

**INVITATION TO BID
JEFFERSON COUNTY**

NOTICE is hereby given to all interested persons or firms that sealed bids will be accepted at the Jefferson County Planning Department located at the Jefferson County Building and Planning Department 445 W Palmer Mill Rd. Monticello, FL 32344 **NO LATER THAN 2:00 pm EST on TUESDAY, May 18TH, 2021 @ 2:00 PM EST** for the following project:

BID NUMBER: 20210416-01

Request for Proposals: Jefferson County Jail Re-Roof

The Jefferson County Board of County Commissioners is seeking bids to re-roof the main Jail facility and replace the roof over the breeze-way of the Jefferson County Jail located at 171 Industrial Park Dr. Monticello, FL 32344. All Bids must be in a lump sum basis.

Contractors Pre-bid Meeting: April 23, 2021 @ 10:00am EST

Meeting Location: Sheriff's Department 170 Industrial Park Dr. Monticello, FL 32344

Site Visit: Immediately following pre-bid meeting

Question Period: Please submit any questions regarding this project to Shannon Metty, smetty@jeffersoncountyfl.gov, by **NOON on MAY 4th 2021**. Responses will be sent to all bidders by **NOON on MAY 11th, 2021**.

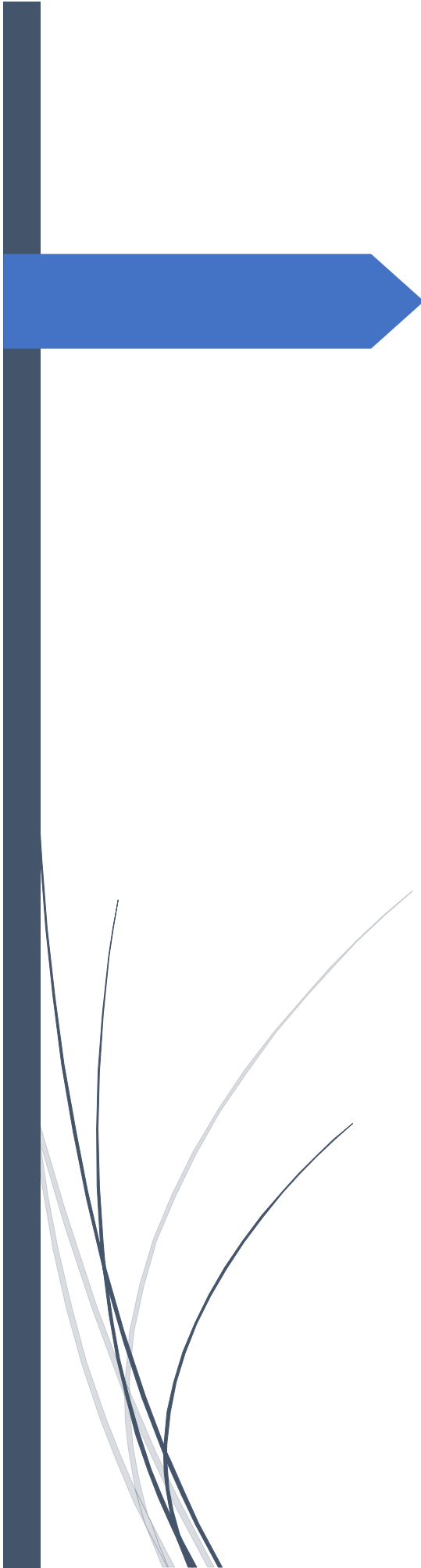
SUBMISSION DEADLINE DATE: TUESDAY, May 18th, 2021 TIME: 2:00 pm EST

MUST BE SEALED BID and identified by the **NAME OF THE FIRM, NAME AND NUMBER OF THE BID, THE FIRM'S STATE LICENSE NUMBER, CERTIFICATE OF LIABILITY INSURANCE WITH THE COUNTY AS THE CERTIFICATE HOLDER, AND PROOF OF WORKERS COMPENSATION, ALONG WITH THE DATE AND TIME OF OPENING.**

BID OPENING: Bids will be opened and recorded by the Clerk of Court on the day of Submission **May 18th, 2021 at 2:05 pm** at the Courthouse Annex 435 W Walnut St. Monticello, FL 32344.

Specifications and General Conditions may be obtained from our web page at <http://www.jeffersoncountyfl.gov/> or by contacting Shannon Metty, Planning Official at 445 W Palmer Mill Rd. Monticello, Florida, 32344 or by phone at 850-342-0223, Fax 850-342-0225, or email smetty@jeffersoncountyfl.gov.

List of bidders and award (if any) shall be announced at the May 20th, 2021 meeting of the Jefferson County Board of County Commissioners. Bid award will be made to the best bidder, but the right is reserved to reject any or all bids.



Jefferson County Jail Re-Roof Bid

Bid 20210416-01

Bid Application Submittal Checklist

- ✓ **Name of Company**
- ✓ **Bid Number**
- ✓ **State License Number**
- ✓ **Certificate of Liability Insurance
with Jefferson County named as the
Certificate Holder**
- ✓ **Proof of Workers Compensation
Staging area Site Plan**

EXHIBIT 1

BID PROPOSAL FORM

(SUBMIT IN TRIPLICATE ON CONTRACTOR'S LETTERHEAD)

DATE: _____

TO: _____

Contractors:

The undersigned, hereinafter called "Bidder", having visited the site of the proposed project and familiarized himself with the local conditions, nature and extent of the work, and having examined carefully any drawings or specifications, the Form of Agreement, and other Contract Documents with the Bond Requirements therein, proposes to furnish all labor, materials, equipment and other items, facilities, and services for the proper execution and completion of The Jefferson County Jail Re-Roof, Jefferson County Project Number – 20210416-01, in full accordance with any drawings and specifications prepared by the firm of SIKA SARNAFIL® G410 FELTBACK ADHERED SYSTEM RECOVER, in full accordance with the advertisement for bids, Instruction to Bidders, Agreement and all other documents relating thereto on file in the office of the ARCHITECT/ENGINEER and if awarded the contract, to complete the said work within the time limits specified for the following bid price:

Base Bid: \$ (Dollars) _____

Unit Price to install wood blocking per board foot _____

Base bid to includes 300 Sq Ft. Unit pricing to remove additional wet insulation per Sq Ft _____

EXHIBIT 1 – Continued

Enclosed is certified check, cashier's check, treasurer's check, bank draft or Bid Bond in the amount of not less than five percent (5%) of the Bid, payable to the OWNER as a guarantee for the purpose set out in Instructions to Bidders.

The Bidder hereby agrees that:

- a. The above proposal shall remain in full force and effect for a period of forty (60) calendar days after the time of the opening of this proposal and that the Bidder will not revoke or cancel this proposal or withdraw from the competition within the said forty (60) calendar days.
- b. In the event the contract is awarded to this Bidder, he will enter into a formal written Agreement with the OWNER in accordance with the accepted bid within ten (10) calendar days after said contract is submitted to him and, (if requirement is not deleted per Section C-2 of the Conditions of the Contract), will furnish to the OWNER a Contract Public Construction Bond with good and sufficient sureties, satisfactory to the OWNER, in the amount of 100% of the accepted bid, the form of which is shown by Exhibits 4 of the Conditions of the Contract and terms of which shall fully comply with Section 255.05, Florida Statutes. The Bidder further agrees that in the event of the Bidder's default or breach of any of the agreements of this proposal, the said bid deposit shall be forfeited as liquidated damages.

NOTICE: Base bids plus the sum of all additive alternates on contracts \$100,000 or less are not required to have a bid guarantee or a Public Construction Bond.

Acknowledgement is hereby made that this proposal includes required permit fees as directed in Section B-26, Permits and Special Requirements.

Acknowledgement is hereby made of receipt of the following addenda issued during the bidding period.

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

By: _____
(Signature of Responsible Person)

Name: _____
(Type the Name of Person Signing)

Title: _____
(Type the Responsible Person's Company Title)

EXHIBIT 2

LIST OF SUBCONTRACTORS

(To be submitted in triplicate on the Bidder's letterhead, placed in a sealed envelope and attached to Contractor's proposal.)

DATE: _____

THIS LIST IS ATTACHED TO, AND IS AN INTEGRAL PART OF THE BID SUBMITTED BY:

(Bidder to insert his full name, street address, city, and state.)

FOR THE CONSTRUCTION OF:

THE UNDERSIGNED, HEREINAFTER CALLED "BIDDER", LISTS BELOW THE NAME OF EACH SUBCONTRACTOR WHO WILL PERFORM THE PHASES OF THE WORK INDICATED. FAILURE OF THE BIDDER TO SUPPLY SUFFICIENT INFORMATION TO ALLOW VERIFICATION OF THE CORPORATE, AND DISCIPLINE LICENSE STATUS OF THE SUBCONTRACTOR MAY DEEM THE BID AS BEING NON-RESPONSIVE.

SUBCONTRACT

NAME OF SUBCONTRACTOR

1. _____
(Name)

By _____
(Signature)

Jefferson County Jail Reroof

171 Industrial Park, Monticello, Florida 32344

Reroof Specifications for Jail and Breezeway

Basis of Design:

SIKA SARNAFIL® G410 FELTBACK ADHERED SYSTEM RECOVER

Introduction

Sarnafil G410 Adhered System Description	i
Regional Offices	Error! Bookmark not defined.

Part 1 – General Conditions

1.01 Description	2
1.02 Quality Assurance	2
1.03 Submittals	3
1.04 Code Requirements	3
1.05 Product Delivery, Storage and Handling	4
1.06 Job Conditions	4
1.07 Bidding Requirements	5
1.08 Warranties	6
1.09 Warranty Durations	6

Part 2 - Products

2.01 General	6
2.02 Membrane	6
2.03 Flashing Materials	8
2.04 Insulations / Roof Boards	9
2.05 Attachment Components	9
0 Deck Primers	10
Error! Reference source not found. Vapor Retarders	Error! Bookmark not defined.
Error! Reference source not found. Walkway Protection	Error! Bookmark not defined.
2.06 Miscellaneous Accessories	10
2.07 Sealants and Pitch Pocket Fillers	10
2.08 Miscellaneous Fasteners and Anchors	11
2.09 Related Materials	11

Part 3 – Execution

3.01 Pre-Construction Conference	11
3.02 Substrate Condition	12
3.03 Substrate Inspection	12
3.04 Substrate Preparation	12
Error! Reference source not found. Vapor Retarder Installation	Error! Bookmark not defined.
3.05 Wood Nailer Installation	12
3.06 Insulation / Roof Board Installation	13
3.07 Sarnafil G410 Membrane Installation	14
3.09 Hot-Air Welding of Seam Overlaps	14
3.10 Membrane Flashing Installation	15
3.11 Liquid Flashing Installation	17
3.12 Metal Flashing Installation	17
3.13 Sarnaclad Metal Base Flashings / Edge Metal Installation	17
3.14 Edge Metal Installation	18
Error! Reference source not found. Walkway Installation	Error! Bookmark not defined.
Error! Reference source not found. Perimeter Warning Installation	Error! Bookmark not defined.
3.15 Temporary Cut-Off	18
3.16 Completion	18
3.17 Details	18

SECTION 01 00 00**JEFFERSON COUNTY JAIL ROOF RECOVER SCOPE OF WORK****PART 1 - GENERAL DESCRIPTION****A. SCOPE OF WORK**

1. The existing roof system located at 171 Industrial Park, Monticello, Florida 32344, known as the "Jail", is comprised of an existing Granulated Modified Bitumen Roof System, over ½ of Perlite, over 2 inches of ISO, over a sloped structural concrete deck.

After a thermal imaging scan and an adhesion pull test was conducted, the following scope of work was determined:

A complete recover of the existing roof by fully adhering a PVC membrane over granulated modified cap sheet. Edge metal is to be replaced with PVC Coated metal. Gutters and Downspouts to remain in place. New flashings where required on all penetrations, VRTS and other areas of need. All installations shall meet current Florida Building Code (2020) and be accompanied by a corresponding Florida Product Approval number.

2. The existing roof system located at 171 Industrial Park, Monticello, Florida 32344, known as the "Breezeway", is comprised of an existing Granulated Modified Bitumen Roof System, over ½ of Perlite, over 2 inches of ISO, over a sloped structural concrete deck.

After a thermal imaging scan was conducted, the following scope of work was determined:

A complete tear off of the existing roof. A complete reroof by fully adhering 1 layer of 2" ISO to existing structural concrete deck, and fully adhering a PVC Membrane. The flat area located on the bottom of the sloped roof to have pitch create with tapered ISO Q panel to eliminate the dead flat spot. Edge metal is to be replaced with PVC Coated metal. Coping metal to be replaced with new coping metal 24 gauge kynal finish. Razor wire to be removed by owner. Gutters and Downspouts to remain in place. New flashings where required on all penetrations, VRTS and other areas of need. All installations shall meet current Florida Building Code (2020) and be accompanied by a corresponding Florida Product Approval number.

Bid Bond 5% of total bid and Performance and Payment Bond will be required.

A site plan of the staging area is required at submittal. All work materials must remain in the staging area when not being used and must be cleaned up daily. No materials can be left outside the staging area without Sheriff's Department personal present or prior approval by Sheriff McNeill.

SECTION 07 54 19**THERMOPLASTIC MEMBRANE ROOFING
SARNAFIL® G410 FELTBACK ADHERED SYSTEM****PART 2 - GENERAL CONDITIONS****1.01 DESCRIPTION****A. Scope**
Jail Roof

Remove wet areas indemnified in thermal scan report. 2 inches of Iso insulation, ½" perlite cover board and MBR roofing system. Pressure wash existing cap sheet. Install Sarnafil G410 60 mil minimum thickness Feltback Fully Adhered with Sarnacol AD Membrane Adhesive with ribbon spacing 12 inches on center in the field, 6 inches on center in the perimeter, 4 inches on center in the corners for a 20 year system warranty. Install new drip edge. Existing gutter and downspouts to remain.

Breezeway Roof

Remove existing roofing system down to concrete roof deck. 1. 2 inches of Iso insulation, ½" perlite cover board and MBR roofing system. Install Q panel ½" per foot slope to the flat area at the bottom of roof. Install 2" ISO insulation 4'X4" to concrete deck with Sarnacol AD Board Adhesive or Sarnacol 2163. Ribbon spacing will be 6 inches on center in the perimeter and 4 inches on center in the corners. Install Sarnafil G410 60 mil minimum thickness adhered with Sarnacol 2170 adhesive over insulation for a 20 year system warranty. Install new drip edge and 24 gauge kynar finish coping cap. Color to be selected by owner from standard color on color chart. Existing gutters and downspouts to remain.

B. Related Work

The work includes but is not limited to the installation of:

1. Removal of loose granules while cleaning top surface of roof for adhering Insulation. An adhesion pull test will have to be done to verify the adhesion of existing Modified Cap Sheet.
2. Substrate Preparation
3. Wood Blocking
4. Insulation
5. Separation Layers
6. Roof Membrane
7. Fasteners
8. Adhesive for Flashings
9. Roof Membrane Flashings
10. Metal Flashings
11. Sealants

C. Upon successful completion of work the following warranties may be obtained:

1. Sika Corporation Warranty twenty year system warranty
2. Roofing Applicator Warranty five year warranty

1.02 QUALITY ASSURANCE

- A. This roofing system shall be applied only by an **Elite Roofing Applicator** authorized by Sika Corporation prior to bid (Sika Corporation "Applicator").
- B. Upon completion of the installation and the delivery to Sika Corporation by the Applicator of certification that all work has been done in strict accordance with the contract specifications and Sika Corporation's requirements, a Sika Corporation Technical Service Representative will review the installed roof system wherever a System Warranty has been specified.
- C. There shall be no deviation made from the Project Specification or the approved shop drawings without prior written approval by the Owner, the Owner's Representative and Sika Corporation.
- D. All work pertaining to the installation of membrane and flashings shall only be completed by Applicator personnel trained and authorized by Sika Corporation in those procedures.
- E. 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. PVC only and a minimum thickness of 60 mils deck of the roof and 60 mils for flashings.
- F. Product to be manufactured by membrane supplier and not private labeled.
- G. Manufacturer to have a minimum of five years experience recycling their membranes at the end of their service life back into new membrane products. Provide a minimum of five reference projects.
- H. Applicable code/insurance requirements shall be identified by the Owner or Owner's representative.
- I. Other allowed manufacturers **Fibertite, Tremco and Garland**. **No substitutions will be accepted.**

1.03 SUBMITTALS

Applicator shall submit to the Owner (or Representative) the following:

- A. Samples of each primary component to be used in the roof system and the manufacturer's current literature for each component.
- B. Written approval by the insulation manufacturer (as applicable) for use and performance of the product in the proposed system.
- C. Sample copy of Sika Corporation's warranty.
- D. Sample copy of Applicator's warranty.
- E. Dimensioned shop drawings which shall include:
 - 1. Outline of roof with roof size.
 - 2. Details of flashing methods for penetrations.
- F. Certifications by manufacturers of roofing and insulating materials that all materials supplied comply with all requirements of the identified ASTM and other industry standards or practices.
- G. Certification from the Applicator that the system specified meets all identified code and insurance requirements as required by the Specification.
- H. 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 the following test organizations. These requirements are minimum standards and no roofing work shall commence without written documentation of the system's compliance, as required in the "Submittals" section of this specification.

- A. System shall be designed to meet a minimum wind design requirements of the most recent version of ASCE 7.

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 and placed in the approved staging area.
- 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 canvas tarpaulins. Unvented polyethylene tarpaulins are not accepted due to the accumulation of moisture beneath the tarpaulin in certain weather conditions that may affect the ease of 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 instructions contained on adhesive canister 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 or supplied by material manufacturer/supplier.
- 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.

1.06 JOB CONDITIONS

- A. Sika Corporation materials may be installed under certain adverse weather conditions but only after consultation with Sika Corporation, as installation time and system integrity may be affected.
- B. 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.
- C. All work shall be scheduled and executed without exposing the interior building areas to the effects of inclement weather. The existing building and its contents shall be protected against all risks.
- D. All surfaces to receive new insulation, membrane or flashings shall be dry. Should surface moisture occur, the Applicator shall provide the necessary equipment to dry the surface prior to application.
- E. All new and temporary construction, including equipment and accessories, shall be secured in such a manner as to preclude wind blow-off and subsequent roof or equipment damage.
- F. Uninterrupted waterstops shall be installed at the end of each day's work and shall be completely removed before proceeding with the next day's work. Waterstops shall not emit dangerous or unsafe fumes and shall not remain in contact with the finished roof as the installation progresses. Contaminated membrane shall be replaced at no cost to the Owner.
- G. 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 Sarnafil membranes. The Applicator shall consult Sika Corporation regarding compatibility, precautions and recommendations.
- H. Arrange work sequence to avoid use of newly constructed roofing as a walking surface or for equipment movement and storage. Where such access is absolutely required, the Applicator shall provide all necessary protection and barriers to segregate the work area and to prevent damage to adjacent areas. A substantial protection layer consisting of plywood over Sarnafelt or plywood over insulation board shall be provided for all new and existing roof areas that receive rooftop traffic during construction.
- I. Prior to and during application, all dirt, debris and dust shall be removed from surfaces either by vacuuming, sweeping, blowing with compressed air or similar methods.
- J. The Applicator shall follow all safety regulations as required by OSHA and any other applicable authority

having jurisdiction.

- K. All roofing, insulation, flashings and metal work removed during construction shall be immediately taken off site to a legal dumping area authorized to receive such materials. Hazardous materials, such as materials containing asbestos, are to be removed and disposed of in strict accordance with applicable City, State and Federal requirements.
- L. All new roofing waste material (i.e., scrap roof membrane, empty cans of adhesive) shall be immediately removed from the site by the Applicator and properly transported to a legal dumping area authorized to receive such material.
- M. The Applicator shall take precautions that storage and application of materials and equipment does not overload the roof deck or building structure.
- N. Installation of a Sarnafil membrane over coal tar pitch or a resaturated roof requires special consideration to protect the Sarnafil membrane from volatile fumes and materials. Consult Sika Corporation for precautions prior to bid.
- O. Flammable adhesives and deck primers shall not be stored and not be used in the vicinity of open flames, sparks and excessive heat.
- P. All rooftop contamination that is anticipated or that is occurring shall be reported to Sika Corporation to determine the corrective steps to be taken.
- Q. The Applicator shall verify that all roof drain lines are functioning correctly (not clogged or blocked) before starting work. Applicator shall report any such blockages in writing (letter copy to Sika Corporation) to the Owner's Representative for corrective action prior to the installation of the Sika Corporation roof system.
- R. Applicator shall immediately stop work if any unusual or concealed condition is discovered and shall immediately notify Owner of such condition in writing for correction at the Owner's expense (letter copy to Sika Corporation).
- S. Site cleanup, including both interior and exterior building areas that have been affected by construction, shall be completed to the Owner's satisfaction.
- T. All landscaped areas damaged by construction activities shall be repaired at no cost to the Owner.
- U. The Applicator shall conduct adhesive pullout tests in accordance with the latest version of the SPRI/ANSI Fastener Pullout Standard to verify condition of the deck/substrate and to confirm expected pullout values.
- V. 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 percent 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.
- W. Precautions shall be taken when using Sarnacol adhesives at or near rooftop vents or air intakes. Adhesive odors could enter the building. Coordinate the operation of vents and air intakes in such a manner as to avoid the intake of adhesive odor while ventilating the building. Keep lids on unused cans at all times.
- X. Protective wear shall be worn when using solvents or adhesives or as required by job conditions.
- Y. Sarnafil membranes are slippery when wet or covered with snow, frost, or ice. 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.

1.07 BIDDING REQUIREMENTS

- A. Pre-Bid Meeting:

A **mandatory** 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. Procedures to avoid rooftop damage by other trades shall be determined.

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.

C.

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 (only products purchased from Sika Corporation are covered under System Warranty)

B. Applicator/Roofing Contractor Warranty

Applicator shall supply Owner with a separate workmanship warranty. In the event any work related to roofing, flashing, or metal is found to be within the Applicator warranty term, defective or otherwise not in accordance with Contract Documents, the Applicator shall repair that defect at no cost to the Owner. Applicator's warranty obligation shall run directly to Owner, and a copy shall be sent to Sika Corporation.

C. Owner Responsibility

Owner shall notify both Sika Corporation and the Applicator of any leaks as they occur during the time period when both warranties are in effect.

1.09 WARRANTY DURATIONS

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

B. Applicator's/Roofing Contractor's Warranty shall be in effect for a 5 year duration.

PART 3 - PRODUCTS

2.01 GENERAL

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

B. Components to be used 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. Special consideration should be given to construction related moisture. An example is the significant amount of moisture generated when concrete floor slabs are poured after the roof has been installed. Sika Corporation is not responsible for damage to the insulation when exposed to construction related moisture.

D. Consult respective product data sheets for additional information.

2.02 MEMBRANE

A. Membrane shall conform to:

ASTM D4434 (latest version), "Standard for Polyvinyl Chloride Sheet Roofing". Classification: Type II,.

1. NSF/ANSI Standard 347, "Sustainability Assessment for Single Ply Roofing Membranes". Certification Level: Platinum.
2. **The manufacture to guarantee that the membrane thickness meets or exceeds [the specified thickness] when tested according to ASTM D751**

B. Sarnafil G410 thermoplastic membrane with fiberglass reinforcement and lacquer coating.

C. Thickness

1. Sarnafil G410-15, 60 mil (1.5 mm)

D. Color of Membrane

1. EnergySmart White, initial solar reflectance of 0.83, emittance of 0.90, and solar reflective index (SRI) of 104 (ENERGY STAR listed).

E. Typical Physical Properties ⁽¹⁾

Property	ASTM Test Method	ASTM Type II D-4434 Spec. Requirement	Typical Results			
Overall Thickness, mil	D751	45	48	60	72	80
Thickness Over Scrim, mil	--	16	22	27	35	40
Reinforcing Material	--	--	Fiberglass	Fiberglass	Fiberglass	Fiberglass
Breaking Strength, lbf (N)	D751	55 (245)	60 (267)	80 (356)	100 (445)	110 (489)
Elongation at Break, % M. D. ¹ & C.M.D. ¹	D751	250 & 220	250 & 220	250 & 220	250 & 220	250 & 220
Seam Strength, % of original ²	D751	75	Pass	Pass	Pass	Pass
Retention of Properties After Heat Aging	D3045	--	--	--	--	--
Tensile Strength, % of original	D751	90	Pass	Pass	Pass	Pass
Elongation, % of original	D751	90	Pass	Pass	Pass	Pass
Tearing Resistance, lbf (N)	D1004	10 (45)	15 (67)	17.5 (78)	20.5 (91)	22 (98)
Low Temperature Bend, -40°F (-40°C)	D2136	Pass	Pass	Pass	Pass	Pass
Accelerated Weathering Test (Florescent Light UV exposure), Hours	G154	5,000	10,000	10,000	10,000	10,000
Cracking (7x magnification)	--	None	None	None	None	None
Discoloration (by observation)	--	Negligible	Negligible	Negligible	Negligible	Negligible
Crazing (7x magnification)	--	None	None	None	None	None
Linear Dimensional Change, %	D1204	0.1	-0.02	-0.02	-0.01	-0.01
Weight Change After Immersion in Water, %	D570	± 3.0	2.4	1.9	1.8	1.7
Static Puncture Resistance, lbf (kg)	D5602	33 (15)	Pass	Pass	Pass	Pass
Dynamic Puncture Resistance, ft-lbf (J)	D5635	7.3 (10)	Pass	Pass	Pass	Pass
Recycled Content (10' & 5' sheet only)		9% Pre-Consumer / 1% Post-Consumer				

* Results may differ based upon statistical variations depending upon mixing methods and equipment, temperature, application methods, test methods, actual site conditions, and curing conditions.

¹ M.D. = Machine Direction, C.M.D. = Cross Machine Direction

2 Failure occurs through membrane rupture not seam failure.

2.03 FLASHING MATERIALS**A. Wall / Curb Flashing****1. Sarnafil 60 mil G410 Membrane**

A fiberglass reinforced membrane adhered to approved substrates using Sarnacol adhesive.

2. G459 Flashing Membrane

A fiberglass reinforced membrane adhered to asphalt, other contaminated surfaces, or approved substrates using Sarnacol adhesive. G459 comes in 6.5' and 3.25' widths and is 60 mil (1.5mm) thick. The standard color is white on tan. The tan side of the membrane must be the side exposed to the contamination.

3. Sarnaclad

A PVC-coated, heat-weldable sheet metal capable of being formed into a variety of shapes and profiles. Sarnaclad is a 24 gauge, G90 galvanized metal sheet with a 20 mil (0.5 mm) unsupported Sarnafil membrane laminated on one side. The dimensions of Sarnaclad are 4 ft x 8 ft (1.2 m x 2.4 m) or 4 ft x 10 ft (1.2 m x 3.0 m).

4. Non-Typical Edge

Project-specific perimeter edge detail reviewed and accepted for one-time use by Sika Corporation's Technical Department. Consult Regional Technical Manager prior to job start for review and consideration for acceptance.

B. Miscellaneous Flashing**1. Detail Membrane**

A 60 mil (1.5 mm) fiberglass reinforced membrane, available 12" x 50' (30.5 cm x 15.2 m) roll and 24" x 50' (61 cm x 15.2 m) roll, more pliable than Sarnafil G410 membrane, good use for flashing pipes, corners, and unusual shaped penetrations.

2. Sarnacircles

A 60 mil (1.5mm) thick prefabricated 4 1/2 in. round circle patch injection molded.

3. Sarnacorners - Inside

A 60 mil (1.5 mm) thick prefabricated inside corner injection molded.

4. Sarnacorners - Outside

A 60 mil (1.5 mm) thick prefabricated outside corner injection molded.

5. Sarnastack Universal, A, B, or C

A 60 mil (1.5 mm) thick prefabricated stack/pipe boot injection molded.

6. Open Post Flashing

A 48 mil (1.2 mm) thick prefabricated flashing using weld technology convenient to flash obstructed rooftop conduits and pipes. Open post flashings are fabricated with an open seam and are available in different sizes.

7. Sarnareglet

A heavy-duty, extruded aluminum flashing termination reglet used at walls and large curbs. Sarnareglet is produced from 6063-T5, 0.10 inch to 0.12 inch (2.5 mm to 3.0 mm) thick extruded aluminum. Sarnareglet has a 2-1/4 inch (57 mm) deep profile, and is provided in 10 foot (3 m) lengths. Use prefabricated Sarnareglet mitered inside and outside corners where walls intersect.

8. Sarnadrain - UFlow

A seamless heavy-duty aluminum drain, featuring a coated flange for hot air welding of Sarnafil membranes. Sarnadrain-Uflow consists of a one-piece spun, 0.125 in.(3.175 mm), 11 gauge thick aluminum body, a 17.5" (445 mm) diameter, and a 12" (305 mm) long drain stem.

9. Sarnacol 2170 Adhesive

A solvent-based reactivating adhesive used to attach membrane to flashing substrate. Typical flashing substrate coverage rate is 45-60ft² /gal (1.10–1.47m²/L) .

10. Liquid Flashing Primer

A two-component polymethyl methacrylate-based (PMMA) primer used to promote the adhesion of Liquid Flashing SW and Liquid Flashing WW over wood and concrete surfaces.

11. Liquid Flashing Fleece

A non-woven, needle-punched polyester fleece used as the reinforcement for Sika's liquid flashing details systems.

12. Liquid Flashing Catalyst

A reactive agent based on dibenzoyl peroxide to induce curing of Sika's Liquid Flashing SW, Liquid Flashing WW, and Liquid Flashing Primer when mixed.

13. Liquid Flashing SW (summer-grade white)

A two-component polymethyl methacrylate-based (PMMA) liquid flashing material used with Liquid Flashing Fleece and cures to form a monolithic reinforced flashing membrane.

14. Liquid Flashing WW (winter-grade white)

A two-component polymethyl methacrylate-based (PMMA) liquid flashing material used with Liquid Flashing Fleece and cures to form a monolithic reinforced flashing membrane. The ambient and surface temperatures at application must be between 23°F (-5°C) and 68°F (20°C).

2.04 INSULATIONS / ROOF BOARDS**A. Sarnatherm**

A 20 lb psi rigid polyisocyanurate insulation board w/ a cellulosic felt facer. Available in 4x4 ft (1.2 x 1.2 m)

2.05 ATTACHMENT COMPONENTS**A. Membrane Adhesive****1. Sarnacol 2170 Adhesive:**

A solvent-based reactivating-type adhesive used to attach the membrane to the substrate.

2. Sarnacal AD Feltback Membrane Adhesive

A two component foamable polyurethane adhesive used to attach membrane to the substrate.

B. Insulation / Roof Board Adhesive

1. Sarnacol 2163

A two-component foamable polyurethane board adhesive that is applied in one step and sets up in minutes. Dispensed using 1.5 L (0.4 gal) dual cartridges. No temperature restrictions.

2. Sarnacol AD Board Adhesive

A two-component foamable polyurethane adhesive that is applied in one step and sets up in minutes. Dispensed using holders and hoses, available in 10 gal, 30 gal, or 100 gal sets. The minimum ambient and surface temperatures is 40°F (4.4°C) and rising.

3. Sarnafastener #14

A #14 corrosion-resistant fastener used with Sarnaplates to attach insulation and/or roof boards to structural concrete or wood roof decks. Sarnafastener #14 has a shank diameter of 0.190 inch (4.8 mm), a thread diameter of 0.245 inch (6.2 mm) and a #3 Phillips drive head with a diameter of 0.435 inch (11 mm).

2.06 MISCELLANEOUS ACCESSORIES

A. Sarnamatic 661 or 681

220 volt, self-propelled, hot-air welding machine used to seal Sarnafil membrane seams.

B. Aluminum Tape

A 2 inch (50 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.

C. Multi-Purpose Tape

A high performance sealant tape used with metal flashings as a preventive measure against air and wind blown moisture entry.

The Perimeter Warning Membrane is made from Sarnafil G410 membrane, Yellow in color, and is 4" (101mm) wide and 100' (30m) long.

D. Seam Cleaner

Seam Cleaner is used on PVC membranes to clean the in the seam area only.

E. Sarnastop

An extruded aluminum, low profile bar used with certain Sarnafasteners to attach to the roof deck or to walls/curbs at terminations, penetrations and at incline changes of the substrate. Sarnastop is a 1 inch (25 mm) wide, flat aluminum bar 1/8 inch (3 mm) thick that has predrilled holes every 6 inches (152 mm) on center.

2.07 SEALANTS AND PITCH POCKET FILLERS

A. Sikaflex-1a

A premium-grade, high-performance, 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-15

A versatile one-component, non-sag, elastomeric, neutral cure silicone sealant used in wall and curb terminations. It is also used as a sealant at pipe penetrations and under certain metal flashings.

C. Sarnafiller (two-component urethane adhesive for pitch pocket toppings).**D. Mastic**

A 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 hybrid system ply sheets are used.

E. Depending on substrates, the following sealants are options for temporary overnight tie-ins:

1. Type III hot asphalt conforming to ASTM D312 (latest version).
2. Sarnafiller.
3. Multiple layers of roofing cement and felt.
4. Spray-applied, water-resistant urethane foam.
5. Mechanical attachment with rigid bars and compressed sealant.

2.08 MISCELLANEOUS FASTENERS AND ANCHORS

All fasteners, anchors, nails, straps, bars, etc. shall be post-galvanized steel, aluminum or stainless steel. Mixing metal types and methods of contact 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. All concrete fasteners and anchors shall have a minimum embedment of 1-1/4 inch (32 mm) and shall be approved for such use by the fastener manufacturer. All miscellaneous wood fasteners and anchors used for flashings shall have a minimum embedment of 1 inch (25 mm) and shall be approved for such use by the fastener manufacturer.

2.09 RELATED MATERIALS**A. Wood Nailer**

Treated 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 insulation thickness to achieve a smooth transition. Wood nailers shall be treated for fire and rot resistance (wolmanized or osmose treated) and be #2 quality or better lumber. Creosote or asphalt-treated wood is not acceptable. Wood nailers shall conform to Factory Mutual Loss Prevention Data Sheet 1-49. All wood shall have a maximum moisture content of 19 percent by weight on a dry-weight basis.

Note: Wood nailers or wood blocking for snow protection system shall be installed prior to the installation of the roof membrane whenever possible.

B. Plywood

When bonding directly to plywood, a minimum 1/2 inch (12 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 percent by weight on a dry weight basis.

PART 4 - EXECUTION**3.01 PRE-CONSTRUCTION CONFERENCE**

- A. The Applicator, Owner's Representative/Designer and Manufacturer(s) shall attend a pre-construction conference.
- B. The meeting shall discuss all aspects of the project including but not limited to:
 - 1. Safety
 - 2. Set up
 - 3. Construction schedule
 - 4. Contract conditions
 - 5. Coordination of the work

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 and installed properly.
 - 2. Roof curbs, nailers, equipment supports, vents and other roof penetrations are properly secured and prepared to receive new roofing materials.
 - 3. All surfaces are smooth and free of dirt, debris and incompatible materials.
 - 4. All roof surfaces shall be free of water, ice and snow.

3.03 SUBSTRATE INSPECTION

- A. A dry, clean and smooth substrate shall be prepared to receive the G410 Fleece Back fully adhered system.
- B. The substrate shall be clean, smooth, dry, free of flaws, sharp edges, loose and foreign material, oil and grease. Roofing shall not start until all defects have been corrected.
- C. All roof surfaces shall be free of water, ice and snow.

3.04 SUBSTRATE PREPARATION

The roof deck and existing roof construction must be structurally sound to provide support for the new roof system. The Applicator shall load materials on the rooftop in such a manner as to eliminate risk of deck overload due to concentrated weight. The Owner's Representative shall ensure that the roof deck is secured to the structural framing according to local building code and in such a manner as to resist all anticipated wind loads in that location.

- D. Reroofing over existing modified roofing system

General Criteria

All existing roofing, base flashing, or deteriorated metal flashings shall be removed. Cover 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.

3.05 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. Nailers shall be anchored to resist a minimum force of 300 pounds per lineal foot (4,500 Newtons per lineal meter) in any direction. Individual nailer lengths shall not be less than 3 feet (0.9 meter) long. Nailer fastener spacing shall be at 12 inches (0.3 m) on center or 16 inches (0.4 m) on center if necessary to match the structural framing. Fasteners shall be staggered 1/3 the nailer width and installed within 6 inches (0.15 m) of each end. Two fasteners shall be installed at ends of nailer lengths. Nailer attachment shall also meet the requirements of the current Factory Mutual Loss Prevention Data Sheet 1-49.
- C. Thickness shall be as required to match substrate or insulation height to allow a smooth transition.
- D. Any existing nailer woodwork which is to remain shall be firmly anchored in place to resist a minimum force of 300 pounds per lineal foot (4,500 Newtons per lineal meter) in any direction and shall be free of rot, excess moisture or deterioration. Only woodwork shown to be reused in Detail Drawings shall be left in place. All other nailer woodwork shall be removed.
- E. Stainless steel, corrosion resistant, fasteners are required when mechanically attaching any Sika Corporation product to wood nailers and wood products treated with ACQ (Alkaline copper Quaternary). When ACQ treated wood is used on steel roof decks or with metal edge detailing, a separation layer must be placed between the metal and ACQ treated wood.

3.06 INSULATION / ROOF BOARD INSTALLATION

General Criteria:

1. Adhered Insulation shall be installed according to insulation manufacturer's instructions.
2. Use Insulation shall be neatly cut to fit around penetrations and projections.
3. For Install tapered insulation in accordance with insulation manufacturer's shop drawings.
4. Insulation shall be installed according to insulation manufacturer's instructions.
5. Do not install more insulation board than can be covered with Sarnafil membrane by the end of the day or the onset of inclement weather.
6. Use at least 2 layers of insulation when the total insulation thickness exceeds 2-1/2 inches (64 mm). Stagger joints at least 12 inches (0.3 m) between layers.

F. Sarnacol 2163 Adhesive

1. All surfaces must be clean, dry, and free of dirt, grease, oil, or other contaminants or particulates. All concrete surfaces must be cured prior to applying Sarnacol OM Board Adhesive.
2. Remove the plastic plugs from the cartridge mixing head. Attach a mixing tip to the threaded mixing head. Place the cartridge into the applicator.
3. Apply the Sarnacol 2163 Board Adhesive directly to the substrate, using a ribbon pattern. Apply adhesive in 1/4 - 1/2 in. (6-13 mm) beads. Ribbon spacing will depend on the wind uplift rating required.
4. As adhesive is applied, immediately place board into wet adhesive. Walk boards in, ballast if necessary to achieve proper contact with substrate.
5. Application rates vary depending on surface roughness and absorption rate of the substrate. Typical coverage rates when using the cartridge is 600 sq. ft. per case. Rates are based on an application pattern of 4 ribbons, 1/4-1/2 in. (6-13 mm) beads, 12 in. (30 cm) o.c. per 4 x 4 ft. (121.9 x 121.9 cm) insulation board.

Notes:

- a) Do not apply in wet weather or to a wet surface.
- b) The minimum product temperature before application should be 65°F (18°C).
- c) No minimum ambient and surface temperatures.
- d) Not recommended for use with insulations boards larger than 4' x 4' (1.2 m x 1.2 m)
- e) All boards must lay flat upon roof surface.
- f) Unused adhesive can be applied at a later date by simply replacing the mixing tip.
- g) Do not allow the adhesive to skin over.

G. Sarnacol AD Board Adhesive

1. All surfaces must be clean, dry, and free of dirt, grease, oil, or other contaminants or particulates. All concrete surfaces must be cured prior to applying Sarnacol AD Board Adhesive.

2. Install Part A and part B components following instructions on the packaging. Always insure that the Part A and Part B containers are always hooked to the same dispensing holders or hoses (i.e. do not reverse the dispenser holders and hoses between Part A and Part B).
3. All valves on the dispensing unit must be completely opened so a 1:1 ratio is achieved when moving the adhesive through the disposable mix tip and onto the substrate in a semi-liquid state.
4. Apply the Sarnacol AD Board Adhesive directly to the substrate, using a ribbon pattern. Space the 1/2 in. (13 mm) wide wet beads at a maximum of 12 in. (30 cm) o.c. to achieve proper coverage rate. Actual ribbon spacing will depend on the wind uplift rating required.
5. Allow the adhesive to rise (approx. 4 - 8 minutes) before placing the insulation or cover board into the adhesive. Walk boards in, ballast if necessary to achieve proper contact with substrate. Adhesive open time varies depending on weather conditions.
6. Application rates vary depending on surface roughness and absorption rate of the substrate. Typical coverage rates when using the bag in the box is 1500 to 2000 sq.ft. (167 m² to 204 m²) per 10 gal. Rates are based on an application pattern of 4 ribbons, 1/2 in. (13 mm) beads, 12 in. (30 cm) o.c. per 4 x 4 ft. (1.2 m x 1.2 m) insulation board.

Notes:

- a) Do not apply in wet weather or to a wet surface.
- b) The minimum product temperature before application should be 72°F (22.2°C).
- c) The minimum ambient and surface temperatures should be 40°F (4.4°C) and rising.
- d) Not recommended for use with insulations boards larger than 4' x 4' (1.2 m x 1.2 m)
- e) All boards must lay flat upon roof surface.
- f) Unused adhesive can be applied at a later date by simply replacing the mixing tip.
- g) Do not allow the adhesive to skin over.

3.07 SARNAFIL G410 MEMBRANE INSTALLATION

The surface of the insulation or substrate shall be inspected prior to installation of the Sarnafil roof 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.

A. Sarnacol 2170 or Sarnacol 2170 VC:

1. Over the properly installed and prepared substrate surface, adhesive shall be applied using solvent-resistant 3/4 inch (19 mm) nap paint rollers. The adhesive shall be applied to the substrate at a rate according to Sika Corporation requirements. The adhesive shall be applied in smooth, even coating with no gaps, globs, puddles or similar inconsistencies. 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. When the adhesive on the substrate is dry, the Sarnafil roof membrane is unrolled. Adjacent sheets shall be overlapped 3 inches (75 mm). Once in place, one-half of the sheet's length shall be turned back and the underside shall be coated with adhesive at a rate of 1/2 gallon per 100 square feet (0.2 liters per m²). When the membrane adhesive has dried slightly to produce strings when touched with a dry finger, the coated membrane shall be rolled onto the previously-coated substrate being careful to avoid wrinkles. **Do not allow adhesive on the underside of the Sarnafil membrane to dry completely.** The amount of membrane that can be coated with adhesive before rolling into substrate will be determined by ambient temperature, humidity and crew. The bonded sheet shall be pressed firmly in place with a minimum 100 lb (45 kg) steel, membrane roller, by rolling in two directions.
3. The remaining un-bonded half of the sheet shall be folded back and the procedure repeated.

Notes:

- a) The Applicator shall count the amount of pails of adhesive used per area per day to verify conformance to the specified adhesive rate.
- b) Do not install when air temperature is within 5° of dew point. Solvent evaporation time increases significantly when temperatures drop.
- c) No adhesive shall be applied in seam areas. All membrane shall be applied in the same manner.

3.09 HOT-AIR WELDING OF SEAM OVERLAPS

A. General

1. All seams shall be hot-air welded. All membrane to be welded shall be clean and dry.
2. All mechanics intending to use hot-air welding equipment shall have successfully completed a training course provided by a Sika Corporation Technical Service Representative prior to welding.
3. Hot-air welding equipment shall be allowed to warm up for at least one minute prior to welding.
4. Seam overlaps should be 3 inches (76 mm) wide when automatic machine-welding and 4 inches (100 mm) wide when hand-welding, except for certain details.

B. Hand-Welding

1. The back edge of the seam shall be welded with a narrow but continuous weld to prevent loss of hot air during the final welding.
2. The nozzle shall be inserted into the seam at a 45 degree angle to the edge of the membrane. Once the proper welding temperature has been reached and the membrane begins to "flow", the hand roller is positioned perpendicular to the nozzle and rolled lightly. For straight seams, the 1-1/2 inch (40 mm) wide nozzle is recommended for use. For corners and compound connections, the 3/4 inch (20 mm) wide nozzle shall be used.

C. Machine Welding

1. Machine welded seams are achieved by the use of approved automatic welding equipment. When using this equipment, all instructions shall be followed and local codes for electric supply, grounding and over current protection observed. Dedicated circuit house power or a dedicated portable generator is recommended. No other equipment shall be operated simultaneously off the generator.
2. Metal tracks may be used over the deck membrane and under the machine welder to minimize or eliminate wrinkles.

D. Quality Control of Welded Seams

1. The Applicator shall check all welded seams for continuity using a rounded screwdriver. Visible evidence that welding is proceeding correctly is smoke during the welding operation, shiny membrane surfaces, and an uninterrupted flow of dark gray material from the underside of the top membrane. On-site evaluation of welded seams shall be made daily by the Applicator at locations as directed by the Owner's Representative or Sika Corporation's representative. One inch (25 mm) wide cross-section samples of welded seams shall be taken at least three times a day. Correct welds display failure from shearing of the membrane prior to separation of the weld. Each test cut shall be patched by the Applicator at no extra cost to the Owner.

3.10 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, smooth, and solvent-resistant surfaces. Use caution to ensure adhesive fumes are not drawn into the building.

A. Sarnacol Adhesive for Membrane Flashings

1. Over the properly installed and prepared flashing substrate, the Sarnacol adhesive shall be applied in smooth, even coats with no gaps, globs or similar inconsistencies. Only an area which can be completely covered in the same day's operations shall be flashed. The bonded sheet shall be pressed firmly in place with a hand roller.
2. No adhesive shall be applied in seam areas that are to be welded. All panels of membrane shall be applied in the same manner, overlapping the edges of the panels as required by welding techniques.

B. Install Sarnastop/Sarnabar/Sarnacord according to the with approved fasteners into the structural deck at the base of parapets, walls and curbs. Sarnastop is required by Sika Corporation at the base of all tapered edge strips and at transitions, peaks, and valleys according to Sika Corporation's details.

- C. Sika Corporation's requirements and recommendations and the specifications shall be followed. All material submittals shall have been accepted by Sika Corporation prior to installation.
- D. All flashings should extend a minimum of 8 inches (0.2 m) above roofing level, exceptions to this might be pipe boots and/or sealant pockets, etc. If in question, submit in writing to the Owner's Representative and Sika Corporation Technical Department for signed approval.
- E. All flashing membranes shall be consistently adhered to substrates. All interior and exterior corners and miters shall be cut and hot-air welded into place. No bitumen shall be in contact with the Sarnafil membrane.
- F. All flashing membranes shall be mechanically fastened along the counter-flashed top edge with Sarnastop at 6 to 8 inches (0.15 to 0.20 m) on center.
- G. Sarnafil flashings shall be terminated according to Sika Corporation recommended details.
- H. All adhered flashings that exceed 30 inches (0.75 m) in height shall receive additional securement. Consult Sika Corporation Technical Department for securement methods.

3.11 LIQUID FLASHING INSTALLATION

A. Surface Preparation

1. All surfaces should be clean, dry, free of dirt, dust, debris, loose particles, loose paint, rust and other contaminants.
2. Clean new roofing membrane with mineral spirits or all-purpose cleaner which will not remove the lacquer coating from the membrane. If the membrane is old or extremely soiled Sika Seam Cleaner should be used to restore the membrane to a 'like new' condition before applying Liquid Flashing.
3. Clean and prepare metal surfaces to near white metal in accordance with SSPC-SP3 (power tool clean). If power tools are not available, use abrasive paper with a grain size of 20 to 40 to remove all loose particles including paint flakes and rust.
4. Grind concrete and masonry surfaces with diamond cup wheel to remove laitance and contaminants.
5. Lightly sand glass, rigid PVC and plastic surfaces. Extend surface preparation a minimum of 1/8 in (3 mm) beyond the termination of the flashing.
6. Wipe metal and glass surfaces with Sika's Seam Cleaner and allow to dry.
7. For repairs or touch-up, wipe previously installed Liquid Flashing with Sika's Seam Cleaner to clean and reactivate the Liquid Flashing and allow to dry.
8. Prime wood and concrete surfaces with Liquid Flashing Primer. Allow Liquid Flashing Primer to cure completely before applying Liquid Flashing.
9. Apply painters tape to 'picture frame' and mask the outside edge of the detail. Place the tape 1/4 in (6.35 mm) beyond where the Liquid Flashing Fleece will terminate.
10. Pre-cut Liquid Flashing Fleece to fit around the penetration. Vertical flashing pieces must extend 2 in (51 mm) from the base and horizontal flashing pieces must extend 4 in (102 mm) out from the base. Flashing height should be a minimum of 8 in (203 mm) where possible.

B. Liquid Flashing Summer White (SW)

Using Liquid Flashing SW ambient temperature must be between 59°F (15°C) and 104°F (40°C) when mixing. Thoroughly mix the entire container of Liquid Flashing SW with a slow-speed (200 to 400 rpm) mechanical mixer (electric drill with a mixing paddle) for two minutes.

Small Batch – 1 Liter

1. After mixing, pour 1 liter of Liquid Flashing SW into a clean plastic container.
2. Add 2 level tablespoons (20 g) of Liquid Flashing Catalyst to Liquid Flashing SW and mix with a slow-speed mechanical mixer for two minutes.
3. Once mixed, the pot life is approximately 10 - 15 minutes depending on the ambient and surface temperature.

C. Liquid Flashing Winter White (WW)

Using Liquid Flashing WW ambient temperature must be between 23°F (-5°C) and 68°F (20°C) when mixing. Thoroughly mix the entire container of Liquid Flashing WW with a slow-speed (200 to 400 rpm) mechanical mixer (electric drill with a mixing paddle) for two minutes.

Small Batch – 1 Liter

1. After mixing, pour 1 liter of Liquid Flashing into a clean plastic container.
2. Add 4 level tablespoons (40 g) of Liquid Flashing Catalyst to Liquid Flashing WW and mix with a slow-speed mechanical mixer for two minutes.
3. Once mixed, the pot life is approximately 10 - 15 minutes depending on the ambient and surface temperature.

D. Application

1. After mixing in the Liquid Flashing Catalyst, apply Liquid Flashing to the clean prepared surface using a small ½ in (13 mm) nap roller with rounded edges.
2. Apply 55 mils (1.4 mm) of Liquid Flashing evenly onto the substrate and terminate onto the inside edge of the painters tape. Place the Liquid Flashing Fleece into the wet Liquid Flashing taking care to remove any air bubbles and wrinkles. Terminate the Liquid Flashing Fleece 1/4 in (6.35 mm) from the inside edge of the painters tape. Apply additional Liquid Flashing at overlaps between the fleece layers.
3. Immediately apply 25 mils (0.6 mm) of additional Liquid Flashing to fully saturate the fleece. Extend Liquid Flashing onto the inside edge of the painters tape. Remove the painters tape immediately after the Liquid Flashing application.
4. Complex and irregular shapes such as nuts, bolts, etc. may require an additional 25 mil (0.6 mm) thick application of Liquid Flashing to ensure full coverage. Wait one hour before applying the additional coat.

3.12 METAL FLASHING INSTALLATION

- A. Metal details, fabrication practices and installation methods shall conform to the applicable requirements of the following:
1. Factory Mutual Loss Prevention Data Sheet 1-49 (latest issue).
 2. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - latest issue.
- B. Metal, other than that provided by Sika Corporation, is not covered under the Sika Corporation warranty.
- C. Complete all metal work in conjunction with roofing and flashings so that a watertight condition exists daily.
- D. Metal shall be installed to provide adequate resistance to bending to allow for normal thermal expansion and contraction.
- E. Metal joints shall be watertight.
- F. Metal flashings shall be securely fastened into solid wood blocking. Fasteners shall penetrate the wood nailer a minimum of 1 inch (25 mm).
- G. Airtight and continuous metal hook strips are required behind metal fascias. Hook strips are to be fastened 12 inches (0.3 m) on center into the wood nailer or masonry wall.
- H. Counter flashings shall overlap base flashings at least 4 inches (100 mm).
- I. Hook strips shall extend past wood nailers over wall surfaces by 1-1/2 inch (38 mm) minimum and shall be securely sealed from air entry.

3.13 SARNACLAD METAL BASE FLASHINGS / EDGE METAL 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. Acceptance 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.

- A. Sarnaclad metal flashings shall be formed and installed per the Detail Drawings.
1. All metal flashings shall be fastened into solid wood nailers with two rows of post galvanized flat head annular ring nails, 4 inches (100 mm) on center staggered. Fasteners shall penetrate the nailer a minimum of 1 inch (25 mm).
 2. Metal shall be installed to provide adequate resistance to bending and allow for normal thermal expansion and contraction.
- B. Adjacent sheets of Sarnaclad shall be spaced 1/4 inch (6 mm) apart. The joint shall be covered with 2 inch (50 mm) wide aluminum tape. A 4 inch minimum (100 mm) wide strip of Sarnafil flashing membrane shall be hot-air welded over the joint. Exercise caution at perimeter of roof.

3.14 EDGE METAL 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. Acceptance 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.

3.15 TEMPORARY CUT-OFF

All flashings shall be installed concurrently with the roof membrane in order to maintain a watertight condition as the work progresses. All temporary waterstops shall be constructed to provide a 100 percent watertight seal. The stagger of the insulation joints shall be made even by installing partial panels of insulation. The new membrane shall be carried into the waterstop. Waterstop shall be sealed to the deck or substrate so that water will not be allowed to travel under the new or existing roofing. The edge of the membrane shall be sealed in a continuous heavy application of sealant as described in Section 2.07. When work resumes, the contaminated membrane shall be cut out. All sealant, contaminated membrane, insulation fillers, etc. shall be removed from the work area and properly disposed of off-site. None of these materials shall be used in the new work.

If inclement weather occurs while a temporary waterstop is in place, the Applicator shall provide the labor necessary to monitor the situation to maintain a watertight condition.

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.

3.16 COMPLETION

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.

All Warranties referenced in this Specification shall have been submitted and have been accepted at time of contract award.

3.17 DETAILS

Refer to Typical System Details section or usa.sarnafil.sika.com.