**FULLY ADHERED COLD APPLIED ROOFING**

**SECTION 07 52 00**

**[EDITOR’S NOTES: DESIGNATED BY [ ], EDITOR TO SELECT OPTIONS PROVIDED FOR PROJECT SPECIFIC SPECIFICATIONS.]**

1. GENERAL
	* + 1. SUMMARY
				1. Sika Corporation - Roofing System: This specifies the following modified bituminous roofing system.

Hybrid system (2-ply mod bit) cold applied

* + - * 1. Related Work: Include the following sections.

**[ADD or DELETE sections as required]**

Section 072200 – Roof and Deck Insulation

Section 072713 – Modified Bituminous Sheet Vapor Retarders

Section 076200 – Sheet Metal Flashing and Trim

Section 079500 – Expansion Control

* + - 1. REFERENCES
				1. Current Edition of: Identified reference requirements as put forth by the project specification.

**[ADD or DELETE as required]**

State Building Code

International Building Code (IBC)

American Society of Testing Materials (ASTM)

National Roofing Contractors Association (NRCA)

Sika Corporation Roofing Applicator Handbook

Sika Technical Bulletins

* + - 1. SUBMITTALS
				1. Literature: Copies of current relevant information pertaining to the primary components to be used in the roof system including but not limited to:

Specifications

Sika Corporation - Roofing’s Warranty

Applicator’s Warranty

Product Data Sheets

Safety Data Sheets

FM/UL listings/approvals

* + - * 1. Samples for Verification: Representative samples of primary components to be used in the roof system.
				2. Shop Drawings: Include roof plans, elevations, sections, details, and attachments to other work, including:

Base flashings and membrane terminations.

Tapered insulation, including slopes.

Roof plan showing orientation of roof deck, orientation of roofing membrane, patterns for insulation attachment, location of expansion joints, and membrane fastening spacing.

Fastening patterns for corner, perimeter, and field-of-roof locations.

* + - 1. QUALITY ASSURANCE
				1. Sika Corporation Roofing Qualifications:

Demonstrated performance history of producing modified bituminous roof membranes no less, in duration of years, than the warranty duration specified.

Manufactured by membrane supplier and not private labeled.

* + - * 1. Installer Qualifications:

A qualified firm that is authorized by Sika Corporation - Roofing to install all work pertaining to product manufacturer's roof system and that is eligible to receive manufacturer's warranty.

* + - * 1. Preinstallation Roofing Conference: Conduct conference at Project site.

**[ADD or DELETE meeting parties]** Sika Corporation – Roofing representative, Owner, Architect, Owner's Insurer, Testing and Inspecting Agency representative, Roofing Installer, Deck Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.

Review methods and procedures related to roofing installation, including manufacturer's most current requirements.

Review base flashings, special roofing details and transitions, roof drainage, roof penetrations, expansion joints, equipment curbs, and condition of other construction that affects roofing system.

Review governing regulations and requirements for insurance and certificates.

Review temporary protection requirements for roofing system during and after installation.

Deviations from the project specifications or the approved shop drawings are not permitted without prior written approval by Sika Corporation – Roofing, the owner, the owner’s representative, and the designer.

* + - * 1. Fire Design:

Shall meet the requirements of UL Class A or FM Class A at a slope of 1 in 12 according to the ASTM E108, FM4470.

* + - * 1. Wind Design:

System shall meet minimum requirements in accordance of ASCE 7 per code jurisdiction.

* + - * 1. Roof Slope:

Shall be 1/4:12 minimum for roof drainage.

* + - * 1. Impact Resistance:

Shall meet the requirements for FM-SH (Severe Hail) without a cover board and FM-VSH (Very Severe Hail) with coverboard according to the FM4470.

* + - 1. DELIVERY, HANDLING, AND STORAGE
				1. Deliver roofing materials to project site in original containers with seals unbroken and labeled with product manufacturer's name or product brand name.
				2. Comply with most current product data sheet requirements when handling, storing, protecting, or installing roofing materials. Including, but not limited to, avoiding physical damage, deterioration by sunlight, excessive moisture, or other potentially damaging conditions.
				3. Store liquid materials in their original undamaged containers in a clean, dry, protected location; away from direct sunlight; within the temperature range noted on the product data sheet.
				4. Handle and store roofing materials and equipment in a manner to avoid permanent deflection of deck.
			2. FIELD CONDITIONS
				1. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit roofing system to be installed according to manufacturer's most current requirements and warranty requirements.
				2. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required and confirmed by roofing manufacturer.
			3. WARRANTY
				1. Sika Corporation - Roofing Warranty: Sika warrants to the owner the specified warranty for the specified warranty period as long as the roofing is installed according to Sika’s Technical instructions by a Sika Authorized Roofing Applicator. The warranty must be non-prorated and must not exclude coverage due to ponding water.

(\_\_\_\_) Warranty: **[MEMBRANE or SYSTEM]**

(\_\_\_\_) Warranty Period: **[5] [10] [15] [20] [25] [30\*]** Number of years from date of substantial completion.

[\*30 year warranty period require additional enhancements, consult Sika Corporation - Roofing.]

* + - * 1. Applicator’s Warranty: Signed by installing applicator, covering the work of a System Warranty, including all components of roofing system installation such as membrane roofing, base flashing, roof insulation, fasteners, cover boards, vapor retarders, expansion joints, and walkway products, for the following warranty period:

(\_\_\_\_) Warranty Period: **[2\*] [5]** Number of years from date of substantial completion.

[\* 2 year applicator warranty periods are only allowed for 5 or 10 year system warranties.]

1. PRODUCTS
	* + 1. PERFORMANCE / DESIGN CRITERIA

ASTM D6163 - Standard Specification for Styrene Butadiene Styrene (SBS) Modified Bituminous Sheet Materials Using Glass Fiber Reinforcements

* + - 1. SIKA CORPORATION – ROOFING MATERIALS

**[CHOOSE the product/s from the following sections. For further information about individual products or with help in choosing the correct product for the specified system, please refer to the product data sheets and/or product selection guides.]**

* + - * 1. Modified Bituminous Membranes – Cap Sheet:

SikaShield® HB79 MG 4 mm: Hybrid membrane (APAO + SBS) with a granulated surface, reinforced with a dimensionally stable composite inlay of a fiberglass matt compressed between two layers of non-woven spunbond polyester fabric with a thickness of 160 mil on the overlaps. Granules loss: 0.1 gr. Meets or exceeds ASTM D6163, Type I, Grade G.

* + - * 1. Cap Sheet Exposed Face Color:

**[CHOOSE one]**

Regular White

Highly reflective, initial solar reflectance of 0.63, emittance of 0.90, and solar reflective index (SRI) of 77

Pure-Air (smog reduction), initial solar reflectance of 0.45, emittance of 0.92, and solar reflective index (SRI) of 57

* + - * 1. Modified Bituminous Membranes – Base Ply:

SikaShield® E54 PE 3 mm: SBS membrane with a smooth surface, reinforced with a non-woven spunbond polyester fabric stabilized with glass fiber and with a thickness of 118 mil (3 mm). The underside of the membrane has a burn-off film for non-woven polypropylene fabric for cold or hot application. Meets or exceeds ASTM D6163, Type I, Grade S.

SikaShield® E54 PE 2.2 mm: SBS membrane with a smooth surface, reinforced with a non-woven spunbond polyester fabric stabilized with glass fiber and with a thickness of 87 mil (2.2 mm). The underside of the membrane has a burn-off film for non-woven polypropylene fabric for cold or hot application. Meets or exceeds ASTM D6163, Type I, Grade S.

* + - * 1. Cold Applied Asphalt Adhesive:

Sika®Adhesive HF: one-part asphalt modified urethane adhesive.

* + - * 1. Roof Board or Insulation Attachment Components:

**[CHOOSE one Sarnaplate and one Sarnafastener/Fastener OR one Sarnacol/urethane based adhesive]**

Sarnafastener #12 (steel / wood decks)

Sarnafastener #14 (wood / concrete decks)

Fastener CD-10 (concrete decks)

Sarnacol AD Board Adhesive (urethane based adhesive)

Sarnacol OM Board Adhesive (urethane based adhesive)

Sarnacol OM Board Adhesive WG (urethane based adhesive)

* + - * 1. Roof Board:

**[CHOOSE one]**

DensDeck

DensDeck Prime

Securock Ultralight Glass-Mat Roof Board

Securock Ultralight Coated Glass-Mat Roof Board

DensDeck StormX Prime Roof Board

* + - * 1. Insulation:

Sarnatherm ISO (fiber reinforced felt facer)

Sarnatherm ISO CG (coated glass facer)

Sarnatherm ISO R CG (coated glass facer)

* + - * 1. Vapor Retarder: **[DELETE section if not required]**

SikaShield® VB P42 3 mm: cold or torch applied modified bituminous vapor barrier, glass fiber reinforced and with a thickness of 118 mil (3 mm)

Vapor Retarder SA 31: self-adhesive modified bituminous vapor barrier with a thickness of 31 mil (0.8 mm)

* + - * 1. Deck Primer: **[DELETE section if not required, required for all decks except steel for Vapor Retarder SA 31]**

SikaShield® Asphalt Primer

* + - * 1. Flashing Materials:

Wall/Curb Flashing:

SikaShield® HB79 MG

Expansion Joint: **[DELETE section if not required]**

Emseal RoofJoint expansion joint system

Perimeter Edge Flashing:

SikaShield® E54

Metal-Era Anchor-Tite Standard Fascia / Hickman TerminEdge EX Fascia

Metal-Era One Edge / Hickman TerminEdge EX Fascia

Metal-Era One Drip Edge / Hickman Drip Edge Fascia

Metal-Era One Skirted Drip Edge / Hickman Skirted Drip Edge Fascia

Metal-Era Perma-Tite 200 / Hickman EconoSnap / EconoCrimp

Metal-Era Perma-Tite Coping / Hickman PermaSnap Premier Coping

Metal-Era Perma-Tite Gold Coping / Hickman PermaSnap Premier Plus Coping

Misc. Flashing Accessories:

Liquid Applied Flashing: Sikalastic 641 Lo-VOC

Sika Fleece 140

Sika Reemat Premium

* + - * 1. Miscellaneous Materials:

Mastic sealant: modified bitumen

Roofing granules:

Type III hot asphalt conforming to ASTM D312

* + - * 1. Nailers and Blocking:

Wood, #2 quality or better, Wolmanized or Osmose treated for fire and rot resistance.

Plywood, minimum 1/2 inch CDX (C side out).

1. EXECUTION

**[DELETE non-required component installations from Sections 3.4 – 3.9]**

* + - 1. EXAMINATION
				1. Applicator shall verify that the work done under related sections meets the following conditions:

Roof drains and scuppers have been installed properly, or reconditioned, or replaced.

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

All surfaces are smooth and free of dirt, debris, and incompatible materials.

For concrete deck, verify that concrete substrate is dry and free of moisture. Verify that concrete curing compounds that will impair adhesion of roofing components to roof deck have been removed.

All roof surfaces shall be free of water, ice and snow.

* + - * 1. Proceed with installation only after unsatisfactory conditions have been corrected.
			1. PREPARATION
				1. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's most current requirements. Remove sharp projections.
				2. Prevent materials from entering and clogging roof drains and flashings and from spilling or migrating onto surfaces of other construction.
			2. ROOFING INSTALLATION, GENERAL
				1. Install roofing system according to product manufacturer's most current requirements including but not limited to roofing applicator handbook, product data sheets, specifications, and or relevant technical bulletins.
				2. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of each workday. Remove and discard temporary seals before beginning work on adjoining roofing.
				3. For tie-in with existing roofing, install roofing and auxiliary materials to maintain weather tightness of transitions.
			3. VAPOR RETARDER INSTALLATION
				1. Vapor-Retarder: **[CHOOSE the same product from Section 2.2, H]**
1. SikaShield® VB P42: Apply the Sika® Adhesive HF at the required consumption onto the surface. Apply the membrane onto the adhesive while still fresh. It cannot be cured. Roll the surface of the applied membrane with a roller from the center to the edge to remove any air bubbles. Seal the overlaps with hot melt or by torching/welding.
2. Vapor Retarder SA 31: Prime substrate unless is over steel. Peel back release liner and adhere to substrate, side and end lap each sheet a minimum of 3 inches and 6 inches, respectively.
	* + - 1. Completely seal vapor retarder at parapet terminations, obstructions, and penetrations to prevent air movement into roofing system.
			1. SARNATHERM INSULATION / ROOF BOARD INSTALLATION
				1. Coordinate installing roofing system components so insulation or roof boards are not exposed to precipitation or other sources of moisture.
				2. Comply with product manufacturer's most current requirements for installing insulation or roof boards.
				3. Install tapered insulation to conform to slopes indicated.
				4. Install insulation to achieve required thickness. Use at least 2 layers of insulation when the total insulation thickness exceeds 2.7 inches. Stagger joints in both directions at least 12 inches between layers.

Where installing composite and non-composite insulation in two or more layers, install non-composite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.

* + - * 1. Trim insulation where necessary at roof drains so completed surface is smooth and does not restrict flow of water.
				2. Drains shall be properly slumped to allow membrane to sit flat without stretching or wrinkling.
				3. Fill gaps exceeding 1/4 inch with insulation. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
				4. Installation Method: **[CHOOSE method/s required]**

Mechanically Fastened: Install layer/s of insulation or roof board and secure to deck using Sarnaplates and Sarnafasteners at the spacing rate according to Sika and Owner’s Representative/Designer. Fasteners shall not penetrate bottom flute on steel decks.

Urethane Adhered: Install layer/s of insulation or roof board and secure by adhering to substrate by using Sarnacol urethane board adhesive at the spacing rate and application method according to Sika and Owner’s Representative/Designer.

* + - 1. SIKA ROOFING MEMBRANE INSTALLATION
				1. The surface of the roof board shall be inspected prior to installation of the 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.
				2. Accurately align roofing and maintain uniform side and end laps of minimum dimensions required by manufacturer.
				3. Make sure seam areas are free of debris, dirt, and dust, overlap membrane sheets, and hot-air weld side and end laps of roofing and sheet flashings according to manufacturer's most current requirements to ensure a watertight seam installation.

Verify in-field weld strength of seams a minimum of twice daily, repair seam sample areas.

Test lap edges with probe to verify seam weld continuity.

If any tears or voids in lapped seams are found repair using appropriate approved technique.

* + - * 1. 2-ply System:

Proceed with the installation of the base ply followed by the cap sheet.

Apply the Sika® Adhesive HF at the required consumption onto the surface.

Apply the membrane onto the adhesive while still fresh. It cannot be cured.

Roll the surface of the applied membrane with a roller from the center to the edge to remove any air bubbles.

Seal the overlaps with hot melt or by torching/welding.

* + - 1. LIQUID APPLIED FLASHING INSTALLATION
				1. Prepare the surface to be flashed by cleaning the area to like-new condition. Steel shall be prepped to near white metal.
				2. Pre-cut vertical and horizontal liquid flashing reinforcement to fit around the penetration and onto the roof membrane surface allowing for the required overlaps.
				3. 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.
				4. 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.
				5. Thoroughly mix the resin if required and apply to the surface at the required thickness.
				6. 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.
	1. ROOFJOINT EXPANSION JOINT **[DELETE section if not required]**
1. Install RoofJoint expansion joint and accessories according to joint system manufacturer's most current requirements.

Secure roofing membrane up to expansion joint opening.

Lower RoofJoint into expansion joint gap so that it achieves a level and firm fit with the rooftop surface.

Hot-air weld lower RoofJoint flange to installed roofing membrane surface.

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.

Lap upper RoofJoint flange over termination bar and hot-air weld to roofing membrane surface.

Verify and document weld strength of seams minimum once daily via mockup vs in-field destructive testing.

Test lap edges with probe to verify seam weld continuity.

If any tears or voids in lapped seams are found repair using appropriate approved technique.

* + - 1. FIELD QUALITY CONTROL
				1. Arrange for roofing system manufacturer's technical personnel to inspect roofing installation upon completion.
				2. Repair or remove and replace components of roofing system that do not comply with specified requirements.
				3. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.
				4. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.
			2. PROTECTION
				1. Protect new roofing system from damage and wear during construction period. Inspect new roofing for damage if used during construction

END OF SECTION

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