



## Farabaugh Engineering and Testing Inc.

---

Project No. T132-09

Report Date: February 24, 2009

No. Pages: 7 (inclusive)

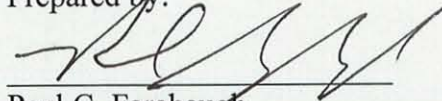
ASTM E-283-04 AIR LEAKAGE TEST  
ASTM E-331-00 WATER PENETRATION TEST

7/8" CORRUGATED ROOF PANEL  
37.33" COVERAGE X 24 GA STEEL

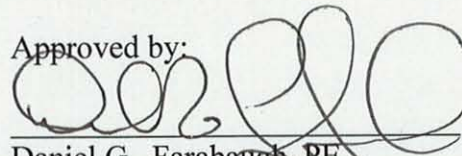
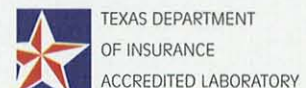
FOR

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

Prepared by:

  
Paul G. Farabaugh

Approved by:

  
Daniel G. Farabaugh, PE

## AIR LEAKAGE AND WATER PENETRATION TESTING

### **Purpose**

The purpose of this test is to establish air and water infiltration rates on the referenced test specimen in accordance with ASTM E-283-04 "Rate of Air Leakage Through Exterior Windows, Curtian Walls, and Doors Under Specified Pressure Differences Across the Specimen", and ASTM E-331-00, "Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference".

### **Test Date**

2/23/09 & 2/24/09

### **Test Specimen**

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

Panel: 7/8" Corrugated Roof Panel, 37.33" wide coverage X 24 ga steel

Side joint Sealant 3/16" thick X 1/4" wide 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 ¼"-14 X 1-1/4" long hex head self drill fasteners with 5/8" seal washer located at every other low cell of the panel. The panel side-joints were overlapping using butyl tape sealer with #12-14 X 1" long hex head self drill fasteners with 5/8" seal washer located at 12" oc. The panels were sealed to the perimeter frame with silicone sealant. Test was done with panels in horizontal position.

### **Test Procedure**

The tests were conducted in accordance with ASTM E-283-04 "Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen", and ASTM E-331-00, "Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference" and as provided herein.

Test Date 2/23/09

Ambient Temperature = 50 deg. F

Barometric Pressure = 30.3"Hg

ASTM E-283-04  
AIR LEAKAGE TEST  
Summary

POSITIVE PRESSURE  
(INFILTRATION)

| Test Specimen              | Static Pressure Differential (psf) | Air Leakage Rate (cfm/sf) |
|----------------------------|------------------------------------|---------------------------|
| PAC                        |                                    |                           |
| 7/8" Corrugated Roof Panel | +1.57                              | 0.014                     |
| 37.33" wide X 24 ga        | +6.24                              | 0.024                     |

NEGATIVE PRESSURE  
(EXFILTRATION)

| Test Specimen              | Static Pressure Differential (psf) | Air Leakage Rate (cfm/sf) |
|----------------------------|------------------------------------|---------------------------|
| PAC                        |                                    |                           |
| 7/8" Corrugated Roof Panel | -1.57                              | 0.003                     |
| 37.33" wide X 24 ga        | -6.24                              | 0.007                     |

Test Date 2/24/09

ASTM E-331-00  
WATER PENETRATION TEST  
Summary

POSITIVE PRESSURE  
(INFILTRATION)

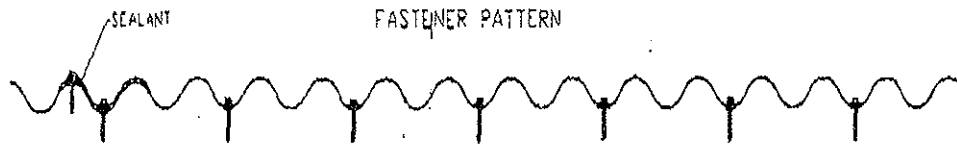
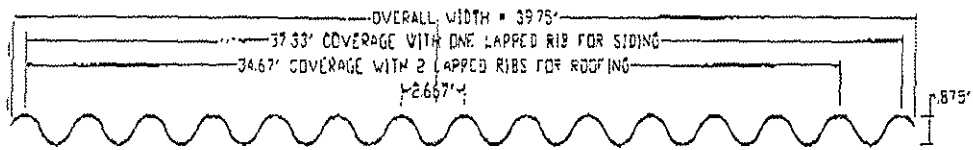
---

| Test Specimen   | Static Pressure Differential (psf) | Rate             | Test Duration | Water Infiltration |
|---|------------------------------------|------------------|---------------|--------------------|
| PAC   | + 6.24                             | 5 gal./hr/sq.ft. | 15 min        | No Leakage         |
| 7/8" Corrugated Roof Panel<br>37.33" coverage X 24 ga | +15.0                              | 5 gal./hr/sq.ft. | 15 min        | No Leakage         |

---

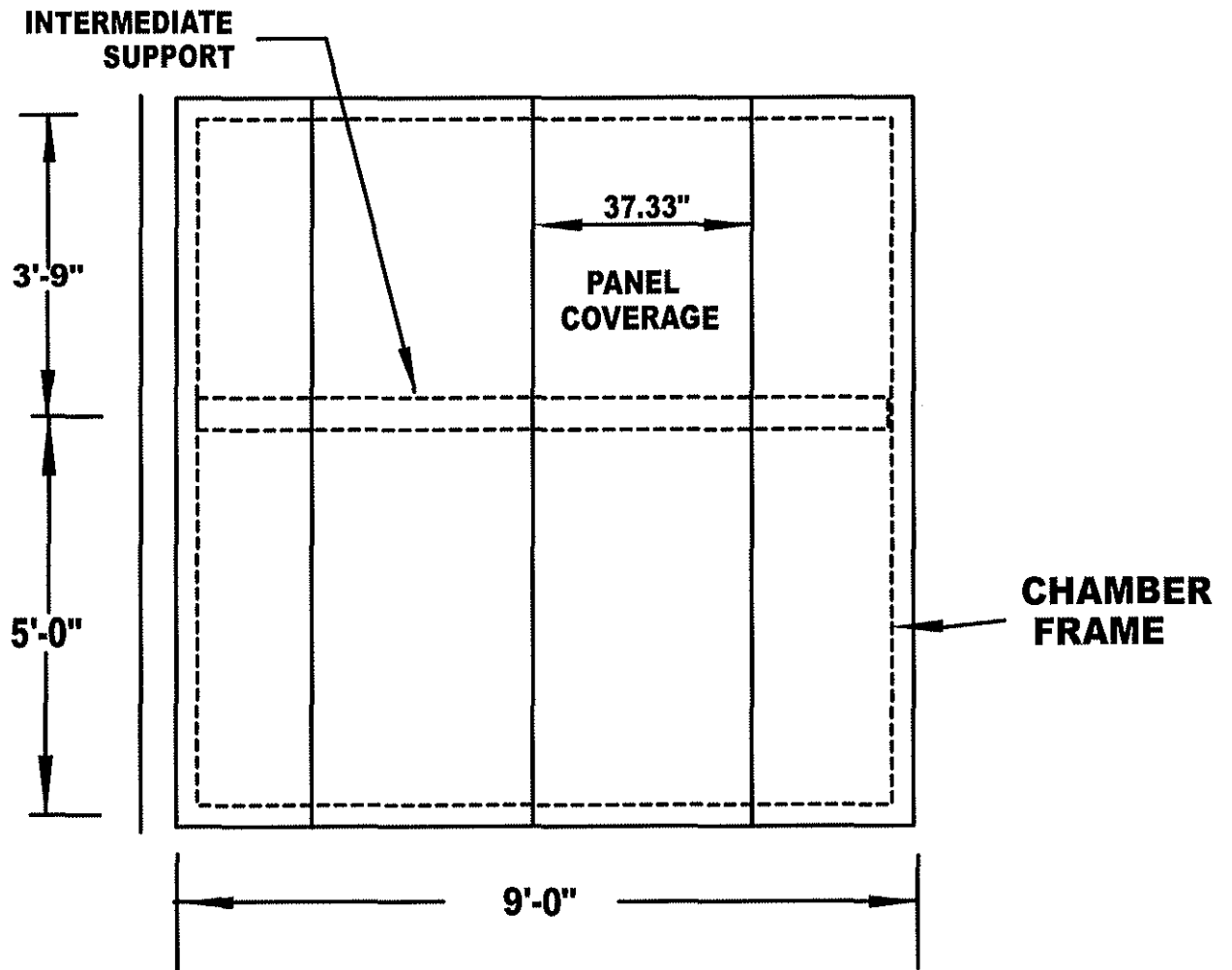
# 2.67" X 7/8" CORRUGATED

PANEL PROFILE



APPLICATION →  
PREVAILING WIND ←





**PLAN VIEW**