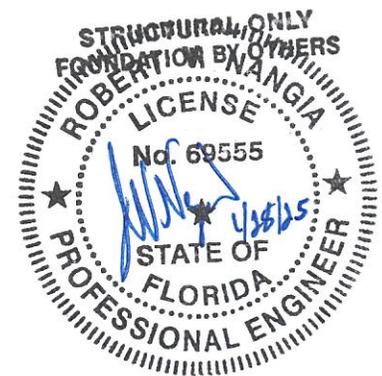


18" x 24 ga. Tite-Loc Plus w/ 2" PremiR + EVO 70 spray insulation

				SECTION PROPERTIES						ALLOWABLE UNIFORM LOADS, psf For various fastener spacings (i.e. span values)
Width, in.	Gauge	Yield ksi	Weight psf	Top in Compression			Bottom in Compression			Negative Load
				I_{xx} in ⁴ /ft.	I_{xx} (eff) in ⁴ /ft.	S_{xx} in ³ /ft	I_{xx} in ⁴ /ft.	I_{xx} (eff) in ⁴ /ft.	S_{xx} in ³ /ft	
18	24	50	1.65	0.238	0.238	0.103	0.238	0.238	0.555	5.00'
										375.0

- Theoretical section properties for steel panels have been calculated per AISI S100 Specification for the Design of Cold-Formed Steel Structural Members.
- The addition of the spray foam does not allow for "bowing" of the broad flat under negative pressure. Therefore, the I_{xx} (eff) values are Full Section Properties for stiffness due to the application of 2" PremiR + EVO 70 spray insulation.
- S_{xx} values are to be used for flexural (bending) stress determination for downward (positive) pressure values only.
- Charted Load/Span values are based on ANSI/FM 4474 (2011) Appendix D and Florida Building Code test protocols for High Velocity Hurricane Zones (HVHZ) TAS 114-95 Appendix J.
- Charted Load/Span values above are based on Allowable Stress Design (ASD)... Load Resistance Factor Design (LRFD) technique not recommended for charted values.
- Charted Allowable Uniform Loads are based on the Ultimate Uniform Load divided by a 2.00 Factor-of-Safety.
- Charted Allowable Uniform Loads do not consider panel weight (Dead Load) or clip-to-substrate (structure) fastener connection strength.
- Panel-to-substrate (structure) fastener evaluation and analysis should be performed by a licensed structural engineer.
- Minimum recommended substrate (structure) recommendations:
 - Open-framing (i.e. purlins) - 16 ga. (design thickness = 0.0566")
 - Plywood/OSB - 15/32" or thicker is recommended to assure an effective degree of fastener thread engagement
 - Metal deck - 22 ga. (design thickness = 0.0283")
- Deflection limit consideration for positive (downward) loading is limited to a deflection ratio of L/180 of the span....where "L" is the span in inches.
- Charted Allowable Uniform Loads cannot be increased by 1/3.



This item has been electronically signed and sealed by Robert V Nangia PE/SE using a Digital Signature and data. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies

**Robert V. Nangia P.E.
7423 Hollow Ridge Drive
Houston, Texas 77085**

CFS Version 14.0.1

Section: Petersen Tite-Loc Plus - 18 x 24 ga. with Spray Foam.cfss

Tite-Loc Plus - 18 x 24 ga. with Foam

Petersen Aluminum Corp.

Rev. Date: 1/28/2025 11:30:46 AM

By: Jeffrey T. Shingler

Printed: 1/28/2025 11:31:57 AM

Design Dynamics, Inc.

1333 W. McDermott Dr. Suite 200

Allen, TX 75013

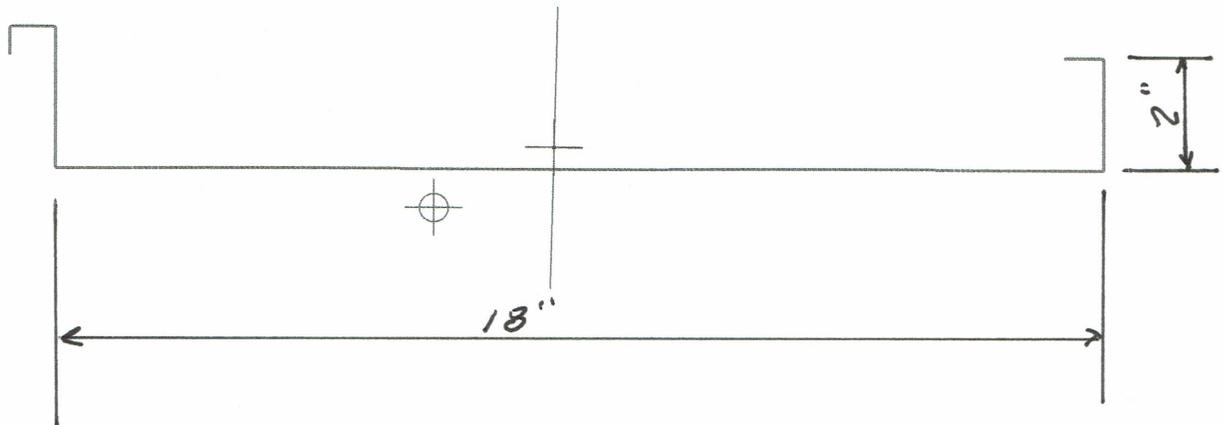
Ph: (469) 450-4988

designdynamics04@aol.com

$$\underline{I_{(2)}/FT = \frac{0.327 \text{ in}^4}{1.50'} = 0.218 \text{ in}^4/\text{FT}}$$

$$\underline{S_T/FT = \frac{0.1550 \text{ in}^3}{1.50'} = 0.103 \text{ in}^3/\text{FT}}$$

$$\underline{S_b/FT = \frac{0.8322 \text{ in}^3}{1.50'} = 0.555 \text{ in}^3/\text{FT}}$$



Section: Petersen Tite-Loc Plus - 18 x 24 ga. with Spray Foam.cfss

Tite-Loc Plus - 18 x 24 ga. with Foam

Petersen Aluminum Corp.

Rev. Date: 1/28/2025 11:30:46 AM

By: Jeffrey T. Shingler

Printed: 1/28/2025 11:31:58 AM

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1333 W. McDermott Dr. Suite 200

Allen, TX 75013

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Section Inputs

Material: A653 SS Grade 50/1

Apply cold work of forming strength increase.

No inelastic reserve strength increase.

Modulus of Elasticity, E 29500 ksi

Yield Strength, Fy 50 ksi

Tensile Strength, Fu 65 ksi

Min Elongation in 2 inches 12 %

Torsion Constant Override, J 0 in⁴

Warping Constant Override, Cw 0 in⁶

Part 1, Thickness 0.0239 in

Placement of Part from Origin:

X to center of gravity 0 in

Y to center of gravity 0 in

Outside dimensions, Open shape

	Length (in)	Angle (deg)	Radius (in)	Web	k Coef.	Hole Size (in)	Distance (in)
1	0.688	0.000	0.023900	None	0.000	0.000	0.344
2	1.982	-90.000	0.023900	Single	0.000	0.000	0.991
3	18.000	180.000	0.023900	None	0.000	0.000	9.000
4	2.500	90.000	0.023900	Single	0.000	0.000	1.250
5	0.813	180.000	0.023900	None	0.000	0.000	0.407
6	0.500	-90.000	0.023900	None	0.000	0.000	0.250

Full Section Properties

Area	0.58045 in ²	Wt.	0.0019735 k/ft	Flat	24.287 in
Ix	0.327 in ⁴	rx	0.750 in	Ixy	-0.557 in ⁴
Sx(t)	0.1550 in ³	y(t)	2.107 in	α	88.645 deg
Sx(b)	0.8322 in ³	y(b)	0.393 in		
Zx	0.2232 in ³	Height	2.500 in		
Iy	23.847 in ⁴	ry	6.410 in	x _o	-2.068 in
Sy(l)	2.5524 in ³	x(l)	9.343 in	y _o	-1.057 in
Sy(r)	2.5245 in ³	x(r)	9.446 in	jx	2.546 in
Zy	3.2900 in ³	Width	18.789 in	jy	15.934 in
I ₁	23.860 in ⁴	r ₁	6.411 in	Cw	16.464 in ⁶
I ₂	0.314 in ⁴	r ₂	0.735 in	J	0.0001105 in ⁴
Ic	24.174 in ⁴	rc	6.453 in		
I _o	27.304 in ⁴	r _o	6.859 in		



PRI Construction Materials Technologies LLC

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Laboratory Test Report

Report for: Jodi Thomas
Henry® A Carlisle Company
9801 Chartwell Drive
Garland, TX 75243

Product Name(s): PremiR+ EVO 70 (over recover deck)

Project No.: 447T0170

Date(s) Tested: Nov. 18, 2024

Test Methods: ANSI/FM 4474(2011) Appendix D
TAS 114-95 Appendix J

Results Summary: 375psf passing uplift

Purpose: Determine the simulated wind uplift pressure in accordance with **ANSI/FM 4474 Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures** and **Florida Building Code Test Protocols for the High Velocity Hurricane Zone (HVHZ) Testing Application Standard (TAS) No. 114.**

Test Methods: The *Uplift Resistance* was tested in accordance with ANSI/FM 4474 *Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures* (2011), Appendix D: *12x24 Simulated Wind Uplift Pressure Test Procedure* and Florida Building Code Test Protocols for the High Velocity Hurricane Zone (HVHZ) Testing Application Standard (TAS) No. 114-95, Appendix J: *Test Procedure for 12 Foot by 24 Foot Simulated Uplift Pressure Resistance of Roof System Assemblies* using a 12ft x 24ft negative pressure chamber mounted over the test specimen.

Sampling: The following materials were received by PRI.

<u>Product</u>	<u>Source</u>	<u>Date</u>	<u>Sampling</u>
PremiR+ EVO 70 (B-side)	Carlisle, PA	Sep. 4, 2024	Carlisle Roof Foam & Coatings
Polyurethane Foam (A-side)	Carlisle, PA	Sep. 4, 2024	Carlisle Roof Foam & Coatings

All other materials were procured through local sources of distribution.

Conditioning: Samples were conditioned less than 28d prior to testing.

447T0170

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: Testing was performed at ambient conditions. Test pressures were increased by 15psf increments and maintained at each interval for 1 minute. Results are shown below. Installation details are contained in Appendix A. Photographs are attached in Appendix B.

Table 1. Uplift Results

Assembly No.	Test Specimen Details			Results				
	Component	Description	Attachment Detail	Passing Uplift	Failing Uplift	Time of Failure	Failure Mode	Load per Fastener
1	Existing Metal Roof Panel	24ga. galvalume steel, 2" standing seam roof panel; 18" exposure; 180° seam	Installed over 5ft o.c. structural supports; Supplementally attached prior to roofing with five (5) evenly spaced #12 HWH SD screws placed in the pan between the seams	375psf	390psf	30s	Deck failure	N/A
	SPUF	PremiR+ EVO 70	Spray-applied to a 2" depth in two passes					

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Statement of Compliance:

The laboratory test results presented in this report are representative of the material supplied and test specimens constructed. Testing was conducted in accordance with **ANSI/FM 4474 Evaluating the Simulated Wind Uplift Resistance of Roof Assemblies Using Static Positive and/or Negative Differential Pressures** and Florida Building Code Test Protocols for the High Velocity Hurricane Zone (HVHZ) Testing Application Standard (TAS) No. 114.

Signed: _____



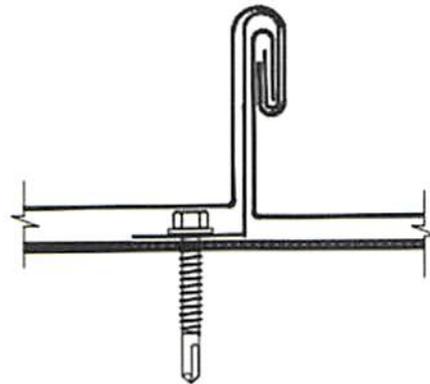
Report Issue History:

Issue #	Date	Pages	Revision Description (if applicable)
Original	12/02/2024	6	NA

447T0170

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Existing Metal Roof Panel



180° SEAMING

447T0170

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ASTM E8 Tensile Properties of 24 ga. Standing Seam Metal Roof Panel

Specimen	Width (in)	Thickness (in)	Gage Length (in)	Yield Strength (ksi)	Tensile Strength (ksi)	Elongation at Break (%)
1	0.497	0.0225	2.0	52.5	55.6	47.2
2	0.497	0.0230	2.0	50.5	56.0	44.1
3	0.497	0.0223	2.0	51.7	54.9	46.4
4	0.497	0.0234	2.0	51.8	52.6	46.4
5	0.499	0.0236	2.0	49.6	52.0	48.4
Average	0.497	0.0230	2.0	51.2	54.2	46.5
St.Dev.	0.001	0.0006	0.0	1.2	1.8	1.6

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