



PRI Construction Materials Technologies LLC

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Laboratory Test Report

Report for: Matt Mullins
Gardner Asphalt Corporation
4146 E. 7th Avenue
Tampa, FL

Product Name: Weather Armor SB-2

Project No.: GGI-231-02-01

Dates Tested: October 5, 2018 – November 28, 2018

Test Methods: ASTM D1970/D1970M -15a

Results Summary: Compliant: Section 5 – Physical Requirements
Physical Requirements prescribed in table 1 (See results table herein)
Unrolling between 40°F and 140°F

Purpose: Determine specification properties for compliance with the identified product in accordance with ASTM D1970/ D1970M-15a: Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.

Test Methods: Testing was completed as described in ASTM D 1970/D 1970M-15a: *Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection*. Test methods assigned or referenced include ASTM D 228: *Standard Test Methods for Sampling, Testing, and Analysis of Asphalt Roll Roofing, Cap Sheets, and Shingles Used in Roofing and Waterproofing*, ASTM D 903: *Standard Test Method for Peel or Stripping Strength of Adhesive Bonds*, ASTM D 1204: *Standard Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheeting or Film at Elevated Temperature*, ASTM D 2523: *Standard Practice for Testing Load-Strain Properties of Roofing Membranes*, ASTM D 4073: *Standard Test Method for Tensile-Tear Strength of Bituminous Roofing Membranes*, ASTM D 5147: *Standard Test Methods for Sampling and Testing Modified Bituminous Sheet Material*, ASTM D 7349: *Standard Test Method for Determining the Capability of Roofing and Waterproofing Materials to Seal around Fasteners*, and ASTM E 96: *Standard Test Methods for Water Vapor Transmission of Materials*.

Sampling: The following materials were received by PRI.

<u>Product</u>	<u>Source</u>	<u>Date</u>	<u>Sampling</u>
Weather Armor SB-2	Tampa, FL	October 10, 2018	Manufacturer

The manufacturing location of the sample was verified as Springville, AL.

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Results:

Physical Properties	Test Method	Results							Requirement
Physical Requirements									
Thickness, (mils) 1 specimen; 27-1/2in x manufacture width; 5 measurement points	ASTM D5147	1	2	3	4	5	Avg.	St.Dev.	
		50	53	51	49	50	51	2	≥ 40
Maximum Load, (lbf/in-width) 5 specimens; 1in x 6in; Cond. 2h @ 73.4±3.6°F; Test @ 73.4±3.6°F; Rate = 2in/min ±3%	ASTM D2523 / ASTM D1970	1	2	3	4	5	Avg.	St.Dev.	
	MD	25	39	35	40	40	36	7	≥ 25
	CMD	33	30	30	26	30	30	2	≥ 25
Elongation at Break (modified bitumen portion), (%) 5 specimens; 1in x 6in; Cond. 2h @ 73.4±3.6°F; Test @ 73.4±3.6°F; Rate = 2in/min ±3%	ASTM D2523 / ASTM D1970	1	2	3	4	5	Avg.	St.Dev.	
	MD	34	30	31	25	24	29	4	≥ 10
	CMD	29	29	23	24	22	25	3	≥ 10
Adhesion to plywood, (lbf/ft-width) 5 specimens; 3in x 8in (bonded 3in x 5in to plywood); Cond. 1h @ 39.2±3.6°F; Test @ 39.2±3.6°F; Rate = 2in/min ±3%	ASTM D903 / ASTM D1970	1	2	3	4	5	Avg.	St.Dev.	
		3.1	2.5	1.9	6.9	1.3	3.1	2.2	≥ 2.0
Adhesion to plywood, (lbf/ft-width) 5 specimens; 3in x 8in (bonded 3in x 5in to plywood); Cond. 1h @ 73.4±3.6°F; Test @ 73.4±3.6°F; Rate = 2in/min ±3%	ASTM D903 / ASTM D1970	1	2	3	4	5	Avg.	St.Dev.	
		26.2	21.7	45.5	46.2	52.8	38.5	13.7	≥ 12.0
Thermal Stability, (in) 5 specimens; 4in x 4in (bonded to plywood); Cond. 14d @ 158±4°F; Equilibrate to 75±2°F & 50±5%RH for 4h	ASTM D1204 / ASTM D1970	1	2	3	4	5	Avg.	St.Dev.	
		0.0	0.0	0.0	0.0	0.0	0.0	0.0	≤ 0.1
Low Temperature Flexibility, <i>[Pass/Fail]</i> 5 specimens; 1in x 6in; Cond. 2h @ -20.2±3.6°F; Test 180±5° over 1in±5% Ø in 2±1s @ -20.2±3.6°F; Visual Inspection in “flexed” position; Self-Sealability (head of water) on “flexed” specimen	ASTM D1970	1	2	3	4	5	Avg.	St.Dev.	
	MD	Pass	Pass	Pass	Pass	Pass	Pass	NA	No visible signs of cracking in the sheet -or- minor surface cracking and “pass” head of water test
	CMD	Pass	Pass	Pass	Pass	Pass	Pass	NA	

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Physical Properties	Test Method	Results							Requirement
Tear Strength, (lbf) 5 specimens; 3in x 8in specimens with assigned notch; Cond. 4h @ 74±4°F & 50±5%RH; Test @ 74±4°F; Rate = 2.0in/min ±3%	ASTM D4073 / ASTM D1970	1	2	3	4	5	Avg.	St.Dev.	
	MD	67	76	57	76	85	66	15	≥ 20
	CMD	52	52	52	48	42	49	4	≥ 20
Moisture Vapor Permeance, (U.S. Perms) 5 specimens; 3.5in Ø; Weathering side to higher vapor pressure; Test @ 73.4±3.6°F & 50±5%RH	ASTM E96 Procedure BW	1	2	3	4	5	Avg.	St.Dev.	
		0.03	0.04	0.04	0.04	0.04	0.04	<0.01	≤ 0.1
Self-Sealability around nail, [Pass/Fail] 2 specimens; 12in x 12in (bonded to plywood); ASTM D3462 single thickness intervening material; Two F1667 NLRFS-53Z nails with hammer; Cond. 24±0.25h @ 73.4±3.6°F; Test 5±0.25inw.c. @ 39.2±3.6°F for 72±0.25h; Visual Inspection for water infiltration	ASTM D1970 / ASTM D7349 Protocol 4 (mod)	1	2	3	4	5	Avg.	St.Dev.	
		Pass	Pass	Pass	Pass	Pass	Pass	NA	No water in bottom can, on substrate underside, on fastener shank, or between product and substrate
Self-Sealability of side lap seam, [Pass/Fail] 2 specimens; 12in x 12in (prescribed configuration); Side Lap Seam placed near center of specimen; Cond. 24±0.25h @ 73.4±3.6°F; Test 5±0.25inw.c. @ 39.2±3.6°F for 72±0.25h; Visual Inspection for water infiltration	ASTM D1970	1	2	3	4	5	Avg.	St.Dev.	
		Pass	Pass	Pass	Pass	Pass	Pass	NA	No water between plywood and unadhered piece
Physical Requirement - Other									
Unrolling, [Pass/Fail] 4 specimens; 10±1/8in x 18±1/8in; Cond. 24h @ 73.4±3.6°F & 50±5%RH; Test Cond. 2h @ Temp±1°F; Test unroll in 4-6s; Visual Inspection in "unrolled" position	ASTM D5636 / ASTM D5147 / ASTM D1970	1	2	3	4	5	Avg.	St.Dev.	
	40°F	Pass	Pass	Pass	Pass	Pass	Pass	NA	shall not crack nor stick to cause tearing or other damage
	140°F	Pass	Pass	Pass	Pass	Pass	Pass	NA	

Notes: None

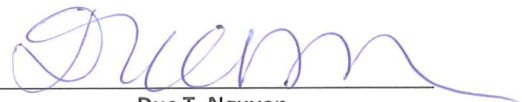
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Statement of Compliance: The product tested complies with ASTM D 1970/D 1970M-15a: *Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection*. The laboratory test results presented in this report are representative of the material supplied

Signed: 
Jason Simmons
Director

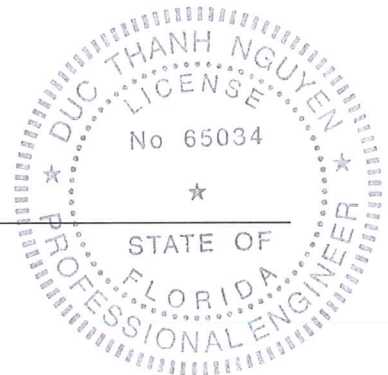
Date: 12/5/2018

Signed: 
Duc T. Nguyen
Florida Registered Professional Engineer
P.E. Number: 65034

Date: 12/06/2018

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	12/5/2018	4	NA



END OF REPORT

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