



PRI Construction Materials Technologies LLC

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Laboratory Test Report

Report for: Steven Crew
Warrior Roofing Manufacturing
3050 Warrior Rd.
Tuscaloosa, AL

Product Name(s): 30W

Project No.: 976T0005

Date(s) Tested: October 20, 2023 – November 9, 2023

Test Methods: ASTM D 4869 / D 4869M-16 & -16a

Results Summary: Meets Type II requirements

Purpose: Evaluate the identified product for compliance to the requirements of **ASTM D 4869 / D 4869M: Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing, Type I.**

Test Methods: Testing was completed as described in ASTM D 4869 / D 4869M-16 & -16a: *Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing*. Test methods assigned or referenced include ASTM D 70: *Standard Test Method for Density of Semi-Solid Bituminous Materials (Pycnometer Method)*; ASTM D 95: *Standard Test Method for Water in Petroleum Products and Bituminous Materials by Distillation*; ASTM D 146 / D 146M: *Standard Test Methods for Sampling and Testing Bitumen-Saturated Felts and Woven Fabrics for Roofing and Waterproofing*; ASTM D 1922: *Standard Test Method for Propagation Tear Resistance of Plastic Film and Thin Sheeting by Pendulum Tear*; ASTM D 5636: *Standard Test Method for Low Temperature Unrolling of Felt or Sheet Roofing and Waterproofing Materials*; and ASTM D 6136 / D6136M: *Standard Test Method for Kerosine Number of Unsaturated (Dry) Felt by Vacuum Method*.

Sampling: The following materials were received by PRI.

<u>Product</u>	<u>Source</u>	<u>Date</u>	<u>Sampling</u>
30W	Tuscaloosa, AL	October 12, 2023	Warrior Roofing

The location of manufacture for the sample tested has been verified as Tuscaloosa, AL.

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The laboratory test results presented in this report are based on the material(s) supplied and tested. The results, and by extension any statements of conformity, opinions, or interpretations, apply the "simple acceptance" decision rule for measurement uncertainty accounting. This report is for the exclusive use of stated client. Only the client is authorized to permit copying or distribution of this report and then only in its entirety. PRI Construction Materials Technologies LLC assumes no responsibility nor makes a performance or warranty statement for this material or products and processes containing this material in connection with this report.

Results:

Property	Test Method	Result	Requirement			
			Type I	Type II	Type III	Type IV
Physical Requirements – As Received						
Tear Strength, lbf Elmendorf-type tear tester; 5 specimens; Cond. 40h @ 73±4°F & 50±10%RH; Test @ 73±4°F & 50±10%RH;	ASTM D 1922					
	MD	1.5	≥ 0.45	≥ 0.45	≥ 0.90	≥ 0.90
	CMD	1.9	≥ 0.45	≥ 0.45	≥ 0.90	≥ 0.90
Pliability, (Pass/Fail) 10 specimens; 1" x 8"; Immerse in H ₂ O for 10-15min @ 77±2°F; Bend 90° in 2s over specified R @ 73±4°F	ASTM D 146		Pass = "No surface rupture > 1/8" in length"			
	MD	Pass	0.50 in radius	0.50 in radius	0.75 in radius	0.75 in radius
	CMD	Pass	0.50 in radius	0.50 in radius	0.75 in radius	0.75 in radius
Loss on heating, % 2 specimens; 12" x 6"; Suspend in oven for 5h±3min @ 221±5°F;	ASTM D 146	2.1	≤ 6			
Liquid Water Transmission, (Pass/Fail) 2 specimens; 14° slope; Cond. 24h @ 70-80°F & 30-55%RH; 40-42 gal/h shower exposure for 4h;	ASTM D 4869	Pass	Pass = "No sign of any liquid water wetness on either specimen underside or top of plywood support or visible deterioration of the specimen"			
Breaking Strength, lbf/in. 10 specimens; 1"x 6"; Cond. 2h @ 73±4°F & 50±10%RH; Test @ 73±4°F & 50±10%RH; Rate = 2 in./min;	ASTM D 146					
	MD	60	≥ 30	≥ 30	≥ 40	≥ 40
	CMD	21	≥ 15	≥ 15	≥ 20	≥ 20
Dimensional Stability, % 3 specimens; 1"x 8-12"; Cond. 20h @ 70-85°F & 50-55%RH; Expose 212±4°F for 5h; Cool in desiccator; Immerse 22h in DI water;	ASTM F 1087					
	MD	0.13	≤ 2.00	≤ 2.00	≤ 1.75	≤ 1.75
	CMD	2.00	≤ 2.00	≤ 2.00	≤ 1.75	≤ 1.75
Unrolling [Pass/Fail] 4 specimens; 10" x 18"; Cond. 24h @ 70±4°F & 50±-5%RH; Expose 2h at temp; Unroll in 4-6s;	ASTM D 5636/ ASTM D 4869					
	Temp = 32°F	Pass	The product shall not crack nor be sticky as to cause tearing or other damage			
	Temp = 140°F	Pass				
Dimensions and Masses – As Received						
Width of the roll, in.	ASTM D 146	36.13	36±0.7% or As Agreed			
Area of the roll, ft ²	ASTM D 146	216.5	≥ 432 or As Agreed		≥ 216 or As Agreed	
Net mass of saturated felt, lb/100ft ²	ASTM D 146	115.0	≥ 8.0	≥ 13.0	≥ 20	≥ 26
Net mass of saturant, lb/100ft ²	ASTM D 146	8.4	≥ 4.0	≥ 6.0	≥ 12.6	≥ 15.0
Net mass of desaturated felt, lb/100ft ²	ASTM D 146	6.7	≥ 4.0	≥ 5.0	≥ 9.0	≥ 10.0
Saturation, % by wt.	ASTM D 146	125	≥ 100	≥ 120	≥ 140	≥ 150
Moisture, % by wt.	ASTM D 146/ D 95	4.3	≥ 2.0			
Saturation efficiency, % by wt.	ASTM D 4869	76	≥ 75.0	≥ 70.0	≥ 70.0	≥ 70.0

Note(s): 1- Moisture "as received" was utilized in lieu of "at the point of manufacture"

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Statement of Compliance:

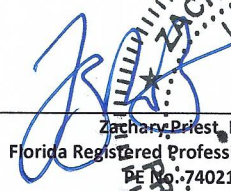
The product was tested has demonstrated compliance to the requirements of Type II prescribed in ASTM D 4869 / D 4869M-16 & -16a: *Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing.*

Signed:



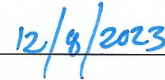
Jason Simmons
Director

Signed:



Zachary R. Priest, P.E.
Florida Registered Professional Engineer
PE No. 74021
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Date:



12/8/2023

Date:



12/11/2023

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	11/17/2023	3	NA
Revision	12/8/2023	3	Added seal of FL Registered PE

END OF REPORT

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