-inch wide, tapering from 0-inch to 2-inch thickness. Stack units to achieve required thickness as indicated on Drawings.

2.07 ACCESSORIES

- A. General: Provide auxiliary materials recommended by roofing system manufacturer for intended use and compatible with roofing.
- B. Self-Adhered Elastic Sheet Membrane Flashing: Semi-cured EPDM flashing membrane factory laminated to cured seam tape.

- C. Self-Adhered Uncured Elastic Sheet Membrane Flashing: Uncured EPDM flashing membrane factory laminated to splice tape.
- E. Seaming Material: Manufacturer's standard, synthetic-rubber polymer primer, butyl splice tape with release film. Minimum 6-inch wide.
- F. Lap Sealant: Manufacturer's standard, single-component sealant, colored to match membrane roofing.
- G. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- H. Membrane Adhesive: Manufacturer's standard solvent based adhesive.
- I. Surface Conditioner for Adhesives: Compatible with membrane and adhesives.
- J. Insulation Adhesive: As recommended by insulation manufacturer.
- K. Metal Termination Bars: Manufacturer's standard, predrilled aluminum bars, approximately 1 by 1/8 inch thick; with anchors.
- L. Miscellaneous Accessories: Provide preformed cone and vent sheet flashings, molded pipe boot flashings, preformed inside and outside corner sheet flashings, reinforced EPDM securement strips, T-joint covers, in-seam sealants, termination reglets, cover strips and other accessories.
- M. Walkway Pads: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads, approximately 3/16 inch thick and acceptable to roofing system manufacturer.
 - 1. Size: As indicated.
 - 2. Surface Color: As selected from manufacturer's full range of available colors.
- N. Safety Warning Line: Self-adhered 6-inch wide nominal 30-mil thick yellow unsupported TPO membrane compatible with EPDM membranes.

2.08 VAPOR BARRIER / TEMPORARY ROOF (ALTERNATE No. 2) (ADD1)

- A. **Option #1 - 2-ply Hot Asphalt Applied Vapor Barrier / Temporary Roof**
 - 1. **Sheathing Paper: Red-rosin type, minimum 3 lb / 100 sq. ft.**
 - a. **W.R. Meadows, Inc.; Red Rosin Paper**
 - b. **Or approved.**
 - 2. **Base Sheet: ASTM D 4601, Type II, non-perforated, asphalt-impregnated and coated, glass fiber sheet, dusted with fine mineral surfacing on both sides; suitable for application method specified, and as follows:**
 - a. **Carlisle SynTec; Sure MB**
 - b. **Firestone Building Products; MB Base**
 - c. **Johns Manville; PermaPly 28**
 - d. **Or approved.**
 - 3. **Ply Sheets: ASTM D 2178, Type VI, asphalt-impregnated, glass-fiber felt.**
 - a. **Carlisle SynTec; Type IV Glass Ply Felt**
 - b. **Firestone Building Products; Ply IV**
 - c. **Johns Manville; GlasPly IV**
 - d. **Or approved**
 - 4. **2-plyes.**
 - 5. **Adhered over base sheet in ASTM D 312, Type III or IV roofing asphalt.**
 - 6. **Provide glaze coating of roofing asphalt over ply sheets at a minimum rate of 15-pounds
100-square feet.**

B. Option #2 - Self-Adhered Membrane Vapor Barrier / Temporary Roof

1. Self-Adhering Sheet: ASTM D 1970, polyethylene film laminated to layer of rubberized asphalt adhesive, minimum 40-mil total thickness; maximum permeance rating of 0.1 perm cold applied, with slip resisting surface and release paper backing, applied over primed substrate.

- a. Carlisle SynTec; 725 TR**
- b. Firestone Building Products; V-Force**
- c. Johns Manville; Vapor Barrier SA**
- d. Or approved.**

2. Primer:

- a. Carlisle SynTec; CCW-702**
- b. Firestone Building Products; SA Solvent Based Primer**
- c. Johns Manville; SA Primer**
- d. Or approved.**

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces and site conditions are ready to receive work.
- B. Verify deck is supported and secure.
- C. Verify substrate is clean and smooth, flat, free of depressions, waves, or projections, properly sloped and suitable for installation of roof system.
- D. Verify substrate surfaces are dry and free of snow or ice.
- E. Verify that necessary wall sheathing and plywood substrate board has been installed and securely attached.
- F. Verify that roof openings, curbs, and penetrations through roof are solidly set, and roof drain bodies are in place.
- G. Verify that all curbs, wall surfaces, equipment supports and other roof penetrations that will receive roofing materials will allow the installation of full height flashings. Verify heights of all penetrations which are located within crickets and slope upgrades; extend penetrations where necessary.
- H. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- I. Prepare existing roof system in accordance with requirements specified in Section 07 01 50.19 - Preparation for Re-Roofing.

3.02 PREPARATION

- A. Clean substrate of dust, debris, moisture and other substances detrimental to roofing installation according to roofing manufacturer's written instructions. Remove sharp projections.
 - 1. Moisture includes rain, dew, ice, frost, snow and the like.
 - 2. Dust and debris includes dirt, oil, and other materials inherent in the substrate.
- B. Prevent materials from entering and clogging conductors and from spilling or migrating onto surfaces of other construction.
- C. Inspect all substrates for irregularities and defects that prohibit the proper installation of new roofing materials. Notify the Architect of all defects for proper correction, prior to installation of new materials.
- D. Substrates shall be clean and dry, smooth, free of fins, raised edges, sharp edges, protruding or loose nails, and free of foreign material.
- E. Prepare all surfaces and details in accordance with manufacturer's printed instructions and the Contract Documents.
- F. Protect building surfaces and equipment from damage and contamination from roofing work.

- G. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.
- H. Prepare existing roof system in accordance with requirements specified in Section 07 01 50.19 - Preparation for Re-Roofing.

3.03 VAPOR BARRIER / TEMPORARY ROOF (ALTERNATE No. 2) (ADD1)

A. Option #1 2-ply Hot Asphalt Applied Vapor Barrier / Temporary Roof

1. **Sheathing Paper: Clean substrate of all dust and debris prior to installation. Loosely lay one course of sheathing paper, lapping edges and ends a minimum of 2-1/2-inches.**
2. **Base Sheet: Install lapped base-sheet mechanically fastened to roof deck over sheathing paper with approved fasteners and plates to resist uplift pressures when roof is "dried-in" with vapor barrier temporary roof.**
3. **Built-Up Vapor Retarder: Install two glass-fiber felt plies lapping each felt 19-inches over preceding felt. Embed each felt in a solid mopping of hot roofing asphalt. Glaze coat completed surface with hot roofing asphalt at a rate of 15-pounds per 100-square feet.**
4. **Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.**

B. Option #2 Self-Adhered Membrane Vapor Barrier / Temporary Roof

1. **Clean substrate of all dust and debris prior to installation.**
2. **Prime all substrates to receive self-adhered membrane vapor barrier / temporary roof with approved primer in accordance with self-adhered membrane manufacturer's published installation instructions.**
3. **Install self-adhering-sheet vapor barrier / temporary roof over cleaned, prepared and primed substrates, side and ends lapping each sheet a minimum of 3-1/2 inches.**
4. **Roll membrane in place with approved weighted roller to ensure positive adhesion without voids.**
5. **Seal all t-joints with elastomeric sealant approved by the self-adhered membrane vapor barrier / temporary roof manufacturer**
6. **Completely seal vapor retarder at terminations, obstructions, and penetrations to prevent air movement into roofing system.**

3.04 INSULATION INSTALLATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with roofing system and insulation manufacturer's written instructions for installing roof insulation.
- C. Roof level insulation assembly units that become wet or damaged shall be removed from the project site. Any wet or damaged insulation units which are installed must be removed.
- D. Provide dimensional lumber stops and nailers at flanged penetrations and edges, including ridges and as otherwise shown on the Drawings. Provide additional stops as recommended by the manufacturer of the roofing materials.
- E. Mechanically Fastened and Adhered Insulation:
 1. Install first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type.
 2. Set each subsequent layer of insulation in ribbons of low rise urethane foam adhesive pressing and maintaining insulation in place. Provide temporary ballast to weigh down individual boards in order to achieve flush seams until board has fully bonded.
 3. Fasten insulation base layer to resist specified uplift pressure at corners, perimeters and field of roof according to roofing system manufacturer's written instructions.

- F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
 - 1. Offset joints of insulation below a minimum of 6 inches in each direction.
 - 2. Cut and fit insulation within 1/4 inch of nailers, projections and penetrations.
- G. Install tapered insulation under area of roofing to conform to slope as indicated on the Drawings.
- H. Trim surface of insulation where necessary to achieve a flush finished condition that does not restrict flow of water.

3.03 COVER BOARD INSTALLATION

- A. Install cover board over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction. Loosely butt cover boards together and adhere to insulation below.
 - 1. Adhere cover boards in ribbons of low rise urethane foam adhesive pressing and maintaining insulation in place. Provide temporary ballast to weigh down individual boards in order to achieve flush seams until board has fully bonded.
 - 2. Secure insulation to resist specified uplift pressure at corners, perimeters and field of roof according to roofing system manufacturer's written instructions.

3.04 MEMBRANE APPLICATION

- A. Roll out membrane, free from wrinkles or tears. Place sheet into place without stretching.
- B. Shingle joints on sloped substrate in direction of drainage.
- C. Adhere roofing membrane over area to receive roofing according to membrane roofing system manufacturer's written instructions.
 - 1. Start installation of roofing in presence of roofing system manufacturer's technical personnel.
- D. Accurately align roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- E. Bonding Adhesive: Apply to substrate and underside of roofing at rate required by manufacturer and allow to partially dry before installing roofing. Do not apply to splice area of roofing.
- F. In addition to adhering, mechanically fasten roofing securely at terminations, penetrations and perimeters.
- G. Apply roofing with side laps shingled with slope of roof deck where possible.
- H. Tape Seam Installation: Clean and prime both faces of splice areas, apply splice tape and firmly roll side and end laps of overlapping roofing according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of roofing terminations.
- I. Coordinate installation of roof drains and sumps and related flashings.
 - 1. Spread sealant over deck-drain flange at roof drains and securely seal membrane roofing in place with clamping ring.
- J. Repair tears, voids and lapped seams in roofing that do not comply with requirements.
- K. Adhere protection sheet over membrane roofing at locations indicated.

3.06 BASE FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrate according to 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 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 seam tape 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 and mechanically anchor to substrate through termination bars.

3.07 FINISHING UNBALLASTED SURFACES

- A. Install walkway pads. Space pad joints to permit drainage.
 - 1. Avoid installation of walkway pads over drainage ways in a manner that prevents water from evacuation the roof.
- B. Safety Warning Line: Install safety warning line where indicated.
 - 1. Layout temporary markings on surface of new roof membrane with dimension of 10'-0" from leading edges. Lines shall be straight and accurate with a tolerance of 1/2-inch in 10'-0".
 - 2. Clean surface of roof membrane and prime as required by material manufacturer.
 - 3. Align and adhere safety warning line membrane as indicated and per temporary markings with same tolerance. Butt all seams; do not overlap.

3.08 DAILY SEAL

- A. On phased roofing, when the completion of flashings and terminations in not achieved by the end of the work day, provide a daily seal to temporarily close the membrane to prevent water infiltration.
- B. Seal all tie-offs to prevent moisture from flowing under new work.

3.09 FIELD QUALITY CONTROL

- A. See Section 01 40 00 - Quality Requirements, for general requirements for field quality control and inspection.
- B. Require site attendance of roofing material manufacturers weekly during installation of the Work.
- C. Technical Representative of material manufacturer shall perform the following services:
 - 1. Periodically observe work in progress.
 - 2. Be present to observe deck preparation, general installation procedures and final completion; submit documentation of manufacturer's final acceptance.
 - 3. Perform a punch list inspection upon Substantial Completion of the project indicating all items in need of attention, including conformance to manufacturer's published installation instructions and the Contract Documents.
- D. Final Roof Inspection: Upon completion of the installation, arrange for an inspection to be made by a non-sales technical representative of the membrane manufacturer in order to determine whether or not corrective work will be required before the warranty will be issued. Notify the Owner and Architect seventy-two hours prior to the manufacturer's final inspection.
- E. Repair or remove and replace components of roofing system where inspections indicate that they do not comply with specified requirements.
- F. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.10 CLEANING

- B. In areas where finished surfaces are soiled by work of this section, consult manufacturer of surfaces for cleaning advice and conform to their documented instructions.
- C. Repair or replace defaced or damaged finishes caused by work of this section.

3.11 PROTECTION

- A. Protect installed roofing and flashings from construction operations.

- B. Where traffic must continue over finished roof membrane, protect surfaces using durable materials.

END OF SECTION