Force Engineering & Testing Inc.
19530 Ramblewood Drive
Humble,TX 77338

Product Evaluation Report

RPS METAL ROOFING & SIDING, INC.

Min. 26 Ga. Super Pro PBR Roof Panel over 1x4 Wood Purlins over 15/32" Plywood

Florida Product Approval # 6095.6 R5

Florida Building Code 2017
Per Rule 61G20-3
Method: 1 –D

Category: Roofing
Subcategory: Metal Roofing
Compliance Method: 61G20-3.005(1)(d)
NON HVHZ

Product Manufacturer:
RPS Metal Roofing & Siding, Inc.
302 4th Ave.
Welaka, FL 32193

Engineer Evaluator:
Terrence E. Wolfe, P.E. # 44923
Florida Evaluation ANE ID: 1920

Validator:
Brian Jaks P.E. #70159

Contents:
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TERRENCE E. WOLFE
LICENSE
No. 44923
STATE OF
FLORIDA
PROFESSIONAL ENGINEER

State of Florida
COA
#26778

APRIL 18, 2019

Force Engineering & Testing Inc.
19530 Ramblewood Drive
Humble,TX 77338

Compliance Statement: The product as described in this report has demonstrated compliance with the Florida Building Code 2017, Sections 1504.3.2, 1504.7.

Product Description: Super Pro PBR Roof Panel, Min. 26 Ga. Steel, 36" coverage, through fastened roof panel over 1x4 wood purlins over one layer of asphalt shingles (optional) over min. 15/32" APA Plywood decking. Non-Structural Application.

Panel Material/Standards: Material: 26 Ga. Steel, ASTM A792 or ASTM A653 G90 conforming to Florida Building Code 2017 Section 1507.4.3.
Yield Strength: Min. 80.0 ksi
Corrosion Resistance: Panel Material shall comply with Florida Building Code 2017, Section 1507.4.3.

Panel Dimension(s):

Thickness:	0.0185" min.
Width:	36" maximum coverage
Rib Height:	1 ¼" tall major ribs at 12" O.C.

Panel Fastener: #10 x 1 ½" Kwikseal MB Woodbinder HWH w/ sealing washing or approved equal.

¼-14 x 7/8" Steelbinder HWH Stitch with sealing washer through panel side laps at 20" O.C.
Corrosion Resistance: Per Florida Building Code 2017, Section 1507.4.4.

Substrate Description: Min. 1x4 No. 2 SYP wood purlins over maximum one layer of asphalt shingles/felt paper (optional) over min. 15/32" thick, APA Rated plywood over supports at maximum 24" O.C. The 1x4 wood purlins attached through sheathing into rafters with (2) #9 x 3" deck screws (Min. 1 ½" screw penetration into rafters) at 24" O.C. maximum. Substrate must be designed in accordance w/ Florida Building Code.

Allowable Design Uplift Pressures:

Table "A"

Maximum Total Uplift Design Pressure:	108.5 psf	183.5 psf
Fastener Pattern:	12"-12"-12"	7"-5"-7"-5"-7"
Fastener / 1x4 Purlin Spacing:	24" O.C.	12" O.C.

*Design Pressure includes a Safety Factor = 2.0.

TERRENCE E. WOLFE LICENSE No. 44923 STATE OF FLORIDA PROFESSIONAL ENGINEER

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FL# 6095.6 R5

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19530 Ramblewood Drive
Humble,TX 77338

Code Compliance:

The product described herein has demonstrated compliance with The Florida Building Code 2017, Section 1504.3.2, 1504.7.

Evaluation Report Scope:

The product evaluation is limited to compliance with the structural wind load requirements of the Florida Building Code 2017, as relates to Rule 61G20-3.

Performance Standards:

The product described herein has demonstrated compliance with:

- UL 580-06 - Test for Uplift Resistance of Roof Assemblies
- UL 1897-2012 - Uplift Test for Roof Covering Systems
- FM 4471-92 - Foot Traffic Resistance Test

Reference Data:

1. UL 580-06 / 1897-12 Uplift Test
   Force Engineering & Testing, Inc. (FBC Organization # TST-5328)
   Report No. 118-0037T-19C, D
2. FM 4471-10, Section 4.4 Foot Traffic Resistance Test
   Force Engineering & Testing, Inc. (FBC Organization # TST-5328)
   Report No. 118-0036T-19E
3. Certificate of Independence
   By Terrence E. Wolfe, P.E. (No. 44923) @ Force Engineering & Testing, Inc.
   (FBC Organization # ANE ID: 1920)

Test Standard Equivalency:

The FM 4471-10, Foot Traffic Resistance test standard is equivalent to the FM 4471-92, Foot Traffic Resistance test standard

Quality Assurance Entity:

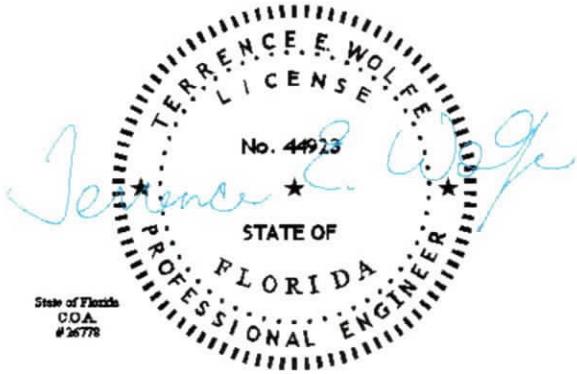
The manufacturer has established compliance of roof panel products in accordance with the Florida Building Code and Rule 61G20-3.005 (3) for manufacturing under a quality assurance program audited by an approved quality assurance entity.

Minimum Slope Range:

Minimum Slope shall comply with Florida Building Code 2017, including Section 1507.4.2 and in accordance with Manufacturers recommendations. For slopes less than 3:12, lap sealant must be used in the panel side laps.

Installation:

Install per manufacturer's recommended details.



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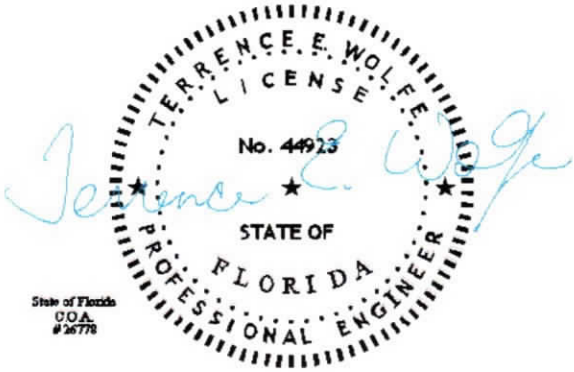
Underlayment: Per Florida Building Code 2017, Section 1507.1.1 and manufacturer's installation guidelines.

Roof Panel Fire Classification: Fire classification is not part of this acceptance.

Shear Diaphragm: Shear diaphragm values are outside the scope of this report.

Design Procedure: Based on the dimensions of the structure, appropriate wind loads are determined using Chapter 16 of the Florida Building Code 2017 for roof cladding wind loads. These component wind loads for roof cladding are compared to the allowable pressure listed above. The design professional shall select the appropriate erection details to reference in his drawings for proper fastener attachment to his structure and analyze the panel fasteners for pullout and pullover. Support framing must be in compliance with Florida Building Code 2017 Chapter 22 for steel, Chapter 23 for wood and Chapter 16 for structural loading.

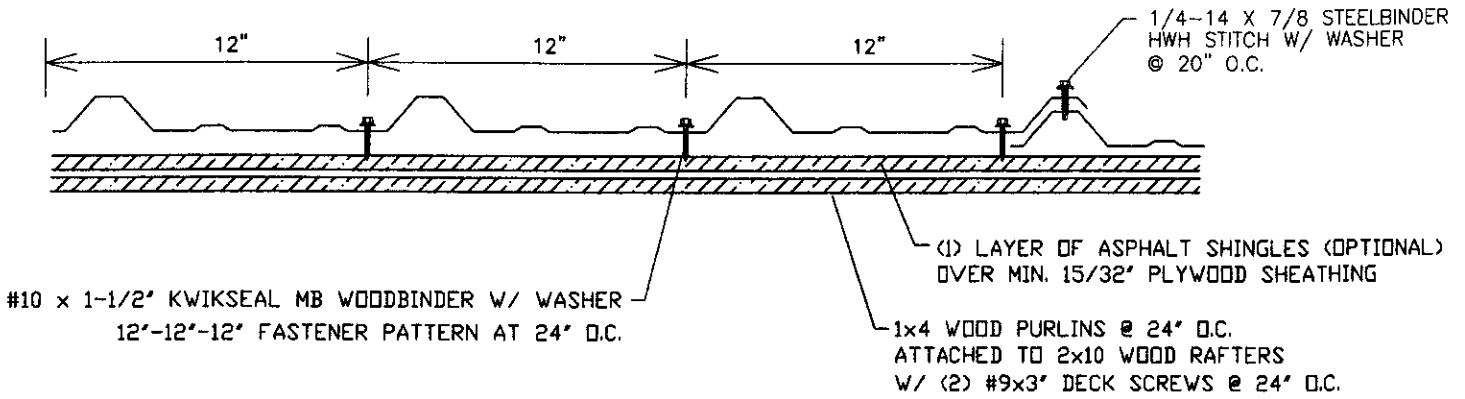


State of Florida
COA
#26778

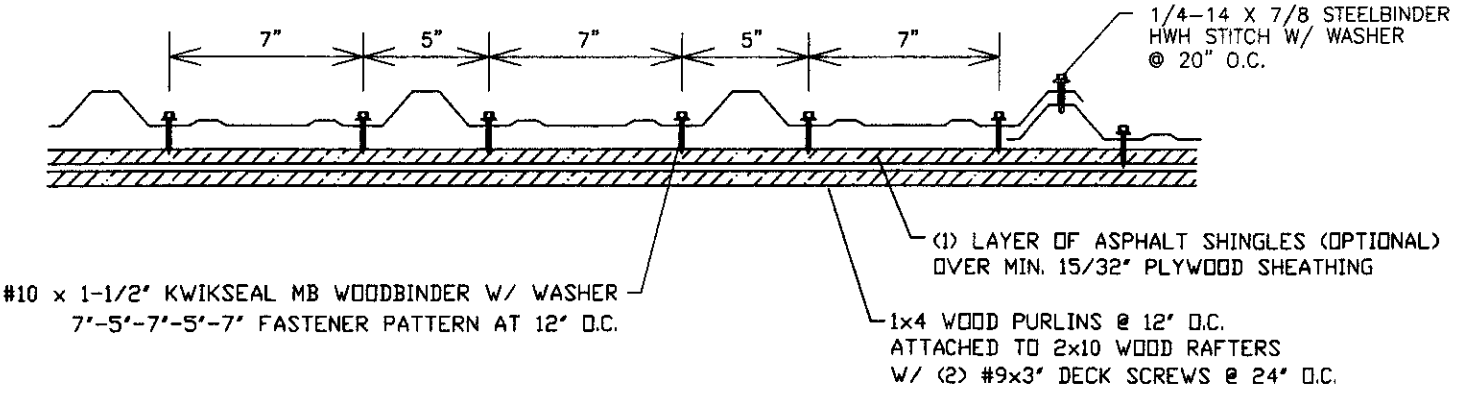
FL# 6095.6 R5

APRIL 18, 2019

12"-12"-12" FASTENER PATTERN AT 24" O.C.



7"-5"-7"-5"-7" FASTENER PATTERN AT 12" O.C.



State of Florida C.O.A. # 25778

APR 1 6 2019

TERRENCE E. WOLFE
LICENSE
No. 44923
STATE OF FLORIDA
PROFESSIONAL ENGINEER

Terrence E. Wolfe

Force Engineering & Testing, Inc.
19530 Ramblewood Drive
Humble, Texas 77338
Phone: (281) 540-6603
Fax: (281) 540-9966
www.forceengineeringtesting.com

Project Number: 118-0037T-19C, D

Test Report Date: April 2, 2019

Test Report Expiration Date: April 2, 2029

Test Material: 26 Ga. Super Pro PBR Panel 36" Coverage

Test Procedure: The test was conducted in accordance with
TAS 125-03
UL 580-06 / UL 1897-2012

Test Location: Force Engineering & Testing Inc.
19530 Ramblewood Drive
Humble, Texas 77338

26 Ga. Super Pro PBR Panel

(Over 1x4 Wood Purlins)

Report Prepared by:

Brandon Jasek, P.E.
Lab Manager

Report Reviewed by:

Terrence E. Wolfe, P.E.
Director of Operations

ACCREDITED LABORATORY

TEXAS DEPARTMENT OF INSURANCE ACCREDITED LABORATORY

Project Number: 118-0037T-19C, D

GENERAL:

The subject of this report is a through fastened metal roof panel attaching 1x4 wood purlins.

The object of this investigation was to establish by test, the max uplift pressure for the roof panel described in this report. The test assembly and test were completed under the observation of a licensed professional.

TEST DATES:
March 27 & 29, 2019

TEST ASSEMBLY:

Client/Manu.:	RPS Metal Roofing & Siding, Inc. 710 3rd Avenue PO Box 397 Welaka, Florida 32193
Panel:	26 Ga. Super Pro PBR Panel, 36" coverage, 26 Ga. ASTM A792 Grade 80 Steel, 1 ¼" tall major ribs at 12" O.C.
Panel Properties:	Fy = 96 ksi Steel, 0.018" coated thickness per ASTM E 8 (See Appendix)
Panel Rollformer:	Metal Rollforming Systems
Panel Fastener:	#10 x 1 ½" Kwikseal MB Woodbinder w/ washer by Sealtite
Panel Side Lap:	(1) ¼-14 x 7/8" HWH Stitch Steel binder w/ washer by Sealtite at 20" O.C along the side lap.
Fastener Pattern:	Test C: 12"-12"-12" at 24" O.C. Test D: 7"-5"-7"-5"-7" at 12" O.C.
Panel Length:	9'-11"
Substrate:	1x4 #2 or better grade wood purlins over (1) layer of asphalt shingles over (1) layer of 30# felt paper over 15/32" 4-Ply B-C Group 1 Exterior Plywood. The 1x4 wood purlins spaced at 24" O.C. Test C and 12" O.C. Test D. The 1x4 wood purlins were attached through the shingles/felt/plywood into the 2x10 wood rafters with (2) #9x3" wood screws at 24" O.C. The plywood was attached to the #2 SYP 2x10 wood framing @ 6" O.C. interior/exterior with (1) 8D x 2-1/2" Hot Galv. Ring Shank Patio/Deck Nails. 2x10 wood framing spaced at 24" O.C.

TESTING APPARATUS:
UL 580 Chamber
FET-008, FET-009 & FET-015
Equipment Calibration Date: March 2019

Project Number: 118-0037T-19C, D

PROCEDURE:

1. The roof assembly was subjected to all five phases of the Class 30, Class 60 & Class 90. At the end of each phase the test specimen was inspected.
2. Throughout the test, observations were made of the control of positive and negative pressures and of the condition of the top surface and the under side of the test assembly.
3. The action of the roof assembly during the application of the steady pressures in Phases I, II, IV, and V was a bowing up between screw attachments, with the joists and plywood substrate following the same pattern.
4. The action of the test assembly during the oscillating phase of each test (Phase III) was a rising and settling of the members.
5. After the Class 90 phase, the positive pressure was set at 9.3 inches of water and remained constant; the negative pressure was increased by increments of 15 psf until the panel assembly failed.

RESULTS/CONCLUSIONS:

Test C
The maximum sustained combined test pressure was 217.0 psf. The ultimate combined failure test pressure was 230.0 psf. The failure mode was the panel pulled over the fasteners.

Test D
The maximum sustained combined test pressure was 367.0 psf. The ultimate combined failure test pressure was 375.0 psf. The failure mode was the 2x10 rafters failed.

Note: During this test, tape and plastic were used to seal against air leakage. The tape and plastic had no restrictive influence on the test.

STATEMENT OF INDEPENDENCE:

Force Engineering & Testing, Inc. or any persons employed by them do not have any financial interest in RPS Metal Roofing & Siding, Inc.

Force Engineering & Testing, Inc. is not owned, operated or controlled by RPS Metal Roofing & Siding, Inc.

State of Florida
C.O.A.
25778

APRIL 22, 2019

TERRENCE E. WOLFE
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No.44923
STATE OF
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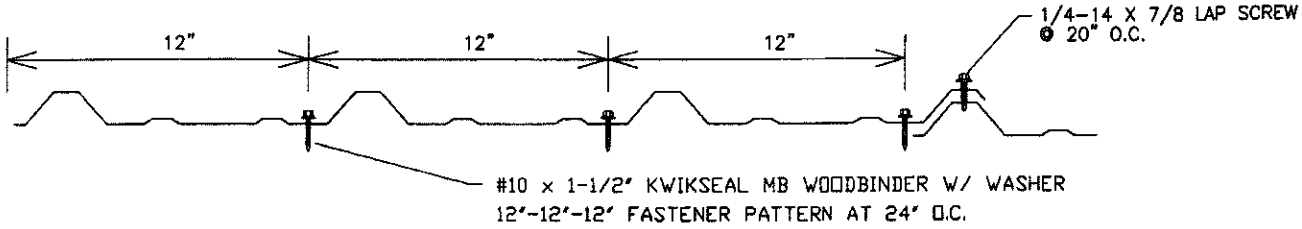
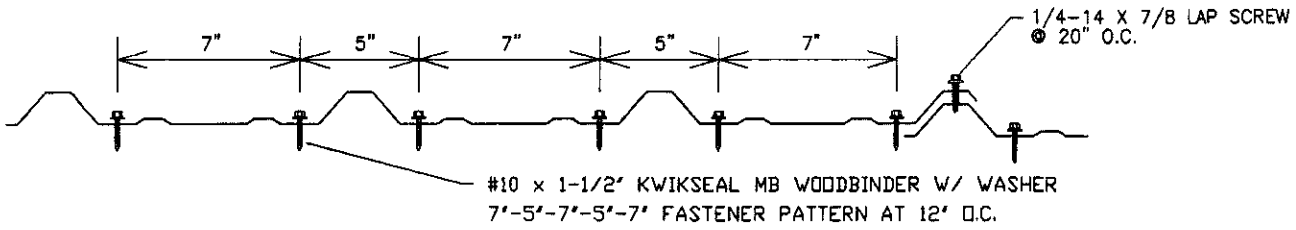
PROFESSIONAL ENGINEER

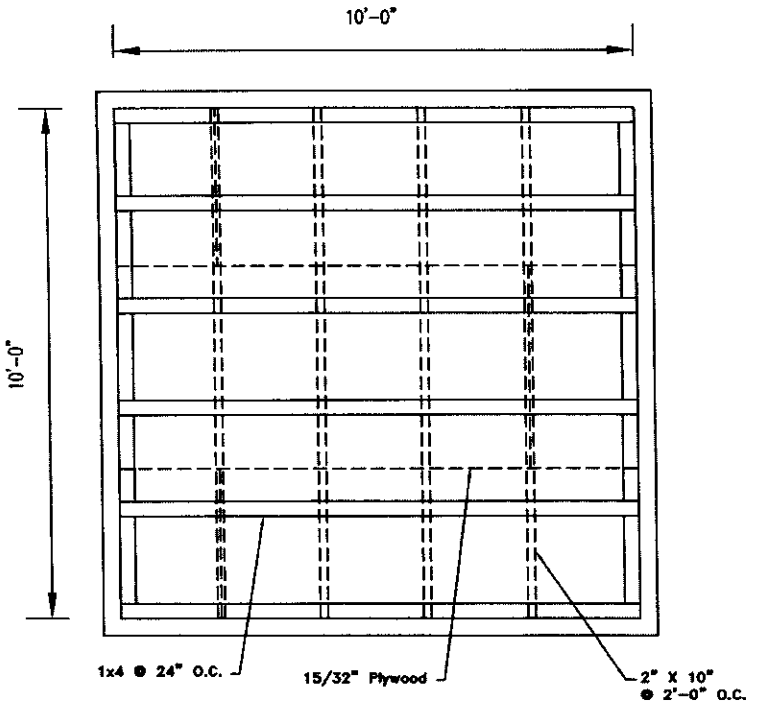
Appendix

TEST C FASTENER PATTERN, 12"-12"-12"

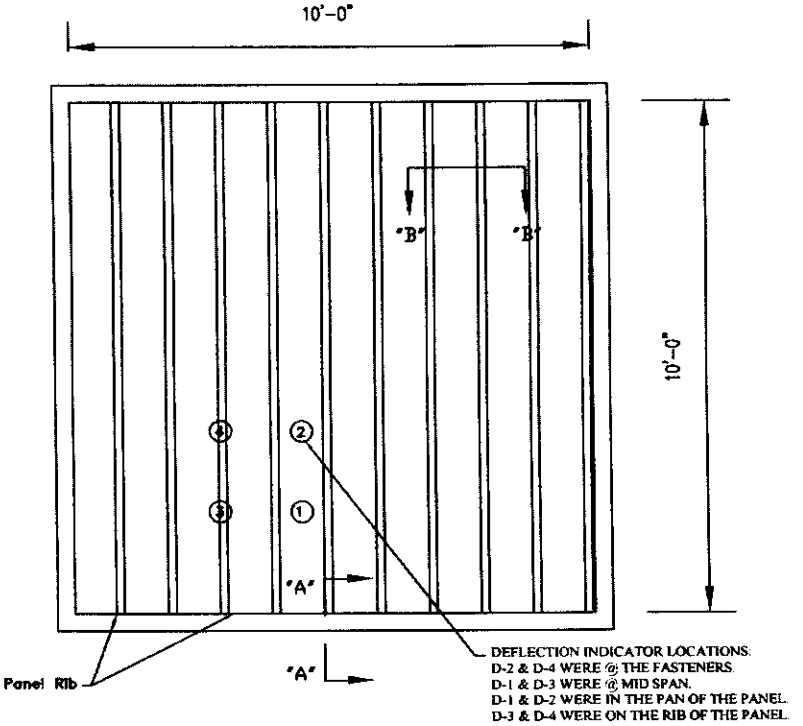


TEST D FASTENER PATTERN, 7"-5"-7"-5"-7"

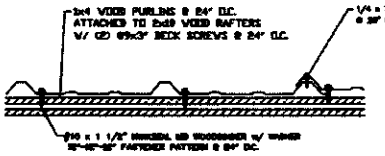




FRAMING LAYOUT



PANEL LAYOUT



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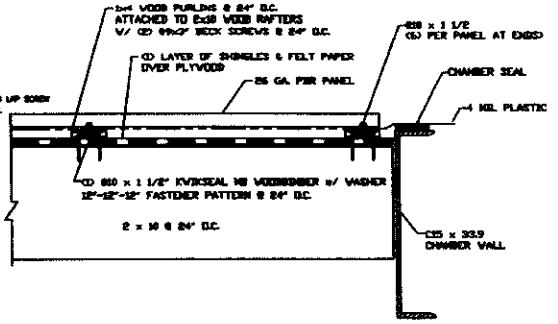


SECTION "A"

Force Engineering & Testing Inc.

TEST:	BY:	DESCRIPTION:	DATE:

PANEL TYPE: 26 GA. Super Pro PBR PANEL

MANUFACTURER: RPS

TEST PROTOCOL: UL 580

CLIP TYPE: None — DATE:

CLIP FASTENER: #10 x 1 1/2" — SPAN: 2'-0" O.C.

QUOTE NUMBER: 118-0037T-19C — MAX PRESSURE:

UL 580 DEFLECTION READINGS

Test Date: 3/27/2019
Project Number: 118-0037T-19C
Panel Description: 26 Ga. Super Pro PBR
Panel Fasteners: (1) #10 x 1 1/2" Kwikseal MB Woodbinder w/ washer @ 12"-12"-12" at 24" O.C.
Panel Clip: 1/4-14 x 7/8" HWH Stitch at 20" O.C. panel side laps
Substrate: 1x4 Wood Purlins at 24" O.C. (2) 9x3" Deck screws into rafter/shingles/felt/15/32" 4-ply

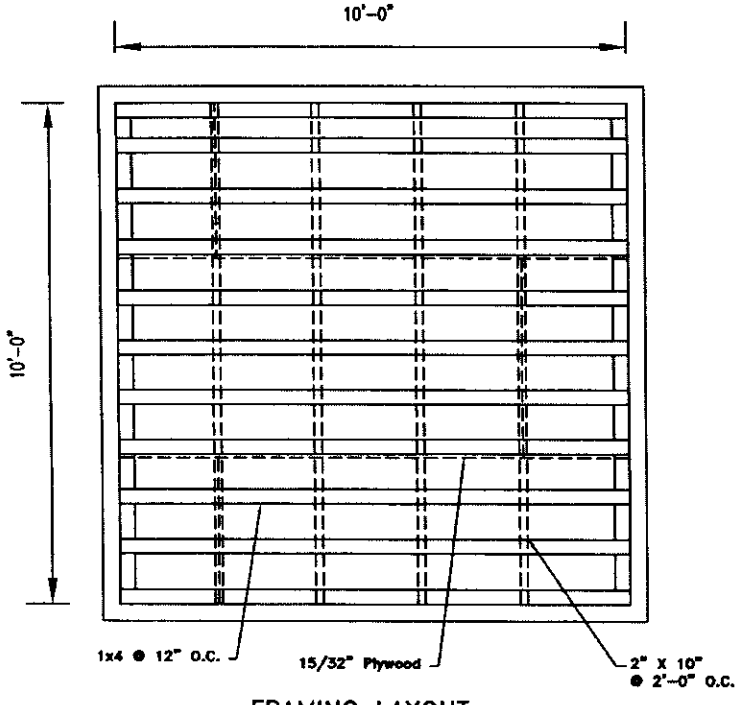
Static Pressure Inches Of H_20 (Neg./Pos.)	Deflection (inches)			
	D-1: Pan Mid	D-2: Pan Fas	D-3: Rib Mid	D-4: Rib Fas
CLASS 30				
0	0.0000	0.0000	0.0000	0.0000
-3.1 / +0	0.2500	0.2500	0.1250	0.0625
-3.1 / +2.7	0.4375	0.3750	0.1875	0.1250
-5.3 / +2.7	0.6250	0.5000	0.2500	0.1250
-4.7 / +0	0.4375	0.3750	0.1875	0.1250
-4.7 / +4.0	0.6250	0.5625	0.2500	0.1250
0	0.0000	0.0000	0.0000	0.0000
CLASS 60				
0	0.0000	0.0000	0.0000	0.0000
-6.2 / +0	0.5625	0.4375	0.2500	0.1250
-6.2 / +5.3	0.8125	0.6875	0.3125	0.1875
-10.7 / +5.3	1.0625	0.8750	0.3750	0.1875
-7.8 / +0	0.7500	0.6875	0.3125	0.1250
-7.8 / +6.7	1.0000	0.8750	0.3750	0.1875
0	0.0000	0.0000	0.0000	0.0000
CLASS 90				
0	0.0000	0.0000	0.0000	0.0000
-9.3 / +0	0.8125	0.6875	0.3125	0.1250
-9.3 / +8.0	1.0625	0.9375	0.3750	0.1875
-9.3 / +8.0	1.0625	0.9375	0.3750	0.1875
-10.9 / +0	0.9375	0.8125	0.3125	0.1250
-10.9 / +9.3	1.1875	1.0625	0.4375	0.2500
0	0.0000	0.0000	0.0000	0.0000

UL 1897

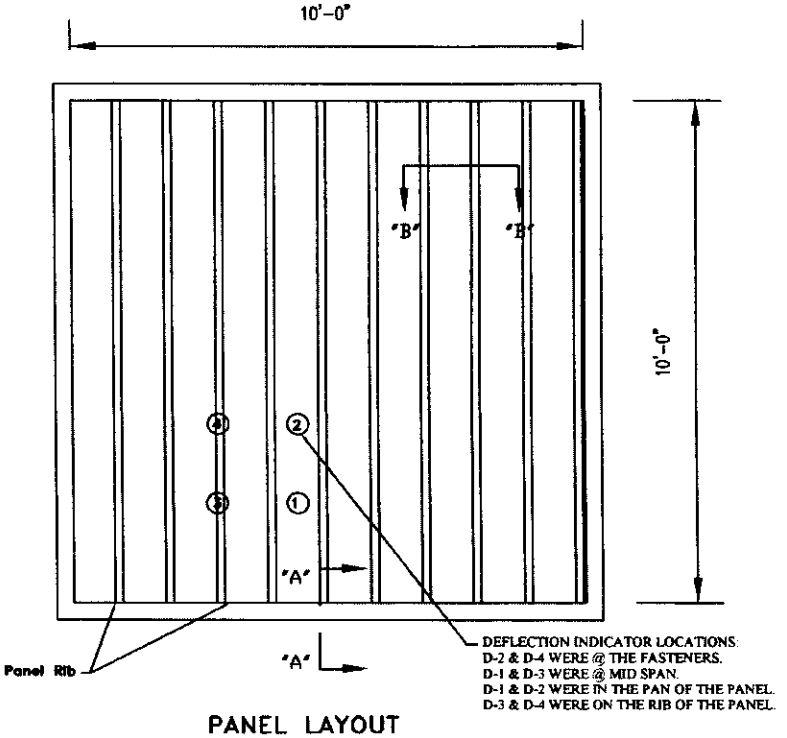
Static Pressure Inches Of H_20 (Neg./Pos.)	Deflection (inches)			
	D-1	D-2	D-3	D-4
-2.9	0.2500	0.2500	0.1250	0.0625
-5.8	0.5000	0.4375	0.1875	0.0625
-8.7	0.6875	0.5625	0.2500	0.0625
-11.5	0.8125	0.6875	0.3125	0.0625
-14.4	0.9375	0.7500	0.3125	0.1250
-17.3	1.0000	0.8125	0.3125	0.1250
-20.2	1.1250	0.9375	0.3125	0.1250
-12.2 / +9.3	1.1875	0.9375	0.3750	0.1875
-15.1 / +9.3	1.2500	1.0625	0.3750	0.1875
-17.9 / +9.3	1.3750	1.1875	0.3750	0.2500
-20.8 / +9.3	1.4375	1.2500	0.4375	0.2500
-23.7 / +9.3	1.5625	1.3750	0.4375	0.2500
-26.6 / +9.3	1.6875	1.5000	0.5000	0.3125
-29.5 / +9.3	1.8125	1.5625	0.5000	0.3750
-32.4 / +9.3	1.9375	1.6875	0.5625	0.3750
-35.2 / +9.3	FAILED			

FAILURE MODE: Panel pulled over fasteners

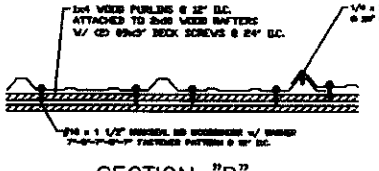
MAX PRESSURE: 217 psf



FRAMING LAYOUT



PANEL LAYOUT



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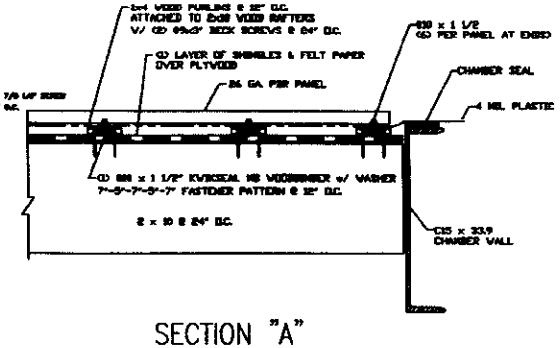


SECTION "A"

Force Engineering & Testing Inc.	TEST:	BY:	DESCRIPTION:	DATE:
PANEL TYPE: 26 GA. Super Pro PBR PANEL				
MANUFACTURER: RPS	CLIP TYPE: None		DATE:	
TEST PROTOCOL: UL 580	CLIP FASTENER: #10 x 1 1/2"		SPAN: 1'-0" O.C.	
	QUOTE NUMBER: 118-0037T-19D		MAX PRESSURE:	

UL 580 DEFLECTION READINGS

Test Date: 3/29/2019
Project Number: 118-0037T-19D
Panel Description: 26 Ga. Super Pro PBR
Panel Fasteners: (1) #10 x 1 1/2" Kwikseal MB Woodbinder w/ washer @ 7"-5"-7"-5"-7" at 12" O.C.
Panel Clip: 1/4-14 x 7/8" HWH Stitch at 20" O.C. panel side laps
Substrate: 1x4 Wood Purlins at 12" O.C. (2) 9x3" Deck screws into rafter/shingles/felt/15/32" 4-ply

Static Pressure Inches Of H_20 (Neg./Pos.)	Deflection (inches)			
	D-1: Pan Mid	D-2: Pan Fas	D-3: Rib Mid	D-4: Rib Fas
CLASS 30				
0	0.0000	0.0000	0.0000	0.0000
-3.1 / +0	0.0625	0.0000	0.0625	0.0000
-3.1 / +2.7	0.1250	0.0625	0.0625	0.0625
-5.3 / +2.7	0.1875	0.1250	0.1250	0.0625
-4.7 / +0	0.1250	0.0625	0.0625	0.0625
-4.7 / +4.0	0.1875	0.1250	0.1250	0.1250
0	0.0625	0.0000	0.0625	0.0000
CLASS 60				
0	0.0000	0.0000	0.0000	0.0000
-6.2 / +0	0.0625	0.0625	0.0000	0.0625
-6.2 / +5.3	0.1875	0.1875	0.0625	0.1250
-10.7 / +5.3	0.3125	0.3125	0.1250	0.2500
-7.8 / +0	0.1250	0.1875	0.0625	0.1250
-7.8 / +6.7	0.2500	0.3125	0.1250	0.1875
0	0.0000	0.0000	0.0000	0.0000
CLASS 90				
0	0.0000	0.0000	0.0000	0.0000
-9.3 / +0	0.1875	0.1875	0.0625	0.1250
-9.3 / +8.0	0.3125	0.3750	0.1875	0.2500
-9.3 / +8.0	0.3125	0.3750	0.1875	0.2500
-10.9 / +0	0.1875	0.2500	0.1250	0.1875
-10.9 / +9.3	0.3750	0.4375	0.1875	0.3125
0	0.0000	0.0625	0.0000	0.0625

UL 1897

Static Pressure Inches Of H_20 (Neg./Pos.)	Deflection (inches)			
	D-1	D-2	D-3	D-4
-2.9	0.0625	0.0000	0.0000	0.0000
-5.8	0.0625	0.0625	0.0625	0.0625
-8.7	0.1875	0.1250	0.0625	0.0625
-11.5	0.1875	0.1875	0.1250	0.1250
-14.4	0.2500	0.2500	0.1250	0.1875
-17.3	0.3125	0.3125	0.1875	0.1875
-20.2	0.3750	0.3750	0.1875	0.2500
-12.2 / +9.3	0.3750	0.3750	0.2500	0.2500
-15.1 / +9.3	0.4375	0.4375	0.2500	0.3125
-17.9 / +9.3	0.5000	0.5000	0.3125	0.3750
-20.8 / +9.3	0.5625	0.5625	0.3750	0.4375
-23.7 / +9.3	0.6250	0.6250	0.3750	0.5000
-26.6 / +9.3	0.6875	0.6875	0.4375	0.5000
-29.5 / +9.3	0.6875	0.7500	0.5000	0.5625
-32.4 / +9.3	0.7500	0.8125	0.5000	0.6250
-35.2 / +9.3	0.8125	0.8750	0.5625	0.6875
-38.1 / +9.3	0.8750	0.9375	0.6250	0.7500
-41.0 / +9.3	0.8750	1.0000	0.6875	0.8125
-43.9 / +9.3	0.9375	1.0625	0.6875	0.8750
-46.7 / +9.3	1.0000	1.1250	0.7500	0.9375
-49.6 / +9.3	1.0625	1.1875	0.8125	1.0000
-52.5 / +9.3	1.1250	1.2500	0.8750	1.0625
-55.4 / +9.3	1.1875	1.3125	0.8750	1.1250
-58.3 / +9.3	1.2500	1.3750	0.9375	1.1875
-61.2 / +9.3	1.2500	1.4375	1.0000	1.2500
-64.1 / +9.3	FAILED			

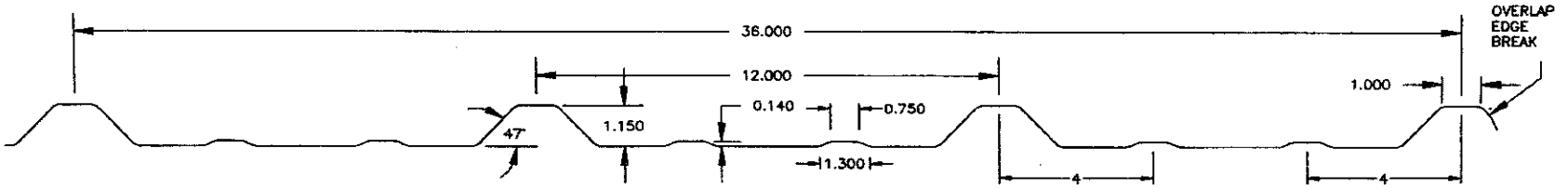
FAILURE MODE: Rafters Failed

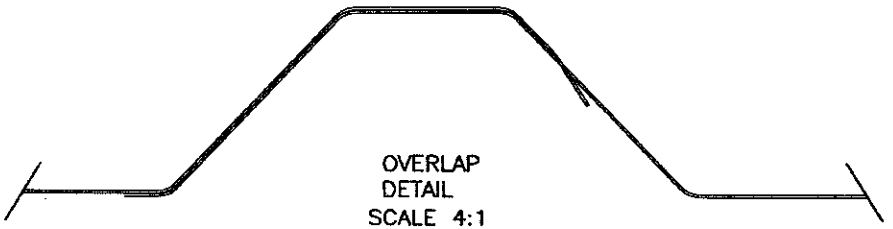
MAX PRESSURE: 367 psf

C:\Users\DE\mrlllk.SPOKANE\Documents\TOO FRANK 20150917\R-PANEL PROFILE APPROVAL 20150128.dwg

R-PANEL

STRIP WIDTH = 43"





OVERLAP
DETAIL
SCALE 4:1

NOTES:
* ALL FORMING RADI ARE .125 UON
1. MATERIAL: 80 KSI YIELD 24 & 26 GUAGE
2. CALCULATED STRIP WIDTH SHOWN, ACTUAL MAY VARY AND WILL BE DETERMINED DURING TESTING PHASE.
3. PART IS FORMED PAINT UP UNLESS NOTED
4. TOLERANCES
   a. ANGLES: ± 2°
   b. RADI: ± .02
   c. CAMBER: ± 1/8" IN 10'
   d. SKI: ± 1/8" IN 10'
   e. DIVE: ± 1/8" IN 10'
   f. FLARE: ± 1/32" IN 10' OF ENDS OF PART

C,D&E ARE NON LINEAR DIMENSIONS
5. TOLERANCES MEASURED IN 10' LENGTHS WITH PART LAYING FLAT ON IT'S BACK.

APPROVAL DRAWING
THIS DRAWING HAS BEEN APPROVED & ACCEPTED
☐ AS NOTED ☐ AS IS
BY: _____ DATE: _____

ITEM	PART NO.	DESCRIPTION	MATERIAL	QTY.
1				1

MRS Metal Rollforming Systems

TITLE: R-PANEL PROFILE

NAME	DOE	SIZE:	PART # :
DATE	12/10/2014	A	SCALE: 1 : 1 SHT 1 OF 1

element

Element Materials Technology
3100 North Hemlock Circle
Broken Arrow, OK
74012-1115 USA

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element.com

Laboratory Report - EAR-Controlled Data

Attn: Gianna Willits
Force Engineering & Testing Inc.
19530 Ramblewood Drive
HUMBLE, TX 77338 US

Report No: B19040227
Date Reported: 4/11/2019
P.O. No: 145

Material: Steel

Description: (1) Test Panel, Job# 118-0036T-19, Customer: RPS Metal Roofing, Coupon 5: 26 Ga. PBR

Room Temperature Tensile Testing ASTM E8/E8M-16a, Parallel to Length of the Specimen, As Received

Thickness, Initial, in	Width, Initial, in	Tensile Strength, ksi	Yield (0.2% Offset), ksi	Elongation After Fracture (in 2 inches), %	Location of Fracture
0.018	0.491	99	96	2	Inside Middle Half of Gage

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Approved by:

Hal Wheatley
Lead Mechanical Test Technician