



**EXTERIOR RESEARCH & DESIGN, LLC.**

*Certificate of Authorization #9503*

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**EVALUATION REPORT**

**Sika Sarnafil, Inc.**

100 Dan Road

Canton, MA 02021

**Evaluation Report S39430.02.12-R4**

**FL15149-R3**

**Date of Issuance: 02/06/2012**

**Revision 4 : 10/11/2017**

**SCOPE:**

This Evaluation Report is issued under **Rule 61G20-3** and the applicable rules and regulations governing the use of construction materials in the State of Florida. The documentation submitted has been reviewed by Robert Nieminen, P.E. for use of the product under the Florida Building Code. The product described herein has been evaluated for compliance with the **6<sup>th</sup> Edition (2017) Florida Building Code** sections noted herein.

**DESCRIPTION: Sika Sarnafil Waterproofing Systems**

**LABELING:** Labeling shall be in accordance with the requirements the Accredited Quality Assurance Agency noted herein.

**CONTINUED COMPLIANCE:** This Evaluation Report is valid until such time as the named product(s) changes, the referenced Quality Assurance documentation changes, or provisions of the Code that relate to the product change. Acceptance of this Evaluation Report by the named client constitutes agreement to notify Robert Nieminen, P.E. if the product changes or the referenced Quality Assurance documentation changes.

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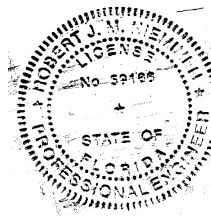
**INSPECTION:** Upon request, a copy of this entire Evaluation Report shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This Evaluation Report consists of pages 1 through 4, plus a 3-page Appendix.

**Prepared by:**

**Robert J.M. Nieminen, P.E.**

*Florida Registration No. 59166, Florida DCA ANE1983*



The facimile seal appearing was authorized by Robert Nieminen, P.E. on 10/11/2017. This does not serve as an electronically signed document. Signed, sealed hardcopies have been transmitted to the Product Approval Administrator and to the named client

**CERTIFICATION OF INDEPENDENCE:**

1. Exterior Research & Design, LLC. d/b/a Trinity|ERD does not have, nor does it intend to acquire or will it acquire, a financial interest in any company manufacturing or distributing products it evaluates.
2. Exterior Research & Design, LLC. d/b/a Trinity|ERD is not owned, operated or controlled by any company manufacturing or distributing products it evaluates.
3. Robert Nieminen, P.E. does not have nor will acquire, a financial interest in any company manufacturing or distributing products for which the evaluation reports are being issued.
4. Robert Nieminen, P.E. does not have, nor will acquire, a financial interest in any other entity involved in the approval process of the product.
5. This is a building code evaluation. Neither Trinity|ERD nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.

**ROOFING SYSTEMS EVALUATION:**

**1. SCOPE:**

**Product Category:** Roofing

**Sub-Category:** Waterproofing

**Compliance Statement:** Sika Sarnafil Waterproofing Systems, as produced by Sika Sarnafil, Inc., have demonstrated compliance with the following sections of the 6<sup>th</sup> Edition (2017) Florida Building Code through testing in accordance with the following Standards. Compliance is subject to the Installation Requirements and Limitations / Conditions of Use set forth herein.

**2. STANDARDS:**

<u>Section</u>	<u>Property</u>	<u>Standard</u>	<u>Year</u>
1504.3.1	Wind	FM 4474	2011
1507.11.2	Physical Properties	ASTM D6163	2008
1507.13.2	Physical Properties	ASTM D4434	2012

**3. REFERENCES:**

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
ACRC (TST4671)	Wind Uplift	11-031-R1	02/05/2014
ACRC (TST4671)	Wind Uplift	11-032-R1	02/05/2014
ERD (TST6049)	Physical Properties	S39440.01.12-R1	01/25/2013
ERD (TST6049)	Physical Properties	S44790.06.13-R1	06/01/2015
ERD (TST6049)	Wind Uplift	SIKA-SC11795.08.16	08/22/2016
FM (TST1867)	Wind Uplift	3001396	05/28/1999
FM (TST1867)	Wind Uplift	3014751	08/27/2003
IRT (TST5296)	Wind Uplift	99023, 99024, 99026	06/30/1999
PRI (TST5878)	Wind Uplift	SARN-065-02-01	03/31/2014
UL (QUA9625)	Quality Control	Service Confirmation	Exp. 04/17/2018

**4. PRODUCT DESCRIPTION:**

This Evaluation Report covers Sika Sarnafil Waterproofing Systems applied to Approved substrates as outlined in the Limitations / Conditions of Use herein. The following Sika Sarnafil products make up the subject systems.

<b>Use</b>	<b>Product</b>	<b>Specification</b>	<b>Description</b>
Membranes	Sarnafil G476 SA	ASTM D4434-12, Type II	A self-adhered composite sheet consisting of reinforced thermoplastic waterproofing membrane and a foam backing coated with pressure-sensitive adhesive
	Sarnafil G410 Felt	ASTM D4434-12, Type III	Fiberglass mat reinforced, single-ply roof membranes coated with a proprietary PVC compound and a felt backing
	Ply Sheet HA 87	ASTM D6163, Type I, Grade S	Fiberglass reinforced, SBS modified bitumen base ply membrane with sanded top and bottom surfaces
	Ply Sheet TA 87	ASTM D6163, Type I, Grade S	Fiberglass reinforced, SBS modified bitumen base ply membrane with sanded top surface and poly-film bottom surface
Protection / Drainage	PVC Protection Layer	N/A	Thermoplastic protection layer
	Drainage Composite 3811R	N/A	Prefabricated drainage composite layer
Insulations	Sarnatherm	ASTM C1289	Polyisocyanurate insulation
	Sarnatherm 600 XPS	ASTM C578	Extruded polystyrene
	Sarnatherm 604 RB XPS	ASTM C578	Extruded polystyrene with grooves on one side

Use	Product	Specification	Description
Adhesives	Sarnacol 2163	N/A	One-step, two-component insulation adhesive
	Sarnacol 2170	N/A	Solvent based membrane adhesive
	Sarnacol 2121	N/A	Water based bonding adhesive
Primers	Surface Conditioner WB	N/A	Water-based surface treatment prior to installation of Sarnafil G476 SA membrane
	Vapor Retarder Primer SB	N/A	Solvent based primer for use with Vapor Retarder SA 106
	Vapor Retarder Primer VC	N/A	Low VOC primer for use with Vapor Retarder SA 106

## 5. LIMITATIONS:

- 5.1 This is a building code evaluation. Neither Trinity|ERD nor Robert Nieminen, P.E. are, in any way, the Designer of Record for any project on which this Evaluation Report, or previous versions thereof, is/was used for permitting or design guidance unless retained specifically for that purpose.
- 5.2 This Evaluation Report is not for use in FBC HVHZ jurisdictions.
- 5.3 Fire classification is not part of this evaluation report. Refer to a current Roofing Materials Directory for fire ratings of this product.
- 5.4 The roof system evaluation herein pertains to above-deck roof components. Roof decks and structural members shall be in accordance with FBC requirements to the satisfaction of the Authority Having Jurisdiction. Load resistance of the roof deck shall be documented through proper codified and/or FBC Approval documentation.
- 5.5 For assemblies with all components fully bonded in place, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with FBC Chapter 16. No rational analysis is permitted for these systems
- 5.6 For bonded membrane over existing substrates in a re-roof (tear off) installation, the existing deck shall be examined for compatibility with the adhesive to be installed. If any surface conditions exist that bring system performance into question, field uplift testing in accordance with **ASTM E907**, **FM Loss Prevention Data Sheet 1-52** or **Testing Application Standard TAS 124** shall be conducted on mock-ups of the proposed new waterproofing assembly.
- 5.7 Metal edge attachment (except gutters), shall be designed and installed for wind loads in accordance with FBC Chapter 16 and tested for resistance in accordance with **ANSI/SPRI ES-1** or **Roofing Application Standard RAS 111**, except the basic wind speed shall be determined from **FBC Figure 1609.3(1), 1609.3(2) or 1609.3(3)**.
- 5.8 The Authority Having Jurisdiction may require integrity flood testing (**ASTM D5957**) or Electric Field Vector Mapping tests of all waterproofing systems prior to placement of the overburden material. Testing, if required by the Authority Having Jurisdiction, should be conducted by a qualified design professional.
- 5.9 All products in the roof assembly shall have quality assurance audit in accordance with **F.A.C. Rule 61G20-3**.
- 5.9.1 This evaluation pertains to the **Sika Sarnafil** components making up the waterproofing assembly, as outlined in Appendix 1. This evaluation does not purport to address performance or QA for non-**Sika Sarnafil** components within the assemblies, such as overburden products.

**6. INSTALLATION:**

- 6.1 **Sika Sarnafil Waterproofing Systems** shall be installed in accordance with **Sika Sarnafil** current, published installation instructions, subject to the Limitations / Conditions of Use noted herein. Flashing and detailing shall be in accordance with **Sika Sarnafil** published installation instructions using **Sika Sarnafil** specified materials to establish a watertight condition.
- 6.2 System attachment requirements for wind load resistance are set forth in Appendix 1. "MDP" = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads, and reflects the ultimate passing pressure divided by 2 (the 2 to 1 margin of safety per **FBC 1504.9** has already been applied). Refer to **FBC 1609** for determination of design wind loads.

**7. BUILDING PERMIT REQUIREMENTS:**

As required by the Building Official or Authority Having Jurisdiction in order to properly evaluate the installation of this product.

**8. MANUFACTURING PLANTS:**

Contact the named QA entity for information on plants covered under F.A.C. Rule 61G20-3 QA requirements.

**9. QUALITY ASSURANCE ENTITY:**

UL, LLC. – QUA9625; (847) 664-3623; LeAnna.Gradeck@ul.com

**- THE 3-PAGES THAT FOLLOW FORM PART OF THIS EVALUATION REPORT -**

**APPENDIX 1: ATTACHMENT REQUIREMENTS FOR WIND UPLIFT RESISTANCE**

**The following notes apply to the systems outlined herein:**

- The evaluation herein pertains to above-deck waterproofing components. Decks and structural members shall be in accordance with FBC requirements to the satisfaction of the Authority Having Jurisdiction. Load resistance of the deck shall be documented through proper codified and/or FBC Approval documentation.
- Unless otherwise noted, insulation adhesive application rates are as follows. Ribbon or bead width is at the time of application; the ribbons/beads shall expand as noted in the manufacturer’s published instructions.
  - Sarnacol 2163: Continuous 0.5-inch beads, 12-inch o.c. *Note: Millennium One Step Foamable Adhesive may be used where Sarnacol 2163 is referenced.*
  - Note: When multiple layers(s) of insulation and/or coverboard are installed in ribbon-applied adhesive, board joints shall be staggered.*
  - Note: The maximum edge distance from the adhesive ribbon to the edge of the insulation board shall be not less than one-half the specified ribbons spacing.*
- Unless otherwise noted, all insulations are flat stock or taper board of the minimum thickness noted. Tapered polyisocyanurate at the following thickness limitations may be substituted with the following Maximum Design Pressure (MDP) limitations. In no case shall these values be used to ‘increase’ the MDP listings in the tables; rather if MDP listing below meets or exceeds that listed for a particular system in the tables, then the thinner board listed below may be used as a drop-in for the equivalent thicker material listed in the table:
  - Sarnacol 2163: MDP: -157.5 psf (Min. 0.5-inch thick)
- Bonded polyisocyanurate insulation boards shall be maximum 4 x 4 ft.
- For partially bonded insulation, the maximum design pressure for the selected assembly shall meet or exceed the Zone 1 design pressure determined in accordance with FBC Chapter 16, and Zones 2 and 3 shall employ an attachment density designed by a qualified design professional to resist the elevated pressure criteria. Commonly used methods are ANSI/SPRI WD-1 and FM Loss Prevention Data Sheet 1-29.
- For assemblies with all components fully bonded in place, the maximum design pressure for the selected assembly shall meet or exceed critical design pressure determined in accordance with FBC Chapter 16, and no rational analysis is permitted.
- For existing substrates in a re-roof installation, the existing roof deck shall be examined for compatibility and bond performance with the waterproofing membrane to the satisfaction of the Authority Having Jurisdiction. The Authority Having Jurisdiction may require field uplift testing in accordance with ASTM E907, FM Loss Prevention Data Sheet 1-52 or Testing Application Standard TAS 124.
- Unless otherwise noted, membrane adhesive application rates are as follows:

Membrane	Adhesive	Method	Rate
G410 Felt	Sarnacol 2170	Wet lay (substrate)	1.0 to 1.25 gal/square
G410 Felt	Sarnacol 2170 VC	Wet lay (substrate)	Two coats with total application rate of 2.0 gal/square
G410 Felt	Sarnacol 2121	Wet lay (substrate)	2.25 gal/square with ¼-inch notched squeegee

- Vapor barrier options for use over **structural concrete deck** followed by adhesive-applied insulation carry the following Maximum Design Pressure (MDP) limitations. The MDP of the combined assembly is the lesser of the MDP listings below vs. those in **Table 1A**:

VAPOR BARRIER OPTIONS; STRUCTURAL CONCRETE DECK; FOLLOWED BY ADHESIVE-APPLIED INSULATION PER TABLE 1A:					
Option #	Primer	Vapor Barrier		Insulation Adhesive	MDP (psf)
		Type	Application		
1	ASTM D41	One to three plies ASTM D2178 ply sheet	Hot asphalt	Sarnacol 2163, 12-inch o.c.	-157.5
2	ASTM D41	Ply Sheet HA 87	Hot asphalt	Sarnacol 2163, 12-inch o.c.	-157.5
3	ASTM D41	Ply Sheet TA 87	Torch-applied	Sarnacol 2163, 12-inch o.c.	-157.5
4	Vapor Retarder Primer SB or VC	Vapor Retarder SA 106	Self-adhering	Sarnacol 2163, 12-inch o.c.	-157.5

- “MDP” = Maximum Design Pressure is the result of testing for wind load resistance based on allowable wind loads. Refer to FBC 1609 for determination of design wind loads.

**TABLE 1A: STRUCTURAL CONCRETE – NEW CONSTRUCTION OR REROOF (TEAR-OFF)  
SYSTEM TYPE A-1: BONDED INSULATION, BONDED WATERPROOFING**

NOTE: REFER TO NOTE 9 FOR VAPOR BARRIER OPTIONS

System No.	Deck (Note 1)	Base Insulation		Top Insulation		Primer	Waterproofing (Note 8)		Protection Layer		Primer	Overburden	MDP (psf)
		Type	Attach	Type	Attach		Type	Attach	Type	Attach			
C-1.	Structural Concrete	Min. 1.5-inch Sarnatherm or min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	(Optional) Min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	None	G410 Felt	Sarnacol 2121	Sarnafil PVC Protection Layer	Sarnacol 2170 at 1 gal/square.	None	Optional Drainage Composite 3811R, loose laid Min. 2-inch thick concrete topping slab	N/A
C-2.	Structural Concrete	Min. 1.5-inch Sarnatherm or min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	(Optional) Min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	Sarnacol 2170 at 1 to 1.25 gal/square and allowed to dry	G410 Felt	Sarnacol 2170	Sarnafil PVC Protection Layer	Sarnacol 2170 at 1 gal/square.	None	Optional Drainage Composite 3811R, loose laid Min. 2-inch thick concrete topping slab	N/A
C-3.	Structural Concrete	Min. 1.5-inch Sarnatherm or min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	(Optional) Min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	None	G410 Felt	Sarnacol 2121	Sarnafil PVC Protection Layer	Sarnacol 2170 at 1 gal/square.	Sarnacol 2121 at 2.25 gal/square with ¼-inch notched squeegee	Min. 12x12x1-inch exterior grade clay tiles adhered to protection course in ½-inch thick bed of exterior grade thin set mortar	-232.5
C-4.	Structural Concrete	Min. 1.5-inch Sarnatherm or min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	(Optional) Min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	Sarnacol 2170 at 1 to 1.25 gal/square and allowed to dry	G410 Felt	Sarnacol 2170	Sarnafil PVC Protection Layer	Sarnacol 2170 at 1 gal/square.	Sarnacol 2121 at 2.25 gal/square with ¼-inch notched squeegee	Min. 12x12x1-inch exterior grade clay tiles adhered to protection course in ½-inch thick bed of exterior grade thin set mortar	-232.5
C-5.	Structural Concrete	Min. 1.5-inch Sarnatherm or min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	(Optional) Min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	None	G410 Felt	Sarnacol 2121	Sarnafil PVC Protection Layer	Sarnacol 2170 at 1 gal/square.	None	Min. 12x12x2-inch concrete pavers adhered to protection course in Sarnacol 2121 at 2.25 gal/square using ¼-inch notched squeegee	-232.5
C-6.	Structural Concrete	Min. 1.5-inch Sarnatherm or min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	(Optional) Min. 0.25-inch Dens Deck Prime	Sarnacol 2163, 12-inch o.c.	Sarnacol 2170 at 1 to 1.25 gal/square and allowed to dry	G410 Felt	Sarnacol 2170	Sarnafil PVC Protection Layer	Sarnacol 2170 at 1 gal/square.	None	Min. 12x12x2-inch concrete pavers adhered to protection course in Sarnacol 2121 at 2.25 gal/square using ¼-inch notched squeegee	-232.5

**TABLE 1B: STRUCTURAL CONCRETE – NEW CONSTRUCTION OR REROOF (TEAR-OFF)  
SYSTEM TYPE A-2: BONDED WATERPROOFING, BONDED INSULATION**

System No.	Deck (Note 1)	Primer	Waterproofing	Protection Layer		Primer	Insulation			Overburden	MDP (psf)
				Type	Apply		Base Layer	Top Layer	Attach		
C-7.	Structural Concrete	Surface Conditioner WB at 800 - 1000 ft <sup>2</sup> /gal.	Sarnafil G476 SA, self-adhered	Sarnafil PVC Protection Layer and/or Drainage Composite 3811R	Loose-laid	None	(Optional) Sarnatherm 600 XPS	Sarnatherm 600XPS or 604 RB XPS	Loose-laid	Min. 2-inch thick concrete topping slab	N/A
C-8.	Structural Concrete	Surface Conditioner WB at 800 - 1000 ft <sup>2</sup> /gal.	Sarnafil G476 SA, self-adhered	Sarnafil PVC Protection Layer	Sarnacol 2170, contact application, 0.75 gal/sq. to substrate and 0.5 gal/sq. to back of PVC Protection Layer	Sarnacol 2170 at 0.5 gal/sq.	(Optional) Sarnatherm 600 XPS	Sarnatherm 604 RB XPS (grooved side up)	Sarnacol 2163, 6-inch o.c.	Min. 12x12x2-inch concrete pavers adhered insulation in Sarnacol 2163, 6-inch o.c.	-287.5
C-9.	Structural Concrete	Surface Conditioner WB at 800 - 1000 ft <sup>2</sup> /gal.	Sarnafil G476 SA, self-adhered	Sarnafil PVC Protection Layer	Sarnacol 2170, contact application, 0.75 gal/sq. to substrate and 0.5 gal/sq. to back of PVC Protection Layer	Sarnacol 2170 at 0.5 gal/sq.	(Optional) Sarnatherm 600 XPS	Sarnatherm 600XPS or 604 RB XPS (grooved side up)	Sarnacol 2163, 6-inch o.c.	As specified by the Designer of Record and acceptable to the AHJ	-287.5

**TABLE 1B: STRUCTURAL CONCRETE DECKS – NEW CONSTRUCTION OR REROOF (TEAR-OFF)  
SYSTEM TYPE F: NON-INSULATED, BONDED WATERPROOFING**

System No.	Deck (Note 1)	Primer	Waterproofing (Note 8)		Primer	Protection Layer		Primer	Overburden	MDP (psf)
			Membrane	Apply		Type	Apply			
C-10.	Structural Concrete	Surface Conditioner WB at 800 - 1000 ft <sup>2</sup> /gal.	G476 SA	Self-adhering	None	(Optional) Sarnafil PVC Protection Layer	Sarnacol 2170, contact application, 0.75 gal/sq. to substrate and 0.5 gal/sq. to back of PVC Protection Layer	None	As specified by the Designer of Record and acceptable to the AHJ	-287.5
C-11.	Structural concrete	None	G410 Felt	Sarnacol 2121	Sarnacol 2170 at 1 to 1.25 gal/square and allowed to dry.	Sarnafil PVC Protection Layer	Sarnacol 2170 at 1 gal/square.	Sarnacol 2121 at 2.25 gal/square with ¼-inch notched squeegee	Min. 12x12x1-inch exterior grade clay tiles adhered to protection course in ½-inch thick bed of exterior grade thin set mortar	-410.0
C-12.	Structural concrete	Sarnacol 2170 at 1 to 1.25 gal/square and allowed to dry.	G410 Felt	Sarnacol 2170	None	Sarnafil PVC Protection Layer	Sarnacol 2170 at 1 gal/square.	Sarnacol 2121 at 2.25 gal/square with ¼-inch notched squeegee	Min. 2-inch thick concrete topping slab	-427.5
C-13.	Structural concrete	Sarnacol 2170 at 1 to 1.25 gal/square and allowed to dry.	G410 Felt	Sarnacol 2170	Sarnacol 2170 at 1 to 1.25 gal/square and allowed to dry.	Sarnafil PVC Protection Layer	Sarnacol 2170 at 1 gal/square.	None	Min. 12x12x2-inch concrete pavers adhered to protection course in Sarnacol 2121 at 2.25 gal/square using ¼-inch notched squeegee	-430.0