



PRI Construction Materials Technologies LLC

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Laboratory Test Report

Report for: Jeff Hock
Sheffield Metals International
5467 Evergreen Parkway
Sheffield Village, OH 44054

Product Name: SMI 1.5 SL 450+

Project No.: 1802T0008

Dates Tested: Nov. 12, 2024

Test Methods: UL 580-06
UL 1897-12

Results Summary: Specimen No. 1, 18" o.c. w/#10s, 15/32 plywood: -142psf, UL 580 Class 90

Purpose: Determine the uplift resistance in accordance with **UL 580-06 Test for Uplift Resistance of Roof Assemblies** and **UL 1897-12 Uplift Tests for Roof Covering Systems**.

Test Methods: Testing was completed as described in **UL 580-06 Test for Uplift Resistance of Roof Assemblies** and **UL 1897-12 Uplift Tests for Roof Covering Systems**. Specimens were tested to the loading schedule as described in UL 580, and where applicable, incrementally loaded in accordance with UL 1897 until failure.

Sampling: The following materials were received by PRI.

Product	Source	Date	Sampling
24ga. SMI 1.5 SL 450+	Clearwater, FL	Nov. 15, 2024	Metal Roofing
24ga. galvanized steel clip	Clearwater, FL	Nov. 15, 2024	Metal Roofing
#10-13 x 1" PH Screw	Pinellas Park, FL	Nov. 01, 2024	Metal Roofing

All other roofing components were procured by PRI Construction Materials Technologies LLC through local distribution.

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Product Description:	24ga. SMI 1.5 SL 450+:	24ga. ASTM A792 AZ55, Grade 50 steel; 1.5" snap lock standing seam; 16" wide coverage;
	#10-13 x 1" Screws:	#10-13 x 1" GP Concealor Pancake Head screw; Gimlet point.
	24ga. Clip:	24ga 3in. galvanized steel clip.
Deck Description:	Underlayment:	ASTM D226 Type II felt.
	Deck:	CAT 15/32 PS 1-19 APA span rated, CDX 4-ply plywood sheathing installed over No. 2 lumber supports spaced 24" o.c. Decking attached with 0.113" x 2-3/8" ring shank nails spaced 6" o.c. along the perimeter and intermediate supports.
	Specimen Sealing:	Polyethylene film placed under the metal roof panels; tape ¹

¹It is the judgment of the test engineer that the film and tape used to seal the specimen against air leakage did not influence the results of the test.

Results:

Test data are contained in Appendix A. Photographs after testing are shown in Appendix C.

Table 1. Summary of Test Results

Specimen No.	Panel	Attachment	Passing Uplift Pressure (psf)	Failure Mode
1	24ga. SMI 1.5 SL 450+	Using 24ga 3" clip placed vertical down the length of the panel at 18" o.c and attached using #10-13 X 1" GP Pancake head gimlet screw into the 2 outside pre allotted slots.	142	Seam disengaged

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Classification:

Specimen No. 1 installed as described herein meets **Class 90** requirements.

Statement of Attestation:

Testing was conducted in accordance with **UL 580-06 Test for Uplift Resistance of Roof Assemblies** and **UL 1897-12 Uplift Tests for Roof Covering Systems**. The test results and interpretations presented herein are representative of the materials supplied by the client.

Signed:



Bill Hinkle
Manager

Signed:



Zachary R. Priest
Florida Registered Professional Engineer
P.E. Number: 74021



Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	02/06/2025	8	NA

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Specimen No. 1 (UL 580 Load Schedule)

Class 30 Loading Sequence (UL 580)							
Duration (min)	Positive Pressure	Negative Pressure	Max Deflection Under Load (in.)			Result	
			1	2	3		4
5	0.0	16.2	0.151	0.202	0.101	0.101	Pass
5	13.8	16.2	0.202	0.252	0.202	0.202	Pass
60	13.8	8.1-27.7	0.303	0.353	0.252	0.252	Pass
5	0.0	24.2	0.252	0.252	0.202	0.202	Pass
5	20.8	24.2	0.303	0.353	0.252	0.252	Pass
Permanent Set:			0.000	0.000	0.000	0.000	Pass

Class 60 Loading Sequence (UL 580)							
Duration (min)	Positive Pressure	Negative Pressure	Max Deflection Under Load (in.)			Result	
			1	2	3		4
5	0.0	32.3	0.252	0.303	0.202	0.202	Pass
5	27.7	32.3	0.404	0.454	0.353	0.353	Pass
60	27.7	16.2-55.4	0.555	0.606	0.454	0.454	Pass
5	0.0	40.4	0.404	0.454	0.353	0.353	Pass
5	34.6	40.4	0.505	0.606	0.454	0.454	Pass
Permanent Set:			0.050	0.050	0.050	0.000	Pass

Class 90 Loading Sequence (UL 580)							
Duration (min)	Positive Pressure	Negative Pressure	Max Deflection Under Load (in.)			Result	
			1	2	3		4
5	0.0	48.5	0.454	0.454	0.404	0.404	Pass
5	41.5	48.5	0.656	0.656	0.505	0.555	Pass
60	41.5	24.2-48.5	0.656	0.656	0.505	0.555	Pass
5	0.0	56.5	0.555	0.555	0.454	0.454	Pass
5	48.5	56.5	0.757	0.757	0.606	0.606	Pass
Permanent Set:			0.101	0.050	0.050	0.050	Pass

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Specimen No. 1 (UL 1897 Load Schedule)

Duration (min)	Combined Test Pressure (psf)	Ultimate Loading Sequence (UL 1897)				Result
		1	2	3	4	
1	112	0.959	0.858	0.807	0.757	Pass
1	127	1.009	0.959	0.858	0.858	Pass
1	142	1.064	1.165	3.064	4.064	Pass
1s	157	-	-	-	-	Fail

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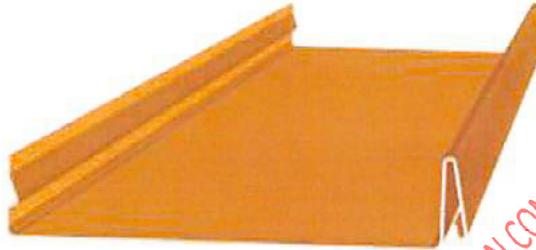
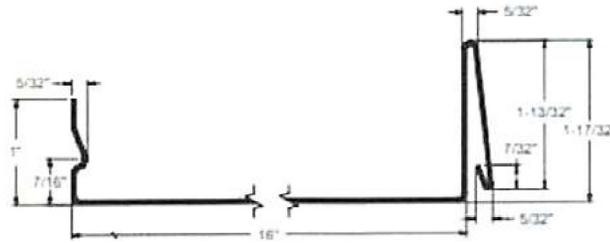
ASTM E 8 Tensile Properties of 24ga. steel

Specimen	Width	Thickness	Gage Length	Yield Strength	Tensile Strength	Elongation at Break
1	0.4990	0.0223	2	58.7	63.7	42.0
2	0.4980	0.0231	2	57.1	61.7	36.1
3	0.4970	0.0226	2	52.3	63.0	49.3
4	0.4980	0.0233	2	57.6	65.0	40.4
5	0.4990	0.0231	2	51.1	61.7	41.9
Average				55.4	63.0	41.9
St.Dev.				3.4	1.4	4.8

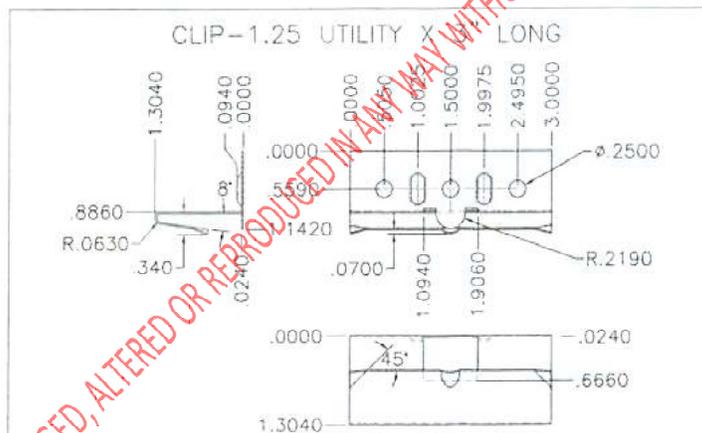
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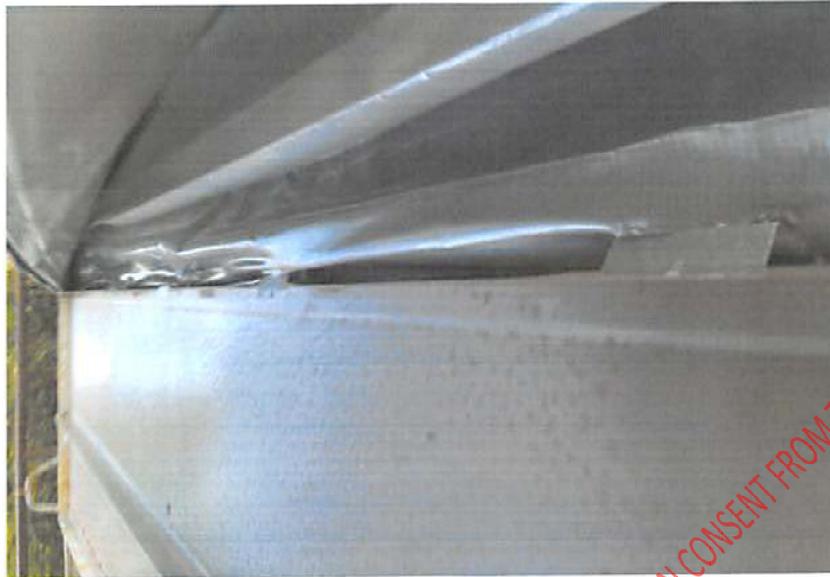
24ga. steel 1.75 SS-LOK



24ga. Clip

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Specimen No. 1 After Testing

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