



ADDENDUM #002

DATE: SEPTEMBER 25, 2024

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JACKSON
JACKSON
& ASSOCIATES, INC.

NEBRASKA STATE OFFICE BUILDING

JJA PROJECT: 3630

OA INTAKE PENTHOUSE UPGRADES
301 CENTENNIAL MALL S., LINCOLN, NE 68508

OJC# 542500
DRAWINGS & SPECIFICATIONS
DATED: 08/26/24

The Drawings and Specifications for the above referenced project are hereby amended and the following changes shall be made part of the Contract Documents.

GENERAL

ITEM #1 Refer to the attached pre-bid sign-in sheet from September 18, 2024.

ITEM #2 Refer to the Project Manual Advertisement for Bids.

- A. Refer to the second paragraph, change the bid date from Thursday September 26, 2024, to **Tuesday October 1, 2024**. (Note: Time and Location remain the same.)

ARCHITECTURAL

ITEM #3 Refer to the Project Manual Specifications, Section 07 53 03 – Elastomeric Membrane Roofing – Fully Adhered.

- B. Replaced the specification section in the project manual with the attached Revised Section 07 53 03 – Elastomeric Membrane Roofing – Fully Adhered – **Carlilse Roofing System – NO SUBSTITUTIONS**.
- C. The existing roof assembly is a Carlilse Roofing System under warranty and the new roofs shall become part of the existing system warranty under the Carlilse's Roofing System Revision and Alterations Procedures indicated in paragraph 1.5.G. for a single source responsibility warranty.

ELECTRICAL

ITEM #4 Refer to the Project Manual, Appendix A – Graphic Project Requirements, Sheet ME1.2 – Roof Plan Penthouse 3 and 4 – Mechanical and Electrical.

- A. Refer to 1/ME1.2 – Roof Plan Interior – Penthouse 3. Provide a new 2-inch diameter EMT Conduit – Standard steel, galvanized exterior grade conduit to be stubbed from above the ceiling on the sixth floor up into Penthouse 3, and extend a minimum of 16 inches above the roof pavers. Conduit shall be installed as a future pathway. Coordinate the exact location of new conduit with Owner Representatives.
1. Cap both ends of the conduit to be weather tight, and fire rated.
 2. Utilize 3M or Hilti tested assembly for fire rated system to cap conduit.

(End of Addendum #002)

Registration Advisement:
Bids will only be accepted from those Companies/Firms which properly register their attendance at this meeting by providing all of the required information below.

**State of Nebraska
Mandatory Pre-Proposal Meeting
Registration Sheet**

Registration Advisement:
Bids will only be accepted from those Companies/Firms which properly register their attendance at this meeting by providing all of the required information below.

Date: **9-18-24, 11:00AM Central Time**

Project: **NSOB OA Intake Penthouse Upgrades**

Please Print Legibly

	Name*	Company/Firm Representing*	Complete Address (Street, City, State, Zip) *	Phone* Fax	E-mail Address
1	Brent Beckman	DAS / SBD	1526 K. Street	402-417-3043	BrentBeckman@nebraska.gov
2	Mark A Egge	Wohlido Construction	3301 S. 7th street	402-430-4812	mark.egge@wohlidoconstruction.com
3	MATT CLAUSEN	Centennial Roofing	8905 Cornhusker Hwy	402 450 8214	mattc@stonebrockexteriors.com
4	NICK SMITH	Centennial Roofing	8905 Cornhusker Hwy	617-850-3260	nsmith@stonebrockexteriors.com
5	Mike Heaps	DAS Building Div	301 Centennial Mall S. ^{Lived in NE 68505}	402-471-0438	mike.heaps@nebraska.gov
6	Eileen Korth	Jackson Jackson	6912 N. 97th Circle	402-391-3999	ekorth@jjaarchitects.com
7	Dave Brooks	DAS/SBD	301 Centennial Mall S.	402-219-2796	dave.brooks@nebraska.gov
8	Brody Nohova Josh Bentley	Artisan Roofing	10723 Mockingbird Dr. Omaha NE 68127	712 540 1479 402 720 9946	brody@artisanroofing.com
9					
10					

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DIVISION 07 – THERMAL AND MOISTURE PROTECTION

SECTION 07 53 03

ELASTOMERIC MEMBRANE ROOFING - FULLY ADHERED
(Carlilse's Roofing System – NO SUBSTITUTIONS)

PART 1 GENERAL

1.1 SUMMARY

- A. The Contractor shall furnish all labor, materials, tools and equipment, and perform all work and services necessary for or incidental to the furnishing and installation, complete, of the **EPDM Membrane Roofing - Adhered System, including roof insulation, flashing, and associated work**, as shown on the Drawings and as specified, in accordance with provisions of the Contract Documents, current manufacturers specifications, the NRCA roofing and waterproofing manual and completely coordinated with work of all other trades.
- B. Although such work is not specifically shown or specified, furnish and install all supplementary or miscellaneous items, appurtenances and devices incidental to or necessary for a sound, secure, watertight and complete installation.
- C. Related Sections:
 - 1. Section 06 10 00 - Rough Carpentry: Wood blocking, nailers and sheathing associated with roofing.
 - 2. Section 07 62 00 - Sheet Metal Flashing and Trim.

1.2 REFERENCES

- A. Provide all materials and perform all work in compliance with the applicable requirements of the codes, standards, and specifications, latest editions, of the following regulatory associations, and as herein specified:
- B. ASTM International:
 - 1. ASTM C79 - Standard Specification for Gypsum Sheathing Board.
 - 2. ASTM C177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
 - 3. ASTM C578 - Standard Specification for Rigid, Cellular Polystyrene Thermal Insulation.
 - 4. ASTM C726 - Standard Specification for Mineral Fiber Roof Insulation Board.
 - 5. ASTM C1278 – Standard Specification for Fiber-Reinforced Gypsum Panel.
 - 6. ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
 - 7. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers -Tension.
 - 8. ASTM D624 - Standard Test Method for Tear Strength of Conventional Vulcanized Rubber and Thermoplastic Elastomers.

9. ASTM D746 - Standard Test Method for Brittleness Temperature of Plastics and Elastomers by Impact.
 10. ASTM D822 - Standard Practice for Conducting Tests on Paint and Related Coatings and Materials Using Filtered Open-Flame Carbon-Arc Exposure Apparatus.
 11. ASTM D1004 - Standard Test Method for Initial Tear Resistance of Plastic Film and Sheeting.
 12. ASTM D4434 - Standard Specification for Poly(Vinyl Chloride) Sheet Roofing.
 13. ASTM D4637 - Standard Specification for EPDM Sheet Used in Single-Ply Roof Membrane.
 14. ASTM D5019 - Standard Specification for Reinforced Non-Vulcanized Polymeric Sheet Used in Roofing Membrane.
 15. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
 16. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
 17. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings.
- C. FM Global:
1. FM DS 1-28 - Wind Loads to Roof Systems and Roof Deck Securement.
 2. FM 4450 - Approval Standard for Class 1 Insulated Steel Deck Roofs.
- D. Intertek Testing Services (Warnock Hersey Listed):
1. WH - Certification Listings.
- E. National Fire Protection Association:
1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.
- F. National Roofing Contractors Association:
1. NRCA - The NRCA Roofing and Waterproofing Manual.
- G. Underwriters Laboratories Inc.:
1. UL - Fire Resistance Directory.
 2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.
 3. UL 790 - Tests for Fire Resistance of Roof Covering Materials.
 4. UL 1256 - Fire Test of Roof Deck Construction.
 5. UL 1897 - Uplift Tests for Roof Covering Systems.
- H. American Society of Civil Engineers (ASCE): Standard 7, Wind Load Tables.

1.3 SYSTEM DESCRIPTION

- A. Edge securement shall be installed and tested for wind load resistance in accordance with ANSI/SPRI ES-1. (2009 IBC, Section 1504.5)

1.4 PERFORMANCE REQUIREMENTS

- A. Roof Assembly Classification: FM Class 1 Construction, windstorm classification of 1-75, in accordance with FM DS 1-28.

- B. Uplift Resistance: American Society of Civil Engineers (ASCE): Standard 7, Minimum Design Loads for Buildings and Other Structures, for Wind Uplift pressure resistance.
- C. Nebraska Energy Code Compliance: The new Roof system assembly shall comply with the 2018 International Energy Code (IECC) minimum thermal resistance (R-Value) of the insulation material installed as specified in Table 502.2(1) based on the construction materials used in the roof assembly.

1.5 SUBMITTALS

- A. Submit electronic copy of roofing literature, manufacturer's specifications, and all installation details to be used and specified on this project to Architect for approval. Indicate all details of membrane to be used and specified on this project to Architect for approval, including joint and termination details, and conditions of interface with other materials. Include anchor configurations to be used to anchor the first layer of insulation panels in the field of the roof, at perimeters and at corners as required to meet the ASCE, Standard 7 2006 F.M. 1-75 guidelines.
 - 1. If the Contractor wishes to deviate from the details as shown on the Drawings or from the manufacturer's standard details, scaled shop drawings shall be submitted to the Architect for the Owner and the membrane manufacturer's approval prior to proceeding with roofing operations.
- B. Product Data: Submit electronic copy of product data for each type of product proposed for use. Include data that substantiates that materials comply with requirements. Submit characteristics on membrane materials, adhesives, seaming materials, termination materials, and insulation.
- C. Manufacturer's Installation Instructions: Submit electronic copy of membrane roofing manufacturer's installation instructions. Submit special precautions required for seaming membrane.
- D. Submit an electronic copy of the manufacturers proposed tapered insulation design drawings for Architect's review and approval prior to the purchase and/or installation of new insulation system.
- E. Submit a copy of the Contractor's Pre-installation Notice (PIN) to the roof system manufacturer. Pre-installation Notice shall be in compliance with the specifications.
 - 1. Each manufacturer may call this roof system assembly notice something different. "Notice of Award" (NOA) or Design Assembly Letter, Contractor Registration, Application Review. Provide documentation of what was submitted to the Roof Manufacturer regarding the system assembly and warranty requirements.
- F. Submit copies of all adhesion and pull test results required by the manufacturer.
- G. Submit a copy of the Contractor's Post Warranty Alternation Form for work to be completed at the existing roof system that is currently under warranty. Use the following link to access the form at: <https://www.carlisleyntec.com/Tools/Warranty-Forms/Warranty-Revision>. Submit copies of all adhesion and pull test results required by the manufacturer. A copy of Carlisle's Roofing System Revision and Alterations Procedures is attached to the end of this specification section.

1. The existing roof system is Carlisle and is currently under warranty. A copy of the existing warranty is attached to the end of this specification section.
- H. Submit specimen copy of roofing warranty.
- I. If requested, submit to the Architect, delivery tickets or true photocopies thereof, showing weights of materials delivered and applied to the roof.
- J. If requested, submit EPDM membrane manufacturer and roofing contractor qualifications.
- K. If requested, submit samples of components to the Architect for approval.

1.6 QUALITY ASSURANCE

- A. Protect roofing during the construction period. Repair or replace (as required) deteriorated or defective work to a condition free of damage and deteriorations at time of Substantial Completion and according to warranty requirements.
- B. Roofing contractor shall maintain a full-time supervisor/foreman on the job site at all times when roofing work is in progress. This supervisor/foreman shall be experienced and qualified to install the specified roof system. He shall have available at the job site a copy of this specification and all applicable construction details and instructions from the roofing manufacturer and NRCA.
- C. Contractor shall engage the roof manufacturer's field representative to visit the site and present at the following time during the course of the installation of the new roof system.
 1. On a Roof System Replacement Project the manufacturer's field representative shall be present at the beginning of the project for the Anchor Pull and/or Adhesive Release Testing as well as to review the roof products delivered to the job site prior to installation.
 2. During the construction of the new roof system the roof manufacturer's field representative shall make **(1) one site visit to observe the installation of the new the roof assembly for every 30,000 square feet or less**, or portion thereof roof area being installed. These trips shall be in addition to any other required trips at the start to observe the anchor pull or adhesive release testing and final inspection.
 3. At the end of the project the roof manufacturer's field representative shall complete a warranty inspection once all components covered under the warranty have been installed. If not all of the components have been installed at the time of the visit or if there are a number of items that need to be corrected the manufacturer's representative shall make an additional trip to verify the installations have been corrected.
- D. Provide primary roofing materials from only one manufacturer to extent possible. Provide secondary materials and materials not available from primary roofing materials manufacturer which are recommended and accepted by manufacturer of primary materials, to maintain warranty required.
- E. Materials other than those supplied or marketed by the membrane manufacturer must be accepted by membrane manufacturer prior to project bid and installation. The

performance or integrity of products by others, when selected by the specifier and accepted by the membrane manufacturer, shall be the responsibility of the membrane manufacturer and shall not be disclaimed in the membrane manufacturer's warranty.

- F. Polyisocyanurate foam core board roof insulation including tapered insulation shall be Factory Mutual, Class 1 approved (Standard 4450) and Underwriter's Class A (UL 790).
 - 1. ASTM 1289-02, Type II, Class I: Classification
 - 2. ASTM D-1622: Density, Nom. 2 pcf.
 - 3. ASTM D-1621: Compressive Strength, 20 psi.
 - 4. ASTM D-2126: Dimensional Stability; 2% maximum, 7 days.
 - 5. ASTM E-96: Moisture Vapor Transmission, less than 1.0 perm.
 - 6. ASTM C-209: Water Absorption, less than 1% volume.
 - 7. American Society of Civil Engineers (ASCE): Standard 7, Minimum Design Loads for Buildings and Other Structures, for Wind Uplift.
 - 8. American Society of Civil Engineers (ASCE): Standard 7, Minimum Design Loads for Buildings and Other Structures, for Wind Uplift.
 - 9. Factory Mutual (FM): Factory Mutual Research Class 1A, 1-75 rating for Design A.
- G. Manufacturers' warranty inspectors shall be qualified technical representatives. (Sales representatives shall not conduct warranty inspections.)
- H. Perform Work in accordance with NRCA Roofing and Waterproofing Manual.
- I. Roof Assembly Fire Classification: Minimum Class A when tested in accordance with ASTM E108 or UL 790.
 - 1. Roof Assembly with Foam Insulation: Passes FM 4450 or UL 1256.

1.7 QUALIFICATIONS

- A. Applicator: Membrane roofing and flashing shall be applied by a factory trained and approved roofing contractor familiar with the product and in strict compliance with the manufacturer's instructions. Roofing contractor shall be certified in writing by the roofing membrane manufacturer as qualified to install the specified roof. Installer shall be required to provide a copy of this certificate, and meet the following requirements:
 - 1. Have a minimum of five (5) years experience in the type of roof that is being specified.
 - 2. Provide written proof of experience in the form of a list five projects of similar size and scope, some of which are at least five years old, with contact name and telephone number, if requested by the Architect.
 - 3. Have a fully staffed office within 200 miles of the job site.
 - 4. Have previously installed a minimum of 1,000,000 square feet of low-sloped roofing membrane under manufacturer's warranty.
 - 5. **Prime bidder must self-perform roof installation. The use of sub-contracted crew/labor is not permitted.**
- B. Roofing contractor shall maintain a full-time supervisor/foreman on the job site at all times when roofing work is in progress. This supervisor/foreman shall be experienced and qualified to install the specified roof system. He shall have available at the job site a copy of this specification and all applicable construction details and instructions from the roofing manufacturer and NRCA.

1.8 PRE-APPLICATION ROOFING CONFERENCE

- A. Pre-Application Roofing Conference: Approximately two (2) weeks prior to scheduled commencement of EPDM roofing installation and associated work, roofing subcontractor shall meet at project site with the Architect and General Contractor to review the Scope of Work. This conference shall review upcoming methods and procedures related to the roofing work, including, but not necessarily limited to, the following:
1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 2. Review structural loading limitations of roof deck.
 3. Review requirements for deck substrate conditions and finishes, including flatness and fastening.
 4. Review existing roof drain heights and locations in relation to the plans and specifications.
 5. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 6. Review roofing system requirements, drawings, specifications, and other contractual documents.
 7. Review any addenda.
 8. Review Warranty Requirements – Wind Speed and Pre-installation Notice.
 9. Review and finalize Construction Schedule related to roofing work and verify availability of materials, Contractor's personnel, equipment, and facilities needed to make progress and avoid delays.
 10. Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions, including temporary roofing.
 11. Review workman access to the construction site/building.
 12. Review material delivery and storage.
 13. Review how debris materials will be moved from the building and new materials to the building.
 14. Review adhesive installation and weight placement on insulation board until the adhesive has cured sufficiently to fully secure the boards. Loose insulation boards will not be accepted and will be required to be removed and replaced with fully secure boards.
 15. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing system.
 16. Review governing regulations and requirements for insurance and certificates if applicable.
 17. Review temporary protection requirements for roofing system during and after installation.
 18. Review roof observation and repair procedures after roofing installation.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Roof insulation must be packaged in bundles with wraps showing pieces per bundle, piece size, and origin of manufacturer.
- B. Deliver components and store to avoid damage from weather and other causes. Provide temporary protection as required. Store materials away from excessively high

temperatures and all sources of ignition. Follow caution and warning labels. Store all materials in compliance with the manufacturers' requirements.

- C. Insulation and roofing materials shall be kept dry at all times. Store insulation on a skid completely covered with a breathable material such as tarp or canvas. Where materials must be stored outdoors cover with polyethylene tarps or other suitable waterproof tarps as recommended by the manufacturer. Lightweight insulation shall be weighted to prevent possible wind damage. Immediately remove wet or damaged roofing materials. Do not incorporate them into the work. Store and handle material or equipment in a manner to avoid damage to the Owner's property, building and roof system.

1.10 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply roofing membrane to damp or frozen deck surface or when precipitation is expected or occurring.
- B. Do not expose materials vulnerable to water or sun damage in quantities greater than can be weatherproofed during same day.

1.11 COORDINATION

- A. Coordinate Work with installation of associated roof penetrations and metal flashings, as Work of this section proceeds.

1.12 PROJECT CONDITIONS

- A. Verify suitability of substrate and conditions under which roofing system is to be installed. Verify that roof drains are correct type and are set at levels required to assure drainage. Installation constitutes acceptance of substrate and responsibility for performance of roofing and flashing as weathertight membrane.
- B. In no event shall more insulation be placed on the surface to be roofed than can be covered with roofing membrane prior to the onset of inclement weather, or termination of the day's work.
- C. Do not use roofing materials as counterweights for hoists.
- D. The Contractor shall at all times protect the building and its contents from the threat of inclement weather during demolition and construction operations. Provide necessary temporary weather protection to keep building weathertight. The Contractor shall be solely responsible for leak control and damages due to failure of such protection and repair/replacement of damaged areas shall be approved by the Owner and Architect.

1.13 WARRANTIES

- A. Upon completion of all work and after all materials have been paid for by the Contractor to the manufacturer, the Contractor shall issue a 2-year MRCA Roofing Contractor Workmanship Warranty, see attached sample warranty form. Also, the Roofing manufacturer shall issue a thirty (30) year – NO DOLLAR LIMIT material and labor water tightness warranty to cover actual costs to repair or replace the roofing system in its entirety due to material and workmanship.

1. The warranty shall not charge the Owner a “proration” of materials or services during the entire warranty period but shall repair or replace the roofing system at “actual” costs.
 2. The warranty shall be fully paid for by the roofing contractor.
 3. The warranty shall start at the date of Substantial Completion for the entire project as determined by the Architect.
 4. The warranty shall be transferable.
 5. The warranty shall not require the Owner’s signature.
 6. The warranty funds shall be managed by a separate warranty reserve.
 7. The warranty shall NOT require a maintenance program to be implemented to maintain the warranty.
 8. The warranty shall NOT require the Owner to pay for any mandatory inspections to maintain the warranty and any time during the warranty period.
 9. The warranty shall NOT require the Owner to notify the manufacturer of any wind events that occur unless they note the system has been damaged and are filing a claim.
 10. The warranty shall allow the Owner to make any maintenance repairs or other repairs to the roof and upon review by the manufacturer the warranty will remain in place.
 11. The warranty shall cover all measured wind speeds up to and including 90 mph (not 3 second gusts). A supplement to the warranty may be required.
- B. The Owner shall be allowed to have emergency repairs made to the roofing by other than licensed roofers, if necessary, in an emergency situation, provided authorized licensed roofer is subsequently allowed to inspect and repair such emergency work to keep the warranty intact.
- C. The specifications and drawings are based on the Carlisle Roof System to meet the above warranty. For other systems that are considered to be approved equal, subject to compliance with the drawings and specifications, the contractor bidding the system is responsible for confirming design and system requirements of the manufacturer to meet the above warranty. **NO DEVIATION FROM THE ABOVE WARRANTY IS ALLOWED.** Required modifications to the system details must be approved by the Owner and Architect, prior to bidding.

PART 2 PRODUCTS

2.1 SINGLE PLY ROOFING - MANUFACTURERS

1. Specifications for EPDM Membrane Roofing - Adhered System are **Carlisle SynTec Systems**, 1285 Ritner Highway, Carlisle, PA 17013 (Tele: 1-800-479-6832)
- B. **NO SUBSTITUTIONS** – must be the same as the existing roof currently under warranty.
- C. Specifications for related roofing products are subject to approval of membrane manufacturer, to maintain warranty specified.

2.2 MATERIALS: SINGLE PLY ROOFING - ADHERED SYSTEM

- A. Insulation - Installed over concrete deck:
 - 1. Insulation shall be Carlisle InsulBase Polyiso Insulation and InsulBase Tapered Polyiso Insulation (20 psi.) roof insulation consisting of a closed-cell Polyisocyanurate foam core laminated to a black glass reinforced mat facer, or approved equal and as recommended by the membrane manufacturer. Taper and required thickness shall be as shown on the Drawings. Maximum insulation board thick utilized in system shall be 2 inches for flat insulation boards and 2 1/2 inches for taper insulation.
 - a. Provide and install insulation thicknesses as shown on the drawings.
 - b. Provide insulation system thickness as shown on the drawings. Overall system thickness include the taper insulation and any base layers required to provide the specified system thickness.
 - c. Taper insulation over the base layer shall be 1/8 inch per foot slope.
 - d. Taper insulation at all crickets shall be 1/2 inch per foot slope.
- B. Membrane: Shall be Sure-Seal EPDM Kleen Non-Reinforced Membranes (Terpolymer of Ethylene, Propylene and Diene) membrane “**Black**”, **.090 inch thick** (nominal) by 10 feet, which meets ASTM D4637, Type 1 and ANSI/RMA IPR-1.
- C. Cover Board: Shall be USG 1/2 inch thick, Gypsum-Fiber Roof Board as manufactured by Securock®, mat faced, non-combustible, water-resistant and silicone-treated. Board shall be UL Classified and FM Class I approved.
- D. Transition Strips at the lower edges of the tapered insulation: Shall be 1/2" x 6" fiberboard transition strips, feathered to provide a smooth roofing transition.

2.3 COMPONENTS

- A. Associated Materials - to be furnished or approved by the membrane manufacturer as required for conditions shown for this system:
 - 1. Flexible FAST Adhesive
 - 2. CAV-GRIP III Adhesive/Primer
 - 3. Carlisle Fasteners and Plates
 - 4. 2 inch Seam Fastening Plates
 - 5. Insulation Fastening Plates
 - 6. Sure-Seal EPDM Pressure-Sensitive Pipe Seals
 - 7. Sure-Seal EPDM Pressure-Sensitive Pourable Sealer Pockets
 - 8. Sure-Seal EPDM One Part Pourable Sealer
 - 9. Sure-Seal EPDM Pressure-Sensitive SecurTAPE
 - 10. Sure-Seal EPDM Pressure-Sensitive Elastoform Flashing
 - 11. Sure-Seal EPDM Pressure-Sensitive Cured Cover Strip
 - 12. Sure-Seal EPDM Pressure-Sensitive RUSS
 - 13. Sure-Seal EPDM Lap Sealant
 - 14. Weathered Membrane Cleaner
 - 15. Sure-Seal EPDM HP-250 Primer
 - 16. Water Cut-Off Mastic
 - 17. Terminations:
 - a. Termination Bar: A 1 inch wide by 1/8 inch thick extruded aluminum bar pre-punched 4 inches on center with bottom bead.

18. Fasteners and Components: As required by membrane manufacturer for conditions shown.
 - a. General: All insulation, base tie-ins and membrane termination must be attached to substrates that will provide a minimum of 200-lbf-pullout capacity in any direction and meet current ASCE, Standard 7 U.L. 1-75 requirements.
 - 1) Fasteners: Heavy duty (HP) fasteners with minimum penetration of 1" into concrete roof deck or wood substrate. NOTE: Fasteners must extend into substrates past the tar topping on top of the concrete roof deck. Do not terminate in tar layer.
 - 2) Polymer Fastener: For use with gypsum decks with minimum penetration of 1-1/2 inches. Requires pre-drilling deck as recommended by the manufacturer.
 - 3) Metal Insulation Plate: Specifically designed to be used with Heavy-Duty Fasteners in roofing application for attaching insulation as required in Carlisle Specifications and Details.
19. Sure-Seal EPDM Pressure-Sensitive Molded Walkway Pads: High quality rubber walkway pads with tape factory laminated to the bottom. Size shall be 30" x 30" x .375" thick.
20. Roof Drains: Provide and install Roof Drains, as manufactured by Josam Company, 525 W. U.S. Hwy 20, Michigan City, IN 46360 (Tele: 1-800-365-6726; Fax: 1-800-627-0008, or approved equal.
 - a. Model: 039240 Series as indicated on the Mechanical Drawings.
 - b. Coordinate with the existing drain body scheduled to remain.
21. Pipe and Conduit Flashing: Shall be pipe boots as manufactured by Carlisle. Boot material and size and configuration shall be as required to accommodate existing conditions; field verify. Install pipe boots per the manufacturer's recommendations.
22. Pipe and Conduit Flashing (**Pitch Pocket Locations**): At locations where the pre-molded boots by roofing manufacturer cannot be used, the contractor shall provide and install a Pitch Pocket system as warrantable by the roof system manufacturer.
23. Vent Pipe Extension: All vent pipes shall extend minimum 12" above roof plane; provide steel pipe extension as required. Provide pipe coupler as required, minimum 4" in length. Flash/counterflash per roof manufacturer's standard detail.

2.4 PREPARATION:

- A. Prepare the roof deck to receive roofing system. Follow manufacturer's written instructions for typical deck type and substrate conditions. The authorized roofing applicator shall not proceed until all defects in the deck or substrate conditions are corrected.
- B. Wood nailers must not be utilized for membrane securement and shall only be installed where identified on membrane manufacturer's details.
- C. Sweep and vacuum existing deck prior to installation of the adhesive for insulation.
- D. Tar – Level tar over concrete roof deck to remove high spots, change in elevations ½ inch and greater, remove debris, and chunks to achieve a level roof deck.

- E. **Verify roof deck levelness.** The Contractor shall verify the levelness of the roof deck system and provide testing report information to the Owner and Architect prior to installation of new roof materials. Upon review of the results of the roof deck levelness modifications to the new roof system may be recommended to prevent ponding water. If the contractor fails to verify the roof deck levelness, any modifications required to correct ponding water after the new roof system is installed will be the responsibility of the contractor to correct at no additional cost to the Owner.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify deck is supported and secure, clean and smooth, free of depressions, waves, or projections, properly sloped, and suitable for installation of roof system.
- B. Verify deck surfaces are dry and free of snow or ice.
- C. Verify roof openings, curbs, pipes, sleeves, ducts, and vents through roof are solidly set, and built-in items are in place.

3.2 ROOF SYSTEM INSTALLATION:

- A. Install entire roofing system in strict accordance with the Carlisle Roof System manufacturer's requirements and guidelines to meet quality assurance standards specified.
- B. Wood Nailers and Blocking:
 - 1. Wood nailers and miscellaneous blocking shall be installed as shown on the Drawings and where required by the membrane manufacturer.
 - a. Height of nailers shall be matched to the thickness of the insulation being used. Nailers shall be firmly anchored to the deck to resist a force of 75 pounds per lineal foot in any direction. A minimum of three (3) anchors shall be used to anchor each length of nailer.
- C. Roof Insulation: Install per manufacturer's recommendations and approved shop drawings. Do not install more insulation than can be covered by membrane in the same day or before the onset of inclement weather.
 - 1. First layer shall be mechanically fastened to concrete deck. Install anchors as required to meet the current ASCE, Standard 7 F.M. 1-75 guidelines.
 - a. Mechanically attach using Carlisle fasteners and insulation plates. Provide manufacturer's recommended attachment patterns and fastening rates.
 - 2. Adhere tapered insulation to base layer to meet the current ASCE, Standard 7 and F.M. 1-75 guidelines as a minimum requirement and as required to obtain the specified 90mph wind speed warranty.
 - a. Neatly fit insulation to all penetrations, projections and nailers. Insulation shall be butted tightly, with gaps greater than 1/4" filled with acceptable insulation. Tapered insulation must be installed around roof drains so as to provide proper slope for drainage as shown in Carlisle Details.
 - b. Refer to insulation thicknesses shown on the drawings.

- c. Stagger Insulation Joints: When installing multiple layers of insulation, all joints between layers should be staggered a minimum of twelve inches (12”).
 - d. Attach Insulation: Adhesively attach using Carlisle required Adhesive.
 - e. Place insulation in fresh adhesive before skinning of adhesive. Apply continuous weight to insulation without damaging insulation to keep insulation down to deck.
- D. Tapered Insulation Transition Strips: Install at the lower edge of all tapered insulation to create a smooth transition at the lower edge.
- E. Roof Cover Board: Install per manufacturer’s recommendations and approved shop drawings. Do not install more than can be covered by membrane in the same day or before the onset of inclement weather.
- 1. Neatly fit cover board to all penetrations, projections and nailers. Cover board should be loosely fitted. Under no circumstances should the membrane be left unsupported over a space greater than 1/4". Cover board must be installed around roof drains so as to provide proper slope for drainage as shown in Carlisle Details.
 - 2. Adhere roof cover board to anchored roof insulation as recommended by the manufacturer to provide ASCE, Standard 7 F.M. Class 1-75 rating as a minimum requirement and as required to obtain the specified 90mph wind speed warranty.
- F. Membrane Placement:
- 1. Place membrane and allow to relax: Place membrane panel, without stretching, over the acceptable substrate and allow to relax for a minimum of 30 minutes before splicing or attaching. The Carlisle EPDM Adhered System must be installed so that the manufactured seams and field splices shed the flow of water.
 - 2. Fold the membrane back: After making sure the sheet is placed in its final position allowing for the minimum lap width per Carlisle Specifications, fold it back evenly onto itself without wrinkles to expose the underside mating surface of the sheet.
 - 3. Remove dusting agent and dirt: Sweep the mating surfaces with a stiff broom to remove any dusting agent or dirt that may have accumulated.
 - 4. Apply the bonding adhesive: Apply bonding adhesive with either a 9” wide solvent-resistant paint roller or a commercial-grade adhesive sprayer. Adhesive must be applied in a relatively uniform thickness to both surfaces at approximately the same time. If adhesive is spray-applied, it must be back-rolled with a paint roller to assure proper contact and coverage. Refer to Carlisle Technical Information Sheets and container labels for specific application instructions.
 - 5. Stop bonding adhesive short of seam area: Care must be taken not to apply bonding adhesive over an area that is to be later spliced at another sheet or flashing. All bonding adhesive must be completely removed from the seam area.
 - 6. Apply bonding adhesive at specified coverage rate: Refer to the container label and technical information sheet for specific application requirements and coverage rates.
 - 7. Test bonding adhesive for readiness (touch-push test): Allow the bonding adhesive to flash-off. Touch the adhesive surface in the thickest area with a clean, dry finger to be certain that the adhesive does not stick or string. As you are touching the adhesive, push forward on the adhesive at an angle to assure that

the adhesive is ready throughout its thickness. If either motion exposes wet or stringy adhesive when the finger is lifted, the adhesive is not ready for mating. Flash-off time will vary depending on ambient conditions.

8. Bond the membrane to the substrate: Starting at the fold, roll the previously coated portion of the membrane into the coated substrate slowly and evenly to minimize wrinkles.
9. Broom the membrane: To assure proper contact, compress the bonded half of the membrane to the substrate with a stiff push broom.
10. Repeat procedure to complete the membrane installation: Fold the un-adhered half of the membrane back onto itself and repeat the procedure.

G. Membrane Seaming:

1. Complete per Carlisle Roof System manufacturer's installation details.

H. Repairs/Problems: Follow procedures outlined in membrane manufacturer's application manual in repairing cuts and tears in membranes and in splice problems encountered.

1. Repair Cuts/Punctures in the Membrane or Wrinkles Within 18" of a Seam:
 - a. A wrinkle running toward a seam or within 18" of a seam must be repaired. The wrinkle must be cut out so that the membrane lays flat and patched with a piece of EPDM membrane having no factory seams that extends a minimum of 3" beyond the boundaries of the cut in all directions. If the wrinkle occurs repair per Carlisle instructions. If repairing of the same wrinkle must continue, then EPDM membrane must be used. Install the EPDM repair membrane first, and round all corners of the repair piece.
 - b. Repair a cut or puncture in the EPDM membrane with EPDM membrane. The repair must extend a minimum of 3" beyond the boundary of the affected area in all directions. Round all corners of the repair piece (Example: a pinhole will require a minimum 6" x 6" EPDM patch).
2. Clean the Membrane: When repairing membrane that has been in service, it is necessary to remove accumulated dirt. Proper membrane preparation is made by scrubbing the membrane with a scrub brush and warm soapy water, rinsing with clear water and drying with clean cotton cloths. Clean the area using clean cotton cloths with Carlisle Splice Wash. Additional cleaning using Carlisle Weathered Membrane Cleaner is often necessary.

I. Additional Membrane Securement:

1. Provide Membrane Securement: Secure the membrane (base tie-in) at all locations where the membrane goes through an angle change greater than 1" in 12".
 - a. Reinforced Perimeter Fastening Strip:
 - 1) Attach the Reinforced Perimeter Fastening Strip to the penetration, perimeter wall or deck using Carlisle 2" Seam Plates or Carlisle Batten Strips fastened a maximum of 12" o.c. Roll the membrane into place and then fold back, exposing the underside of the membrane and the Reinforced Perimeter Fastening Strip. When using batten strips, apply Carlisle General Purpose Sealant over each fastener head, assuring that the fastener head is completely covered.
 - 2) Apply Carlisle roof system assembly as required by the manufacturer.

- 3) Complete vertical lap seams as described in the lap splice section of this Specification. Install a T-Joint Cover over any vertical lap splices that go through an angle change. Refer to Carlisle Details.
2. Seam Edge Treatment (required when using Splice Adhesive, where shown on Carlisle Details, and at cut edges of Sure-Seal EPDM Kleen Non-Reinforced Membrane):
 - a. Apply Splice Adhesive to Seam Edge: Using a Splice Adhesive brush, apply Splice Adhesive a minimum of 1" on either side of the seam edge. Allow the Splice Adhesive to dry. If the seam edge has become contaminated, it will be necessary to clean the edge prior to applying the adhesive.
 - b. Apply Lap Sealant to Seam Edge: Apply a continuous bead of Lap Sealant, approximately 3/8" x 1/4", 20 to 22 lineal feet per 10 oz. tube centered over the seam edge using a standard caulking nozzle. Using the Carlisle supplied Lap Sealant tool, feather the Lap Sealant immediately, taking care to leave a mound of sealant directly over the seam edge (refer to lap splice details). Alternately, Lap Sealant may be applied using the plastic nozzle applicator supplied by Carlisle, assuring the applicator is centered at the seam edge.

 - J. Termination Bars and Counter Flashing: Install termination bars and counter flashing over Water Block Seal, in accordance with Carlisle Details. Provide anchors at 12" on center, maximum.

 - K. Flashing – Penetrations:
 1. General:
 - a. Flash all penetrations passing through the membrane.
 - b. The flashing seal must be made directly to the penetration.
 2. Pipes, Round Supports, etc.:
 - a. Flash penetrations with Carlisle EPDM Pre-Molded Pipe Flashings wherever possible. Do not cut or patch EPDM Pre-Molded Pipe Flashings to assist in their installation.
 - b. Flash penetrations using Sure-Seal Pourable Sealer Pockets when the use of Pre-Molded EPDM Pipe Flashing is not possible.
 - c. Refer to Carlisle's Technical Information Sheet for minimum and maximum pipe diameters that can be successfully flashed with Pre-Molded EPDM Pipe Flashings.
 3. Roof Drains: These Specifications apply for installation of cast iron drains only. For all other drain types, contact Carlisle Technical Services.
 - a. Remove existing clamping ring. Remove any broken clamping hardware and replace.
 - b. Provide a clean even finish on the mating surfaces between the clamping ring and the drain bowl. Raise or lower roof drain as required.
 - c. Install tapered insulation with suitable bonding surfaces around the drain to provide a smooth transition from the roof surface to the drain. Slope into drain shall be .5" in 12" minimum to 1" in 12" typical. (Refer to roof drain detail.)
 - d. Position the membrane and cut a hole for the roof drain allowing a 1/2" to 3/4" of membrane inside the clamping ring.

- e. Make round holes in the membrane to align with clamping bolts (a paper punch may be used). Do not cut the membrane back to the bolt holes.
 - f. Install Carlisle Water Block Seal on the clamping ring seat flange below the membrane. Use a minimum of one half of a 10 oz. tube for a 10" drain.
 - g. Install the roof drain clamping ring and all clamping bolts. Tighten the clamping bolts to achieve constant compression.
4. Pipe Clusters and Unusual Shaped Penetrations:
- a. Fabricate penetration pockets to allow a minimum clearance of 1" between the penetration(s) and all sides.
 - b. Secure penetration pockets and flash per Carlisle Details.
 - c. Fill penetration pockets with Carlisle Pourable Sealer and mound to shed water. Pourable Sealer must be a minimum of 2" deep and 1" thick around the penetrations.
5. Flexible Penetrations:
- a. Provide a weathertight gooseneck set in Water Block Seal and secured to the deck. Flash in accordance with Carlisle Details.
- L. Daily Seal - Temporary Water Cut-Offs: When the completion of flashings and terminations cannot be completed by the end of each workday (of if weather is threatening to protect roof insulation), temporarily close the membrane to prevent water infiltration. Temporarily seal any loose membrane edge down slope so that the membrane edge will not buck water. Caution must be exercised to ensure that the membrane is not temporarily sealed near drains in such a way as to promote water migration below the membrane. Temporary closures which assure that moisture does not damage any completed section of the new roofing system are the responsibility of the licensed applicator. Completion of flashings, terminations and temporary closures must be completed as required to provide a watertight condition.
- M. Prefinished Metal Flashing and Other Metal Work: Not supplied by Carlisle, shall be fastened to prevent the metal from pulling free or buckling and sealed to prevent moisture from entering the roofing system or building.

3.3 FIELD QUALITY CONTROL

- A. Contactor shall schedule the membrane roofing manufacturer's technical representative to be on-site as follows:
- 1. One (1) time while construction operations are occurring.
 - 2. At the completion of the project for the Warranty Inspection.
- B. Upon completion of the installation, an inspection shall be scheduled by the installer and will include a technical representative (sales representatives shall not conduct warranty inspections) of the membrane roofing manufacturer, the installers representative, and the Owner's representative to ascertain that the membrane roofing system has been installed according to manufacturer's published specifications and details applicable to the time of bid. The Owner will be notified not later than 48 hours prior to the time of the inspection. A copy of the manufacturers punch list shall be provided to the Owner and the Architect at the completion of the meeting or within 24 hours thereafter. Final payment will not be made until all punch list items are satisfactorily corrected and a copy of the Warranty provided.

- C. A Roofing system that has standing water and areas that do not drain will be cause for rejection.

3.4 CLEANING

- A. It shall be the responsibility of the Contractor to open all clogged roof drains at the completion of the roofing work. All roof drains shall be left free of debris and draining freely.
- B. Haul away all debris and legally dispose of away from the site.
- C. Repair or replace defaced or disfigured finishes caused by Work of this section.

3.5 PROTECTION OF INSTALLED CONSTRUCTION

- A. Protect building surfaces against damage from roofing Work.
- B. Where traffic must continue over finished roof membrane, protect surfaces.

END OF SECTION