



EXTERIOR RESEARCH & DESIGN, LLC.

Certificate of Authorization #9503

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EVALUATION REPORT

Johns Manville Corporation

P.O. Box 5108

Denver, CO 80217

(303) 978-4879

Evaluation Report J8230.03.08-R11

FL2948-R12

Date of Issuance: 03/28/2008

Revision 11: 10/14/2017

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 **6th Edition (2017) Florida Building Code** sections noted herein.

DESCRIPTION: Johns Manville SBS Modified Bitumen Roof 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. Trinity|ERD requires a complete review of this Evaluation Report relative to updated Code requirements with each Code Cycle.

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.

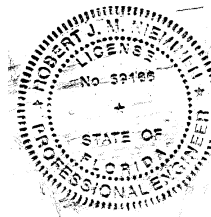
INSPECTION: Upon request, a copy of this entire Evaluation Report shall be provided to the user by the manufacturer or its distributors and shall be available for inspection at the job site at the request of the Building Official.

This Evaluation Report consists of pages 1 through 6, plus a 50-page Appendix.

Prepared by:

Robert J.M. Nieminen, P.E.

Florida Registration No. 59166, Florida DCA ANE1983



The facsimile seal appearing was authorized by Robert Nieminen, P.E. on 10/14/2017. This does not serve as an electronically signed document.

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: Modified Bitumen Roof Systems

Compliance Statement: Johns Manville SBS Modified Bitumen Roof Systems, as produced by Johns Manville Corporation, have demonstrated compliance with the following sections of the 6th 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
1504.3.1	Wind	UL 1897	2012
1504.7	Impact	FM 4470	2012
1507.11.2	Physical Properties	ASTM D6162	2008
1507.11.2	Physical Properties	ASTM D6163	2008
1507.11.2	Physical Properties	ASTM D6164	2011
1507.11.2	Physical Properties	ASTM D6298	2005
1515.1.1	Wind	TAS 114	2011

3. REFERENCES:

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
ACRC (TST4671)	TAS 114	03-017	09/30/2003
ACRC (TST4671)	TAS 114	03-015	09/30/2003
ACRC (TST4671)	TAS 114	03-012	12/04/2003
ACRC (TST4671)	TAS 114	06-003	03/27/2006
ACRC (TST4671)	TAS 114	06-005	03/27/2006
ACRC (TST4671)	TAS 114	06-009	06/28/2006
ACRC (TST4671)	TAS 114	07-014	04/18/2007
ERD (TST6049)	Physical Properties	00257.03.05-1	03/17/2005
ERD (TST6049)	TAS 114	02843.02.07	02/07/2007
ERD (TST6049)	Physical Properties	J6990.12.07	12/03/2007
ERD (TST6049)	Physical Properties	J17040.11.09	11/16/2009
ERD (TST6049)	Physical Properties	J13700.05.10-1	05/11/2010
ERD (TST6049)	Physical Properties	J13700.05.10-2	05/11/2010
ERD (TST6049)	FM 4470/4474	J30820.09.10-1	09/16/2010
ERD (TST6049)	FM 4470/4474	J30820.09.10-1	04/04/2011
ERD (TST6049)	FM 4470/4474	JM-SC7565.10.14-1	10/13/2014
ERD (TST6049)	FM 4470/4474	RAS-SC8750.05.15	05/27/2015
ERD (TST6049)	FM 4470/4474	JM-SC7565.08.15-1	08/03/2015
ERD (TST6049)	FM 4470/4474	JM-SC11320.03.16	03/10/2016
ERD (TST6049)	FM 4470/4474	JM-11190.03.16	03/11/2016
FM Approvals (TST1867)	FM 4470	1Q6A4.AM	12/11/1990
FM Approvals (TST1867)	FM 4470	3001002	05/11/1998
FM Approvals (TST1867)	FM 4470	3001482	08/11/1998
FM Approvals (TST1867)	FM 4470	3001623	09/10/1998
FM Approvals (TST1867)	FM 4470	3002823	04/01/1999
FM Approvals (TST1867)	FM 4470	3003468	02/02/2000
FM Approvals (TST1867)	FM 4470	3007148	04/19/2000
FM Approvals (TST1867)	FM 4470	3005753	09/13/2000
FM Approvals (TST1867)	FM 4470	3006346	09/15/2000
FM Approvals (TST1867)	FM 4470	3009499	04/04/2001
FM Approvals (TST1867)	FM 4470	3011057	08/10/2001
FM Approvals (TST1867)	FM 4470	3001457	03/04/2002

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
FM Approvals (TST1867)	FM 4470	3001457	04/04/2002
FM Approvals (TST1867)	FM 4470	3012974	06/03/2002
FM Approvals (TST1867)	FM 4470	3012064	06/25/2002
FM Approvals (TST1867)	FM 4470	3014090	09/05/2002
FM Approvals (TST1867)	FM 4470	3011248	11/02/2002
FM Approvals (TST1867)	FM 4470	3015224	02/21/2003
FM Approvals (TST1867)	FM 4470	3017543	03/05/2004
FM Approvals (TST1867)	FM 4470	3020586	06/09/2004
FM Approvals (TST1867)	FM 4470	3020703	07/30/2004
FM Approvals (TST1867)	FM 4470/4474	3020586	11/29/2004
FM Approvals (TST1867)	FM 4470/4474	3020600	01/21/2005
FM Approvals (TST1867)	FM 4470/4474	3026130	04/26/2006
FM Approvals (TST1867)	FM 4470/4474	3023458	07/18/2006
FM Approvals (TST1867)	FM 4470/4474	3026128	08/04/2006
FM Approvals (TST1867)	FM 4470/4474	3026151	08/15/2006
FM Approvals (TST1867)	FM 4470/4474	3024311	11/01/2006
FM Approvals (TST1867)	FM 4470/4474	3026728	11/22/2006
FM Approvals (TST1867)	FM 4470/4474	163479-48573-0	01/09/2007
FM Approvals (TST1867)	FM 4470/4474	3029993	09/21/2007
FM Approvals (TST1867)	FM 4470/4474	3035191	05/20/2009
FM Approvals (TST1867)	FM 4470/4474	3034810	09/10/2009
FM Approvals (TST1867)	FM 4470/4474	3036559	10/02/2009
FM Approvals (TST1867)	FM 4470/4474	3037222	10/02/2009
FM Approvals (TST1867)	FM 4470/4474	3037929	07/18/2011
FM Approvals (TST1867)	FM 4470/4474	3040986	09/23/2011
FM Approvals (TST1867)	FM 4470/4474	3043824	04/06/2012
FM Approvals (TST1867)	FM 4470/4474	797-07736-267	10/04/2012
FM Approvals (TST1867)	FM 4470/4474	3044716	10/19/2012
FM Approvals (TST1867)	FM 4470/4474	3046174	04/03/2013
FM Approvals (TST1867)	FM 4470	3053754	03/04/2015
FM Approvals (TST1867)	FM 4470/4474	3060143	01/05/2017
Madinah C&TC (TST9199)	TAS 114	MCTC 10-003	07/02/2010
Madinah C&TC (TST9199)	TAS 114	MCTC 10-006	08/12/2010
PRI (TST5878)	Physical Properties	JMC-106-02-01	04/15/2013
PRI (TST5878)	FM 4470/4474	JMC-108-02-01	04/16/2013
PRI (TST5878)	FM 4470/4474	JMC-109-02-01	04/16/2013
PRI (TST5878)	FM 4470/4474	JMC-114-02-01	04/16/2013
PRI (TST5878)	FM 4470/4474	JMC-118-02-01	04/16/2013
PRI (TST5878)	Physical Properties	JMC-107-02-01	04/17/2013
PRI (TST5878)	FM 4470/4474	JMC-126-02-01	04/17/2013
PRI (TST5878)	FM 4470/4474	JMC-131-02-01	04/17/2013
PRI (TST5878)	FM 4470/4474	JMC-132-02-01	04/17/2013
PRI (TST5878)	FM 4470/4474	JMC-113-02-01	04/19/2013
PRI (TST5878)	FM 4470/4474	JMC-118-02-02	04/19/2013
PRI (TST5878)	FM 4470/4474	JMC-141-02-01	05/13/2013
PRI (TST5878)	FM 4470/4474	JMC-222-02-01	02/26/2015
PRI (TST5878)	FM 4470/4474	JMC-222-02-02	04/22/2015
PRI (TST5878)	UL 1897	JMC-222-02-02(A)	04/22/2015
PRI (TST5878)	FM 4470/4474	JMC-222-02-04	08/14/2015
PRI (TST5878)	FM 4470/4474	JMC-242-02-01	11/18/2015
PRI (TST5878)	FM 4470/4474	JMC-242-02-02	11/18/2015
PRI (TST5878)	FM 4470/4474	JMC-242-02-03	11/18/2015
PRI (TST5878)	FM 4470/4474	JMC-245-02-01	03/29/2016
PRI (TST5878)	FM 4470/4474	JMC-245-02-02	03/29/2016
PRI (TST5878)	FM 4470/4474	JMC-268-02-01	03/30/2016

<u>Entity</u>	<u>Examination</u>	<u>Reference</u>	<u>Date</u>
PRI (TST5878)	FM 4470/4474	JMC-267-02-01	03/31/2016
PRI (TST5878)	FM 4470/4474	JMC-267-02-02	04/05/2016
PRI (TST5878)	FM 4470/4474	JMC-272-02-01	04/07/2016
Miami-Dade (CER1592)	TAS 114	Various NOAs	Current
UL, LLC (QUA9625)	Quality Assurance	Service Confirmation, R10167	Exp. 06/23/2019

4. PRODUCT DESCRIPTION:

This Evaluation Report covers Johns Manville Modified Bitumen Roof Systems installed in accordance with Johns Manville published installation instructions and the Limitations / Conditions of Use herein. The following Johns Manville products make up the subject systems.

TABLE 1: ROLL-GOODS FOR JOHNS MANVILLE MODIFIED BITUMEN ROOF SYSTEMS				
Type	Product	Specification		
		Reference	Grade	Type
Base / Ply Sheets	GlasPly IV	ASTM D2178	N/A	IV
	GlasPly Premier	ASTM D2178	N/A	VI
	GlasBase Plus	ASTM D4601	N/A	II
	PermaPly 28	ASTM D4601	N/A	II
	JMCleanBond SBS Base	ASTM D4601	N/A	II
	JM BaseGrip SD/SA	ASTM D4601	N/A	II
	Ventsulation Felt	ASTM D4897	N/A	II
DeckPro	Proprietary	N/A	N/A	
Smooth-Surfaced SBS	DynaPly T1	ASTM D6162	S	I
	DynaBase	ASTM D6163	S	I
	DynaBase HW	ASTM D6163	S	I
	DynaWeld Base	ASTM D6163	S	I
	DynaBase XT	ASTM D6163	S	I
	DynaBase PR	ASTM D6164	S	I
	DynaFast 180 HW	ASTM D6164	S	I
	DynaFast 180 S	ASTM D6164	S	I
	DynaLastic 180 S	ASTM D6164	S	I
	DynaWeld 180 S	ASTM D6164	S	I
	DynaFast 250 HW	ASTM D6164	S	II
	DynaLastic 250 S	ASTM D6164	S	II
	DynaLastic 250 FR S	ASTM D6164	S	II
	DynaGrip Base SA/SD	Proprietary	N/A	N/A
	DynaGrip Base SD/SA	Proprietary	N/A	N/A
DynaGrip Base SA/SA	Proprietary	N/A	N/A	
Granule-Surfaced SBS	DynaKap T1	ASTM D6162	G	I
	DynaKap FR T1	ASTM D6162	G	I
	DynaKap FR T1 CR	ASTM D6162	G	I
	DynaKap FR T1 CR G	ASTM D6162	G	I
	DynaMax FR	ASTM D6162	G	III
	DynaMax FR CR	ASTM D6162	G	III
	DynaMax FR CR G	ASTM D6162	G	III
	DynaGlas	ASTM D6163	G	I
	DynaGlas 30 FR	ASTM D6163	G	I
	DynaGlas 30 FR CR	ASTM D6163	G	I
	DynaGlas FR	ASTM D6163	G	I
	DynaGlas FR CR	ASTM D6163	G	I
	DynaGlas FR CR G	ASTM D6163	G	I
	DynaWeld Cap FR	ASTM D6163	G	I

TABLE 1 (CONTINUED): ROLL-GOODS FOR JOHNS MANVILLE MODIFIED BITUMEN ROOF SYSTEMS

Type	Product	Specification		
		Reference	Grade	Type
Granule-Surfaced SBS (continued)	DynaWeld Cap FR CR	ASTM D6163	G	I
	DynaWeld Cap FR CR G	ASTM D6163	G	I
	DynaGlas 30 FR XT	ASTM D6163	G	I
	DynaGlas FR XT	ASTM D6163	G	I
	DynaGlas FR XT CR	ASTM D6163	G	I
	DynaGlas FR XT CR G	ASTM D6163	G	I
	JMCleanBond SBS Cap	ASTM D6163	G	I
	DynaLastic 180	ASTM D6164	G	I
	DynaLastic 180 FR	ASTM D6164	G	I
	DynaLastic 180 FR CR	ASTM D6164	G	I
	DynaLastic 180 FR CR G	ASTM D6164	G	I
	DynaWeld Cap 180	ASTM D6164	G	I
	DynaWeld Cap 180 CR	ASTM D6164	G	I
	DynaWeld Cap 180 FR	ASTM D6164	G	I
	DynaWeld Cap 180 FR CR	ASTM D6164	G	I
	DynaWeld Cap 180 FR CR G	ASTM D6164	G	I
	DynaLastic 250	ASTM D6164	G	II
	DynaLastic 250 FR	ASTM D6164	G	II
	DynaLastic 250 FR CR	ASTM D6164	G	II
	DynaLastic 250 FR CR G	ASTM D6164	G	II
	DynaWeld Cap 250	ASTM D6164	G	II
	DynaWeld Cap 250 CR	ASTM D6164	G	II
	DynaWeld Cap 250 FR	ASTM D6164	G	II
	DynaWeld Cap 250 FR CR	ASTM D6164	G	II
DynaWeld Cap 250 FR CR G	ASTM D6164	G	II	
DynaGrip Cap	Proprietary	N/A	N/A	
Foil-Surfaced SBS	DynaClad	ASTM D6298	N/A	N/A
	DynaClad Copper	ASTM D6298	N/A	N/A

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 HVHZ jurisdictions.
- 5.3 Refer to a current UL Roofing Materials Directory for fire ratings of this product.
- 5.4 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 **2603.6** apply.
- 5.5 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.
- 5.6 For recover installations, the existing roof shall be examined in accordance with **FBC 1511**.
- 5.7 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 **ANSI/SPRI WD1**, **FM Loss Prevention Data Sheet 1-29**, **Roofing Application Standard RAS 117** and **Roofing Application Standard RAS**

137. Assemblies marked with an asterisk* carry the limitations set forth in **Section 2.2.10.1 of FM Loss Prevention Data Sheet 1-29 (January 2016)** for Zone 2/3 enhancements.

- 5.8 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.
- 5.9 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 **ANSI/SPRI FX-1 or Testing Application Standard TAS 105**.
- 5.10 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 **ANSI/SPRI IA-1, 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 roof assembly.
- 5.11 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 Authority Having Jurisdiction, as documented through field uplift testing in accordance with **ASTM E907, FM Loss Prevention Data Sheet 1-52 or Testing Application Standard TAS 124**.
- 5.12 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)**.
- 5.13 All products in the roof assembly shall have quality assurance in accordance with **FAC Rule 61G20-3**.

6. INSTALLATION:

- 6.1 **Johns Manville SBS Modified Bitumen Roof Systems** shall be installed in accordance with **Johns Manville** published installation instructions, subject to the Limitations / Conditions of Use noted below.
- 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.Gradecki@ul.com

- THE 50-PAGES THAT FOLLOW FORM PART OF THIS EVALUATION REPORT -