**Sika SolarRoof®**

**Sarnafil® Adhered System**

**with SarnaRoof Solar Mount-2 Photovoltaic Module Racking System**

Sika Corporation - Roofing

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[NOTE TO SPECIFIER: NOTES TO SPECIFIER ARE DESIGNATED BY [ ]. SPECIFIER IS TO SELECT ONE OF THE OPTIONS.]

# GENERAL CONDITIONS

## DESCRIPTION

##### Scope

To install a complete Sarnafil adhered system with SarnaRoof Solar Mount-2 (SSM-2) PV Module Racking system including membrane, flashings, other roofing components, mounts, rails, SarnaRoof Clicks, and other racking system components.

##### Related Work

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

###### Removal of existing roofing and insulation

###### Substrate preparation

###### Roof drains

###### Vapor retarder

###### Insulation

###### Separation layers

###### Roof membrane

###### Fasteners

###### Adhesive for flashings

###### Roof membrane flashings

###### Roof expansion joints

###### Walkways

###### Metal Flashings

###### Sealants

###### PV Module Racks and Rails

###### SarnaRoof Solar Click

###### PV Racking System Related Hardware

###### PV Modules (by others)

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

###### Sika Corporation Warranty

###### Roofing Applicator Warranty

## QUALITY ASSURANCE

##### This roofing system shall be applied only by a roofing applicator authorized prior to bid by Sika Corporation (Sika Corporation "Applicator").

##### The SSM-2 PV module racking system shall be installed by a Sika Authorized Applicator. The PV modules are to be installed by a licensed electrician.

##### A Sika Corporation Technical Service Representative will review the installed roof system wherever a System Warranty has been requested.

##### All work pertaining to the installation of membrane, flashings, and accessories shall only be completed by Applicator authorized by Sika Corporation in those procedures.

##### 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.

##### Roofing membrane and membrane flashings to be manufactured by membrane supplier and not private labeled.

##### 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.

##### Applicable code/insurance requirements shall be identified by the Owner or Owner’s representative.

## SUBMITTALS

##### At the time of bidding, the Applicator shall submit to the Owner (or Representative) the following:

###### Copies of Specification.

###### Samples of each primary components to be used in the roof system and the manufacturer’s current product data sheet for each component.

###### Written approval by the insulation manufacturer (as applicable) for use of the product in the proposed system.

###### Sample copy of Sika Corporation’s warranty.

###### Sample copy of Applicator’s warranty.

###### Safety Data Sheets (SDS)

##### Racking System drawings including:

###### SSM-2 system design with dimensions and locations.

###### Evidence that racking system meets lateral load and wind uplift requirements.

## 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.

[NOTE TO SPECIFIER: SELECT REQUIREMENTS.]

##### System shall be designed to meet the minimum wind design requirements of the applicable version of ASCE 7.

##### Factory Mutual Research Corporation (FM) - Norwood, MA

###### System shall be designed to meet 4470 requirements and the most recent versions of FM Global LPDS 1-28 and 1-29.

###### The roof system design pressure may be different from that of the PV mounting system. See RoofNav for SSM-2 assemblies. SSM-2 design pressure calculations will be provided by Centroplan USA.

##### Underwriters Laboratories, Inc. - Northbrook, IL

###### Class A roofing assembly

1. UL 2703 – UL Standard for Safety for Mounting Systems for Use with Flat-Plate Photovoltaic Modules and Panels, Section 15, Fire Performance (reference to UL 1703, Sec. 16).
2. UL 1703 - UL Standard for Safety for Flat-Plate Photovoltaic Modules and Panels, Section 16 and 31 (Fire Tests).

## PRODUCT DELIVERY, STORAGE, AND HANDLING

##### All products delivered to the job site shall be in the original unopened containers or wrappings bearing all seals and approvals.

##### Handle all materials to prevent damage. Place all materials on pallets and fully protect from moisture.

##### 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.

##### 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.

##### 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).

##### 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.

##### Safety Data Sheets (SDS) shall be available at the job site at all times.

## JOB CONDITIONS

##### 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.

##### 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.

##### 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.

##### 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.

##### 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.

##### The Sarnafil membrane shall not be installed under the following conditions without consulting Sika Corporation’s Technical Dept. for precautionary steps:

###### The roof assembly permits interior air to pressurize the membrane underside.

###### Any exterior wall has 10% or more of the surface area comprised of opening doors or windows.

###### The wall/deck intersection permits air entry into the wall flashing area.

##### Special consideration should be given to construction related moisture. Sika Corporation is not responsible for damage when exposed to construction related moisture.

## BIDDING REQUIREMENTS

##### 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.

##### 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.

## WARRANTIES

##### 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.

[NOTE TO SPECIFIER: SELECT DESIRED WARRANTY, MEMBRANE ONLY OR SYSTEM. ONLY PRODUCTS PURCHASED FROM SIKA CORPORATION ARE COVERED UNDER SYSTEM WARRANTY.]

###### Membrane Warranty

###### System Warranty 10, 15, or 20 years (only products purchased from Sika Corporation are covered under System Warranty, including the PV module racking system).

##### Contractor Warranty

## WARRANTY DURATIONS

[NOTE TO SPECIFIER: SPECIFY EITHER 5, 10, 15, OR 20, DURATION BELOW FOR SIKA CORPORATION WARRANTY. CONSULT SIKA CORPORATION - ROOFING FOR ASSISTANCE.]

##### Sika Corporation’s warranty shall be in effect for a \_\_\_\_\_ year duration.

* + 1. Applicator’s/Roofing Contractor’s Warranty shall be in effect for a year duration.

# PRODUCTS

### GENERAL

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

##### 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.

##### Consult respective product data sheets and selection guides for additional information.

### MEMBRANE

##### Membrane shall conform to:

###### ASTM D-4434 (latest version), "Standard for Polyvinyl Chloride Sheet Roofing". Classification: Type II.

###### NSF/ANSI Standard 347, “Sustainability Assessment for Single Ply Roofing Membranes”. Certification Level: Platinum.

###### The manufacture to guarantee that the membrane thickness meets or exceeds the specified thickness when tested according to ASTM D-751.

##### Sarnafil PVC thermoplastic membrane

###### Type of Membrane

1. Sarnafil G 410
2. Sarnafil G 410 Textured
3. Sarnafil S 327
4. Sarnafil S 327 Textured

[NOTE TO SPECIFIER: FOR 25 YEAR WARRANTY DURATION MINIMUM 72 MIL MEMBRANE IS REQUIRED. FOR 30 YEAR WARRANTY DURATION MINIMUM 80 MIL MEMBRANE IS REQUIRED.]

###### Membrane Thickness

1. 60 mil (1.5 mm)
2. 72 mil (1.8 mm)
3. 80 mil (2.0 mm)

##### Color of Membrane

[NOTE TO SPECIFIER: ONLY ENERGYSMART WHITE, REFLECTIVE GRAY OR TAN COLORS ARE ELIGIBLE FOR WARRANTY DURATIONS GREATER THAN 20 YEARS. ENERGYSMART PATINA GREEN IS STEEP SLOPE RATED ONLY.]

###### Sarnafil G 410 Membrane / Sarnafil G 410 Feltback Membrane / Sarnafil G 410 SA Membrane

1. EnergySmart White

###### Sarnafil G 410 Textured Membrane

1. White

###### Sarnafil S 327 Membrane

1. EnergySmart White

##### Typical Physical Properties

###### Refer to individual Product Data Sheets for physical property values.

### INSULATIONS / ROOF BOARDS

##### Insulation

###### Sarnatherm

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).

###### Sarnatherm CG

Rigid polyisocyanurate insulation board with coated polymer bonded glass fiber mat facers, meeting ASTM C-1289 Type II, Class 2, Grade 2 (20 psi) or Grade 3 (25 psi).

##### Roof Boards

###### DensDeck® Prime Roof Board

Gypsum roof board with fiberglass mat facers primed on one side, meeting ASTM C-1177.

### ATTACHMENT COMPONENTS

##### Membrane Adhesive

[NOTE TO SPECIFIER: DO NOT SPECIFY SARNACOL 2170, 2170 VC OR 2175 ADHESIVE WITH POLYSTYRENE INSULATIONS; EVEN WHEN A ROOF BOARD IS USED OVER THE POLYSTYRENE INSULATION.]

###### Sarnacol 2170 Adhesive

Solvent-based reactivating adhesive used to attach membrane.

###### Sarnacol 2170 VC Adhesive

Solvent-based, VOC compliant\*, reactivating adhesive used to attach membrane.

\*Check local jurisdiction for VOC compliance.

##### Insulation / Roof Board Attachment

###### 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.

###### 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.

### VAPOR RETARDERS

[NOTE TO SPECIFIER: CONDENSATION AND MOISTURE MIGRATION INTO THE ROOF SYSTEM MUST BE CONTROLLED SO THAT IT DOES NOT COMPROMISE THE PERFORMANCE OF THE INSULATION AND OTHER COMPONENTS OF THE ASSEMBLY. SIKA CORPORATION IS NOT RESPONSIBLE FOR DAMAGE RESULTING FROM CONDENSATION OR OTHER CONSTRUCTION RELATED MOISTURE.]

##### Vapor Retarder PE 10

10 mil (0.25 mm) thick polyethylene vapor retarder/air barrier.

##### Vapor Retarder SA 31

31 mil (0.8 mm) thick self-adhered SBS modified bitumen vapor retarder/air barrier with a tri-laminated woven polyethylene facer. Can also serve as temporary roof protection exposed for up to two (2) months.

### FLASHING MATERIALS

##### Wall / Curb Flashing

###### Sarnafil G 410 Membrane

###### Sarnafil G 410 SA Flashing Membrane

###### G 459 Flashing Membrane

For use over residual asphalt or other contaminated surfaces.

###### Detail Membrane

###### Sarnacol 2170 Adhesive

Solvent-based reactivating adhesive used to attach roof membrane and flashing.

###### Sarnacol 2170 VC Adhesive

Solvent-based, VOC compliant\*, reactivating adhesive used to attach roof membrane and flashing.

\*Check local jurisdiction for VOC compliance.

###### Sarnacol 2175 Adhesive

Solvent-based, VOC compliant\*, spray applied canister adhesive used to attach roof membrane and flashing.

\*Check local jurisdiction for VOC compliance.

###### Sarnafelt

Leveling and/or separation layer that is necessary behind G 459 Flashing Membrane when the flashing substrates are rough or incompatible with the flashing membrane.

###### Sarnaclad

24 gauge, G90 galvanized steel with PVC-coating on one side for heat-weldability shop fabricated to meet project requirements.

##### Perimeter Edge Flashing

**[NOTE TO SPECIFIER: SPECIFY PERIMETER EDGE METAL TO MEET BUILDING CODE AND SIKA SYSTEM WARRANTY REQUIREMENTS. EDGE METAL MUST BE SUPPLIED BY SIKA TO THE SIKA AUTHORIZED APPLICATOR TO BE ELIGIBLE FOR COVERAGE UNDER SIKA’S SYSTEM WARRANTY. SIKA APPROVED PRODUCT AND MANUFACTURERS ARE LISTED BELOW.]**

###### Sarnaclad

24 gauge, G90 galvanized steel with PVC-coating on one side for heat-weldability.

###### Hickman Edge Systems

Factory manufactured perimeter edge metal system supplier. See section 077110.

###### Metal-Era Edge Systems

Factory manufactured perimeter edge metal system supplier. See section 077110.

##### Miscellaneous Flashing

###### Sarnacircles

Round circle patch.

###### Sarnacorners - Inside

Injection molded inside corner.

###### Sarnacorners - Outside

Injection molded outside corner.

###### Sarnastack Universal

Injection molded stack/pipe boot to flash pipes, vent stacks and cylindrical penetrations.

###### 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.

###### 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.

###### Sarnadrain with U-Flow

Seamless one-piece heavy-duty aluminum drain with a coated flange for hot-air welding of Sarnafil membranes.

[NOTE TO SPECIFIER: LIQUID APPLIED FLASHINGS ARE ONLY WARRANTED TO A MAXIMUM OF 20 YEARS.]

###### Liquid Flashing Primer

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.

###### Liquid Flashing Fleece

Non-woven, needle-punched polyester fleece used as the reinforcement for Sika’s Liquid Flashing details.

###### Liquid Flashing Catalyst

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

###### Liquid Flashing SW (summer-grade white)

Two-component polymethyl methacrylate-based (PMMA). The ambient temperature at application must be between 59°F (15°C) and 104°F (40°C). The surface temperature at application must be between 59°F (15°C) and 122°F (50°C).

###### Liquid Flashing WW (winter-grade white)

Two-component polymethyl methacrylate-based (PMMA). The ambient and surface temperatures at application must be between 23°F (-5°C) and 68°F (20°C).

###### Sikalastic EP Primer/Sealer

Two-component epoxy primer used to promote the adhesion of Sikalastic 641 Lo-VOC to the membrane, metal, Sarnaclad metal, wood, and concrete surfaces.

###### Sikalastic 641 Lo-VOC

One-component, moisture-triggered, aliphatic polyurethane resin. The ambient and surface temperatures at application must be between 41°F - 95°F (5°C - 35°C).

###### Sika Fleece 140

Non-woven, needle-punched polyester fleece reinforcement used with Sikalastic 641 Lo-VOC.

###### Sika Reemat Premium

Surface treated, randomly oriented glass fiber reinforcement used with Sikalastic 641 Lo-VOC.

###### Sika Joint Tape SA

Self-adhering polymeric rubberized tape with woven polyester facer used to smooth and locally reinforce transitions.

### EXPANSION JOINT

**[NOTE TO SPECIFIER: DELETE SECTION IF NOT REQUIRED. WARRANTED TO A MAXIMUM OF 20 YEARS]**

1. Emseal RoofJoint expansion joint system

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

### WALKWAY PROTECTION

##### 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.

##### Sikaplan Walkway-20

PVC, 79 mil (2.0 mm) thick, weldable membrane with pyramidal surface embossment. Used as a protection layer from rooftop traffic.

##### 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.

##### 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.

### MISCELLANEOUS ACCESSORIES

##### 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.

##### SikaLastomer-65

Tape used to seal membrane at penetrations and securements, metals, or Vapor Retarder PE 10.

##### Décor Profile Rib

PVC extruded rib hot-air welded to the membrane to simulate the look of a standing seam metal roof.

##### 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.

##### Perimeter Warning Membrane

4” (10.2 cm) wide yellow Sarnafil G 410 Membrane used in required areas.

##### SarnaRoof Membrane Cleaner 100

Used to clean roof membrane.

##### Sarnacol 2175 Cleaner

##### Used to flush and clean the Sarnacol 2175 spray hose, spray gun and spray tip.

##### 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.

##### 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.

##### Sarnabar

14 gauge, galvanized or stainless, roll-formed steel bar used to attach membrane to roof decks.

##### 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.

### SEALANTS AND PITCH POCKET FILLERS

##### 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.

##### Sikasil SG-10

One-component silicone adhesive.

##### Sarnafiller

Two-component urethane adhesive for pitch pocket toppings.

##### 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.

### 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.

### RELATED MATERIALS

##### Wood / Metal Nailer

Code compliant wood or approved engineered metal roof 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.

##### 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.

### SARNAROOF SOLAR MOUNT-2 COMPONENTS

##### Mount

A 7 degree fixed angle metallic support rack.

##### Rails

###### Insertion Rail – A 2 ft. long extruded Aluminum rail with a u-shaped channel that connects either 30 mm, 35 mm or 40 mm framed PV modules to the mount.

###### Universal Rail – A 2 ft. long Aluminum rail that can accommodate any frame height from 33 to 45 mm and a maximum width of 1138 mm.

##### SarnaRoof Click

An unreinforced PVC flange which secures the rack to the roof. It attaches to the mount and is then hot-air welded to the roof membrane.

##### SarnaRoof Click Bracket

A steel u-shaped clip that secures the SarnaRoof Click to the mount.

##### Wind Deflector

A steel sheet that attaches to the back of the south facing rack to reduce infiltration of wind under the PV modules.

##### Miscellaneous Attachment Components

Nuts, bolts, and screws of various sizes.

# EXECUTION

#### PRE-CONSTRUCTION CONFERENCE

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

#### SUBSTRATE CONDITION

##### Applicator shall be responsible for acceptance or provision of proper substrate to receive new roofing materials.

##### Applicator shall verify that the work done under related sections meets the following conditions:

###### Roof drains and scuppers have been reconditioned or replaced (as applicable) and installed properly.

###### Roof curbs, nailers, equipment supports, vents and other roof penetrations are properly secured and prepared to receive new roofing materials.

##### 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.

#### 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.

##### New Construction

###### Steel Deck

The roof deck shall conform and be installed to current local building code or insurance requirements.

###### 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.

##### 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.

###### 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.

###### 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.

##### 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.

##### 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 ft to 8 ft (1.5 m 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.

###### 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.

##### 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.

[NOTE TO SPECIFIER: LOOSE GRAVEL SHALL BE REMOVED UNLESS INSTRUCTED BY SPECIFIER.]

###### 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.

###### 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.

###### Coal-tar pitch or heavily resaturated roofs may require removal. Contact Sika Corporation Technical for coal-tar pitch or heavily resaturated reroof preparation requirements.

#### WOOD / METAL NAILER INSTALLATION

##### Install continuous code compliant wood or engineered metal nailers at the perimeter of the entire roof and around roof projections and penetrations as shown on the Detail Drawings.

##### Wood or engineered metal nailers or wood blocking for penetrations, curbs, or snow protection systems shall be installed prior to the installation of the roof membrane whenever possible.

#### VAPOR RETARDER INSTALLATION

[NOTE TO SPECIFIER: IF USED AS A TEMPORARY ROOF, POSITIVE SLOPE TO DRAIN IS REQUIRED.]

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

##### 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.

##### 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.

##### 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.

#### INSULATION / ROOF BOARD INSTALLATION

General Criteria:

###### Boards shall be installed according to local building code, insurance requirements, and manufacturer's instructions.

###### Boards shall be neatly cut to fit around penetrations and projections.

###### Install tapered insulation in accordance with insulation manufacturer's shop drawings.

###### Do not install more board than can be covered with membrane by the end of the day or the onset of inclement weather.

###### 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.

###### Refer to individual Product Data Sheets (PDS) and *Insulation or Roof Board Installation* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

##### 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.

##### 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.

##### 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.

##### Lightweight Insulating Concrete

Install in accordance with selected manufacturer’s guidelines.

#### 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.

##### Sarnacol 2170 or Sarnacol 2170 VC Adhesive:

###### 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.

###### 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.

##### Sarnacol 2121:

##### 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.

##### 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.

##### Sarnacol 2175 Adhesive:

###### 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.

###### Refer to Sarnacol 2175 Product Data Sheet for detailed installation instructions.

##### Sarnacol AD Feltback Membrane Adhesive or Sarnacol OM Feltback Membrane Adhesive:

###### Application rates vary depending on surface roughness, absorption rate of the substrate, and wind speed approvals.

###### 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.

##### Sarnafil G 410 SA Membrane:

###### 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.

###### 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.

###### Refer to individual Product Data Sheets (PDS) and *Adhered Systems: Self Adhered Membrane* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

##### 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.

#### HOT-AIR WELDING OF MEMBRANE OVERLAPS

##### All membrane overlaps shall be hot-air welded. The membrane shall be clean and dry prior to hot-air welding.

##### 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.

##### 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.

##### Refer to *Welding* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

#### 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.

##### 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.

##### No bitumen shall be in contact with any Sarnafil membranes except Sarnafil G 459.

##### All flashing membranes shall be mechanically fastened along the counter-flashed top edge with Sarnastop or approved Sarnadisc at 6” - 12” (15.2 cm – 30.5 cm) on center.

##### Sarnafil flashings shall be terminated according to Sika Corporation recommended details.

##### 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.

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

#### LIQUID APPLIED FLASHING INSTALLATION

##### Application Guidelines

Liquid applied flashing resins and primer have 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), Sika Sarnafil Technical Bulletins 19-02 and 23-02 and the *Liquid Flashing Procedures* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

##### Installation Notes

###### Prepare the surface to be flashed by cleaning the area to like-new condition.

###### Pre-cut vertical and horizontal liquid flashing reinforcement to fit around the penetration and onto the roof membrane surface allowing for the required overlaps.

###### Once the edges of the reinforcement are determined, mark a line ¼” – ½” (6 mm – 13 mm) beyond the edge of the reinforcement and apply painter’s tape to provide a clean edge.

###### Prime the surface if required at the recommended rate. Pull the painter’s tape while wet to achieve a clean edge. Allow the primer to cure and re-mask the area before applying resin.

###### Thoroughly mix the resin if required and apply to the surface at the required thickness.

###### Embed the reinforcement into the wet resin. Apply additional resin to completely saturate the reinforcement as required. Pull painter’s tape while wet to achieve a clean edge.

##### Inspection and Quality Control

Refer to Sika Sarnafil Technical Bulletins 19-02 and 23-02 for detailed inspection procedures.

#### 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. 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.

##### Metal details, fabrication practices and installation methods shall conform to the applicable requirements of the following:

###### ANSI SPRI ES-1 (latest issue).

###### Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA) - latest issue.

##### Pre-formed metal flashing shall be installed according to metal manufacturer’s guidelines.

##### Metal, other than that provided by Sika Corporation, is not covered under the Sika Corporation warranty.

##### Sarnaclad 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.

#### ROOFJOINT EXPANSION JOINT

**[NOTE TO SPECIFIER: DELETE SECTION IF NOT REQUIRED]**

1. 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.
2. Install RoofJoint expansion joint and accessories according to joint system manufacturer’s most current requirements.
3. Secure roofing membrane up to expansion joint opening.
4. Lower RoofJoint into expansion joint gap so that it achieves a level and firm fit with the rooftop surface.
5. Hot-air weld lower RoofJoint flange to installed roofing membrane surface.
6. 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.
7. Lap upper RoofJoint flange over termination bar and hot-air weld to roofing membrane surface.
8. Verify and document weld strength of seams minimum once daily via mockup vs in-field destructive testing.
9. Test lap edges with probe to verify seam weld continuity.
10. If any tears or voids in lapped seams are found, repair using appropriate approved technique.

#### WALKWAY INSTALLATION

##### 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.

##### 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.

##### 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.

##### 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.

##### Refer to individual Product Data Sheets (PDS) and *Walkway Installation* section of Sika Sarnafil Roofing Applicator Handbook for detailed installation instructions.

#### PERIMETER WARNING INSTALLATION

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

##### Tape: Perimeter Warning Tape is applied with hand pressure to the top of PVC roofing membrane in the areas required.

##### Membrane: Perimeter Warning Membrane is hot-air welded to the top of PVC roofing membrane in the areas required.

#### 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 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.

##### 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.

##### 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.

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

#### 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 by the owner or owner’s representative at time of contract award.

#### DETAILS

##### Refer to usa.sika.com/sarnafil.

#### [SARNAROOF SOLAR MOUNT-2 INSTALLATION](#PART_3)

1. Installation of SSM-2 shall not begin until the roofing system has passed an inspection by a Sika Corp. – Roofing Technical Representative.
2. Use caution and protect the roof to ensure that it is not damaged during the SSM-2

 installation. Particular care is to be taken at work stations and storage and traffic areas.

1. SSM-2 shall be assembled according to Sika Corp. – Roofing written installation instructions.
2. Assembled racks shall be moved into position as shown on the project drawings. The SarnaRoof Click is

 hot-air welded to the roof membrane. Prior to hot-air welding the Sika Solar Click, clean the membrane as

 required to achieve acceptable welds.

1. The Photovoltaic Modules interconnection, as well as grounding must be completed by a licensed

 electrician.

1. A Sika Corp. – Roofing Technical Service Representative shall inspect the roof during and after installation. At the Sika Corp. – Roofing Technical Service Representative’s directions, deficiencies or incorrect installations must be corrected prior to the issuance of the warranty.

**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.

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