



Farabaugh Engineering and Testing Inc.

Project No. T163-05

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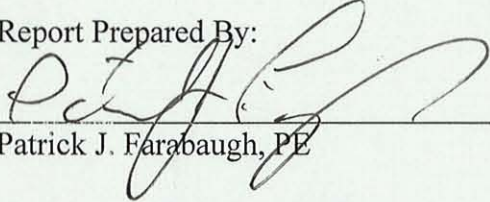
**TAS 125-03 (UL580)
STANDARD REQUIREMENTS FOR METAL ROOFING SYSTEMS**

**PETERSEN ALUMINUM CORP.
SNAP CLAD ROOF PANEL
16" WIDE X 24 GA**


FOR

PETERSEN ALUMINUM CORP.
1005 TONNE RD.
ELK GROVE VILLAGE, IL 60007

Report Prepared By:

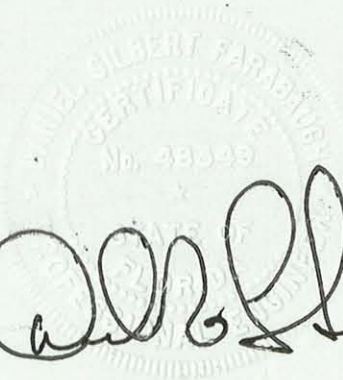
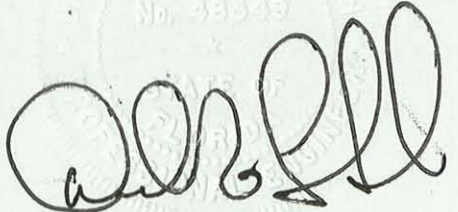

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TAS 125-03
STANDARD REQUIREMENTS FOR METAL ROOFING SYSTEMS

Purpose

This test method covers the evaluation of a uniform static air pressure test for materials and products used as external components which help maintain the integrity of the building envelope per Florida Testing Application Standard (TAS) 125-03 (per UL 580-94, rev. 1998) and as provided herein.

Test Specimen

Manufacturer: Petersen Aluminum Corp.
1005 Tonne Rd.
Elk Grove Village, IL 60007

Specimen: SNAP CLAD Standing Seam Roof Panel, 24 ga steel, 16" wide
SNAP CLAD Clips with #10-12 X 1" A-Point fasteners (2 per clip)

Substrate: 19/32" APA Plywood with Ice & Water Shield Membrane
(Ice & Water Shield Membrane was cut open at plywood joints to allow pressure to freely flow through the deck. **The plywood joints were not sealed.**)

Summary of Test Results

Test 1

Clip Spacing = 12" oc
Maximum Uplift Test Pressure = 146.6 psf

Test 2

Clip Spacing = 24" oc
Maximum Uplift Test Pressure = 90 psf

Testing Apparatus

Test Chamber: The test chamber consist of three sections: a top section to create a uniform vacuum, a center section in which the roof assembly is constructed, and a bottom section to create a uniform positive pressure.

Pressure Chamber: The air pressure in the pressure chamber was measured at five points. Each of four points were located 42" from chamber corners at a 45 degree angle, with the fifth tube located 18" from the center of the air inlet opening. The end of each tube was 7" above the chamber floor. The tubes were connected to a manifold that, in turn was connected to a manometer.

Vacuum Chamber Measurement: The air pressure in the vacuum chamber was measured at five points. Each of four points were located 18" from chamber corners at a 45 degree angle and 8" above the chamber floor. The fifth tube located 12" from the center of the exhaust opening and 6" below the opening. The tubes were connected to a manifold that, in turn was connected to a manometer. The pressure in the vacuum chamber was controlled by an automatic damper. The damper door was moved by means of an air motor hooked to an air line and controlled by pressure switches located in the control console. An additional pressure line from the manifold to pressure switches controlled the automatic damper.

Test Witness

Daniel G. Farabaugh, PE (Florida PE # 0048349)
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Installation

- The 19/32" APA Plywood was attached to the wood supports using 8d ring shank nails spaced at 6" oc at the plywood perimeters and 6" oc in the field of the plywood.
- Ice and Water Shield membrane was applied to the plywood. The membrane was cut open at all plywood butt and side joints to allow pressure to freely flow through the deck. **The plywood joints were not sealed.**
- The SNAP CLAD roof panels were attached to the wood deck substrate using SNAP CLAD Clips (located as shown) with #10-12 X 1" A-Point fasteners (2 per clip). The panels were attached to the perimeter of the wood deck using #10-12 X 1" A-Point fasteners (4 per panel at panel ends and 6" oc at the longitudinal sides).
- A plastic barrier was located between the panels and the underlying substrate.

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Test Procedure

- The test assembly was subjected to positive and negative pressures to form an uplift pressure at the values and time duration per TAS 125-03 (UL 580) as shown in the attached table.
- Upon completion of each 60 minute oscillation phase and at the conclusion of each class level, the assembly was examined and observations recorded.
- Vertical movement of the assembly during the tests was recorded.
- Subsequent to the completion of Phase 5 of the Class 90 test sequence, the test specimen was subjected to higher static uplift pressures until failure or the desired uplift pressure was obtained.

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TEST #1

Manufacturer: Petersen Aluminum Corp.

Test Date: 6/15/05

Test Specimen: SNAP CLAD Roof Panel, 24 ga steel. X 16" Wide

Configuration: Clips @ 12" oc

Class 30 Deflection Measurements

Phase	Time Duration (min.)	Negative Pressure (psf)	Positive Pressure (psf)	#1 (in)	#2 (in)	#3 (in)	#4 (in)
Initial	0	0	0	6-1/4	8-1/4	6-9/16	8
1	5	16.2	0	6-3/16	7-1/2	6-1/2	7-5/16
2	5	16.2	13.8	6-1/8	7-1/8	6-7/16	6-7/8
3	60	8.1 – 27.7*	13.8	6-1/16	6-15/16	6-3/8	6-3/4
4	5	24.2	0	6-1/8	7-1/4	6-1/2	7
5	5	24.2	20.8	6	6-11/16	6-3/8	6-7/16
Final	0	0	0	6-1/8	8-1/8	6-1/2	7-15/16

Class 60 Deflection Measurements

Phase	Time Duration (min.)	Negative Pressure (psf)	Positive Pressure (psf)	#1	#2	#3	#4
Initial	0	0	0	6-1/8	8-1/8	6-1/2	7-15/16
1	5	32.3	0	6-1/8	7-1/16	6-7/16	6-7/8
2	5	32.3	27.7	5-13/16	6-1/4	6-3/16	6-1/16
3	60	16.2 – 55.4*	27.7	5-11/16	5-3/4	6	5-9/16
4	5	40.4	0	5-13/16	6-1/2	6-1/8	6-5/16
5	5	40.4	34.6	5-9/16	5-3/4	5-15/16	5-1/2
Final	0	0	0	5-15/16	8	6-1/4	7-3/4

Class 90 Deflection Measurements

Phase	Time Duration (min.)	Negative Pressure (psf)	Positive Pressure (psf)	#1	#2	#3	#4
Initial	0	0	0	5-15/16	8	6-1/4	7-3/4
1	5	48.5	0	5-3/4	6-3/8	6-1/8	6-1/8
2	5	48.5	41.5	5-7/16	5-1/2	5-3/4	5-1/4
3	60	24.2 – 48.5*	41.5	5-3/8	5-7/16	5-3/4	5-3/16
4	5	56.5	0	5-11/16	6-1/8	6	5-15/16
5	5	56.5	48.5	5-1/4	5-3/16	5-9/16	5
Final	0	0	0	5-7/8	7-7/8	6-1/8	7-5/8

* Oscillation frequency as specified in TAS 125-03 (UL 580).

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Supplemental Loading:

The positive uplift pressure supplied from below was maintained at 48.5 psf. The initial negative uplift pressure supplied from above was increased incrementally until failure or the desired uplift pressure was obtained.

Supplemental Loading Deflection Measurements

Total Uplift Pressure (psf)	Time Duration (min.)	#1 (in)	#2 (in)	#3 (in)	#4 (in)
Initial 0	0	5-7/8	7-7/8	6-1/8	7-5/8
110.2	1	5-7/16	5-7/16	5-3/4	5-1/4
115.4	1	5-3/8	5-3/8	5-11/16	5-1/8
120.6	1	5-3/8	5-3/8	5-11/16	5-1/8
125.8	1	5-3/8	5-3/8	5-11/16	5-1/16
131.0	1	5-3/8	5-1/4	5-5/8	5-1/16
136.2	1	5-3/8	5-3/16	5-5/8	5
141.4	1	5-3/8	5-1/8	5-5/8	4-15/16

Results:

Maximum Total Uplift Test Pressure = 146.6 psf (Panel failed due to buckling)

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TEST #2

Manufacturer: Petersen Aluminum Corp.

Test Date: 6/17/05

Test Specimen: SNAP CLAD Roof Panel, 24 ga steel. X 16" Wide

Configuration: Clips @ 24" oc

Class 30 Deflection Measurements

Phase	Time Duration (min.)	Negative Pressure (psf)	Positive Pressure (psf)	#1 (in)	#2 (in)	#3 (in)	#4 (in)
Initial	0	0	0	6-1/2	8-1/2	6-15/16	8-5/16
1	5	16.2	0	6-7/16	7-11/16	6-13/16	7-9/16
2	5	16.2	13.8	6-1/4	7	6-11/16	6-13/16
3	60	8.1 – 27.7*	13.8	6-3/16	6-7/8	6-9/16	6-11/16
4	5	24.2	0	6-5/16	7-3/8	6-3/4	7-1/4
5	5	24.2	20.8	6-1/8	6-3/4	6-9/16	6-1/2
Final	0	0	0	6-7/16	8-3/8	6-7/8	8-1/4

Class 60 Deflection Measurements

Phase	Time Duration (min.)	Negative Pressure (psf)	Positive Pressure (psf)	#1	#2	#3	#4
Initial	0	0	0	6-7/16	8-3/8	6-7/8	8-1/4
1	5	32.3	0	6-5/16	7-3/16	6-11/16	7-1/16
2	5	32.3	27.7	6-1/16	6-7/16	6-1/2	6-1/4
3	60	16.2 – 55.4*	27.7	5-15/16	6-3/16	6-3/8	5-15/16
4	5	40.4	0	6-3/16	6-15/16	6-3/8	6-1/4
5	5	40.4	34.6	5-15/16	6-3/16	6-3/8	5-15/16
Final	0	0	0	6-3/8	8-1/8	6-3/4	7-15/16

Class 90 Deflection Measurements

Phase	Time Duration (min.)	Negative Pressure (psf)	Positive Pressure (psf)	#1	#2	#3	#4
Initial	0	0	0	6-3/8	8-1/8	6-3/4	7-15/16
1	5	48.5	0	6-3/16	6-13/16	6-9/16	6-5/8
2	5	48.5	41.5	5-7/8	6-1/16	6-1/4	5-3/4
3	60	24.2 – 48.5*	41.5	5-13/16	5-15/16	6-1/4	5-3/4
4	5	56.5	0				
5	5	56.5	48.5				
Final	0	0	0				

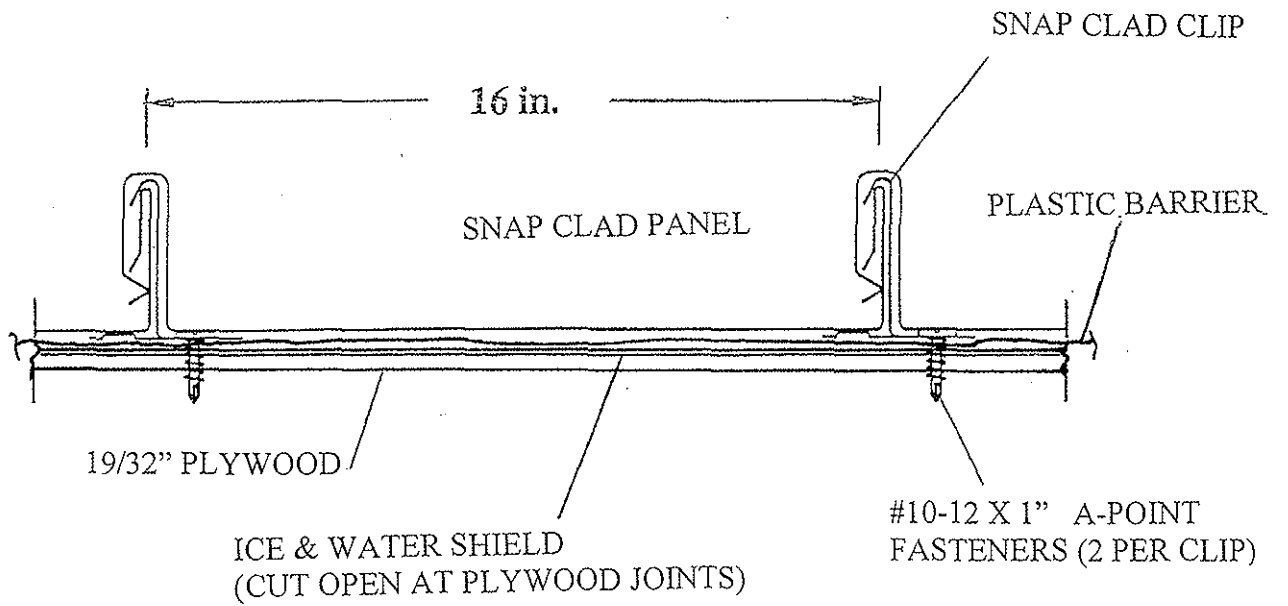
* Oscillation frequency as specified in TAS 125-03 (UL 580).

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Test #2(cont.)

Results:

During the Phase 3 of the Class 90 loading, the panel side joint disengaged.
The Maximum Total Uplift Test Pressure = 90 psf.



ASSEMBLY DETAIL