

Farabaugh Engineering and Testing Inc.

Project No. T113-17

Report Date: January 23, 2017

No. Pages: 8 (inclusive)

**ASTM E-283 AIR LEAKAGE TEST
ASTM E331 WATER PENETRATION TEST
ASTM E330 UNIFORM LOAD STRUCTURAL TEST
AAMA 501.1 DYNAMIC WATER PENETRATION TEST**

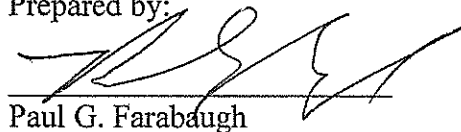
ON

**PRECISION DIAMOND TILE PANEL
7-1/4" WIDE X 0.032" ALUMINUM**

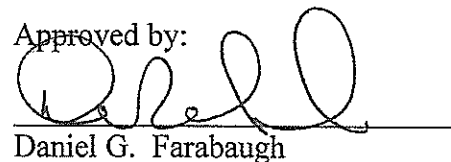
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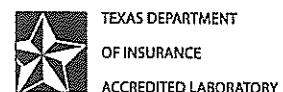
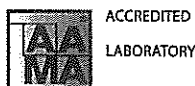
**PETERSEN ALUMINUM CORP.
10551 PAC ROAD
TYLER, TX. 75707**

Prepared by:


Paul G. Farabaugh

Approved by:


Daniel G. Farabaugh



Project No. T113-17

Purpose

The purpose of this test is to establish the air, water and dynamic water infiltration rates and structural loading on the test specimen mock-up in accordance with the referenced test standards and as provided herein.

Referenced Test Standards

1. ASTM E 283-04 “Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen”
2. ASTM E 331-00 “Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors and Curtain Walls by Uniform Static Air Pressure Difference”
3. AAMA 501.1-05 “ Standard Test Method for Water Penetration of Windows, Curtain Walls and Doors Using Dynamic Pressure”
4. ASTM E-330-02 “Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference”

Test Completion Date

1/16/17

Manufacturer: Petersen Aluminum
10551 PAC Rd.
Tyler, TX. 75707

Product Identification

Specimen: Precision Diamond Tile Panel, 7-1/4” wide, 0.032" aluminum

Substrate: 5/8" plywood decking / W. R. Grace Ice & Water Shield roof underlayment membrane

Test Specimen Assembly

The test mock-up was a 8' wide X 8' high (nominal) Precision Diamond Tile System mock-up. The mock-up frame was a wood frame comprised of 2 x 10 perimeter supports with intermediate 2 x 10 supports at 2'-0" o.c. 5/8" plywood was then attached to 2 x 10 wood structural framing supports using 8d x 2-1/2" long ring shank nails. The nail pattern is 6" o.c. in the field and 6" o.c. around the perimeter. A layer of Self Adhering Waterproof Membrane was on top of the plywood sheathing substrate and wrapped around the perimeter sides of the wood buck. The Precision Diamond Tile Panels were attached thru the top layer of underlayment membrane and into the plywood substrate using (2) #10 -13 x 1" long GP Concealor screws. Fasteners were located at the pre-punched fasteners holes spaced at 6-3/8" o.c. on the top nail flange for each panel. Additional screws were added around perimeter of the mock-up at top and bottom of panel when needed to secure perimeter panels to plywood.. Specimen was built and tested with the panels running on a 45 degree angle. All fasteners for the panel were the #10-13 x 1" long GP Concealor screws.

- NOTE: For Structural Test only - A plastic barrier was located between the panels and the underlying substrate.

Test Procedure

The tests were conducted using the test procedures per the referenced test standards. Tests were performed at the given test pressures and test data was recorded as shown on the attached data sheets.

Project No. T113-17

TEST RESULTS

Date: 1/16/17

Ambient Temperature = 60 deg. F

Barometric Pressure = 30.30" Hg

ASTM E-283 AIR INFILTRATION LEAKAGE TEST

TEST PRESSURE (PSF)	TOTAL AIR LEAKAGE RATE (CFM)	AIR INFILTRATION RATE (CFM/SF)
15	0.82	0.013
12	0.82	0.013
6.24	0.68	0.011

Based on 64 sq.ft.

ASTM E-331 WATER PENETRATION TEST

TEST PRESSURE (PSF)	WATER SPRAY RATE GAL/SF/HR	TEST DURATION (MIN)	RESULTS
15.00	5	15	PASS - NO VISIBLE LEAKAGE

AAMA 501.1 DYNAMIC WATER TEST

POSITIVE PRESSURE (INFILTRATION)

Test Pressure (psf)	Water Spray Rate (gal/sf/hr)	Time Duration (min)	Comments
15	5	15	No Leakage

Results:

As a result of the test pressure and water spray for the specified time duration, there was no water leakage on the interior side of the specimen assembly.

Project No. T113-17

ASTM E330 UNIFORM LOAD TEST

Specimen: Precision Diamond Tile Panel, 7-1/4" wide, 0.032" aluminum

Panel Fastener Spacing on Nail flange: 6.375" o.c

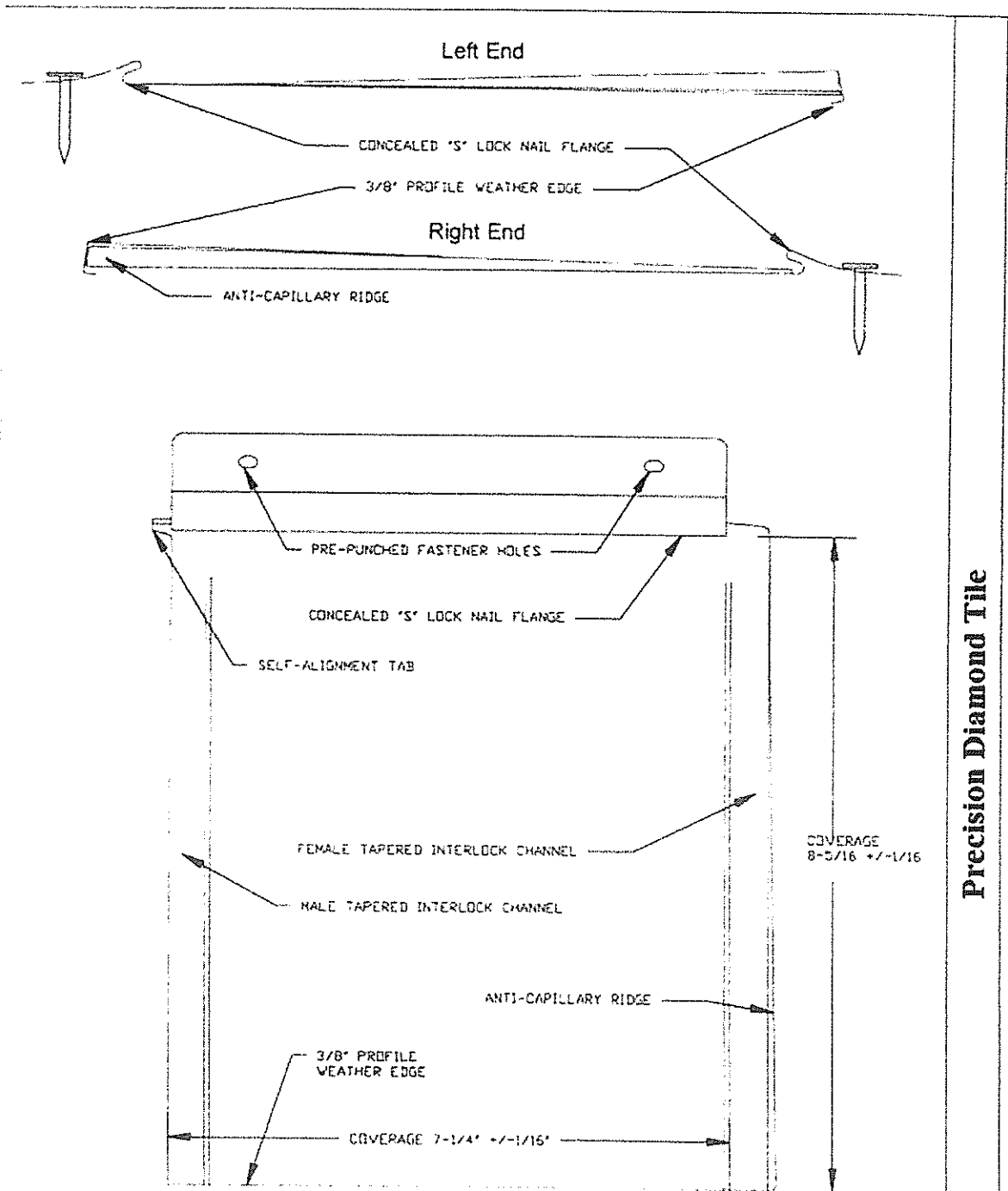
NEGATIVE PRESSURE

PRESSURE (PSF)	NET DEFLECTION (INCHES)
0	0.000
25	0.094
0	0.000
50	0.156
0	0.000
75	0.219
0	0.031
112.6	0.281
0	0.031

Maximum Net Deflection is $D2 - (D1 + D3)/2 =$ Net Deflection of Panel

RESULTS

Upon completion of the testing at the negative pressures noted above there were no noticeable failures of the specimen



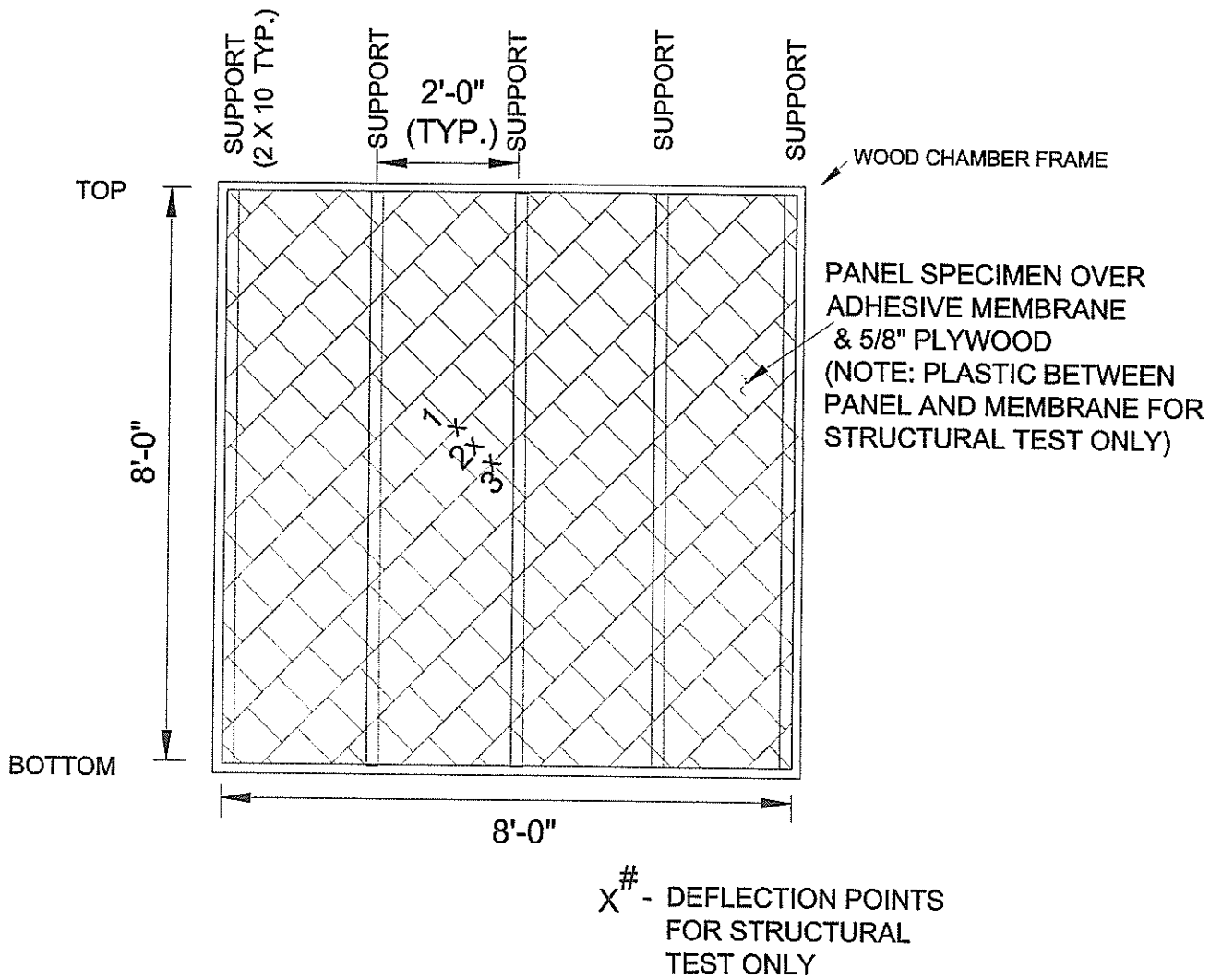
Precision Diamond Tile

Precision Diamond Tile - Profile Detail

MILLENNIUM tiles	*STANDARD COLORS	EA. AVAILABLE	MATERIALS	FINISH
	NATURAL, PEWTER, VERDE, SPINEL, BLUE SLATE, BRONZE-GOLD, BURGUNDY, RUFFLE-BLUE, PEACOCK, BLUE-GREEN, OFFICIAL (PHOTOCHROMIC PRESH ONLY)	24 GAUGE (48")	COVALED STEEL + ZINC/ALU	STANDARD EFFORT (RAL 9011 OR)
			32 IN AVAILABLE	
			8 UP x 7 UP	

*The Physics of Light Transmittance Color LED process without additional cost from being 100% uniform

TEST SETUP



PLAN VIEW OF PANELS

Project No. T113-17

TENSILE TEST REPORT

Client: Petersen Aluminum
10551 PAC Rd.
Tyler, TX. 75707

Test Date: January 16, 2017

Test Method: ASTM B557-10

Material Description: Precision Diamond Tile Panel, 7-1/4" wide, 0.032" aluminum

Sample No.	Width (in)	Thickness (in)	Yield Load (lb)	Max. Load (lb)	0.2% Offset Yield Strength (psi)	Tensile Strength (psi)	Elongation (% in 2 inches)
0002-17	0.503	0.029	347.9	351.5	23,851	24,097	4.02

Equipment Used: Tensile Machine #QT7-061196-020
Caliper #1074379
Extensometer #10311744D
Micrometer #110596927