



Farabaugh Engineering and Testing Inc.

Project No. T165-08

Report Date: April 25, 2008

No. Pages: 7 (inclusive)

ASTM E-1680-95 AIR LEAKAGE TEST
ASTM E-1646-95 WATER PENETRATION TEST

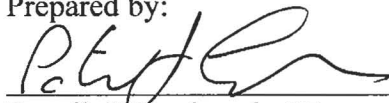
R-36 ROOF PANEL
36" WIDE X 24 GA

FOR

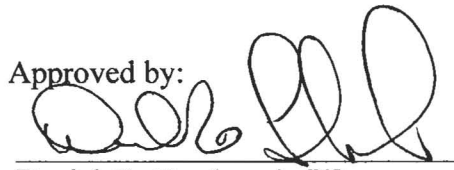
PETERSEN ALUMINUM CORP.
1005 TONNE RD.
ELK GROVE VILLAGE, IL 60007

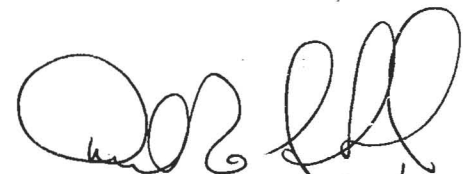
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4/28/08



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AIR LEAKAGE AND WATER PENETRATION TESTING

Purpose

The purpose of this test is to establish air leakage and water penetration rates on 36" w X 24 ga R-36 Roof panels

Test Date

4/21/08

Test Specimen

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

Panel: R-36 Roof Panel, 36" Wide, 24 Ga. Steel

Side joint Sealant: 1/8" X 1/2" Butyl Tape Sealer

Test Apparatus

Test Chamber: Vacuum chamber.

Manometer: Inclined manometer from Dwyer Instruments, 6" capacity.

Air Flow Meter: Laminar Flow Element

Installation

The panels were installed on the chamber frame and intermediate support. The panels were attached to each support using #12-14 X 1" self drill fasteners located as shown on the attached drawings. The panels sidejoints were overlapping using 1/8" X 1/2" butyl tape sealer with #12-14 X 3/4" self drill lap fasteners located at 12" oc. Panels were sealed to the perimeter frame with silicone sealant. Test was done with panels in horizontal position.

Theory of Procedure

The tests were conducted in accordance with ASTM E-1680-95 “ Rate of Air Leakage Through Exterior Metal Roof Panel System”, and ASTM E-1646-95,” Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference” and as provided here-in.

Air Leakage Test Procedure

The test procedure is as per ASTM 1680-95 and as provided herein.

The intermediate support was not traversed since this system does not accommodate thermal movement parallel to the panel.

A positive preload pressure of 15 psf was applied for 10 seconds. Panels were allowed to recover for a period of 2 minutes. A negative preload pressure of 15 psf was applied for 10 seconds. Panels were allowed to recover for a period of 2 minutes. The positive and negative preload cycle was repeated two additional times for a total of 3 cycles.

Air leakage rates were determined at the specified test pressures.

Water Penetration Test Procedure

The test procedure is as per ASTM 1646-95 and as provided herein.

The intermediate support was not traversed since this system does not accommodate thermal movement parallel to the panel.

Due to the panels being preloaded during the Air Leakage Test, no additional preload was preformed for the Water Penetration Test.

Overflow devices were attached to provide a minimum of 1/2” of water ponding during the test.

A calibrated water spray and uniform pressure loads were applied at the specified rates.

Test Date: 4/21/08

Ambient Temp. = 64 deg.F

Barometric Pressure = 30.25"Hg.

ASTM E-1680-95
AIR LEAKAGE TEST
Summary

POSITIVE PRESSURE
(INFILTRATION)

Test Specimen	Static Pressure Differential (psf)	Air Leakage Rate (cfm/sf)
PAC		
R-36 Roof Panel	+1.57	0.001
36" wide X 24 ga	+6.24	0.001

NEGATIVE PRESSURE
(EXFILTRATION)

Test Specimen	Static Pressure Differential (psf)	Air Leakage Rate (cfm/sf)
PAC		
R-36 Roof Panel	-1.57	0.001
36" wide X 24 ga	-6.24	0.001

Test Date: 4/21/08

Ambient Temp. = 64 deg.F

Barometric Pressure = 30.25"Hg.

ASTM E-1646-95
WATER PENETRATION TEST
Summary

POSITIVE PRESSURE
(INFILTRATION)

Test Specimen	Static Pressure Differential (psf)	Rate	Test Duration	Water Penetration
PAC	+ 6.24	5 gal./hr/sq.ft.	15 min	No Leakage
R-36 Roof Panel 36" wide X 24 ga	+15.0	5 gal./hr/sq.ft.	15 min	No Leakage
