PRI Construction Materials Technologies LLC

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Laboratory Test Report

Report for:	Matt Ashley A&E Metal Roofing Supply South & Echols Metal LLC 230 Lee Road 430 Smith Station, AL 36877
Product Name:	16" SNAP LOCK
Project No.:	2264T0007
Dates Tested:	Mar. 31st – Apr. 22nd, 2020
Test Methods:	UL 580-06 UL 1897-12
Results Summary:	Specimen No. 1: 26ga.; 12" o.c.; 60psf; Class 30 Specimen No. 2: 26ga.; 12" o.c. w/Bostik 915 sealant in seam; 90psf; Class 60

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
26ga. 16" SNAP LOCK panel	Smith Station, AL	Mar. 6, 2020	A&E Metal
#10-16 x 1.5" HWH screws	Smith Station, AL	Mar. 6, 2020	A&E Metal

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

Product Description:

16" SNAP LOCK:	26ga., ASTM A 792 AZ55, Grade 50 steel, through fastened rib panel; 3/4" rib; 36" coverage; Panel drawing shown in Appendix B.
#10-8 x 1" PH:	#10-8 x 1" pan head wood screw

Deck Description:

Underlayment: ASTM D 226 Type II felt installed with minimum 4" side-lap and 6" end-laps and fastened using 12 ga., 1-1/4" ring shank nails and 32 ga., 1-5/8" tin caps spaced 6" o.c. along the laps and two staggered rows 12" o.c. in the field of the roll.

Deck: CAT 15/32 PS 1-09 APA span rated, CDX 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]

[1]It 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	26ga. 1" Snap Lock	#10-8 x 1" PH wood screws 12" o.c. along the nail strip of the male lock in the pre-punched holes. The perimeter was fastened 6" o.c. with #10-16 x1.5" HWH wood screws with sealing washers.	60	Panel disengagement
2	26ga. 1" Snap Lock	#10-8 x 1" PH wood screws 12" o.c. along the nail strip of the male lock in the pre-punched holes. Bostik 915 sealant was applied over the screws along the nail strip in a ¼" wide continuous bead prior to engaging the female lock. The perimeter was fastened 4" o.c. with #10-16 x1.5" HWH wood screws with sealing washers.	90	Panel disengagement

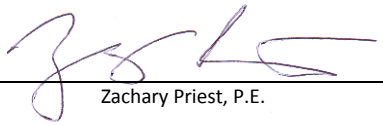
Classification:

Specimen No. 1 installed as described herein meets **Class 30**.

Specimen No. 2 installed as described herein meets **Class 60**.

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: 

Zachary Priest, P.E.

Director

Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	05/01/2020	8	NA

Specimen No. 1 (UL 580 Load Schedule)

Class 30 Loading Sequence (UL 580)							
Duration (min)	Positive Pressure (psf)	Negative Pressure (psf)	Max Deflection Under Load (in.)				Result
			1	2	3	4	
5	0.0	16.2	0.494	0.068	0.140	0.558	Pass
5	13.8	16.2	0.679	0.131	0.241	0.788	Pass
60	13.8	8.1-27.7[1]	0.706	0.181	0.294	1.265	Pass
5	0.0	24.2	0.715	0.184	0.301	0.862	Pass
5	20.8	24.2	0.858	0.231	0.354	1.020	Pass
		Permanent Set	0.390	0.320	0.138	0.393	

Class 60 Loading Sequence (UL 580)							
Duration (min)	Positive Pressure (psf)	Negative Pressure (psf)	Max Deflection Under Load (in.)				Result
			1	2	3	4	
5	0.0	32.3	0.749	0.179	0.282	0.891	Pass
5	27.7	32.3	1.001	0.307	0.444	1.200	Pass
60	27.7	16.2-55.4[1]	-	-	-	-	Failed at 13min 2s
5	0.0	40.4					
5	34.6	40.4					
		Permanent Set					

Notes: 1) Oscillation frequency is 10±2 sec per cycle

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Specimen No. 2 (UL 580 Load Schedule)

Class 30 Loading Sequence (UL 580)							
Duration (min)	Positive Pressure (psf)	Negative Pressure (psf)	Max Deflection Under Load (in.)				Result
			1	2	3	4	
5	0.0	16.2	0.256	0.039	0.242	0.053	Pass
5	13.8	16.2	0.416	0.079	0.433	0.122	Pass
60	13.8	8.1-27.7[1]	0.505	0.199	0.536	0.171	Pass
5	0.0	24.2	0.536	0.213	0.640	0.248	Pass
5	20.8	24.2	0.660	0.294	0.695	0.282	Pass
		Permanent Set	0.215	0.072	0.153	0.055	

Class 60 Loading Sequence (UL 580)							
Duration (min)	Positive Pressure (psf)	Negative Pressure (psf)	Max Deflection Under Load (in.)				Result
			1	2	3	4	
5	0.0	32.3	0.569	0.237	0.654	0.273	Pass
5	27.7	32.3	0.811	0.433	0.873	0.413	Pass
60	27.7	16.2-55.4[1]	0.998	0.624	1.052	0.564	Pass
5	0.0	40.4	0.991	0.622	1.036	0.557	Pass
5	34.6	40.4	1.122	0.741	1.224	0.644	Pass
		Permanent Set	0.549	0.321	0.743	0.151	

Class 90 Loading Sequence (UL 580)							
Duration (min)	Positive Pressure (psf)	Negative Pressure (psf)	Max Deflection Under Load (in.)				Result
			1	2	3	4	
5	0.0	48.5	0.972	0.609	1.102	0.478	Pass
5	41.5	48.5	1.225	0.839	1.316	0.702	Pass
60	41.5	24.2-48.5[1]	-	-	-	-	Failed at 50min
5	0.0	56.5					Pass
5	48.5	56.5					Pass
		Permanent Set					

Notes: 1) Oscillation frequency is 10±2 sec per cycle

ASTM E 8 Tensile Properties of 26 ga. steel

Specimen	Width (in)	Thickness (in)	Gage Length (in)	Yield Strength (ksi)	Tensile Strength (ksi)	Elongation at Break (%)
1	0.453	0.020	2.000	53.4	58.0	29.2
2	0.460	0.020	2.000	53.6	57.9	31.4
3	0.461	0.020	2.000	52.4	56.7	32.6
4	0.460	0.020	2.000	53.9	58.1	30.0
5	0.463	0.020	2.000	53.9	58.0	30.9
Average	**0.459**	**0.020**	**2.000**	**53.4**	**57.7**	**30.8**
St.Dev.	**0.004**	**0.000**	**0.000**	**0.6**	**0.6**	**1.3**

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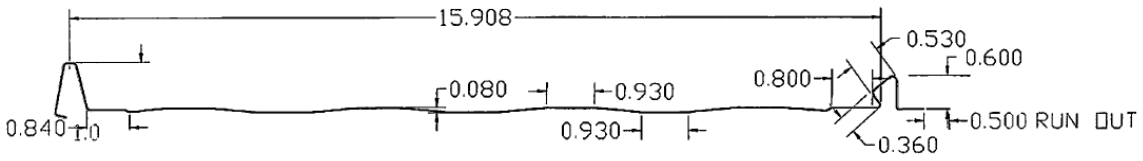
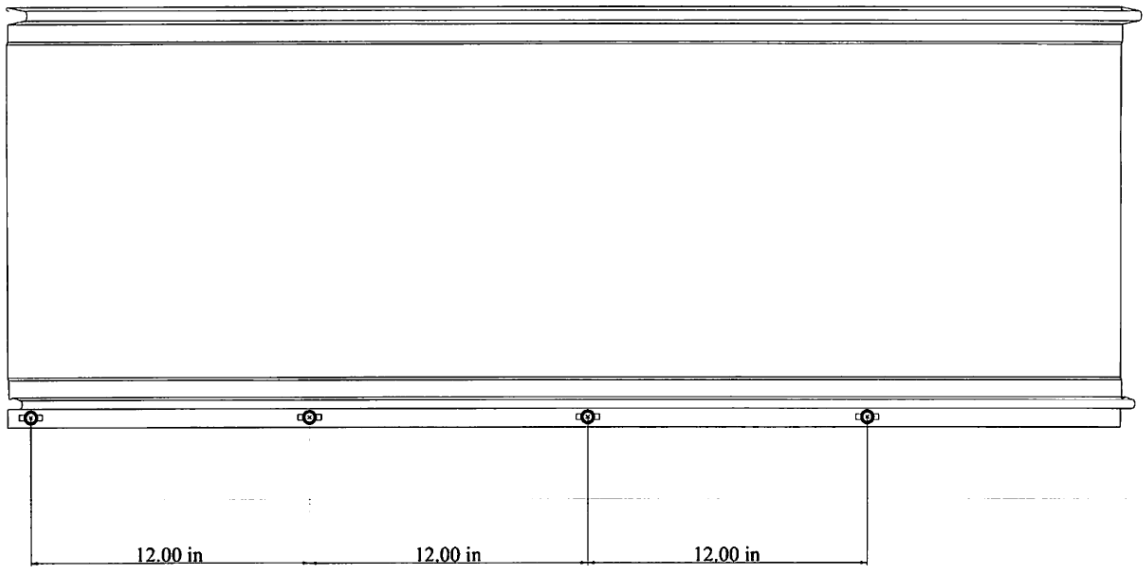
16" SNAPLOCK PANEL WITH STRIATIONS



16" SNAP LOCK



Specimen No. 1 & 2 Fastening (No. 2 also includes Bostik 915 sealant)

Specimen No. 1 After Testing

Specimen No. 2 After Testing

END OF REPORT