

CONTRACT DOCUMENTS AND SPECIFICATIONS FOR:

SOUTH BEND INTERNATIONAL AIRPORT ROOF REPAIR PHASE 3

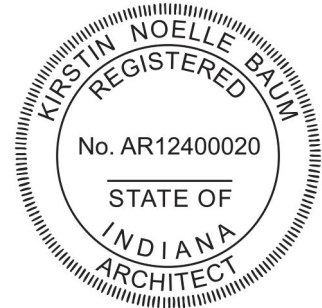
Project No. 2024-0017

Prepared for:

SOUTH BEND INTERNATIONAL AIRPORT, INDIANA

By:

Jones Petrie Rafinski
325 South Lafayette Boulevard
South Bend, Indiana 46601



Kirstin Baum, AIA

Kirstin Baum

Registered Architect
State of Indiana No. AR 12400020

FOR QUOTES DUE:

When: May 22, 2024 11:00am (Local Time)
To: Bbauman@sbnair.com

SOUTH BEND INTERNATIONAL AIRPORT ROOF REPAIR PHASE 3

Project No. 2024-0017

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NOTICE TO PUBLIC AND BIDDERS

Notice is hereby given that the St. Joseph County Airport Authority acting and through its Board will receive sealed proposals until the hour of 11:00 a.m., May 22, 2024, and bids will be opened publicly immediately after, on the last day of receiving bids in the Boardroom of the South Bend International Airport, South Bend IN. 46628, for the following:

Replacement of various roof sections on the Terminal Building, to include:

Plan Designation	Location	Area (SF)
Area 1	at far east end	Appx. 4,252 SF
Area 2	north of Area 3	Appx. 14,738 SF
Area 3	north of Area 4A/B	Appx. 9,592 SF
Area 4A	at southwest end	Appx. 1,609 SF
Area 4B	at southwest end	Appx. 1,699 SF

Bid documents and specifications are available on our Website at <https://flysbn.com/doing-business/>

Solicitations & Bidding

There shall be separate bids for each of the 4 areas. Combined proposals for the requested equipment will not be accepted.

Questions shall be submitted in writing to bbauman@sbnair.com until 10:00 a.m. on May 14, 2024 and answers provided via website.

A Pre-Bid Meeting will be held May 15, 2024 at 1:00 PM local in the Boardroom of the South Bend International Airport.

Bids must be submitted on Indiana Bid Form 96, accompanied by a certified check or bid bond in the amount no less than five percent (5%) of the amount of the bid. The guarantee shall be made out to the St. Joseph County Airport Authority.

The mailing address is:
St. Joseph County Airport Authority
4477 Progress Drive
South Bend IN. 46628

The Board reserves the right to reject any and all bids, or to waive any informalities in bidding, to accept a full or partial award of the bid or bids which, in its judgement, will be in the best interests of the St. Joseph County Airport Authority.

Notice to Proceed will be issued after contract negotiation is complete. The contractor has 30 days to start after notice to proceed is issued or contract may become void.

SOUTH BEND INTERNATIONAL AIRPORT ROOF REPAIR PHASE 3

Project No. 2024-0017

SPECIAL PROVISIONS

I. PROJECT DESCRIPTION

Work to be performed shall include furnishing all labor, services, materials, insurance, labor and equipment to provide and install the South Bend International Airport Roof Repair project including, but not limited to, parapet cap/coping, remove existing roof, replace damaged substrate, and roof, according to the intent of the plans and specifications.

A. Site Access:

1. The contractor is required to be badged.
2. The contractor will be responsible for parking passes at \$5 each that are good for the length of the project.

II. TERM "OR EQUAL"

A. Prevailing Specifications: None

B. Additions:

1. Where the term "or equal" is used in these specifications, the Quote provider deviating from specified item shall file with his/her Quote a letter fully explaining and justifying his/her proposed article or equal. The City of South Bend shall be the sole judge in determining if the "or equal" offered meets the specification.

III. NOT TAX EXEMPT

A. Materials and properties purchased under contract with the Owner that becomes a permanent part of the structure or facilities constructed are subject to the Indiana Gross Retail Tax (Sales Tax).

IV. INDEMNIFICATION

A. Contractor agrees to indemnify, defend, and hold harmless the City of South Bend, its agents, officers and employees, from all costs, losses, claims and suits, including court costs, attorney fees, and other expenses, arising from or out of the negligent performance of this Contract by Contractor, or because of arising out of any defect in the goods, materials or equipment supplied by the Quote provider.

V. INSURANCE

A. South Bend International Airport shall present a Certificate of Insurance showing coverage in the following minimum amount:

1. General Liability: Premises-Completed Operations or Products, Bodily Injury and Property Damage Combined Single Limit - \$1,000,000.
2. There shall be no exclusion for explosion, collapse or underground hazard.
3. Workmen's Compensation: Statutory State of Indiana Employer's Liability - \$100,000.
4. Auto Liability: Bodily Injury and Property Damage Combined Single limit - \$1,000,000
5. SBN shall be named as additional insured on the Certificate of Insurance.

VI. CONTROL OF WORK

- A. Construction Engineering - The Contractor shall provide all the necessary, qualified personnel, equipment and supplies to perform all work required under this item. There will be no direct payment for this item.
- B. The contractor is responsible to maintain the site which includes but is not limited to; dust control, site security, erosion control, and protecting adjacent properties.
- C. Work hours for the Project shall be from 7:00 a.m. through 6:00 p.m., Monday through Friday. No work shall be permitted on weekends, Holidays, or after hours unless approved by the South Bend International Airport.

VII. LEGAL RELATIONS

- A. The Owner, where mentioned in these documents, is the SBN. The Engineer, where mentioned in these documents, is Jones Petrie Rafinski, Corp.
- B. The Contractor shall apply for and obtain any and all required permits for the work from local, state, and federal agencies.
- C. If the Contractor awarded this contract is not a resident of Indiana, within thirty days, the Contractor shall provide the Engineer with proof that the Contractor is duly licensed, qualified and registered with the Secretary of State of Indiana to engage in business within the State of Indiana.
- D. The Contractor shall comply with all provisions of Indiana Code 5-16-13, as amended. The Owner reserves the right to immediately terminate the public work project awarded should the Contractor be found to be in violation of any provision of Indiana Code 5-16-13 and such violation shall result in the forfeiture of Contractor's performance bond to the Owner.

VIII. SUBMITTALS

- A. Submit four (4) copies or an electronic version of the submittals for all equipment or materials used in this project to the JPR for approval. All submittals must be delivered within 7 calendar days from the notice to proceed.
- B. The JPR will review and return two (2) copies or an electronic version of the submittals within five (5) working days.
- C. The review of the submittal information by the Department of Public Works is to facilitate the satisfactory acceptance of the equipment. This review shall neither relieve the contractor from the responsibility for deviations from the Specifications, nor from errors and omissions in the

shop drawings or literature. Parts found not meeting the requirements of these Specifications shall be removed, repaired, or replaced at no cost to the Owner.

- D. Submittals shall include complete manufacturer's descriptive information and shop drawings for all the parts furnished under this contract.
- E. Upon completion of project, the Contractor will supply one (1) conformed set of all submittals to the South Bend International Airport.

IX. PROSECUTION AND PROGRESS

- A. The project will have a completion date of November 1, 2024 for all work. The contract time will start when the Notice to Proceed is delivered and signed.
- B. South Bend International Airport, Engineer, and Contractor will hold a pre-construction meeting following award of the contract. The date of the Notice to Proceed will be agreed at that meeting.
- C. Contractor shall provide a schedule to the Owner prior to beginning any work on the site.

X. CHANGE OF CONTRACT TIME

- A. The Contract Time may only be changed by Change Order. Any Claim for an extension in the Contract Time shall be based on written notice delivered to South Bend International Airport within seven (7) calendar days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within fourteen (14) calendar days after such occurrence unless an official of the South Bend International Airport allows an additional period of time to ascertain more accurate data. The Contract Time will be extended in an amount equal to time lost to delays beyond the control of the Contractor if a claim is made in accordance with this provision. Such delays shall include acts of neglect by South Bend International Airport employees, or to fires, flood, labor disputes, epidemics, abnormal weather conditions, governmental procedures, or acts of God.
- B. Unless otherwise provided, the Contract time is based upon normal weather conditions. An extension is granted for weather conditions significantly more severe than normal if the Contractor demonstrates to the satisfaction of South Bend International Airport that the delay in the progress of the work was due to such weather. The basis to define normal weather will be the data compiled by the United States Department of Commerce, National Oceanic and Atmospheric Administration (NOAA).
- C. No extension of time will be granted if the Contractor, by their own action or inaction, including fault or negligence of Contractor's subcontractors, caused the delay, or for which any remedies are provided under any other provision of this agreement.
- D. The grant of an extension of time under this Section in no way constitutes a waiver by South Bend International Airport of any rights or remedies existing under this contract at law or in equity.

XI. DEFAULT AND TERMINATION

- A. Events of Default shall include Contractor's failure to perform any of its obligations under this contract including failure to commence work at the time specified, failure to perform the work in accordance with these specifications, unauthorized discontinuation of the work, failure to carry out the work in a manner acceptable to South Bend International Airport, failure to observe Federal, State, or local laws or regulations, and failure to comply with any other term

of this contract.

- B. If an Event of Default occurs, South Bend International Airport shall provide Contractor written notice and may permit Contractor ten (10) calendar days after the date of the notice to cure the default. If the default is not cured within the ten (10) day cure period, South Bend International Airport may at any time thereafter terminate this contract in which case the termination shall be final and effective.
- C. Upon an Event of Default, South Bend International Airport may invoke the following remedies in addition to those remedies provided under separate provisions of this contract, the right of set-off against any payments due or to become due to the Contractor against the retainage, the right to take over and complete the Work. If South Bend International Airport notifies Contractor that South Bend International Airport is invoking its right to complete the Work, all rights that the Contractor has in order under Contractor's subcontracts are assigned to South Bend International Airport, subject to South Bend International Airport's right to take assignment of all or only selected subcontracts at South Bend International Airport's discretion. The sole obligation accepted by South Bend International Airport under such subcontracts is to pay for Work satisfactorily performed after the date of the assignment. In the event a conditional assignment has not been executed, the Contractor shall execute or cause to be executed any assignment, agreement, or other document that may be necessary in the sole opinion of legal counsel to South Bend International Airport to evidence compliance with this provision. The Contractor shall promptly deliver such documents upon South Bend International Airport's request. In the case of such assignment, unless otherwise agreed in writing, The Contractor remains liability to subcontractors for any payment already involved, and for any claim, suit or cause of action based upon or resulting from any error, omission, negligence or other breach of contract by the Contractor, its officers, employees, or agents arising prior to the date of assignment to South Bend International Airport.

XII. LIQUIDATED DAMAGES

- A. The contractor shall proceed with the work at such rate of progress to ensure full completion within the Contract Time. It is expressly understood and agreed, by and between the Contractor and the Owner, that the Contract Time for completion of the work described herein is a reasonable time, taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the work, and excludes the time for unavoidable delays which were beyond the control and without the fault of the Contractor.
- B. If the Contractor shall fail to complete the work within the Contract Time, or extension of time granted by the Owner, then the Contractor will pay to the Owner the amount for liquidated damages a sum of five hundred dollars (\$500.00) for each calendar day that the Contractor shall remain in default after the time of completion stipulated in the Contract Documents.
- C. The Contractor shall not be charged with liquidated damages or any excess cost when the delay in completion of the work is due to the following and the Contractor has promptly given written notice of such delay to the Owner and Engineer/Architect.
 - 1. To any preference, priority, or allocation order duly issued by the Owner.
 - 2. To unforeseeable causes beyond the control and without the fault or negligence of the Contractor, including but not restricted to acts of God, acts of public enemy, acts of the Owner, acts of another Contractor in the performance of a Contract with the Owner, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and abnormal and unforeseeable weather.

- D. The Contractor is hereby alerted that failure to submit shop drawings in a timely manner or failure to order materials in a timely manner, such that material manufacturing and delivery to the project site are delayed, will not be considered as unforeseeable causes in the determination of liquidated damages, extension of time granted by the Owner, or any excess cost.

XIII. RETAINAGE AND FINAL PAYMENT

- A. Payments will be made every thirty (30) calendar days.
- B. The South Bend International Airport shall retain the following percentage of payments throughout the duration of the project for each progress payment made prior to substantial completion:
 - 1. 10% on the first 50% of payment application billings on the total project cost
- C. Before final payment and retainage are released the Contractor must satisfy the following:
 - 1. All parts and labor meet requirements stated in the specifications.
 - 2. Provide copies of test reports or cut sheets on all materials supplied.
 - 3. Provide As-Built drawings to South Bend International Airport.
 - 4. One (1) copy of a Final Waiver of Lien.

XIV. WARRANTY

- A. All parts shall include the following:
 - 1. Performance specifications
 - 2. Bill of materials
 - 3. Warranties on all parts
 - 4. Installation and safety requirements

XV. DESCRIPTION OF WORK

- A. Work to be performed shall include furnishing all labor, services, materials, insurance, labor and equipment to provide and install the South Bend International Airport Roof Repair project including, but not limited to, parapet cap, remove existing roof, replace damaged substrate, replace roof, according to the intent of the plans and specifications, according to the intent of the plans and specifications.
- B. The Contractor shall preserve and protect all surrounding property, structures, tenants, visitors and their property from damage caused by the Contractor's operations.
- C. Architectural site improvements shall be completed in accordance with plan details and separate architectural specifications.

XVI. PLANS

A. Prevailing Specifications: South Bend International Airport Plan Set

B. Additions:

1. Roof Repair

a. The plans consist of **Six (6)** sheets.

2. The work shall conform to the plans.

3. The drawings are schematic in nature.

4. The Contractor is responsible for estimating dimensions and quantities of materials.

5. In the event that the Specifications and the Plans conflict, the Specifications shall govern.

XVII. PUBLIC SAFETY

A. It shall be the Contractor's responsibility to secure the construction site against unauthorized entrance by persons and vehicles outside of and during work hours. This includes securing the site against dumping and public safety of the Owner, Owner's representatives, pedestrians, bystanders, and neighborhood residents.

B. Maintaining public safety will not be paid for directly but shall be included in the cost of various items of the contract.

XVIII. PERMITS

A. The Contractor shall be solely responsible for filing all paperwork.

B. The Contractor shall be required to observe and obey all requirements of the permits.

XIX. BONDING REQUIREMENTS

A. The successful Bid provider shall supply the following bonds:

B. Payment Bond within seven (7) days of Notification of Award for an amount equal to one hundred percent (100%) of the contract amount.

C. Performance Bond within seven (7) days of Notification of Award for an amount equal to one hundred twenty-five percent (125%) of the contract amount.

D. Maintenance bond within ten (10) days of acceptance of the project by the SBN, for an amount equal to ten percent (10%) of the final contract price, guaranteeing for a period of three (3) years after the date of acceptance of the project by the SBN.



SOUTH BEND INTERNATIONAL AIRPORT ROOF REPAIR PHASE 3

CHECKLIST FOR BIDDERS

Project Name South Bend International Airport Roof Repair

Project No. 2024-0017

For Quotes Due: May 22, 2024 at 11:00am (Local Time)

From time to time the South Bend Board of Public Works finds it necessary to reject a quote because it does not comply with statutory requirements. In preparing your quote, please use the following checklist in order to make sure that your quote is done in the proper manner.

- Proper quote security included. The bidder has the option of providing either a Certified Check or Bid Bond.
- Quote prepared on the South Bend International Contractor's Quote for Work Form, completely executed.
- Proof of MBE/WBE Participation Goal Form
- Acknowledge Receipt of _____ Addendum(s) included with the quote.
- All required additional information is included with the quote.
- Proposal statements and other affidavits all signed by the proper party with name either printed or typed underneath signature.
- This checklist submitted with the Quote.

This checklist is provided for bidder's use in assuring compliance with required documentation; however, it does not include all specifications requirements and does not relieve the bidder of the need to read and comply with the specifications.

Bidder: _____ Date: _____

By Authorized Representative:

Signature: _____

Print Name & Title: _____



SOUTH BEND INTERNATIONAL AIRPORT ROOF REPAIR PHASE 3

CONTRACTOR'S QUOTE FOR WORK

Project Name South Bend International Airport Roof Repair
Project No. 2024-0017
For Quotes Due May 22, 2024 at 11:00am (Local Time)

BASE QUOTE

Item No.	Description	Total Amount
1	Sarnafil 60 Mil S-327 White PVC Membrane Roof System, Fully Adhered over New Cover Board	
	Area 1	
	Area 1 + Area 2	
	Area 1 + Area 2 + Area 3	
	Area 1 + Area 2 + Area 3 + Area 4A	
	Area 1 + Area 2 + Area 3 + Area 4A + Area 4B	
	Contingency for new/added HVAC curb	\$10,000.00

ALTERNATE 1 QUOTE

Item No.	Description	Total Amount
1	Carlisle Syntec's 60 Mil White Sure-Flex PVC Roof System, Fully Adhered over New Cover Board	
	Area 1	
	Area 1 + Area 2	
	Area 1 + Area 2 + Area 3	
	Area 1 + Area 2 + Area 3 + Area 4A	
	Area 1 + Area 2 + Area 3 + Area 4A + Area 4B	
	Contingency for new/added HVAC curb	\$10,000.00

Areas will not be awarded without the preceding area, they are in order of priority.

Allowance for Base Bid and Alternate 1	Insulation Cover Board At 2" Thickness Cost Per SF per 2" Thickness Installed	1,000 SF in base bid \$_____ per SF
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Allowance for Base Bid and Alternate 1	Replace Metal Decking Cost Per SF	1,000 SF in base bid \$_____ per SF
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Bidder (Firm):

Address: _____

City/State/Zip: _____ Telephone Number: (____) _____

By _____

(Signature)

(Printed Name of Person Signing)

DBE PROVISIONS AND FORM

Although bidders will not be scored on DBE program and other forms, the forms are required to be filled out and included in bid as a formality. It is SBN's intent to show a good faith effort on the project to obtain as high as possible percentage of DBE.

The form can be found on the South Bend International Airport [website](https://fllybn.com/wp-content/uploads/2023/10/DBE-9-26-23-final-submitted.pdf) here:
<https://fllybn.com/wp-content/uploads/2023/10/DBE-9-26-23-final-submitted.pdf>

**SPECIFICATIONS
BASE BID**

Sarnafil Adhered Roofing System

PART 1 - GENERAL CONDITIONS

1.01 DESCRIPTION

- A. Scope
To install a complete Sarnafil adhered system including membrane, flashings and other components.
- B. Related Work
The work includes but is not limited to the installation of:
 - 1. Removal of existing roofing and insulation
 - 2. Substrate preparation
 - 3. Roof drains
 - 4. Vapor retarder
 - 5. Insulation
 - 6. Separation layers
 - 7. Roof membrane
 - 8. Fasteners
 - 9. Adhesive for flashings
 - 10. Roof membrane flashings
 - 11. Roof expansion joints
 - 12. Walkways
 - 13. Metal Flashings
 - 14. Sealants
- C. Upon successful completion of work the following warranties may be obtained:
 - 1. Sika Corporation Warranty
 - 2. Roofing Applicator Warranty

1.02 QUALITY ASSURANCE

- A. This roofing system shall be applied only by a roofing applicator authorized prior to bid by Sika Corporation (Sika Corporation "Applicator").
- B. A Sika Corporation Technical Service Representative will review the installed roof system wherever a System Warranty has been requested.
- C. All work pertaining to the installation of membrane, flashings, and accessories shall only be completed by Applicator authorized by Sika Corporation in those procedures.
- D. Roofing membrane manufacturer must have a demonstrated performance history of producing PVC roof membranes no less, in duration of years, than the warranty duration specified.
- E. Roofing membrane and membrane flashings to be manufactured by membrane supplier and not private labeled.
- F. Manufacturer to have a minimum ten years of experience recycling their membranes at the end of their service life back into new membrane products. Provide a minimum of five reference projects completed with new membrane produced from recycled membrane.
- G. Applicable code/insurance requirements shall be identified by the Owner or Owner's representative.

1.03 SUBMITTALS

- A. The Applicator shall submit to the Owner (or Representative) the following:

1. Copies of Specification.
2. Samples of each primary components to be used in the roof system and the manufacturer's current product data sheet for each component.
3. Written approval by the insulation manufacturer (as applicable) for use of the product in the proposed system.
4. Sample copy of Sika Corporation's warranty.
5. Sample copy of Applicator's warranty.
6. Safety Data Sheets (SDS)

1.04 CODE REQUIREMENTS

The Applicator shall submit evidence that the proposed roof system meets the requirements of the local building code and has been tested and approved or listed by an approved, codified testing organization. These requirements are minimum standards and no roofing work shall commence without written documentation of the system's compliance.

- A. System shall be designed to meet the minimum wind design requirements of the applicable version of ASCE 7.
- B. Underwriters Laboratories, Inc. - Northbrook, IL
 1. Class B assembly

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. All products delivered to the job site shall be in the original unopened containers or wrappings bearing all seals and approvals.
- B. Handle all materials to prevent damage. Place all materials on pallets and fully protect from moisture.
- C. Membrane rolls shall be stored lying down on pallets and fully protected from the weather with clean tarpaulins. Unvented tarpaulins are not accepted due to the potential accumulation of moisture beneath the tarpaulin which may affect the membrane weldability.
- D. As a general rule all adhesives shall be stored at temperatures between 40°F (4°C) and 80°F (27°C). Read product data sheets and instructions contained on adhesive canisters for specific storage instructions.
- E. All flammable materials shall be stored in a cool, dry area away from sparks and open flames. Follow precautions outlined on containers and read product Safety Data Sheets (SDS).
- F. Any materials which the Owner's representative or Sika Corporation determine to be damaged are to be removed from the job site and replaced at no cost to the Owner.
- G. Safety Data Sheets (SDS) shall be available at the job site at all times.

1.06 JOB CONDITIONS

- A. Only as much of the new roofing as can be made weathertight each day, including all flashing and detail work, shall be installed. All seams shall be heat welded before leaving the job site that day.
- B. Temporary overnight tie-ins shall be installed at the end of each day's work and shall be completely removed (including any contaminated materials) before proceeding with the next day's work.
- C. The Applicator is cautioned that certain Sarnafil membranes are incompatible with asphalt, coal tar, heavy oils, roofing cements, creosote and some preservative materials. Such materials shall not remain in contact with these Sarnafil membranes.

- D. The Applicator shall follow all safety regulations as required by OSHA and any other applicable authority having jurisdiction. Roof and walkways may be slippery when icy, snow covered, or wet. Working on surfaces under these conditions is hazardous. Appropriate safety measures must be implemented prior to working on such surfaces. Always follow OSHA and other relevant fall protection standards when working on roofs.
- E. Where applicable, the Applicator shall arrange for pullout tests in accordance with the latest versions of the SPRI/ANSI Standard Field Test Procedures FX-1 and IA-1 for fasteners and adhesives, respectively, to verify condition of the deck/substrate and to confirm expected pullout values.
- F. The Sarnafil membrane shall not be installed under the following conditions without consulting Sika Corporation's Technical Dept. for precautionary steps:
 - 1. The roof assembly permits interior air to pressurize the membrane underside.
 - 2. Any exterior wall has 10% or more of the surface area comprised of opening doors or windows.
 - 3. The wall/deck intersection permits air entry into the wall flashing area.
- G. Special consideration should be given to construction related moisture. Sika Corporation is not responsible for damage when exposed to construction related moisture.

1.07 BIDDING REQUIREMENTS

- A. Pre-Bid Meeting:
A pre-bid meeting shall be held with the Owner's Representative and involved trades to discuss all aspects of the project. The Applicator's field representative or roofing foreman for the work shall be in attendance.
- B. Site Visit:
Bidders shall visit the site and carefully examine the areas in question as to conditions that may affect proper execution of the work. All dimensions and quantities shall be determined or verified by the Applicator. No claims for extra costs will be allowed because of lack of full knowledge of the existing conditions unless agreed to in advance with the Owner or Owner's Representative.

1.08 WARRANTIES

- A. Sika Corporation Warranty
Upon successful completion of the work to Sika Corporation's satisfaction and receipt of final payment, the Sika Corporation Warranty shall be issued.
 - 1. System Warranty
- B. Contractor Warranty

1.09 WARRANTY DURATIONS

- A. Sika Corporation's warranty shall be in effect for a 20 year duration.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Components of the roof system shall be products of Sika Corporation as indicated on the Detail Drawings and specified in the Contract Documents.

- B. Components that are other than those supplied or manufactured by Sika Corporation may be submitted for review and acceptance by Sika Corporation. Sika Corporation's acceptance of any other product is only for a determination of compatibility with Sika Corporation products and not for inclusion in the Sika Corporation warranty. The specifications, installation instructions, limitations, and restrictions of the respective manufacturers must be reviewed by the Owner's Representative for acceptability for the intended use with Sika Corporation products.
- C. Consult respective product data sheets and selection guides for additional information.

2.02 MEMBRANE

- A. Membrane shall conform to:
 - 1. ASTM D-4434 (latest version), "Standard for Polyvinyl Chloride Sheet Roofing". Classification: Type II.
 - 2. NSF/ANSI Standard 347, "Sustainability Assessment for Single Ply Roofing Membranes". Certification Level: Platinum.
 - 3. The manufacture to guarantee that the membrane thickness meets or exceeds the specified thickness when tested according to ASTM D-751.
- B. Sarnafil PVC thermoplastic membrane
 - 1. Type of Membrane
 - a) Sarnafil S 327
 - 2. Membrane Thickness
 - a) 60 mil (1.5 mm)
- C. Color of Membrane
 - 1. Sarnafil S 327 membrane
 - a) EnergySmart White
 - 2. Sarnafil G 459 Membrane for all wall and curb flashing
 - a) EnergySmart White
- D. Typical Physical Properties
 - 1. Refer to individual Sarnafil G 459 Product Data Sheets for physical property values.
 - 2. Refer to individual Sarnafil S 327 Product Data Sheets for physical property values.

2.03 INSULATIONS / ROOF BOARDS

- A. Insulation
 - 1. Sarnatherm (for coverboard)
Rigid polyisocyanurate insulation board with glass fiber reinforced felt facers, meeting ASTM C-1289 Type II, Class 1, Grade 2 (20 psi) or Grade 3 (25 psi).

B. Roof Boards

2. Sarnatherm Roof Board H (for replacement of wet insulation)
High density 109 PSI polyisocyanurate 1/2" (12.7 mm) roof board with coated glass facers, meeting ASTM C-1289 Type II, Class 4, Grade 1.

2.04 ATTACHMENT COMPONENTS

A. Membrane Adhesive

1. Sarnacol 2170 Adhesive
Solvent-based reactivating adhesive used to attach membrane.
2. Sarnacol 2121 Adhesive (only with complaints from owner of fumes)
Water-based adhesive used to attach membrane.

B. Insulation / Roof Board Adhesive

1. Sarnacol 2163
Two-component foamable polyurethane board adhesive applied in ribbons or full applications. No temperature restrictions.
2. Sarnacol AD Board Adhesive
Two-component foamable polyurethane board adhesive applied in ribbons or full applications. The minimum ambient and surface temperature required is 25°F (-4°C) and rising.
3. Sarnacol OM Board Adhesive
Two-component foamable polyurethane board adhesive applied in ribbons or full applications. The minimum ambient and surface temperatures required is 40°F (4.4°C) and rising.
4. Sarnacol OM Board Adhesive WG (winter grade)
Two-component foamable polyurethane board adhesive applied in ribbons or full applications. Can be applied in temperatures between 0°F (-18°C) to 65°F (18°C).
5. Sarnacol OM Adhesive (canister version)
Two-component foamable polyurethane board adhesive applied in ribbons or full applications used to attach insulation and roof boards.
6. Polyset CR-20
Two-component foamable polyurethane board adhesive applied in ribbons used to attach insulation and roof boards.

C. Insulation / Roof Board Attachment

1. Sarnaplate

- 26 gauge, 3" (76 mm) square or round steel plate with a Galvalume coating, used with #12, #14, and #15 Sarnafasteners to attach Sarnatherm insulation, Sarnatherm roof boards, gypsum roof boards, or other Sika approved boards to the roof deck.
2. **Sarnaplate Low Profile**
22 gauge, 2-3/4" (70 mm) square steel plate with a Galvalume coating, used with #12, #14, and #15 Sarnafasteners to attach Sarnatherm insulation, Sarnatherm roof boards, gypsum roof boards, or other Sika approved boards to the roof deck.
 3. **Sarnaplate GypTec**
26 gauge, 3" (76 mm) round steel plate with a Galvalume coating, used with Fastener Polymer GypTec to attach Sarnatherm insulation, Sarnatherm roof boards, gypsum roof boards, or other Sika approved boards to gypsum and cementitious wood fiber roof decks.
 4. **Sarnaplate Lite-Deck**
26 gauge, 3" (76 mm) round steel plate with a Galvalume coating, used with Fastener Lite-Deck to attach Sarnatherm insulation, Sarnatherm roof boards, gypsum roof boards, or other Sika approved boards to gypsum and cementitious wood fiber roof decks.
 5. **Sarnafastener #12**
#12 corrosion-resistant fastener used with Sarnaplates to attach Sarnatherm insulation, Sarnatherm roof boards, gypsum roof boards, or other Sika approved boards to the roof deck.
 6. **Sarnafastener #14**
#14 corrosion-resistant fastener used with Sarnaplates to attach Sarnatherm insulation, Sarnatherm roof boards, gypsum roof boards, or other Sika approved boards to the roof deck.
 7. **Sarnafastener #15 XP**
#15 corrosion-resistant fastener used with Sarnaplates to attach Sarnatherm insulation, Sarnatherm roof boards, gypsum roof boards, or other Sika approved boards to the roof deck.
 8. **Fastener CD-10**
Nail-in, corrosion-resistant fastener used with Sarnaplates to attach Sarnatherm insulation, Sarnatherm roof boards, gypsum roof boards, or other Sika approved boards to structural concrete.
 9. **Fastener Polymer GypTec**
Molded product made of fiberglass-filled nylon used with Sarnaplate GypTec to attach Sarnatherm insulation, Sarnatherm roof boards, gypsum roof boards, or other Sika approved boards to certain gypsum and cementitious wood fiber roof decks.
 10. **Fastener Lite-Deck**
Deep course threaded fastener used with Sarnaplate Lite-Deck to attach Sarnatherm insulation, Sarnatherm roof boards, gypsum roof boards, or other Sika approved boards to gypsum and cementitious wood fiber roof decks.

2.05 DECK PRIMERS

- A. **Vapor Retarder Primer SB**
Solvent-based primer used to prime wood, concrete, primed gypsum boards and decks, prior to the application of Sika's self-adhered vapor retarders.
- B. **Vapor Retarder Primer VC**
VOC compliant*, solvent-based primer used to prime wood, concrete, gypsum boards and decks, prior to the application of Sika's self-adhered vapor retarders.
*Check local jurisdiction for VOC compliance.

- C. Vapor Retarder Primer WB
Polymer emulsion water-based primer used to prime wood, concrete, gypsum decks, and approved gypsum boards prior to the application of Sika's self-adhered vapor retarders.
- D. Vapor Retarder Primer TA
Blend of bitumen and solvent based primer for use prior to applying Sika's torch-applied vapor retarders.
- E. Vapor Retarder Primer BE
Bituminous emulsion (water based) primer for use prior to applying Sika's torch-applied vapor retarders.

2.06 VAPOR RETARDERS

- F. Vapor Retarder SA 106
106 mil (2.7 mm) thick self-adhered SBS polymer modified bitumen vapor retarder/air barrier with a non-woven polyester mat reinforcement and fine mineral aggregate (sand) topside. Can also serve as temporary roof protection exposed for up to six (6) months.

2.07 VAPOR RETARDER ADHESIVES

- G. Vapor Retarder Adhesive CA
Cold applied polyether based adhesive used to adhere Sika's vapor retarders that are typically adhered with hot asphalt. It is used in applications where hot asphalt is not advised and/or not permitted.
- H. Vapor Retarder Adhesive CA SB
Cold applied solvent based adhesive used to adhere Sika's vapor retarders that are typically adhered with hot asphalt. It is used in applications where hot asphalt is not advised and/or not permitted.

2.08 FLASHING MATERIALS

- A. Wall / Curb Flashing
 - 1. Sarnafil G 459 Flashing Membrane
For use over residual asphalt or other contaminated surfaces.
- B. Perimeter Edge Flashing
 - 1. Sarnaclad
24 gauge, G90 galvanized steel with PVC-coating on one side for heat-weldability.
- C. Miscellaneous Flashing
 - 1. Sarnacircles
Round circle patch.
 - 2. Sarnacorners - Inside
Injection molded inside corner.

3. Sarnacorners - Outside
Injection molded outside corner.
4. Sarnastack Universal
Injection molded stack/pipe boot to flash pipes, vent stacks and cylindrical penetrations.
5. Sarnastack Split A, B, C
Prefabricated stack/pipe boot open along one side to flash pipes, vent stacks and cylindrical penetrations when access is obstructed.
6. Open Post Flashing
Prefabricated pipe boot open along one side to flash rooftop conduits, pipes, and cylindrical penetrations when access is obstructed.
7. Sarnareglet
Extruded aluminum flashing termination reglet used at walls and large curbs for exposed applications. Use prefabricated Sarnareglet mitered inside and outside corners where walls intersect.
8. Sarnadrain with U-Flow
Seamless one-piece heavy-duty aluminum drain with a coated flange for hot-air welding of Sarnafil membranes.

2.09 EXPANSION JOINT

- A. Emseal RoofJoint expansion joint system
Dual-seal, double-flanged, extruded nitrile PVC (NPVC) alloy system for sealing roof expansion joints.

2.10 WALKWAY PROTECTION

- A. Sarnatred-V
Polyester reinforced, 96 mil (2.4 mm) thick, weldable membrane with surface embossment similar to a chevron pattern. Used as a protection layer from rooftop traffic.
- B. Sikaplan Walkway-20
PVC, 79 mil (2.0 mm) thick, weldable membrane with pyramidal surface embossment. Used as a protection layer from rooftop traffic.
- C. Crossgrip XTRA
Rolled-out walkway protection mat loose laid on top of completed roof assemblies consisting of 5/8" (16 mm) thick flexible PVC with cross-directional textured ribs. Available in white, gray, and yellow.
- D. Concrete Pavers
Normal weight concrete pavers specifically designed and produced for rooftop application. For large areas the use of paver pedestals or a drainage panel protection layer between the Sarnafil roof membrane and the pavers is required. For narrow walkways, a welded-in-place protection layer of Sarnafil membrane is required under the concrete pavers.

2.11 MISCELLANEOUS ACCESSORIES

- A. Aluminum Tape
2" (51 mm) wide pressure-sensitive aluminum tape used as a separation layer between small areas of asphalt contamination and the membrane and as a bond-breaker under the coverstrip at Sarnaclad joints.

- B. SikaLastomer-65
Tape used to seal membrane at penetrations and securements, metals, or Vapor Retarder PE 10.
- C. Décor Profile Rib
PVC extruded rib hot-air welded to the membrane to simulate the look of a standing seam metal roof.
- D. Perimeter Warning Tape
2" (51 mm) wide yellow tape with a release liner used in required areas. Exceeds reflectivity 3 requirements and Federal spec. L-S-300, Class 1.
- E. Perimeter Warning Membrane
4" (10.2 cm) wide yellow Sarnafil G 410 Membrane used in required areas.
- F. SarnaRoof Membrane Cleaner 100
Used to clean roof membrane.
- G. Sarnacol 2175 Cleaner
Used to flush and clean the Sarnacol 2175 spray hose, spray gun and spray tip.
- H. Sarnadisc
20 gauge, 2" (51 mm) round steel disc with Galvalume coating, used with #14 or #15 XP Sarnafasteners or Fastener CD-10 to attach the Sarnafil roof membrane to the roof deck at the base of walls, curbs, and other roof penetrations.
- I. Sarnastop
1" wide extruded aluminum, low profile bar used with certain Sarnafasteners to secure membrane to the roof deck or to walls/curbs at terminations, penetrations and at angle changes of the substrate.
- J. Sarnabar
14 gauge, galvanized or stainless, roll-formed steel bar used to attach membrane to roof decks.
- K. Sarnacord
5/32" (4 mm) diameter, red-colored, flexible thermoplastic extrusion that is welded to the top surface of the Sarnafil membrane and against the side of the Sarnabar, used to hold the membrane in position.

2.12 SEALANTS AND PITCH POCKET FILLERS

- A. Sikaflex-1a
Moisture-cured, one-component polyurethane-based, non-sag elastomeric sealant used in wall, curb and drain terminations. It is also used as a sealant at pipe penetrations and under certain metal flashings. Sikaflex-1a can be used as a pourable sealer pocket filler.
- B. Sikasil SG-10
One-component silicone adhesive.
- C. Sarnafiller
Two-component urethane adhesive for pitch pocket toppings.
- D. Mastic TG
Cold applied, fiber reinforced high strength SBS modified bitumen mastic that is specially formulated to detail around penetrations and flashings where Sika vapor retarders and ply sheets are used as a temporary roof.

2.13 MISCELLANEOUS FASTENERS AND ANCHORS

All fasteners, anchors, nails, straps, bars, etc. shall be post-galvanized steel, aluminum or stainless steel. Mixed metal type components shall be assembled in such a manner as to avoid galvanic corrosion. Fasteners for attachment of metal to masonry shall be expansion type fasteners with stainless steel pins.

2.14 RELATED MATERIALS

A. Wood Nailer

Code compliant wood nailers shall be installed at the perimeter of the entire roof and around such other roof projections and penetrations as specified on Project Drawings. Thickness of nailers must match the height of the insulation and roof board to achieve a smooth transition.

B. Plywood

When bonding directly to plywood, a minimum 1/2" (13 mm) CDX (C side out), smooth-surfaced exterior grade plywood with exterior grade glue shall be used. Rough-surfaced plywood or high fastener heads will require the use of Sarnafelt behind the flashing membrane. Plywood shall have a maximum moisture content of 19% by weight on a dry weight basis.

PART 3 - EXECUTION

3.01 PRE-CONSTRUCTION CONFERENCE

The Applicator, Owner's Representative/Designer and Manufacturer(s) shall attend a pre-construction conference.

3.02 SUBSTRATE CONDITION

- A.** Applicator shall be responsible for acceptance or provision of proper substrate to receive new roofing materials.
- B.** Applicator shall verify that the work done under related sections meets the following conditions:
 - 1. Roof drains and scuppers have been reconditioned or replaced (as applicable) and installed properly.
 - 2. Roof curbs, nailers, equipment supports, vents and other roof penetrations are properly secured and prepared to receive new roofing materials.
- C.** The substrate shall be clean, smooth, dry, free of water, ice and snow and free of flaws, sharp edges, loose and foreign material, oil, grease and other contaminants. Roofing shall not start until all defects have been corrected.

3.03 SUBSTRATE PREPARATION

The roof deck and existing roof construction must be structurally sound to provide support for the new roof system. The Owner's Representative shall ensure that the roof deck is secured to the structural framing according to local building code or insurance requirements and in such a manner as to resist all anticipated loads in that location.

A. New Construction

- 1. **Steel Deck**
The roof deck shall conform and be installed to current local building code or insurance requirements.
- 2. **Wood Deck**
The roof deck shall be minimum 1-1/2" (38 mm) thick lumber or 15/32" (12 mm) thick plywood. Deck shall be installed according to local code requirements.
- 3. **Poured Structural Concrete Deck**

- The surface shall be dry and free of moisture, have a level finish, and shall be free of dust, excess moisture, oil-based curing agents and loose debris. Under no circumstances shall a sealer be used in lieu of a curing agent. Sharp ridges or other projections above the surface shall be removed before roofing. In accordance with the ICRI Technical Guideline No. 310.2R-2013, newly poured concrete surfaces may be finished by forming, wood float, steel or power trowel, or broom finished to meet a concrete surface profile (CSP) of 2 – 5.
4. **Poured Lightweight (Cellular or Insulating) Concrete Substrate**
The surface shall be installed per lightweight concrete manufacturer's guidelines. The wet and dry densities shall be in accordance with the manufacturer's requirements. Sharp ridges or other projections above the surface shall be removed before roofing.
 5. **Precast / Prestressed Concrete Panel Deck**
The surface shall have a smooth and level finish and shall be free of dust, moisture, oil or loose debris. All joints between precast units shall be grouted. Any differentials in height between precast units shall be feathered for a smooth transition. Sharp ridges or other projections above the surface shall be removed before roofing.
 6. **Cementitious Wood Fiber Deck**
The roof deck shall be installed in accordance with the deck manufacturer's requirements and industry practice. The surface shall have a smooth and level finish and shall be free of dust, moisture, and loose debris. All voids and joints shall be grouted. Any differentials in height between precast units shall be feathered for a smooth transition. Sharp ridges or other projections above the surface shall be removed before roofing. Panels shall be secured to structural supports as recommended by the deck manufacturer.

B. Reroofing with Removal of Existing Roofing System

All existing roofing, base flashing, deteriorated wood blocking or deteriorated metal flashings shall be removed. Remove only that amount of roofing and flashing which can be made weathertight with new materials during a one-day period or before the onset of inclement weather.

1. **Steel Deck**
All rusted or deteriorated decking shall be brought to the attention of the Owner's Representative to determine method of treatment or replacement. Surface-only rusted metal shall be sanded and treated with rust-inhibiting paint. Sections that have rusted deeper than the surface or are not structurally sound shall be removed and replaced. Deck type shall match existing, and the attachment shall conform to local code requirements.
2. **Wood Deck**
All rotted or deteriorated wood shall be removed and replaced. The deck thickness shall be 1-1/2" (38 mm) lumber or 15/32" (12 mm) plywood or match existing deck if greater. Deck type and attachment shall conform to local code requirements. Fastener heads shall be recessed into the wood surface.
3. **Poured Structural Concrete Deck**
The surface shall be dry and free of moisture, have a level finish, and shall be free of dust, excess moisture, and loose debris. Sharp ridges or other projections above the surface shall be removed before roofing. In accordance with the ICRI Technical Guideline No. 310.2R-2013, newly poured concrete surfaces may be finished by forming, wood float, steel or power trowel, or broom finished to meet a CSP of 2 – 5.
4. **Poured Lightweight (Cellular or Insulating) Concrete Substrate**
Sharp ridges or other projections above the surface shall be removed before roofing. Fastening for recover board shall be into structural deck below insulating fill (see steel/concrete deck requirements).
5. **Precast / Prestressed Concrete Deck**

The roof deck shall be smooth, even, free of dust, dirt, excess moisture or oil and be structurally sound. All joints between precast units shall be grouted. Any differentials in height between precast units shall be feathered for a smooth transition. Any deteriorated decking shall be repaired.

6. Cementitious Wood Fiber Deck

The roof deck face shall be smooth, even, free of excess moisture, and structurally sound. Joints over bulb-tees shall be grouted. Grouting shall be done with materials supplied or recommended by the deck manufacturer. All wet or deteriorated sections of decking shall be removed and replaced. Deck planks shall be secured to structural supports as recommended by deck manufacturer.

C. Reroofing with Removal of Existing Single-Ply Membrane

The Owner's Representative and Applicator shall determine the condition of the roof deck and existing insulation. Deteriorated decking or wet or deteriorated materials are to be removed and replaced. After removal of single-ply roof, inspect insulation boards and reuse only if dry and in stable condition. Add a Sika Corporation approved recover board or new insulation board. Fasten recover board or top layer of insulation in accordance with Sika Corporation's requirements.

D. Recover Over Existing Single Ply Membrane

The Owner's Representative and Applicator shall determine the condition of the roof deck and existing insulation. Deteriorated decking or wet or deteriorated materials are to be removed and replaced. Remove all debris from the existing single-ply roof and cut into 10 ft x 10 ft panels (3.0 m x 3.0 m), or cut 6" (15.2 cm) circles down center of each sheet, every 5 to 8 ft (1.5 to 2.4 m). Install a layer of a Sika Corporation approved roof board or new insulation board over the cut single-ply and then fasten the board according to Sika Corporation's requirements.

1. Install a layer of a Sika Corporation approved recover board or a new insulation board over the fastened 10 ft x 10 ft (3.0 m x 3.0 m) panels and then fasten the board according to Sika Corporation's requirements. For Type III hot asphalt attachment of new insulation board, priming of the old roof surface after preparation is necessary.

E. Recover Over Existing Bitumen Roofing

The Owner's Representative and Applicator shall determine the condition of the existing roof deck and old roof system. Areas with deteriorated decking or wet materials are to be removed and replaced.

1. On graveled surfaces, all debris shall be removed. All blisters shall be removed and sealed or cut, fastened down and sealed. Any accumulation of bitumen or other irregularities shall be scratched and removed so as to produce a smooth surface.
2. On smooth surfaced roofs, the surface must be clean and dry. All blisters shall be removed and sealed or cut, fastened down and sealed. For Type III hot asphalt attachment of new insulation board, priming of the old roof surface after preparation is necessary.
3. Coal-tar pitch or heavily resaturated roofs may require removal. Contact Sika Corporation Technical for coal-tar pitch or heavily resaturated reroof preparation requirements.

3.04 WOOD NAILER INSTALLATION

- A. Install continuous code compliant wood nailers at the perimeter of the entire roof and around roof projections and penetrations as shown on the Detail Drawings.
- B. Wood nailers or wood blocking for penetrations, curbs, or snow protection systems shall be installed prior to the installation of the roof membrane whenever possible.

3.05 VAPOR RETARDER INSTALLATION

Refer to vapor retarder Product Data Sheets (PDS) and *Vapor Retarder Installation* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

- A. Vapor Retarder PE 10
Overlap loose laid sheets 4" (10.2 cm) and extend up the perimeter and deck penetrations. Seams and penetrations shall be sealed with SikaLastomer-65 tape.
- B. Vapor Retarder SA 31
All surfaces except for steel require priming. Lay out sheets so side laps are overlapped by 3" (76 mm) and end laps are overlapped by 6" (15.2 cm). Peel back release liner, press onto substrate, and roll with a minimum 75 lb roller.
- C. Vapor Retarder SA 106
All surfaces except for steel require priming. Lay out sheets so side laps are overlapped by 3" (76 mm) and end laps are overlapped by 6" (15.2 cm). Peel back release liner, press onto substrate, and roll with a minimum 75 lb roller.
- D. Vapor Retarder TA 138
Prime concrete surfaces. Lay out sheets so side laps are overlapped by 3" (76 mm) and end laps overlapped by 6" (15.2 cm). Torch the bottom side of the sheet and install into substrate.
- E. Ply Sheet TA 87
Prime concrete surfaces. Torch the bottom side of the sheet, install into substrate, and walk on or roll the surface with a minimum 75 lb roller. Sheets shall be laid out so side laps are overlapped by 6" (15.2 cm) and end laps are overlapped by 12" (30.5 cm).
- F. Ply Sheet HA 87 and Ply Sheet HA 118
Prime concrete surfaces. Adhere sheets with Type III or Type IV asphalt in accordance with ARMA guidelines. Ply Sheet HA 87 and HA 118 can also be cold applied with Vapor Retarder Adhesive CA / CA SB.

3.06 INSULATION / ROOF BOARD INSTALLATION

General Criteria:

- 1. Boards shall be installed according to local building code, insurance requirements, and manufacturer's instructions.
 - 2. Boards shall be neatly cut to fit around penetrations and projections.
 - 3. Install tapered insulation in accordance with insulation manufacturer's shop drawings.
 - 4. Do not install more board than can be covered with membrane by the end of the day or the onset of inclement weather.
 - 5. When two or more layers of insulation and/or roof boards are used, stagger joints at least 12" (30.5 cm) in both directions between layers.
 - 6. Refer to individual Product Data Sheets (PDS) and *Insulation or Roof Board Installation* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.
- A. Mechanical Attachment
Boards shall be mechanically fastened to the deck with approved fasteners and plates according to the wind uplift rating requirements and associated fastening patterns.
 - B. Attachment with Board Adhesives
Boards shall be adhered to the deck with approved adhesives according to the wind uplift rating requirements and associated ribbon spacing patterns. The maximum board size with board adhesives is 4 ft x 4 ft (1.2 m x 1.2 m) for insulation boards and 4 ft x 8 ft (1.2 m x 2.4 m) for roof boards.

- C. Attachment with hot asphalt Type III or Type IV:
Insulation shall be adhered to the concrete deck or another approved substrate with hot Type III or Type IV asphalt. The asphalt temperature and application methodology shall be maintained throughout the installation as recommended by the NRCA and ARMA. The maximum board size with hot-asphalt attachment is 4 ft x 4 ft (1.2 m x 1.2 m). Aluminum tape shall be installed over joints where asphalt has been pushed to the board's surface.
- D. Lightweight Insulating Concrete
Install in accordance with selected manufacturer's guidelines.

3.07 SARNAFIL MEMBRANE INSTALLATION

The surface of the insulation, roof board, or substrate shall be inspected prior to installation of the Sarnafil roof membrane. The substrate shall be clean, dry, and free from debris and smooth with no surface roughness or contamination. Broken, delaminated, wet or damaged boards shall be removed and replaced. Tack welding of Sarnafil membrane field sheets for purposes of temporary restraint during installation is not permitted and may result in voiding of Sika Corporation warranty.

- A. Sarnacol 2170 or Sarnacol 2170 VC Adhesive:
 - 1. Apply adhesive direct to substrate, rate may vary depending on porosity of substrate. Only an area which can be completely covered in the same day's operations shall be coated with adhesive. The first layer of adhesive shall be allowed to dry completely prior to installing the membrane.
 - 2. Refer to individual Product Data Sheets (PDS) and *Adhered Systems: Solvent Based Adhesive Installation* section of Sika Sarnafil Roofing Applicator's Handbook for detailed installation instructions.
- B. Sarnacol 2121:
 - 1. Apply adhesive direct to substrate, rate may vary depending on porosity of substrate. Do not allow adhesive to skin-over or surface-dry prior to installation of Sarnafil membrane.
 - 2. Refer to individual Product Data Sheet (PDS) and *Adhered Systems: Water Based Adhesive Installation* sections of Sika Sarnafil Roofing Applicator's Handbook for detailed installation instructions.
- C. Sarnacol 2175 Adhesive:
 - 1. Apply adhesive direct to substrate and membrane, rate may vary depending on spray pattern and porosity of substrate. Allow the coated surfaces to dry. Set the membrane to the substrate as soon as the adhesive is dry.
 - 2. Refer to Sarnacol 2175 Product Data Sheet for detailed installation instructions.
- D. Sarnacol AD Feltback Membrane Adhesive or Sarnacol OM Feltback Membrane Adhesive:
 - 1. Application rates vary depending on surface roughness, absorption rate of the substrate, and wind speed approvals.
 - 2. Refer to individual Product Data Sheets (PDS) and *Adhered Systems: Urethane Adhesive Installation Using Feltback Membrane* section of Sika Sarnafil Roofing Applicator's Handbook for detailed installation instructions.
- E. Sarnafil G 410 SA Membrane:
 - 1. The surface of the insulation or substrate shall be inspected prior to installation of the Sarnafil membrane. The substrate shall be clean, dry, free from debris and smooth with no surface roughness

or contamination. Broken, delaminated, wet or damaged insulation boards shall be removed and replaced.

2. The membrane is installed after proper preparation of substrate. Peel back release liner and press onto substrate. Roll membrane immediately afterwards with a steel membrane roller.
3. Refer to individual Product Data Sheets (PDS) and *Adhered Systems: Self Adhered Membrane* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

F. Décor Profile Rib (if applicable):

Installation of the Décor roof shall only be done by Applicator personnel that have completed a mandatory one day Décor roof installation and welding training course. Proper installation is critical to achieve the desired appearance.

Refer to *Décor Roof Systems* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

3.08 HOT-AIR WELDING OF MEMBRANE OVERLAPS

- A. All membrane overlaps shall be hot-air welded. The membrane shall be clean and dry prior to hot-air welding.
- B. Field membrane overlaps for automatic machine-welding shall be 3" (76 mm) in width. A minimum of 4" (10.2 cm) wide overlap is required when hand-welding details.
- C. 1" (25 mm) wide cross-section samples of welded seams shall be taken at least two times a day, once in the morning and once in the afternoon.
- D. Refer to *Welding* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

3.09 MEMBRANE FLASHING INSTALLATION

All flashings shall be installed concurrently with the roof membrane as the job progresses. No temporary flashings shall be allowed without the prior written approval of the Owner's Representative and Sika Corporation. Approval shall only be for specific locations on specific dates. If any water is allowed to enter under the newly completed roofing, the affected area shall be removed and replaced at the Applicator's expense. Flashing shall be adhered to compatible, dry, and smooth surfaces free of dirt, dust, and debris. Use caution to ensure adhesive fumes are not drawn into the building.

- A. All flashings should extend a minimum of 8" (20.3 cm) above finished roofing level. Submit requests for exceptions in writing to the Owner's Representative and Sika Corporation Technical Department for signed approval.
- B. No bitumen shall be in contact with any Sarnafil membranes except Sarnafil G 459.
- C. All flashing membranes shall be mechanically fastened along the counter-flashed top edge with Sarnastop or approved Sarnadisc at 6 - 12" (15.2 – 30.5 cm) on center.
- D. Sarnafil flashings shall be terminated according to Sika Corporation recommended details.
- E. All adhered flashings that exceed 45" (1.14 m) in height shall receive additional securement, unless applying Sarnafil G 410 SA membrane to plywood, DensDeck Prime, concrete block, or concrete with a CSP of 1 – 4 according to ICRI Technical Guideline No. 310.2R-2013.

- F. Refer to *Typical Flashing Procedures* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

3.10 LIQUID FLASHING INSTALLATION

- A. Application Guidelines
Liquid Flashing has a strong odor. Precautions should be taken to prevent odors and/or vapors from entering the building/structure, including but not limited to turning off and sealing air intake vents and other means of ingress for odors and/or vapors into the building/structure during product application and cure. Refer to individual Product Data Sheets (PDS) and *Liquid Flashing Procedures* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.
- B. Installation Notes
1. Prepare the surface to be flashed by cleaning the area to like-new condition.
 2. Pre-cut vertical and horizontal liquid flashing fleece to fit around the penetration with 2" (51 mm) overlaps.
 3. Thoroughly mix the Liquid Flashing and the Liquid Flashing Catalyst with a slow speed mixer.
 4. Apply the catalyzed liquid flashing with a 55 mil base layer. Place the pre-cut fleece into the wet Liquid Flashing making sure to saturate the fleece. Apply a 25 mil finishing layer over the fleece.
- C. Inspection and Quality Control
Refer to Sika Sarnafil Technical Bulletin 19-02 for detailed inspection procedures.

3.11 SARNAFLAD METAL BASE FLASHINGS / EDGE METAL INSTALLATION

- A. All flashings shall be installed concurrently with the roof membrane as the job progresses. No temporary flashings shall be allowed without the prior written approval of the Owner's Representative and Sika Corporation. Approval shall only be for specific locations on specific dates. If any water is allowed to enter under the newly completed roofing due to incomplete flashings, the affected area shall be removed and replaced at the Applicator's expense.
- B. Metal details, fabrication practices and installation methods shall conform to the applicable requirements of the following:
1. ANSI SPRI ES-1 (latest issue).
 2. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - latest issue.
- C. Pre-formed metal flashing shall be installed according to metal manufacturer's guidelines.
- D. Metal, other than that provided by Sika Corporation, is not covered under the Sika Corporation warranty.
- E. Sarnaflad and other metal flashings shall be formed and installed per the Detail Drawings. Refer to individual Product Data Sheets (PDS) and *Metal Flashings* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

3.12 ROOFJOINT EXPANSION JOINT

- A. Clean the joint opening of all contaminants immediately prior to installation of expansion joint system. Repair spalled, irregular or unsound joint surfaces using accepted industry practices for repair of the substrates in question. Remove protruding roughness to ensure joint sides are smooth.
- B. Install RoofJoint expansion joint and accessories according to joint system manufacturer's most current requirements.
1. Secure roofing membrane up to expansion joint opening.
 2. Lower RoofJoint into expansion joint gap so that it achieves a level and firm fit with the rooftop surface.
 3. Hot-air weld lower RoofJoint flange to installed roofing membrane surface.

4. Place termination bar on top of lower RoofJoint flange. Install provided fasteners through pre-drilled holes in termination bar. Tighten until termination bar is snug with lower flange. Do not overtighten.
5. Lap upper RoofJoint flange over termination bar and hot-air weld to roofing membrane surface.
6. Verify and document weld strength of seams minimum once daily via mockup vs in-field destructive testing.
7. Test lap edges with probe to verify seam weld continuity.
8. If any tears or voids in lapped seams are found, repair using appropriate approved technique.

3.13 WALKWAY INSTALLATION

- A. Sarnatred-V
Probe all existing deck membrane seams which are to be covered by Sarnatred-V. Install walkway in straight lines by either adhering and welding or just welding to the field membrane.
- B. Sikaplan Walkway-20
Probe all existing deck membrane seams which are to be covered by Sikaplan Walkway-20. Install walkway in straight lines by either adhering and welding or just welding to the field membrane.
- C. Crossgrip XTRA
Probe all existing membrane seams which are to be covered by Crossgrip XTRA. Crossgrip XTRA is installed loose laid. Connecting clips are available for attaching roll ends together.
- D. Concrete Pavers
Probe all existing membrane seams which are to be covered by concrete pavers. Using a separate piece of Sarnafil membrane as a protection layer, weld all edges in place. Place normal weight concrete pavers on the protection membrane. In areas of high wind exposure the pavers shall be strapped together with stainless steel metal straps that are flush with the paver surface.
- E. Refer to individual Product Data Sheets (PDS) and *Walkway Installation* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

3.14 PERIMETER WARNING INSTALLATION

Application areas must be cleaned to a like-new condition. For detailed installation instructions, refer to individual Product Data Sheets (PDS).

- A. Tape: Perimeter Warning Tape is applied with hand pressure to the top of PVC roofing membrane in the areas required.
- B. Membrane: Perimeter Warning Membrane is hot-air welded to the top of PVC roofing membrane in the areas required.

3.15 TEMPORARY CUT-OFF

- A. All flashings shall be installed concurrently with the roof membrane in order to maintain a watertight condition as the work progresses. All temporary cut-offs shall be constructed to provide a watertight seal. The new membrane shall be carried into the temporary cut-off. Temporary cut-off shall be sealed to the deck or substrate so that water will not be allowed to travel under the new or existing roofing. When work resumes, the contaminated membrane shall be cut out.
- B. If inclement weather occurs while a temporary cut-off is in place, the Applicator shall provide the labor necessary to monitor the situation to maintain a watertight condition.
- C. If any water is allowed to enter under the newly-completed roofing, the affected area shall be removed and replaced at the Applicator's expense.

- D. Refer to *Overnight Tie-In* section of Sika Sarnafil Roofing Applicator Handbook for detailed instructions.

3.16 COMPLETION

- A. Prior to demobilization from the site, the work shall be reviewed by the Owner's Representative and the Applicator. All defects noted and non-compliances with the Specifications or the recommendations of Sika Corporation shall be itemized in a punch list. These items must be corrected immediately by the Applicator to the satisfaction of the Owner's Representative and Sika Corporation prior to demobilization.
- B. All Warranties referenced in this Specification shall have been submitted and have been accepted by the owner or owner's representative at time of contract award.

3.17 DETAILS

- A. Refer to usa.sika.com/sarnafil.

DISCLAIMER

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Product Data Sheet, product label and Safety Data Sheet which are available online at usa.sika.com/sarnafil or by calling Sika's Technical Service Department at 800-451-2504. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instruction for each Sika product as set forth in the current Product Data Sheet, product label and Safety Data Sheet prior to product use.

With respect to any guide specifications prepared and provided by Sika, such guide specifications are generic and nature and are provided as a general guide for informational purposes only to architects or roof designers/specifiers. Sika guide specifications are not intended to replace sound engineering and architectural practices and should not be relied upon for that purpose. Sika assumes no liability with respect to the provision of this guide specification, the preparation of the guide specifications, the design of the roofing or waterproofing system, the preparation and approval of the details and shop drawings, or for determining their suitability for a particular project or application. The architect, consultant and/or engineer or design professional for a particular project bears the sole responsibility for the design of the roofing or waterproofing system, for the preparation of the specifications, the preparation and approval of the details and shop drawings, and for determining their suitability for a particular project or application.

SIKA MAKES NO WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, AS TO THE CONTENTS OF THESE GUIDE SPECIFICATIONS. SIKA SHALL NOT BE RESPONSIBLE UNDER ANY LEGAL THEORY TO ANY THIRD PARTY FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES OF ANY KIND ARISING FROM THE USE OF THESE GUIDE SPECIFICATIONS.

SPECIFICATIONS

ALTERNATE 1

Carlisle SynTec's Sure-Flex PVC Adhered Roofing System

PART 1 GENERAL

1.01 DESCRIPTION

- A. The project consists of installing Carlisle SynTec's Sure-Flex PVC Adhered Roofing System as outlined below:

Apply the Sure-Flex Adhered Roofing System in conjunction with cover board after tear off of the existing roof to expose the existing insulation (replace any wet insulation) see allowances for verification of suitable substrate as specified in this specification.

1.02 EXTENT OF WORK

Provide all labor, material, tools, equipment, and supervision necessary to complete the installation of the Sure-Flex 60-mil thick white reinforced PVC (polyvinyl chloride) reinforced membrane adhered roofing system including flashings and insulation as specified herein and as indicated on the drawings in accordance with the manufacturer's most current specifications and details.

- A. The roofing contractor shall be fully knowledgeable of all requirements of the contract documents and shall make themselves aware of all job site conditions that will affect their work.
- B. The roofing contractor shall confirm all given information and advise the building owner, prior to bid, of any conflicts that will affect their cost proposal.
- C. Any contractor who intends to submit a bid using a roofing system other than the approved manufacturer must submit for pre-qualification in writing fourteen (14) days prior to the bid date. Any contractor who fails to submit all information as requested will be subject to rejection. Bids stating "as per plans and specs" will be unacceptable.

1.03 SUBMITTALS

- A. Prior to starting work, the roofing contractor must submit the following:
1. Shop drawings showing layout, details of construction and identification of materials.
 2. A sample of the manufacturer's Membrane System Warranty.
 3. Submit a letter of certification from the manufacturer which certifies the roofing contractor is authorized to install the manufacturer's roofing system and lists foremen who have received training from the manufacturer along with the dates training was received.
 4. Certification from the membrane manufacturer indicating the membrane thickness over the reinforcing scrim (top ply membrane thickness) is nominal 27-mil or thicker, depending on membrane thickness.
 5. Certification of the manufacturer's warranty reserve.
- B. Upon completion of the installed work, submit copies of the manufacturer's final inspection to the specifier prior to the issuance of the manufacturer's warranty.

1.04 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to the job site in the manufacturer's original, unopened containers or wrappings with the manufacturer's name, brand name and installation instructions intact and legible. Deliver in sufficient

Carlisle SynTec's Sure-Flex PVC Adhered Roofing System

quantity to permit work to continue without interruption.

- B. Comply with the manufacturer's written instructions for proper material storage.
 - 1. Store Sure-Flex membrane on provided pallets in the original undisturbed plastic wrap and cover with light colored breathable waterproof tarpaulins in a cool, shaded area. Sure-Flex membrane that has been exposed to the elements must be prepared with Carlisle PVC and KEE HP Membrane Cleaner prior to hot air welding.
 - 2. Store curable materials (adhesives and sealants) between 60°F and 80°F in dry areas protected from water and direct sunlight. If exposed to lower temperature, restore to 60°F minimum temperature before using.
 - 3. Store materials containing solvents in dry, well ventilated spaces with proper fire and safety precautions. Keep lids on tight. Use before expiration of their shelf life.
- C. Insulation must be on pallets, off the ground and tightly covered with waterproof materials.
- D. Any materials which are found to be damaged shall be removed and replaced at the applicator's expense.

1.05 WORK SEQUENCE

- A. Schedule and execute work to prevent leaks and excessive traffic on completed roof sections. Care should be exercised to provide protection for the interior of the building and to ensure water does not flow beneath any completed sections of the membrane system.
- B. Do not disrupt activities in occupied spaces.

1.06 USE OF THE PREMISES

- A. Before beginning work, the roofing contractor must secure approval from the building owner's representative for the following:
 - 1. Areas permitted for personnel parking.
 - 2. Access to the site.
 - 3. Areas permitted for storage of materials and debris.
 - 4. Areas permitted for the location of cranes, hoists and chutes for loading and unloading materials to and from the roof.
- B. Interior stairs or elevators may not be used for removing debris or delivering materials, except as authorized by the building superintendent.

1.07 EXISTING CONDITIONS

If discrepancies are discovered between the existing conditions and those noted on the drawings, immediately notify the owner's representative by phone and solicit the manufacturer's approval prior to commencing with the work. Necessary steps shall be taken to make the building watertight until the discrepancies are resolved.

1.08 PRECONSTRUCTION CONFERENCE

- A. Prior to bid submittal, the roofing contractor should schedule a job site inspection to observe actual conditions and verify all dimensions on the roof. Should access to the roof be necessary before or after the pre-bid meeting, the contractor must contact the owner's representative, Brian Bowman, to coordinate an appropriate time.

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- B. Any conditions which are not shown on the shop drawings should be indicated on a copy of the shop drawing and included with bid submittal if necessary to clarify any conditions not shown.

1.09 TEMPORARY FACILITIES AND CONTROLS

A. Temporary Utilities:

1. Water, power for construction purposes and lighting are not available at the site and will not be made available to the roofing contractor.
2. Provide all hoses, valves and connections for water from a source designated by the owner when made available.
3. When available, electrical power should be extended as required from the source. Provide all trailers, connections and fused disconnects.

B. Temporary, Sanitary Facilities

Sanitary facilities will not be available at the job site. The roofing contractor shall be responsible for the provision and maintenance of portable toilets or their equal.

C. Building Site:

1. The roofing contractor shall use reasonable care and responsibility to protect the building and site against damages. The contractor shall be responsible for the correction of any damage incurred as a result of the performance of the contract.
2. The roofing contractor shall remove all debris from the job site in a timely and legally acceptable manner so as to not detract from the aesthetics or the functions of the building.

D. Security:

Obey the owner's requirements for personnel identification, inspection and other security measures.

1.10 JOB SITE PROTECTION

- A. The roofing contractor shall adequately protect building, paved areas, service drives, lawn, shrubs, trees, etc. from damage while performing the required work. Provide canvas, boards and sheet metal (properly secured) as necessary for protection and remove protection material at completion. The contractor shall repair or be responsible for costs to repair all property damaged during the roofing application.
- B. During the roofing contractor's performance of the work, the building owner will continue to occupy the existing building. The contractor shall take precautions to prevent the spread of dust and debris, particularly where such material may sift into the building. The roofing contractor shall provide labor and materials to construct, maintain and remove necessary, temporary enclosures to prevent dust or debris in the construction area(s) from entering the remainder of the building.
- C. Do not overload any portion of the building, by either use of or placement of equipment, storage of debris, or storage of materials.
- D. Protect against fire and flame spread. Maintain proper and adequate fire extinguishers.
- E. Take precautions to prevent drains from clogging during the roofing application. Remove debris at the completion of each day's work and clean drains, if required. At completion, test drains to ensure the system is free running and drains are watertight. Remove strainers and plug drains in areas **where work is in progress**. Install flags or other telltales on plugs. Remove plugs each night and screen drain.
- F. Store moisture susceptible materials above ground and protect with waterproof coverings.

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- G. Remove all traces of piled bulk material and return the job site to its original condition upon completion of the work.

1.11 SAFETY

The roofing contractor shall be responsible for all means and methods as they relate to safety and shall comply with all applicable local, state and federal requirements that are safety related. **Safety shall be the responsibility of the roofing contractor.** All related personnel shall be instructed daily to be mindful of the full time requirement to maintain a safe environment for the facility's occupants including staff, visitors, customers and the occurrence of the general public on or near the site.

1.12 WORKMANSHIP

- A. Applicators installing new roof, flashing and related work shall be factory trained and approved by the manufacturer they are representing.
- B. All work shall be of highest quality and in strict accordance with the manufacturer's published specifications and to the building owner's satisfaction.
- C. There shall be a supervisor on the job site at all times while work is in progress.

1.13 QUALITY ASSURANCE

- A. The Sure-Flex Membrane Roofing System must achieve a UL Class B

The specified roofing assembly must have been successfully tested by a qualified testing agency to resist the design uplift pressures calculated according to

ANSI/SPRI WD-1 "Wind Design Standard Practice for Roofing Assemblies"
American Society of Civil Engineers (ASCE 7)
International Building Code (IBC)
DORA (Directory of Roof Assemblies)

and after multiplying the results with a safety factor of (2).

- B. Unless otherwise noted in this specification, the roofing contractor must strictly comply with the manufacturer's current specifications and details.
- C. The roofing system must be installed by an applicator authorized and trained by the manufacturer in compliance with shop drawings as approved by the manufacturer. The roofing applicator shall be thoroughly experienced and upon request be able to provide evidence of having at least five (10) years successful experience installing single-ply PVC roofing systems and having installed at least one (3) roofing application or several similar systems of equal or greater size within one year.
- D. Provide adequate number of experienced workmen regularly engaged in this type of work who are skilled in the application techniques of the materials specified including operation of hot air welding equipment and power supply. Provide at least one thoroughly trained and an experienced superintendent on the job at all times roofing work is in progress.
- E. There shall be no deviations made from this specification or the approved shop drawings without the prior written approval of the specifier. Any deviation from the manufacturer's installation procedures must be supported by a written certification on the manufacturer's letterhead and presented for the specifier's consideration.

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- F. Upon completion of the installation, the applicator shall 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 building owner seventy-two (72) hours prior to the manufacturer's final inspection.

1.14 JOB CONDITIONS, CAUTIONS AND WARNINGS

Refer to Carlisle's Sure-Flex specification for General Job Site Considerations.

- A. Safety Data Sheets (SDS) must be on location at all times during the transportation, storage and application of materials.
- B. When positioning membrane sheets, exercise care to locate all field splices away from low spots and out of drain sumps. All field splices should be shingled to prevent bucking of water.
- C. When loading materials onto the roof, the Carlisle Authorized Roofing Applicator must comply with the requirements of the building owner to prevent overloading and possible disturbance to the building structure.
- D. Proceed with roofing work only when weather conditions are in compliance with the manufacturer's recommended limitations, and when conditions will permit the work to proceed in accordance with the manufacturer's requirements and recommendations.
- E. Proceed with work so new roofing materials are not subject to construction traffic. When necessary, new roof sections shall be protected and inspected upon completion for possible damage.
- F. Provide protection, such as 3/4 inch thick plywood, for all roof areas exposed to traffic during construction. Plywood must be smooth and free of fasteners and splinters.
- G. The surface on which the insulation or roofing membrane is to be applied shall be clean, smooth, dry, and free of projections or contaminants that would prevent proper application of or be incompatible with the new installation, such as fins, sharp edges, foreign materials, oil and grease.
- H. New roofing shall be complete and weather tight at the end of the work day.
- I. Contaminants such as grease, fats and oils shall not be allowed to come in direct contact with the roofing membrane.

1.15 WARRANTY

- A. Provide manufacturer's 20 year Total System Warranty covering both labor and material with no dollar limitation. The maximum wind speed coverage shall be peak gusts of 120 mph measured at 10 meters above ground level. Certification is required with bid submittal indicating the manufacturer has reviewed and agreed to such wind coverage.

Note: For projects specified with warranties greater than 20 year and/or wind coverage specified greater than 72 mph, additional design enhancements are required. Refer to Carlisle published Sure-Flex Specifications

Warranty Length	Minimum Membrane Thickness
10 or 15 year	50-mil Sure-Flex
20 year	60-mil Sure-Flex
25	80-mil Sure-Flex

- B. Warranty shall also cover leaks caused by accidental punctures: 8 man-hours per year for 60-mil membranes.
- C. Pro-rated System Warranties shall not be accepted.

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- D. Evidence of the manufacturer's warranty reserve shall be included as part of the project submittals for the specifier's approval.

PART 2 PRODUCTS

2.01 GENERAL

- A. All components of the specified roofing system shall be products of Carlisle SynTec or accepted by Carlisle SynTec as compatible.
- B. All products (including insulation, fasteners, fastening plates, pre-fabricated accessories and edgings) must be **manufactured and supplied** by the roofing system manufacturer and covered by the warranty.

2.02 MEMBRANE

- A. Furnish Sure-Flex PVC 60-mil, thick white, polyester reinforced PVC (polyvinyl chloride) membrane with APEEL Protective Film as needed to complete the roofing system. Membrane thickness over the reinforcing scrim (top-ply thickness) shall be nominal .016-mil or thicker. Membrane sheets are packaged in rolls 120" wide. 60-mil is available in 100' lengths.
- B. Membrane with white color shall have an SRI (solar reflectance index) not less than 107 in accordance with ASTM E 1980.

2.03 INSULATION/UNDERLAYMENT

- A. When applicable, insulation shall be installed in multiple layers. The first and second layers of insulation shall be mechanically fastened to the substrate in accordance with the manufacturer's published specifications.
- B. Insulation shall be match existing as supplied by Carlisle SynTec. Minimum R-value required is Note R-Value 5.
 - 1. **Replaced insulation Insulbase HD** – a closed-cell polyisocyanurate foam core insulation board covered on both sides with glass-reinforced felt (GRF) facer meeting ASTM C 1289, Type II, Class 1, Grade 3. The product is available in 4' x 4' and 4' x 8' standard sizes with a thickness of one half inch.
 - 2. **New cover board Securock Cover Board** – A uniform composition of fiber-reinforced with no facer for use as a cover board or a thermal barrier. Available in 1/4" to 5/8" thick and 4' x 4' or 4' x 8' size boards. Long uninterrupted runs (>200') may require slight gapping due to thermal expansion.

2.04 FASTENING COMPONENTS

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A. Fasteners, Plates and Bars

1. **HP- Fasteners:** a threaded, #14 fastener with a #3 phillips drive used with steel and wood roof decks.
2. **HP-X Fasteners:** A heavy duty #15 threaded fastener with a #3 phillips drive used for membrane or insulation securement into steel, wood plank or minimum 15/32 inch thick plywood when increased pullout resistance is desired.
3. **HP-Xtra Fastener:** an oversized diameter (.315) steel threaded fastener with a #3 phillips drive used in conjunction with Piranha Xtra Plates for membrane securement into steel or wood decks.
4. **Pre-Assembled ASAP Fasteners:** A pre-assembled 3" diameter Plastic Plate and # 12 threaded fastener with a #3 drive used for insulation attachment into steel or wood decks. Installed using OMG Fastening Tools.
5. **InsulFast Fasteners:** A threaded #12 fastener with #3 phillips drive used for insulation attachment into steel or wood decks.
6. **CD-10 Fasteners:** A non-threaded, hammer driven fastener used with structural concrete roof decks rated 3,000 psi or greater.
7. **HP 14-10 Fasteners:** A #14 threaded fastener with a #3 phillips drive used for minimum 3,000 psi concrete decks.
8. **Polymer Gyptec Fasteners:** A non-penetrating, plastic fastener and corresponding 3" diameter plate used with lightweight deck substrates such as cementitious wood fiber, gypsum, and lightweight insulating concrete.
9. **HP Term Bar Nail-Ins:** A 1-1/4" long expansion anchor with a zinc plated steel drive pin used for fastening the Carlisle Termination Bar or Seam Fastening Plates to concrete, brick, or block walls.
10. **Piranha Plates:** A 2-3/8" diameter metal barbed fastening plate used with Carlisle HP-X or HP-14-10 Fasteners for membrane securement. This plate can be used for insulation securement.
11. **Piranha Xtra Plates:** A 2-3/8" diameter metal barbed fastening plate with an oversized hole for use with Carlisle HP-Xtra Fasteners for membrane securement.
12. **Insulation Fastening Plates:** a nominal 3 inch diameter plastic or metal plate used for insulation attachment.
13. **Lite-Deck Fastener:** A deep, coarse threaded fastener used to secure insulation to gypsum and cementitious wood fiber decks in conjunction with Lite-Deck Plates.

B. Insulation Adhesive:

1. **Carlisle OlyBond 500 BA:** a two-component, construction-grade, low-rise, expanding polyurethane adhesive designed for bonding insulation to various substrates.

2.05 ADHESIVES, CLEANERS AND SEALANTS

All products shall be furnished by Carlisle and specifically formulated for the intended purpose.

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- A. **Sure-Flex PVC Bonding Adhesive:** A high-strength, synthetic rubber adhesive used for bonding Sure-Flex membrane to various surfaces. The adhesive is applied to both the membrane and the substrate at a coverage rate of approximately 45 - 50 square feet per gallon per finished surface (includes coverage on both surfaces).
- B. **Hydrobond Water-Based Adhesive:** A wet lay-in, one-sided dispersion adhesive. Compatible with only Sure-Flex PVC smooth-backed and FleeceBACK membranes, this product is ideal for bonding only PVC membranes to various porous and non-porous substrates (cannot be used with any KEE or KEE HP PVC bareback membranes). Coverage rates vary between 100-133 square foot per gallon using roller or spray applications.
- C. **CAV-GRIP PVC Aerosol Contact Adhesive:** a low-VOC, methylene chloride-free adhesive that can be used for a variety of applications including: adhering PVC bareback membranes to a variety of horizontal substrates and vertical walls (cannot be used with any KEE or KEE HP bareback membranes), as well as adhering FleeceBACK membranes to vertical walls. Coverage rate is approximately 400 sq. ft. per #40 cylinder and 800 sq. ft. per #85 cylinder as an adhesive for vertical walls, in a double-sided application; 750 sq. ft. per #40 cylinder and 1,500 sq. ft. per #85 cylinder as an adhesive, horizontally, for the field of the roof, in a double-sided applications.
- D. **Sure-Flex PVC Cut-Edge Sealant:** A clear-colored sealant used to seal cut edges of reinforced Sure-Flex membrane. A coverage rate of approximately 225 - 275 linear feet per squeeze bottle can be achieved when a 1/8" diameter bead is applied.
- E. **Water Cut-Off Mastic:** Used as mastic to prevent moisture migration at drains, compression terminations and beneath conventional metal edging (at a coverage rate of approximately 10' per tube or 100' per gallon).
- F. **Universal Single-Ply Sealant:** A 100% solids, solvent free, one-part, polyether sealant that provides a weather tight seal to a variety of building substrates. Can be used as a termination bar sealant or for use in counterflashing, coping, and scupper details.
- G. **PVC One-Part Pourable Sealer:** A one-part, moisture curing, elastomeric polyether sealant used to fill Molded Sealant Pockets. Packaged in four 1/2 gallon pouches per plastic bucket. One pouch will fill one Molded Sealant Pocket.
- H. **Foil Grip Aluminum Tape:** A general-purpose pressure-sensitive sealant used as a bond break at joints in PVC Coated Metal. Packaged in rolls 2" wide by 100' long.
- I. **PVC and KEE HP Membrane Cleaner:** Used to prepare membrane that has been exposed to the elements for approximately 7 days prior to heat welding or to remove general construction dirt at an approximate coverage rate of 400 square feet per gallon (one surface).
- J. **Sure-Flex PVC Step 2 Primer:** A high-solids-content, clear (translucent color), polymer-based splice primer used to prepare KEE HP and PVC membranes to be bonded to PVC Pressure-Sensitive Cover Strip.
- K. **CCW 702 or CCW 702-LV:** A single component, solvent based, high-tack primer used to provide maximum adhesion between Carlisle 725TR Air and Vapor Barrier and an approved substrate. Applied by spray or long nap roller with a coverage rating ranging from approximately 300 to 350 square feet per gallon on smooth finishes (i.e., concrete) to 75 square feet per gallon on porous surfaces (i.e., Dens-Deck Prime gypsum board). Available in 5-gallon containers. CCW 702LV Primer contains less than 250g/L VOCs and meets South Coast Air Quality Management District (SCAQMD) and Leadership in Energy and Environmental Design (LEED) Requirements for Volatile Organic Compounds.

2.06 METAL EDGING AND MEMBRANE TERMINATIONS

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- A. **General:** All metal edging s shall be tested and meet ANSI/SPRI ES-1 standards and comply with International Building Code.
- B. **(Drexel Metal Supplied -**
1. **SecurEdge 400:** a coping or fascia, snap-on edge system consisting of a 22 gauge galvanized metal water dam and .040" thick aluminum, Kynar 500 finish or 24 gauge steel, Kynar 500 finish. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified.
 2. **SecurEdge 4000:** a metal fascia system with a 20 gauge steel retainer bar and .040" thick aluminum, Kynar 500 or 24 gauge steel, Kynar 500 finish fascia. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified.
- C. **(OMG Supplied -**
1. **SecurEdge 300:** a coping or fascia, snap-on edge system consisting of a 24 gauge galvanized metal water dam and .063" thick Kynar 500, clear and colored anodized finish or 24 gauge steel, Kynar 500 finish. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. Coping FM Approved 1-90 with 20 ga. Cleat, 1-180 with 16 ga. Cleat. Fascia FM Approved 1-225.
 2. **SecurEdge 3000:** a metal fascia system with a 20 gauge steel retainer bar and .032", .040" or .050" thick aluminum or 24 gauge galvanized steel fascia. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. 3000 Coping FM Approved 1-465 with .050 aluminum retainer, 1-180 with 20 ga. Steel retainer. 3000 XT Coping FM Approved 1-315.
- D. **(Metal Era Supplied –**
1. **SecurEdge 200:** a coping or fascia, snap-on edge system consisting of a 24 gauge galvanized metal water dam and .050" thick Kynar 500, clear and colored anodized finish or 24 gauge steel, Kynar 500 finish. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. Coping FM Approved 1-90. Fascia FM Approved 1-195.
 2. **SecurEdge 2000:** a metal fascia system with an extruded aluminum anchor bar and .040" thick aluminum or 24 gauge galvanized steel fascia. Metal fascia color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified. 2000 Fascia FM Approved 1-645. 2000 Extended Fascia FM Approved 1-270. 2000 Canted Fascia FM Approved 1-270.
- E. **(Metal Era Supplied –**
1. **SecurEdge One Fascia:** A snap-on edge system consisting of a 20 gauge retainer bar, corrosion resistant fasteners and a 24 gauge or 0.040 aluminum Kynar finished fascia cover. A spring clip holds the fascia cover in place. Available in sizes up to 8" fascia height 12' long. Metal fascia color shall be designated by the Owner's Representative. ANSI/SPRI ES-1 Certified.
 2. **SecurEdge One Coping:** A snap-on coping edge system consisting of a 24 gauge retainer bar (face side only), corrosion resistant fasteners and a 24 gauge or 0.040 aluminum Kynar finished coping cover. The coping cover is secured by clipping on the retainer bar and fastened on the backside with corrosion resistant fasteners (with rubber washer). Available for wall thicknesses up to 30". Metal coping cap color shall be as designated by the Owner's Representative. ANSI/SPRI ES-1 Certified.
- F. **Drip Edge:** a metal fascia/edge system with a 22 or 24 gauge continuous anchor cleat and .032 inch thick aluminum or 24 gauge steel fascia. Metal fascia color shall be as designated by the Owner's Representative.
- G. **SecurEdge Coping:** incorporates a 20 gauge anchor cleat with 4 pre-slotted holes, a concealed joint cover and 10 foot continuous sections of coping cap; can accommodate minimum 5 " wide parapet walls. Metal coping cap color shall be as designated by the Owner's Representative.

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- H. **Termination Bar:** a 1" wide and .098" thick extruded aluminum bar pre-punched 6" on center; incorporates a sealant ledge to support Lap Sealant and provide increased stability for membrane terminations.
- I. **SecurEdge Term Bar Fascia:** A 1.75" wide formed aluminum termination bar with pre-slotted fastening holes for ease of locating and installing. The decorative cover is available in 0.040" aluminum or 24-gauge galvanized steel. SecurEdge Term Bar Fascia is manufactured in 12' lengths for fewer joints/seams, fewer sections to handle and faster installation.

2.07 WALKWAYS

Protective surfacing for roof traffic shall be Sure-Flex PVC Walkway Rolls installed per manufacturer's requirements or concrete pavers loose laid over an approved slip sheet (pavers not recommended for slopes greater than 2" in 12").

2.08 OTHER MATERIALS

- A. **Carlisle 725TR Air & Vapor Barrier / Temporary Roof:** 725TR is a 40-mil composite consisting of 35-mils of self-adhering rubberized asphalt factory laminated to a 5-mil polyethylene film with an adhesion textured surface. 725TR roll dimensions are 39" x 100' and the product is applied after priming an acceptable substrate with CCW 702 or 702LV or Cav-Grip III.
- B. **Carlisle VapAir Seal MD Air and Vapor Barrier:** a reinforced composite aluminum foil with self-adhesive SBS backing and removable poly release film. Used for direct application over metal decks. Available in rolls 42.5" wide by 131.23" long (460 square feet).
- C. (Metal Flashing, if required, and miscellaneous items needed to fulfill the project requirements).

PART 3 EXECUTION

3.01 GENERAL

- A. Comply with the manufacturer's published instructions for the installation of the membrane roofing system including proper substrate preparation, job site considerations and weather restrictions.
- B. Position sheets to accommodate contours of the roof deck and shingle splices to avoid bucking water.

3.02 VAPOR RETARDERS

- A. **General:**

The use of a vapor retarder to protect insulation and reduce moisture accumulation within an insulated roofing assembly should be investigated, especially on projects with high interior humidity, such as, swimming pools, breweries, pulp mills, etc.
- B. In the generally temperate climate of the United States, during the winter months, water vapor flows upward from a heated, more humid interior toward a colder, drier exterior. Vapor retarders are more commonly required in northern climates than in southern regions, where downward vapor pressure may be expected and the roofing membrane itself becomes the vapor retarder.
- C. On cold storage/freezer facilities, the perimeter details must be selected to provide an air seal and prevent outside air from infiltrating and condensing within the roofing assembly.
- D. Consult the latest publications by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.) and NRCA (National Roofing Contractors Association) for specific information.

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- E. If insulation is to be adhered to the vapor retarder with Flexible FAST Adhesive, the vapor retarder must be compatible and shall be fully adhered to the substrate. Available products include Carlisle supplied “peel and stick” rubberized asphalt membrane with compatible film coating (Carlisle 725 Air and Vapor Barrier), and spray or roller applied butyl coatings. Installation requirements for Carlisle’s 725 Air and Vapor Barrier are identified in Carlisle published specification.
- F. **VapAir Seal 725TR Installation:**
1. **Surface Preparation:** Concrete shall be in place for 7 days minimum and the substrate must be dry. The surface shall have a smooth finish and be free of voids, spalled areas, sharp protrusions, loose aggregate, laitance and form release agents. In the event of rain, concrete must be allowed to dry before primer is applied.
 2. **Primer:** Surfaces to receive Carlisle VapAir Seal 725TR Air and Vapor Barrier must be clean and dry. Prime with CCW 702 or 702LV or CAV-GRIP III Primer. Apply Primer by spray, brush or with a long nap roller at the applicable coverage rate noted above. At 75° F allow primer to dry 1 hour minimum. Primer has a satisfactory cure when it will not transfer when touched. Prime only areas to be waterproofed the same day. Re-prime if area becomes dirty.
 3. **Application:** Apply Carlisle VapAir Seal 725TR Air and Vapor Barrier from low to high point, in a shingle fashion, so that laps will shed water. Overlap all edges at least 2-1/2". End laps shall be staggered. Place membrane carefully so as to avoid wrinkles and fishmouths. Immediately after installation, roll with a 30” wide, 150 pound weighted segmented steel roller.
 4. **Insulation Installation:** Ensure surface of Carlisle VapAir Seal 725TR Air and Vapor Barrier is dry prior to installing insulation. Place insulation over the surface and mechanically fasten to the roof deck or adhere to the vapor barrier with Flexible FAST Adhesive in accordance with this Carlisle Specification.
- G. For metal decks, VapAir Seal MD Air and Vapor Barrier is specifically designed for direct application to fluted steel decks. It may also be used in conjunction with either Carlisle’s CAV-GRIP III on vertical wall surfaces, such as structural concrete, gypsum, Securock, DensDeck Prime, DensDeck StormX Prime and plywood substrates.
- H. **VapAir Seal MD Installation:**
1. **Surface Preparation:** The surface shall have a smooth finish and be free of voids, spalled areas, sharp protrusions, loose aggregate, laitance and form release agents. In the event of rain, concrete must be allowed to dry before primer is applied.
 2. **Primer:** Surfaces to receive VapAir Seal MD Air and Vapor Barrier must be clean and dry. Prime with CCW 702 or 702LV or CAV GRIP III Primer. Apply Primer by spray, brush or with a long nap roller at the applicable coverage rate noted above. At 75° F allow primer to dry 1 hour minimum. Primer has a satisfactory cure when it will not transfer when touched. Prime only areas to be waterproofed the same day. Re-prime if area becomes dirty.
 3. **Application:** Apply VapAir Seal MD Air and Vapor Barrier to the metal deck from low to high point, in a shingle fashion, so that laps will shed water. Overlap all edges at least 2-1/2". End laps shall be staggered. Place either a 6” wide section of 24 gauge sheet metal or a 6” wide section of VapAir Seal MD directly on the metal under each end lap, perpendicular to the end lap, to ensure a solid surface to roll the end lap together. Seams and end laps must be rolled with a 2” seam roller or stand-up seam roller. Place membrane carefully so as to avoid wrinkles and fish mouths. Immediately after installation, broom the sheet to ensure proper contact to the metal.
 4. **Insulation Installation:** Ensure surface of VapAir Seal MD Air and Vapor Barrier is dry prior to installing insulation. Place insulation over the surface and mechanically fasten to the roof deck accordance with this Carlisle Specification.

3.03 INSULATION PLACEMENT AND ATTACHMENT

Carlisle SynTec's Sure-Flex PVC Adhered Roofing System

- A. Install insulation or membrane underlayment over the substrate with boards butted tightly together with no joints or gaps greater than 1/4 inch. Stagger joints horizontally and vertically if multiple layers are provided.
- B. Secure insulation to the substrate with the required mechanical fasteners or insulation adhesive Sure-Seal FAST Adhesive or OlyBond 500 BA adhesive in accordance with the manufacturer's specifications.

3.04 MEMBRANE PLACEMENT AND ATTACHMENT

- A. Position Sure-Flex membrane over the acceptable substrate. Fold membrane sheet back onto itself so half the underside of the membrane is exposed.
- B. Apply Bonding Adhesive in accordance with the manufacturer's published instructions, to the exposed underside of the membrane and the corresponding substrate area. Do not apply Bonding Adhesive along the splice edge of the membrane to be hot air welded over the adjoining sheet. Allow the adhesive to dry until it is tacky but will not string or stick to a dry finger touch.
 - 1. Roll the coated membrane into the coated substrate while avoiding wrinkles. Brush down the bonded section of the membrane sheet immediately after rolling the membrane into the adhesive with a soft bristle push broom to achieve maximum contact.
 - 2. Fold back the unbonded half of the sheet and repeat the bonding procedures.
- C. Position adjoining sheets to allow a minimum overlap of 2 inches to provide a minimum 1-1/2" hot air weld.
- D. Continue to install adjoining membrane sheets in the same manner, overlapping edges a minimum of 2 inches and complete the bonding procedures as stated previously.

3.05 MEMBRANE HOT AIR WELDING PROCEDURES

- A. Heat weld the Sure-Flex membrane using an Automatic Heat Welding Machine or Hot Air Hand Welder in accordance with the manufacturer's specifications. At all splice intersections, roll the seam with a silicone roller immediately after the welder causes the membrane step off to ensure a continuous hot air welded seam.

Note: When using 80-mil thick membrane, all splice intersections shall be overlaid with Sure-Flex T Joint Covers.

- B. Probe all seams once the hot air welds have thoroughly cooled (approximately 30 minutes).
- C. Repair all seam deficiencies the same day they are discovered.
- D. Apply Cut Edge Sealant on all cut edges of reinforced membrane (where the scrim reinforcement is exposed) after seam probing is complete. Cut Edge Sealant is **not required** on horizontal or vertical splices.

3.06 FLASHING

- A. Flashing of parapets, curbs, expansion joints and other parts of the roof must be performed using Sure-Flex reinforced membrane. Sure-Flex non-reinforced membrane can be used for flashing pipe penetrations, Sealant Pockets, and scuppers, as well as inside and outside corners, when the use of pre-molded accessories is not feasible.
- B. Follow manufacturer's typical flashing procedures for all wall, curb, and penetration flashing including metal edging/coping and roof drain applications.

3.07 WALKWAYS

Carlisle SynTec's Sure-Flex PVC Adhered Roofing System

- A. Install walkways at all traffic concentration points (such as roof hatches, access doors, rooftop ladders, etc.) and all locations as identified on the specifier's drawing.
- B. Hot air weld walkway material to the membrane or install concrete pavers, loose laid over an approved protection sheet in accordance with the manufacturer's specifications.

3.08 DAILY SEAL

- A. On phased roofing, when the completion of flashings and terminations is not achieved by the end of the work day, a daily seal must be performed to temporarily close the membrane to prevent water infiltration.
- B. Complete an acceptable membrane seal in accordance with the manufacturer's requirements.

3.09 CLEAN UP

- A. Perform daily clean up to collect all wrappings, empty containers, paper, and other debris from the project site. Upon completion, all debris must be disposed of in a legally acceptable manner.
- B. Prior to the manufacturer's inspection for warranty, the applicator must perform a pre-inspection to review all work and to verify all flashing has been completed as well as the application of all caulking.

END OF SPECIFICATION