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EVALUATION REPORT

Soprema, Inc.
310 Quadral Drive
Wadsworth, OH 44281

Evaluation Report 2759.06.10
FL13806
Date of Issuance: 06/16/2010

SCOPE:
This Evaluation Report is issued under Rule 9B-72 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 designed to comply with the 2007 Florida Building Code.

DESCRIPTION: Alsan RS Liquid Applied Roof Systems

LABELING: Each unit shall bear labeling in accordance with the requirements the Accredited Quality Assurance Agency noted herein.

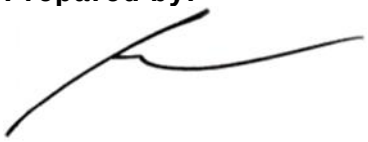
CONTINUED COMPLIANCE: This Evaluation Report is valid until such time as the named product(s) changes, the referenced Quality Assurance documentation changes, or provisions of the Code that relate to the product change. Acceptance of this Evaluation Report by the named client constitutes agreement to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

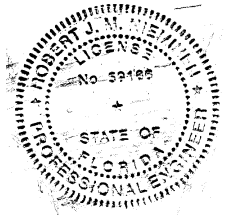
ADVERTISEMENT: The Evaluation Report number preceded by the words "Trinity|ERD Evaluated" may be displayed in advertising literature. If any portion of the Evaluation Report is displayed, then it shall be done in its entirety.

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 3, plus a 5-page Appendix.

Prepared by:





The facimilie seal appearing was authorized by Robert Nieminen, P.E. on 06/16/2010
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

Robert J.M. Nieminen, P.E.
Florida Registration No. 59166, Florida DCA ANE1983

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.

ROOFING SYSTEMS EVALUATION:

1. SCOPE:

Product Category: Roofing
Sub-Category: Liquid Applied Roof Systems
Compliance Statement: Alsan RS Liquid Applied Roof Systems, as produced by Soprema, Inc., have demonstrated compliance with the following sections of the 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:

Section	Property	Standard	Year
1504.3.1	Wind	FM 4470	1992
1504.7	Impact	FM 4470	1992
1504.6	Physical Properties	ASTM G155	2004
1507.15.2	Physical Properties	ASTM C836	2003
1507.15.2	Physical Properties	ASTM C957	2004

3. REFERENCES:

Entity	Examination	Reference	Date
ERD (TST6049)	Physical Properties	S10950.04.10	04/06/2010
FM (TST 1867)	FM 4470	3009610	10/22/2001
FM (TST 1867)	FM 4470	3012321	07/29/2002
FM (TST 1867)	FM 4470	3014751	08/27/2003
FM (TST 1867)	FM 4470	3018579	10/09/2003
FM (TST 1867)	FM 4470	3019317	06/30/2004
FM (TST 1867)	FM 4470	3024311	11/01/2006
FM (TST 1867)	FM 4470	3036182	07/31/2009
FM (TST 1867)	FM 4470	3031818	02/20/2009
FM (TST 1867)	FM 4470	3032172	06/12/2009
FM (TST 1867)	FM 4470	3035625	10/29/2009
UL (QUA1743)	Quality Control	R11436	Current

4. PRODUCT DESCRIPTION:

This Evaluation Report covers Alsan RS Liquid Applied Roof Systems applied to Approved substrates as outlined in the Limitations / Conditions of Use herein. The following products make up the subject systems.

4.1 Alsan RS 276 Primer: Two-component, rapid curing PMMA acrylic primer.

4.2 Alsan RS 222 Primer: Two-component, rapid curing PMMA acrylic primer.

4.3 Alsan RS 230 Field or Flash: Two-component, rapid curing PMMA acrylic resin.

4.4 Alsan RS Catalyst Powder: Reactive agent used to introduce curing to all Alsan RS resin products during membrane application.

4.5 Alsan RS 260 LO Field or Flash: Two-component, rapid curing, low-odor PMMA acrylic resin

4.6 Alsan RS LO Catalyst Powder: Reactive agent used to introduce curing to all Alsan RS LO (low odor) resin products during membrane application

4.7 Alsan RS Fleece: Non-woven, needle-punched polyester fabric reinforcement used as fabric reinforcement in Alsan RS systems.

5. LIMITATIONS:

5.1 This Evaluation Report is not for use in HVHZ jurisdictions.

5.2 Refer to a current Roofing Materials Directory for fire ratings of this product.

5.3 For steel deck installations, foam plastic insulation shall be separated from the building interior in accordance with FBC 2603.4 unless the exceptions stated in FBC 2603.4.1 and 2603.8 apply.

5.4 Unless otherwise noted in Appendix 1, roof decking and its attachment shall be specified and installed to meet project design criteria to the satisfaction of the AHJ.

5.5 For recover installations, the existing roof shall be examined in accordance with FBC 1510.

5.6 For mechanically attached insulation or membrane or strip-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. 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 RAS 117 and FM LPDS 1-29. Assemblies marked with an asterisk* carry the limitations set forth in Section 2.2.1.5.1(a) of FM LPDS 1-29 for Zone 2/3 enhancements.

5.7 For fully-adhered insulation, 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

5.8 For mechanically attached insulation or membrane over existing roof decks, fasteners shall be tested in the existing deck for withdrawal resistance. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Testing and analysis shall be in accordance with TAS 105 or ANSI/SPRI FX-1.

5.9 For bonded insulation or membrane over existing substrates in a re-roof (tear off) or recover installation, the existing deck or existing roof surface 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 or FM LPDS 1-52 shall be conducted on mock-ups of the proposed new roof assembly.

5.10 For bonded insulation or membrane over existing substrates in a recover installation, the existing roof system shall be capable of resisting project design pressures on its own merit to the satisfaction of the AHJ, as documented through field uplift testing in accordance with ASTM E907 or FM LPDS 1-52.

5.11 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 RAS 111, except the basic wind speed shall be determined from FBC Figure 1609.

5.12 All products in the roof assembly shall have quality assurance audit in accordance with the FBC and F.A.C. Rule 9B-72.

6. INSTALLATION:

6.1 Alsan RS Liquid Applied Roof Systems shall be installed in accordance with Soprema current, published installation instructions, subject to the Limitations / Conditions of Use noted herein.

6.2 System attachment requirements for wind load resistance are set forth in Appendix 1.

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 9B-72 QA requirements.

9. QUALITY ASSURANCE ENTITY:

Underwriters Laboratories – QUA1743
(847) 664-3281

- THE FIVE (5) PAGES THAT FOLLOW FORM PART OF THIS EVALUATION REPORT -

APPENDIX 1: ATTACHMENT REQUIREMENTS FOR WIND UPLIFT RESISTANCE

WIND UPLIFT PERFORMANCE TABLES: The following notes apply to the systems outlined herein:

1. Roof decks shall be in accordance with FBC requirements to the satisfaction of the AHJ. Wind load resistance of the roof deck shall be documented through proper codified and/or FBC Approval documentation.
2. Unless otherwise noted, insulation / base sheet fasteners shall be the following with the noted minimum fastener engagement for each deck type. For deck-types not listed, refer to the specific system listings herein:
   - Steel: Soprema 3 in. Insulation Plates with Soprema #12 or #14 Fasteners. Minimum ¾-inch steel penetration and engage the top flute of the steel deck.
   - Concrete: Soprema 3 in. Insulation Plates with Soprema #14 Fasteners. Minimum 1-inch embedment into pilot hole in accordance with published installation instructions.
3. Unless otherwise noted, the insulation may be any polyisocyanurate, polystyrene, fiberboard, perlite and/or gypsum-based insulation board that meets the QA requirements of F.A.C. Rule 9B-72 and is documented as meeting FBC 1505.1 and, for foam plastic, FBC 2603.4.1 or 2603.8, when installed with the roof cover.
4. Minimum 200 psi, minimum 2-inch thick lightweight insulating concrete may be substituted for rigid insulation board for System Type D (mechanically attached base sheet, bonded roof cover), whereby the base sheet fasteners are installed through the LWIC to engage the structural steel or concrete deck. The structural deck shall be of equal or greater configuration to the steel and concrete deck listings.
5. 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:
   - High Velocity Insulation Adhesive II (HVIA II): Continuous ½ to ¾-inch beads, 12-inch o.c.
   - High Velocity Insulation Adhesive III (HVIA III): Continuous ¼ to ½-inch beads, 12-inch o.c.
   - High Velocity Insulation Adhesive III Green (HVIA IIIG): Continuous ¼ to ½-inch beads, 12-inch o.c.
   - High Velocity Insulation Adhesive PG (HVIA PG): Continuous ½ to ¾-inch beads, 12-inch o.c.
   - Polyfoam TITESET Insulation Adhesive: Continuous 2½-3½-inch wide ribbons, 12-inch o.c.
6. Unless otherwise noted, all insulation references are flat stock. Min. 1-inch thick tapered polyisocyanurate may be substituted for flat stock board with the following Maximum Design Pressure (MDP) limitations:
   - HVIA III or HVIA IIIG: MDP -157.5 psf
   - HVIA PG: MDP -157.5 psf
   - Polyfoam TITESET Insulation Adhesive: MDP -117.5 psf
7. Bonded polyisocyanurate insulation boards shall be maximum 4 x 4 ft.

8. For mechanically attached components or 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 RAS 117 and FM LPDS 1-29. Assemblies marked with an asterisk* carry the limitations set forth in Section 2.2.1.5.1(a) of FM LPDS 1-29 for Zone 2/3 enhancements.
9. For fully bonded assemblies, 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.
10. For mechanically attached components over existing decks, fasteners shall be tested in the existing deck for withdrawal resistance. A qualified design professional shall review the data for comparison to the minimum requirements for the system. Testing and analysis shall be in accordance with TAS 105 or ANSI/SPRI FX-1.
11. For existing substrates in a bonded recover installation, the existing roof system shall be capable of resisting project design pressures on its own merit to the satisfaction of the AHJ, as documented through field uplift testing in accordance with ASTM E907, FM LPDS 1-52 or ANSI/SPRI IA-1. For existing roof decks in a bonded re-roof (tear-off) installation, the existing roof deck shall be suitable to receive the proposed new roof system to the satisfaction of the AHJ, as documented through field uplift testing in accordance with ASTM E907, FM LPDS 1-52 or ANSI/SPRI IA-1
12. For Recover Applications using System Type D, the insulation is optional; however, the existing roof system shall be suitable for a recover application.

TABLE 1A: STEEL OR CONCRETE DECKS – NEW CONSTRUCTION, REROOF (Tear-Off) or RECOVER
SYSTEM TYPE C: MECHANICALLY ATTACHED INSULATION, BONDED ROOF COVER

System No.	Deck (See Note 1)	Base Insulation Layer	Top Insulation Layer			Roof Cover				MDP (psf)
			Type	Fasteners	Attach	Primer	Base Coat	Reinforce	Top Coat	
S-1	Min. 22 ga., type B, Grade 33 steel or min. 2,500 psi structrual concrete	One or more layers, any combination, loose laid, min. 1.5-inch thick	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	See Note 2	1 per 2 ft^2	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-45.0*

TABLE 2A: CONCRETE DECKS – NEW CONSTRUCTION or REROOF (Tear-Off) SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER											
System No.	Deck (See Note 1)	Primer	Base Insulation Layer		Top Insulation Layer		Roof Cover				MDP (psf)
			Type	Attach	Type	Attach	Primer	Base Coat	Reinforce	Top Coat	
C-1	Concrete	None	Min. 1.5-inch ACFoam II, H-Shield or Multi-Max FA3	HVIA II	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	HVIA II	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-135.0
C-2	Concrete	None	Min. 1.5-inch ISO 95+ GL or ENRGY 3	HVIA II	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	HVIA II	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-217.5
C-3	Concrete	None	Min. 1.5-inch ISO 95+ GL	HVIA III, HVIA IIIG or HVIA PG	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	HVIA III, HVIA IIIG or HVIA PG	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-127.5
C-4	Concrete	None	(Optional) Min. 1.5-inch ACFoam II, H-Shield, ENRGY-3 or Multi-Max FA3	HVIA III, HVIA IIIG or HVIA PG	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	HVIA III, HVIA IIIG or HVIA PG	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-217.5
C-5	Concrete	None	(Optional) Min. 1.0-inch ACFoam II, ISO 95+ GL, H-Shield or ENRGY 3 or min. 1.3-inch ACFoam III or min. 1.5-inch UltraMax, Multi-Max FA3 or H-Shield CG or min. 2.0-inch ACFoam IV	TITESET	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	TITESET	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-217.5

TABLE 2B-1: CONCRETE DECKS – NEW CONSTRUCTION or REROOF (Tear-Off) SYSTEM TYPE F-1: NON-INSULATED, BONDED ROOF COVER						
System No.	Deck (See Note 1)	Primer	Roof Cover			MDP (psf)
			Base Coat	Reinforcement	Top Coat	
C-6	Concrete	Alsan RS 276 or RS 222 Primer at 1 gal/square	Alsan RS 230 Field or RS 260 LO Field at 3.9 gal/sq.	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq.	-495.0

TABLE 2B-2: CONCRETE DECKS – NEW CONSTRUCTION or REROOF (Tear-Off) SYSTEM TYPE F-2: NON-INSULATED, BONDED TEMPORARY ROOF, BONDED ROOF COVER						
System No.	Deck (See Note 1)	Temp Roof	Roof Cover			MDP (psf)
			Base Coat	Reinforcement	Top Coat	
C-7	Concrete primed with ASTM D41 primer	FM Approved granule-surfaced or sand-surfaced Soprema SBS modified bitumen roof membrane torch-applied to the primed concrete deck	Alsan RS 230 Field or RS 260 LO Field at 3.9 gal/sq.	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq.	-217.5

TABLE 3A: GYPSUM DECKS – REROOF (Tear-Off) SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER										
System No.	Deck (See Notes 1 & 11)	Base Insulation Layer		Top Insulation Layer		Roof Cover				MDP (psf)
		Type	Attach	Type	Attach	Primer	Base Coat	Reinforce	Top Coat	
G-1	Existing poured gypsum or gypsum plank	Min. 1.5-inch ISO 95+ GL	HVIA III, HVIA IIIG or HVIA PG	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	HVIA III, HVIA IIIG or HVIA PG	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-127.5
G-2	Existing poured gypsum or gypsum plank	(Optional) Min. 1.5-inch ACFoam II, H-Shield, ENRGY-3 or Multi-Max FA3	HVIA III, HVIA IIIG or HVIA PG	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	HVIA III, HVIA IIIG or HVIA PG	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-202.5
G-3	Existing poured gypsum or gypsum plank	(Optional) Min. 1.0-inch ACFoam II, ISO 95+ GL, H-Shield or ENRGY 3 or min. 1.3-inch ACFoam III or min. 1.5-inch UltraMax, Multi-Max FA3 or H-Shield CG or min. 2.0-inch ACFoam IV	TITESET	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	TITESET	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-217.5

TABLE 4A: RECOVER APPLICATIONS

SYSTEM TYPE A-1: BONDED INSULATION, BONDED ROOF COVER

System No.	Substrate (See Notes 1 & 11)	Base Insulation Layer		Top Insulation Layer		Roof Cover				MDP (psf)
		Type	Attach	Type	Attach	Primer	Base Coat	Reinforce	Top Coat	
R-1	Existing asphalt BUR or granule-surfaced modified bitumen roof cover	Min. 1.5-inch ACFoam II, ISO 95+ GL, H-Shield, ENRGY 3 or Multi-Max FA3	HVIA II	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	HVIA II	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-135.0
R-2	Existing asphalt BUR or granule-surfaced modified bitumen roof cover	Min. 1.5-inch ISO 95+ GL	HVIA III, HVIA IIIG or HVIA PG	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	HVIA III, HVIA IIIG or HVIA PG	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-127.5
R-3	Existing asphalt BUR or granule-surfaced modified bitumen roof cover	(Optional) Min. 1.5-inch ACFoam II, H-Shield, ENRGY-3 or Multi-Max FA3	HVIA III, HVIA IIIG or HVIA PG	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	HVIA III, HVIA IIIG or HVIA PG	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-157.5
R-4	Existing asphalt BUR or granule-surfaced modified bitumen roof cover	(Optional) Min. 1.0-inch ACFoam II, ISO 95+ GL, H-Shield or ENRGY 3 or min. 1.3-inch ACFoam III or min. 1.5-inch UltraMax, Multi-Max FA3 or H-Shield CG or min. 2.0-inch ACFoam IV	TITESET	Min. 0.25-inch DensDeck, DensDeck Prime or DensDeck DuraGuard	TITESET	Alsan RS 276 Primer at 1 gal/sq	Alsan RS 230 Field or RS 260 LO Field at 3.91 gal/sq	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq	-217.5

TABLE 4B: RECOVER APPLICATIONS

SYSTEM TYPE F: NON-INSULATED, BONDED ROOF COVER

System No.	Substrate (See Notes 1 & 11)	Treatment	Roof Cover			MDP (psf) (See Note 11)
			Base Coat	Reinforcement	Top Coat	
R-5	Existing granule surfaced SBS modified bitumen roof cover	Remove loose granules	Alsan RS 230 Field or RS 260 LO Field at 3.9 gal/sq.	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq.	-217.5
R-6	Existing fully-adhered, PVC single ply roof cover	Clean with Alsan RS Cleaner	Alsan RS 230 Field or RS 260 LO Field at 3.9 gal/sq.	Alsan RS Fleece	Alsan RS 230 Field or RS 260 LO Field at 1.95 gal/sq.	-217.5