



Farabaugh Engineering and Testing Inc.

Project No. T299-12MM

Report Date: September 14, 2012

No. Pages: 8 (inclusive)

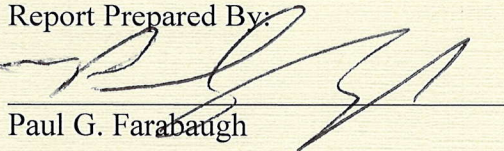
UL1897 UPLIFT RESISTANCE TESTING

MILAN STEEL ROOF SHINGLE 0.0142" THICK STEEL

FOR

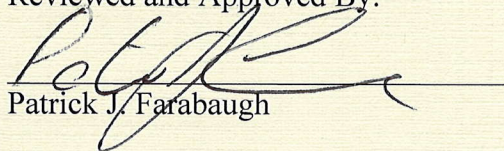
MCELROY METAL INC.
1500 HAMILTON ROAD
BOSSIER CITY, LA 71111

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Patrick J. Farabaugh



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Project No. T299-12MM

Purpose

This test method covers the evaluation of uplift resistance of roof assemblies per UL 1897-98, rev. 1999 and as provided herein.

Test

Milan Steel Roof Shingle 0.0142" thick x 12-1/4" coverage

Test Specimen

Manufacturer: McElroy Metal, Inc.
1500 Hamilton Road
Bossier City, LA 71111

Specimen: Milan Steel Shingle (0.0142" thick x 12-1/4" coverage)

Substrate: 15/32" Plywood,

Testing Apparatus

Test Chamber: The test chamber consist of three sections: a top section to create a uniform vacuum, a center section in which the roof assembly is constructed, and a bottom section to create a uniform positive pressure.

Pressure Measurement: A static pressure tap was provided to measure the chamber pressure using a calibrated manometer.

Air System: The air pressure system consists of controllable blowers with an adjustable pressure relief capable of providing constant static air pressure differential across the roofing system for the test duration.

Reference

This test report is referenced to the original report, Project No. T299-12 as prepared by FET for Isaiah Industries. As per Isaiah Industries, McElroy Metals, Inc. is licensed for the product originally tested, under the product name given in this report.

Project No. T299-12MM

Test Assembly

- The 15/32" plywood was attached to 2 x 10 wood structural framing supports using 8d x 2-1/2" long ring shank nails @ 6" o.c. in the field and 6" o.c. at perimeter
- The metal roof shingles were attached to the wood deck substrate using galvanized ring shank nails (0.125" dia. X 1-3/4" long, 3/8" dia. head) 6 per panel. The panel was thru-fastened around the perimeter with #10-14 X 2" long hex head (high-low) fasteners with 1/2" dia. steel seal washer located at 6" o.c..
- A plastic barrier was located between the panels and the underlying substrate.

Test Procedure

- The test assembly was subjected to positive and negative pressures to form an uplift pressure at the values and time duration as shown in the attached table.
- Each pressure increment was held for at least 1 minute.
- Vertical movement of the assembly during the tests was recorded.

Project No. T299-12MM

UL 1897 UPLIFT TEST

Test Date: 9/12/12

Test Specimen: Milan Steel Roof Shingle, 0.0142" thick steel

Deflection Measurements

Total Uplift Pressure (psf)	Time Duration (min)	#1 (in)	#2 (in)	#3 (in)	#4 (in)
0	-	6-11/16	6-13/16	6-3/8	6-3/8
10.4	1	6-9/16	6-11/16	6-5/16	6-5/16
20.8	1	6-3/8	6-1/4	6-1/8	6-1/8
31.2	1	6-1/8	5-15/16	5-13/16	5-11/16
41.6	1	5-7/8	5-11/16	5-5/8	5-3/8
52.0	1	5-5/8	5-7/16	5-3/8	5-1/8
62.4	1	5-3/8	5-1/8	5-1/8	4-13/16
72.9	1	5-1/8	4-7/8	4-7/8	4-5/8
83.3	1	4-7/8	4-5/8	4-11/16	4-5/16
93.7	1	4-5/8	4-1/4	4-7/16	4-1/16

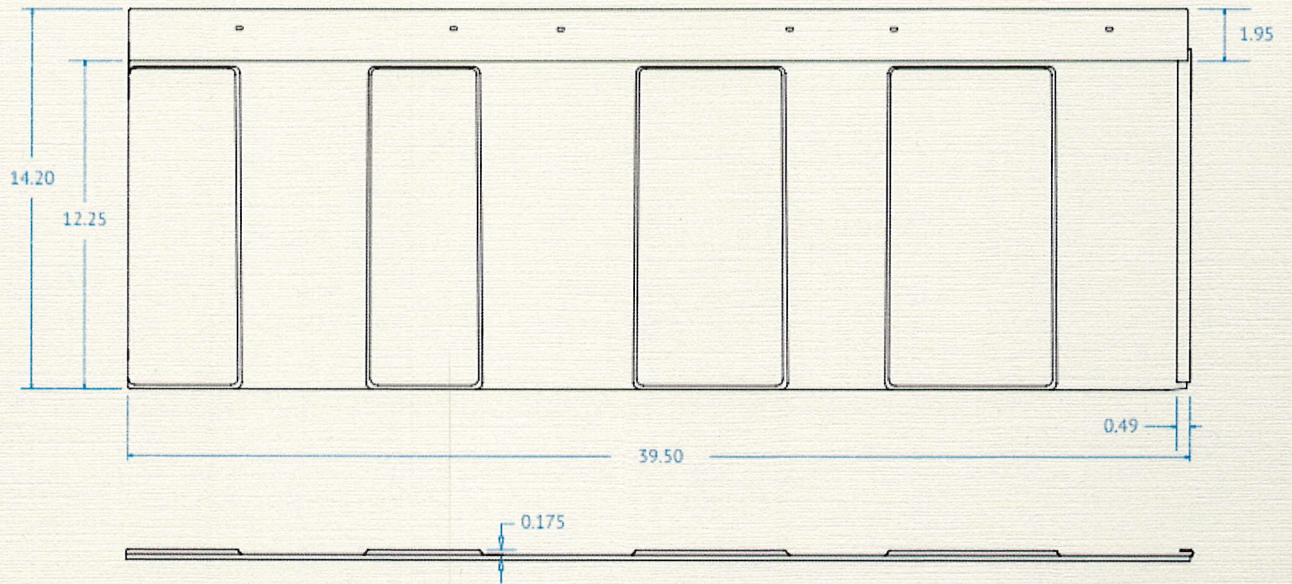
Results:

Maximum Total Uplift Pressure (sustained for 1 min.) = 93.7 psf

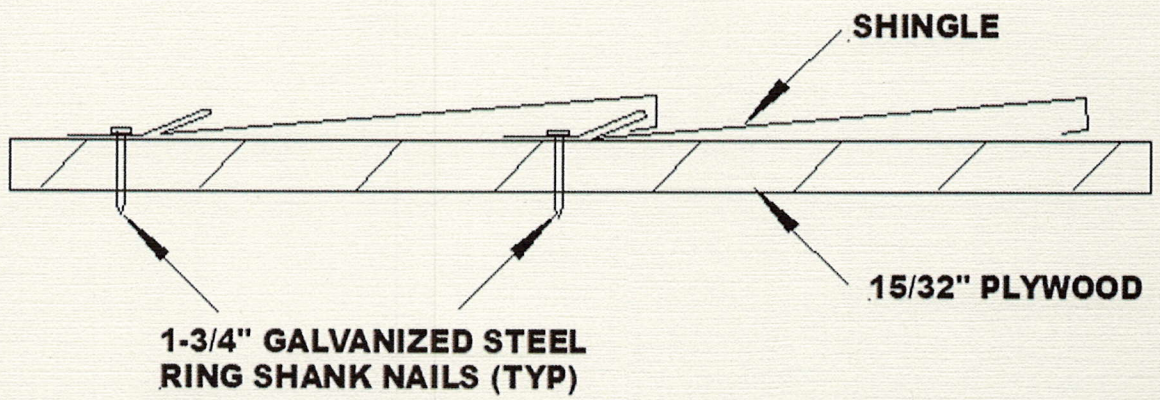
Maximum Total Uplift Test Pressure (failure) = 102.5 psf
(Seam Disengagement)

Project No. T299-12MM

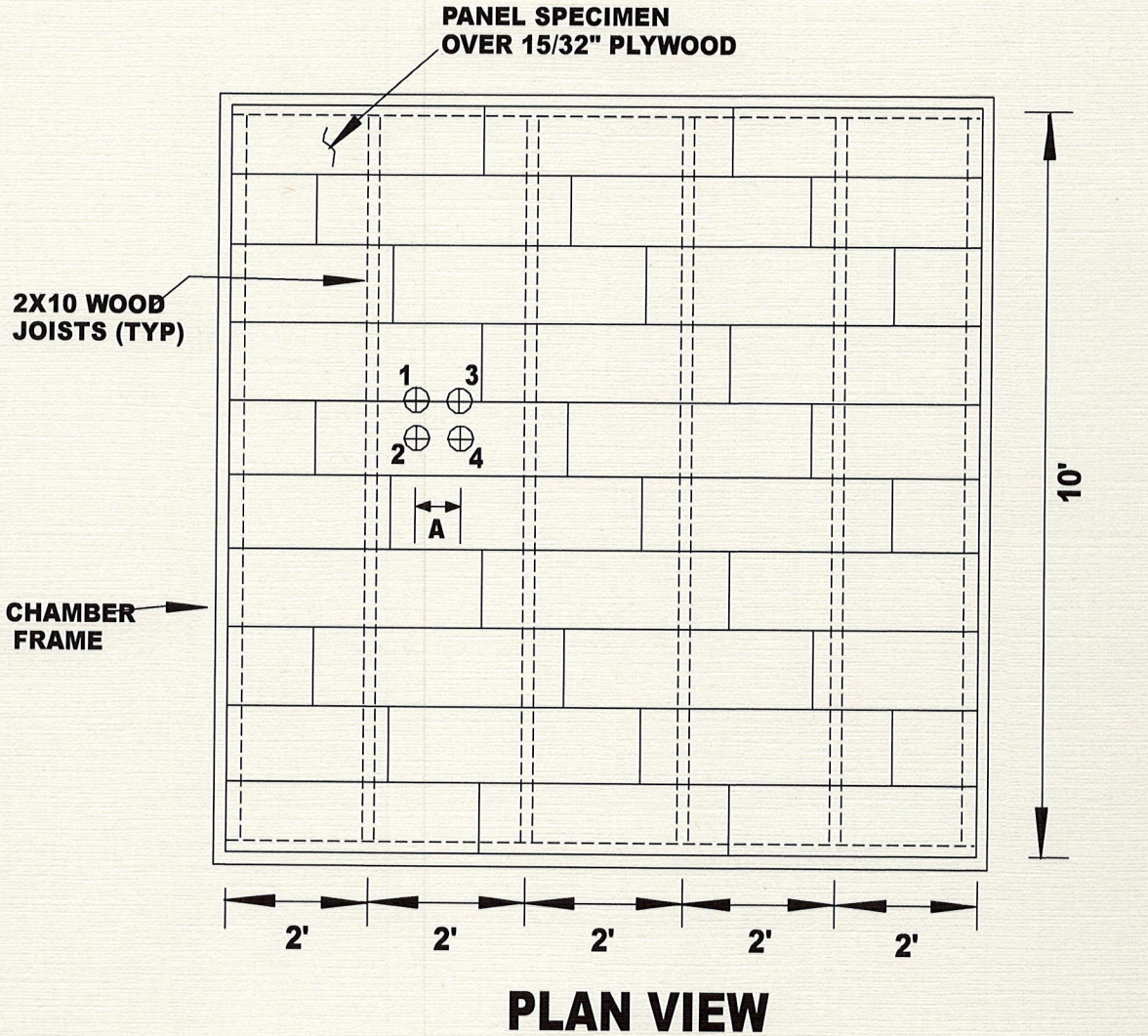
MILAN STEEL ROOF SHINGLE



Project No. T299-12MM



ELEVATION VIEW



**NOTES: DEFLECTION POINT #1 AT FASTENER LOCATION
A = FASTENER SPACING / 2**

⊕ **DEFLECTION POINT**

PANEL STAGGER PATTERN
1ST & 4TH & 7TH AND 10TH ROW: FULL PANEL/FULL/PARTIAL
2ND & 5TH & 8TH ROW: 2/3 PANEL/FULL/FULL/PARTIAL
3RD & 6TH & 9TH ROW: 1/3 PANEL/FULL/FULL/PARTIAL

Project No. T299-12MM

TENSILE TEST REPORT

Client: McElroy Metal, Inc.
1500 Hamilton Road
Bossier City, LA 71111

Test Date: September 19, 2012

Test Method: ASTM A370-10

Material Description: Milan Steel Roof Shingle, 0.0142" thick 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)
0087-12	0.498	0.015	332.5	422.0	44,523	56,504	20.51

Equipment Used: Tensile Machine #QT7-061196-020
Caliper #081410113-1
Extensometer #10311744D
Micrometer #142-225