Farabaugh Engineering and Testing Inc.

Project No. T166-08

Report Date: April 25, 2008

No. Pages: 7 (inclusive)

ASTM E-283-04 AIR LEAKAGE TEST
ASTM E-331-00 WATER PENETRATION TEST

R-36 ROOF PANEL
36" WIDE X 24 GA

FOR

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

DANIEL G. FARABAUGH, P.E.
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4/28/08

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 E283-04 "Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen" and as provided herein. The water penetration test was per ASTM E331-00 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference" and as provided in this report.

Test Procedure

The air leakage test was per ASTM E283-04 "Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen" and as provided herein. The water penetration test was per ASTM E331-00 "Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference" and as provided in this report. A controlled blower provided a uniform load to the specimen mock-up. A incline manometer that read in inches of water was used to measure the pressure. An air flow meter calibrated to read cubic feet per minute was used to measure the air flow through the system.

The air leakage test was performed first with air infiltration rates recorded at specified test pressures. A calibrated water spray was applied to the exterior of the test assembly at specified pressures and was observed from the interior of the chamber for water leakage.

Test Date: 4/21/08

Ambient Temp. = 64 deg.F

Barometric Pressure = 30.25"Hg.

ASTM E-283-04
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-331-00
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