Farabaugh Engineering and Testing Inc.

Project No. T243-23

Report Date: August 8, 2023

No. of Pages: 7 (inclusive)

PERFORMANCE TEST REPORT

ASTM E330 UNIFORM LOAD STRUCTURAL TEST

ON

BOARD & BATTEN WALL PANEL
(12" WIDE X 24 GA.)

FOR

SHEFFIELD METALS
5467 EVERGREEN PARKWAY
SHEFFIELD VILLAGE, OH. 44054

Prepared by:

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Approved by:

Daniel G. Farabaugh

PERFORMANCE TEST REPORT

Purpose

The purpose of this test is to establish structural loading on the referenced test specimen in accordance with ASTM E-330.

Test Specimen

Manufacturer: Sheffield Metals
5467 Evergreen Parkway
Sheffield Village, OH. 44054

Panel Board & Batten Wall Panel, 12" (nominal) wide x 24 ga. steel

Substrate: 15/32" APA plywood (1/2" nominal)
Span Rating: 32/16
Grade of Plywood: C-D
Number of Plys: 4 ply

Test Date Completion:

8/13/20

Installation

- The 15/32" APA plywood was attached to the wood joist (2x10) supports (spaced at 2'-0" o.c.) using 8d ring shank nails at 6" o.c. around the perimeter and at interior supports.

- The metal roof panels were attached to the wood deck substrate using #10-12 X 1" long, pancake head, wood screw at 12-7/8" o.c. along length of the panel as shown on attached drawings. The screws were attached at 12-7/8" o.c.(every other nailstrip hole) as shown on drawings. The panel sidejoint was a sliding interlocking joint. The outer perimeter of the assembly was secured with perimeter fastening as required to maintain a periphery seal.

- A plastic barrier was located between the panels and the underlying substrate on the negative test and on top of the panels during the positive test.

Test Apparatus

A test chamber was used with two static pressure taps located at diagonally opposite corners. A controlled blower provided a uniform pressure load the specimen mock-up. Calibrated manometers were used to measure the pressure at each pressure tap. The uniform load pressure was performed in the positive and negative direction on the specimen mock-up. Calibrated deflectometers were attached to monitor screen and perimeter supports deformation as shown.

Test Procedure

The tests were conducted in accordance with ASTM E-330/330M-14, "Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference "and as provided herein. Note: Panels were tested in the positive and negative pressure direction.

TEST RESULTS

ASTM E330 UNIFORM LOAD TEST

Panel Tested: Board & Batten Wall Panel, 12" (nominal) wide x 24 ga. steel

Test Condition: Panels attached to 15/32" plywood @ 12-7/8" o.c.

POSITIVE PRESSURE

Load Pressure (in-h20)	Load Pressure (psf)	Deflection #1 (in)	Deflection #2 (in)	Deflection #3 (in)	Deflection #4 (in)
0	0.0	0.000	0.000	0.000	0.000
5.76	30.0	0.216	0.298	0.230	0.299
0	0.0	0.056	0.012	0.066	0.020
8.65	45.0	0.321	0.408	0.335	0.405
0	0.0	0.088	0.040	0.099	0.050
11.53	60.0	0.400	0.491	0.414	0.486
0	0.0	0.114	0.065	0.124	0.074
17.3	90.0	0.562	0.661	0.574	0.649
0	0.0	0.162	0.110	0.170	0.117

RESULTS

Load held for 10 seconds = 90 psf

Maximum Test Load: = 90 psf - (NO Failures)

TEST RESULTS

ASTM E330 UNIFORM LOAD TEST

Panel Tested: Board & Batten Wall Panel, 12" (nominal) wide x 24 ga. steel

Test Condition: Panels attached to 15/32" plywood @ 12-7/8" o.c.

NEGATIVE PRESSURE

Load Pressure (in-h20)	Load Pressure (psf)	Deflection #1 (in)	Deflection #2 (in)	Deflection #3 (in)	Deflection #4 (in)
0	0.0	0.000	0.000	0.000	0.000
1	5.2	0.000	0.000	0.000	0.000
0	0.0	0.000	0.000	0.000	0.000
2	10.4	0.000	0.062	0.000	0.125
0	0.0	0.000	0.000	0.000	0.000
3	15.6	0.062	0.187	0.062	0.250
0	0.0	0.000	0.000	0.000	0.000
4	20.8	0.125	0.437	0.062	0.437
0	0.0	0.000	0.000	0.000	0.000
5	26.0	0.187	0.625	0.125	0.625
0	0.0	0.000	0.000	0.000	0.000
6	31.2	0.025	0.812	0.125	0.812
0	0.0	0.000	0.000	0.000	0.000
8	41.6	0.375	1.062	0.250	1.062
0	0.0	0.000	0.000	0.062	0.062
10	52.0	0.437	1.250	0.312	1.187
0	0.0	0.000	0.000	0.062	0.062
12	62.4	0.625	1.500	0.437	1.500
0	0.0	0.063	0.000	0.062	0.062
14	72.9	0.750	1.625	0.500	1.625
0	0.0	0.063	0.062	0.062	0.062
16	83.3	0.813	1.812	0.625	1.812
0	0.0	0.063	0.062	0.062	0.062

RESULTS

Load held for 10 sec. = 83.2 psf

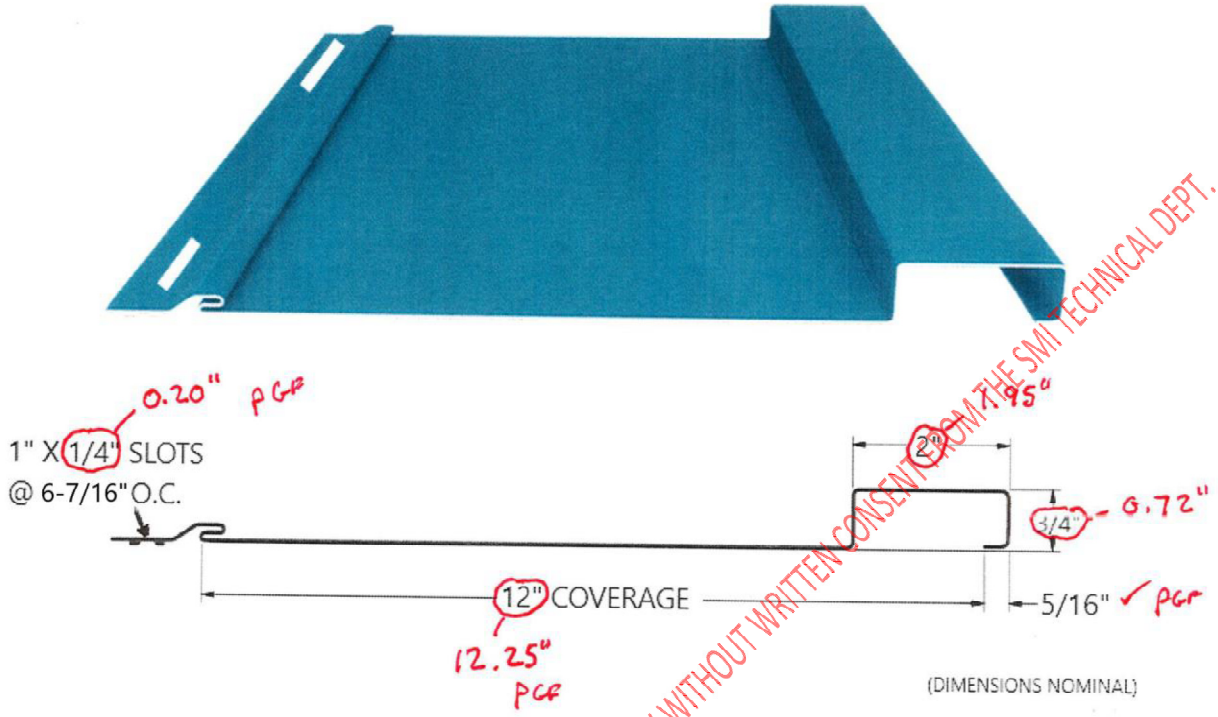
Maximum Test Load: = 87.3 psf - Panel pulled over Fastener head/tear out.

TEST SET UP

NOTE:- DEFECTION POINT #1 AT FASTENER LOCATION
A = FASTENER LOCATION / 2

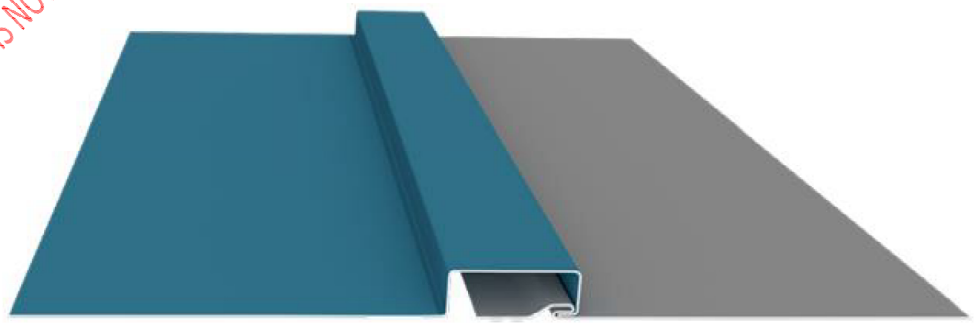
X# - DEFLECTION LOCATION

PLAN VIEW OF PANELS

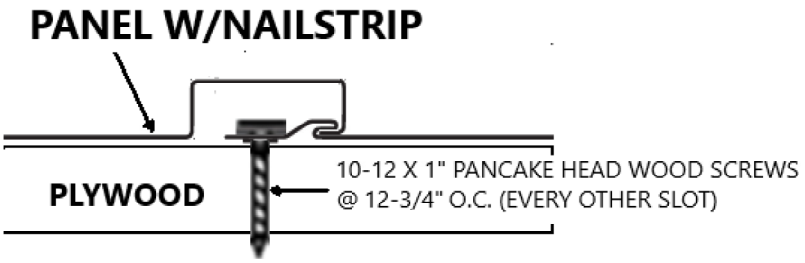


F. E. T. INC.
Review for general compliance with test report AS NOTED ONLY
BY: PCF
PROJECT # T243-23

BOARD & BATTEN WALL PANEL PROFILE



SEAM DETAIL



PANEL LAP

TENSILE TEST REPORT

Manufacturer: Sheffield Metals
5467 Evergreen Parkway
Sheffield Village, OH. 44054

Test Date: August 8, 2023

Test Method: ASTM A370-10(steel)

Material Description: Board & Batten Wall Panel, 12" (nominal) wide x 24 ga. steel

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)
230064	0.502	0.022	637.57	703.34	57,730	63,685	24.1

Equipment Used: Tensile Machine #QT7-061196-020
Caliper #14682489
Extensometer #10311744D
Micrometer #142-225

Revision Log

Rev. #	Date	Page(s)	Revision(s)
0	8/8/23	N/A	Original report issue.