PRODUCT EVALUATION REPORT

Horizon Structural Systems, Inc.

PBR Through Fastened Roof Panel Over Open Framing

Florida Product Approval Number FL 46664.1

Category: Structural Components
Sub-Category: Roof Deck

Compliance Method: 61G20-3.005 (1)(D)
NON-HVHZ

Product Manufacturer

Horizon Structural Systems, Inc.
1659 W. State Hwy 46, Ste 115 #622
New Braunfels, TX 78132

Manufacturing Location
Horizon Structural Systems, Inc.
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New Braunfels, TX 78132

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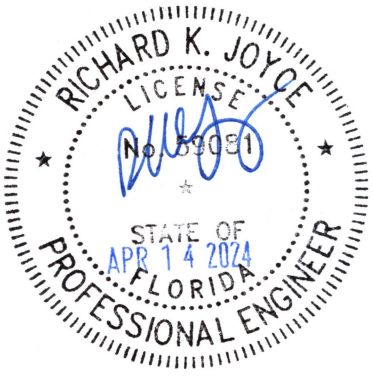
Contents
Evaluation Report Pages 1-5 Dated 04-11-24



Richard K. Joyce, P.E. 2024.04.14 08:54:31 -04'00'

Compliance Statement

The product described in this report has demonstrated compliance with the 2023 (8th Edition) Florida Building Code Sections 1504.3.2, 1504.7, 1507.4 and 2210.1.

Product Description

PBR Through Fastened structural roof panels applied over open framing:

1. PBR 26 Gauge
   (0.0170 Sheet Thickness) with a minimum Fy = 80 ksi and Fu = 82 ksi 12-12 Fastener Spacing
2. PBR 26 Gauge
   (0.0170 Sheet Thickness) with a minimum Fy = 80 ksi and Fu = 82 ksi 5-7-5 Fastener Spacing
3. PBR 24 Gauge
   (0.0228 Sheet Thickness) with a minimum Fy = 50 ksi and Fu = 65 ksi 12-12 Fastener Spacing
4. PBR 24 Gauge
   (0.0228 Sheet Thickness) with a minimum Fy = 50 ksi and Fu = 65 ksi 5-7-5 Fastener Spacing
5. PBR 22 Gauge
   (0.0282 Sheet Thickness) with a minimum Fy = 50 ksi and Fu = 65 ksi 12-12 Fastener Spacing
6. PBR 22 Gauge
   (0.0282 Sheet Thickness) with a minimum Fy = 50 ksi and Fu = 65 ksi 5-7-5 Fastener Spacing

Panel Fastener

Corrosion Resistant 1/4 – 14 HWH SD as indicated in the **Load Tables** of this Evaluation Report

Substrate Description

Minimum 16 gauge (0.0596 steel thickness) open framing.
Framing must be designed in accordance with the 2023 (8th Edition) Florida Building Code

Quality Assurance Entity

The manufacturer has established compliance of products in accordance with the 2023 (8th Edition) Florida Building Code as relates to Rule 61G20-3.005(3) for manufacturing under a quality assurance program audited by an approved quality assurance entity.

Minimum Roof Slope

Minimum roof slope of ½:12 shall comply with the 2023 (8th Edition) Florida Building Code, Including Section 1507.4.2 and in accordance with the Manufacturers recommendations. For slopes less than 3:12 lap sealant must be used at all side laps.

Insulation

Manufacturer's approved products (optional)

Fire Classification

Fire Classification is outside the scope of this evaluation

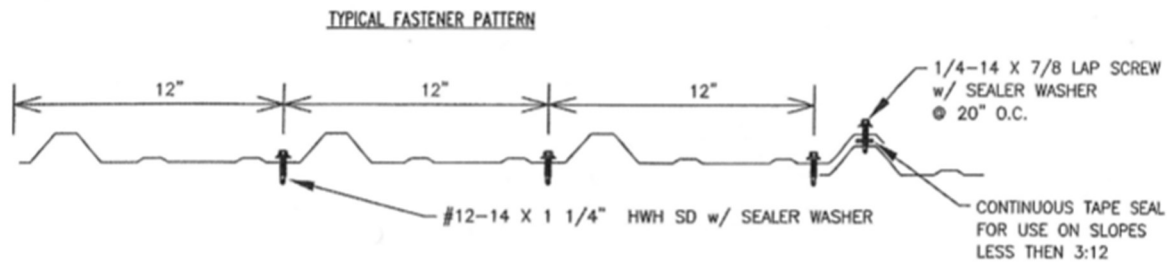
Shear Diaphragm

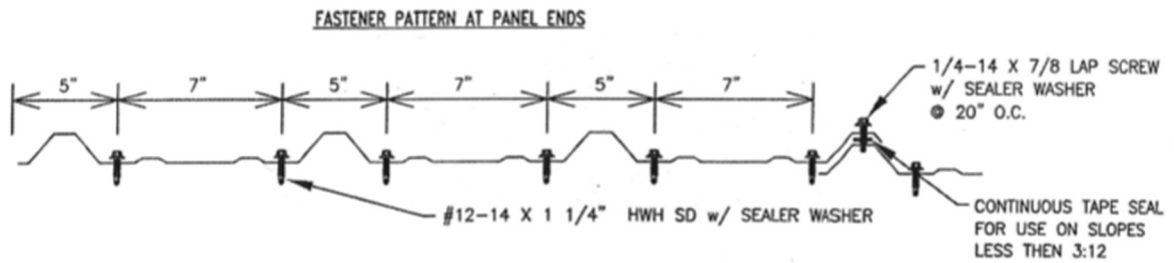
Shear Diaphragm is outside the scope of this evaluation

Design Procedure

Based on dimensions of the structure, appropriate wind loads are determined using chapter 16 of the 2023 (8th Edition) Florida Building Code for component loading of roof cladding. These component wind loads are compared to the allowable load listed in the **Load Tables** of this evaluation report. The design professional shall select appropriate fastener pattern and panel gauge to reference in the construction documents for proper installation. Design of support framing must be in compliance with the 2023 (8th Edition) Florida Building Code.

R or PBR Panel Fastener Patterns

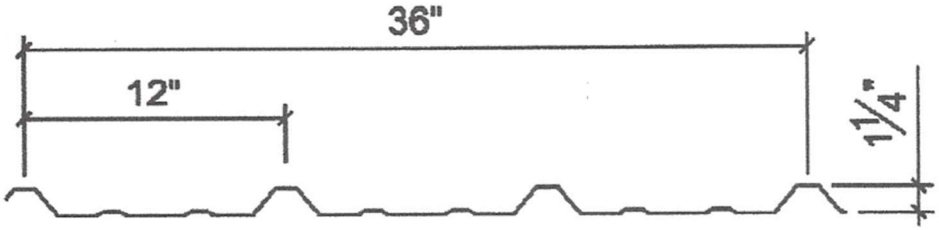




Notes:

1. Fastener Pattern 5-7-5 is to be used at the ends of all panels
2. Fastener Pattern 12-12 and 5-7-5 are to be used at the intermediate supports as indicated in the span load tables to achieve the required uplift load capacity.

Horizon (PBR)



Horizon (PBR) Panel				Section Properties					
Panel Gauge	Fy	Fu	Weight	Negative Bending			Positive Bending		
				Ixe	Sxe	Maxo	Ixe	Sxe	Maxo
	ksi	Ksi	Psf	In^4	In^3	Kip-in	In^4	In^3	Kip-in
26	60*	61.5*	0.83	0.0347	0.0392	1.410	0.0387	0.0325	1.167
24	50	60	1.11	0.0507	0.0646	1.933	0.0607	0.0629	1.883
22	50	60	1.33	0.0633	0.0777	2.327	0.0766	0.0822	2.463

*= Fy is 80 ksi, Fu is 82 ksi reduced to Fy = 60 ksi and Fy = 61.5 ksi in accordance with the 2016 North American Specification for Cold-Formed Steel Structural Members with Supplement 2 (2020) Section A2.3.2.

Notes:

1. All calculations for section properties are calculated in accordance with the 2016 edition of the North American Specification for Cold-Formed Members with Supplement 2 (2020).
2. Ixe is for deflection calculations.
3. Sxe is for bending calculations.
4. Maxo is for allowable bending moment calculations.
5. All values are for one foot of panel from major rib to major rib.

Horizon Structural Systems, Inc.

PRODUCT INFORMATION PBR PANEL

26 gauge (Fy = 60 ksi) #12-14 Fasteners on 12" centers for attachment to all supporting members (16 gauge supporting members minimum)**										
SPAN TYPE	LOAD TYPE	SPAN IN FEET								
		1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
Single	Negative Wind Load	514.1	235.1	104.5	58.8	37.6	26.1	19.2	14.7	11.6
	Live Load/Deflection	354.2	177.1	86.4	48.6	31.1	21.6	15.9	12.2	9.6
2-Span	Negative Wind Load	205.6	102.8	68.5	46.8	30.4	21.2	15.7	12.0	9.5
	Live Load/Deflection	472.3	194.4	95.2	55.6	36.3	25.5	18.8	14.5	11.5
3-Span	Negative Wind Load	233.6	116.8	77.9	57.6	37.5	26.3	19.5	15.0	11.9
	Live Load/Deflection	442.8	221.4	114.7	68.0	44.7	31.5	23.4	18.0	14.3

26 gauge (Fy = 60 ksi) #12-14 Fasteners on 6" centers for attachment to all supporting members (16 gauge supporting members minimum)**										
SPAN TYPE	LOAD TYPE	SPAN IN FEET								
		1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
Single	Negative Wind Load	940.2	235.1	104.5	58.8	37.6	26.1	19.2	14.7	11.6
	Live Load/Deflection	354.2	177.1	86.4	48.6	31.1	21.6	15.9	12.2	9.6
2-Span	Negative Wind Load	411.3	169.5	80.9	46.8	30.4	21.2	15.7	12.0	9.5
	Live Load/Deflection	472.3	194.4	95.2	55.6	36.3	25.5	18.8	14.5	11.5
3-Span	Negative Wind Load	467.3	201.5	98.5	57.6	37.5	26.3	19.5	15.0	11.9
	Live Load/Deflection	442.8	221.4	114.7	68.0	44.7	31.5	23.4	18.0	14.3

** = Fastener Diameter shall be 1/2" Minimum

Horizon Structural Systems, Inc.

PRODUCT INFORMATION PBR PANEL

24 gauge (Fy = 50 ksi) #12-14 Fasteners on 12" centers for attachment to all supporting members (16 gauge supporting members minimum)**										
SPAN TYPE	LOAD TYPE	SPAN IN FEET								
		1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
Single	Negative Wind Load	514.1	257.0	143.2	80.6	51.6	35.8	26.3	20.1	15.9
	Live Load/Deflection	507.2	253.6	139.5	78.5	50.2	34.9	25.6	19.6	15.5
2-Span	Negative Wind Load	205.6	102.8	68.5	51.4	41.1	34.3	25.4	19.5	15.4
	Live Load/Deflection	676.2	291.6	136.7	78.4	50.7	35.4	26.1	20.0	15.8
3-Span	Negative Wind Load	233.6	116.8	77.9	58.4	46.7	38.9	31.6	24.3	19.2
	Live Load/Deflection	634.0	317.0	167.6	96.9	62.9	44.0	32.5	24.9	19.7

24 gauge (Fy = 50 ksi) #12-14 Fasteners on 6" centers for attachment to all supporting members (16 gauge supporting members minimum)**										
SPAN TYPE	LOAD TYPE	SPAN IN FEET								
		1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
Single	Negative Wind Load	1028.2	322.2	143.2	80.6	51.6	35.8	26.3	20.1	15.9
	Live Load/Deflection	507.2	253.6	139.5	78.5	50.2	34.9	25.6	19.6	15.5
2-Span	Negative Wind Load	411.3	205.6	133.4	76.5	49.4	34.5	25.4	19.5	15.4
	Live Load/Deflection	676.2	291.6	136.7	78.4	50.7	35.4	26.1	20.0	15.8
3-Span	Negative Wind Load	467.3	233.6	155.8	94.6	61.3	42.9	31.6	24.3	19.2
	Live Load/Deflection	634.0	317.0	167.6	96.9	62.9	44.0	32.5	24.9	19.7

** = Fastener Washer Diameter shall be 1/2" Minimum

Horizon Structural Systems, Inc.

PRODUCT INFORMATION PBR PANEL

22 gauge (Fy = 50 ksi) #12-14 Fasteners on 12" centers for attachment to all supporting members (16 gauge supporting members minimum)**										
SPAN TYPE	LOAD TYPE	SPAN IN FEET								
		1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
Single	Negative Wind Load	514.1	257.0	171.4	96.9	62.0	43.1	31.7	24.2	19.1
	Live Load/Deflection	700.3	350.2	182.5	102.6	65.7	45.6	33.5	25.7	20.3
2-Span	Negative Wind Load	205.6	102.8	68.5	51.4	41.1	34.3	29.4	25.5	20.2
	Live Load/Deflection	933.8	360.4	166.6	95.1	61.3	42.7	31.5	24.1	19.1
3-Span	Negative Wind Load	233.6	116.8	77.9	58.4	46.7	38.9	33.4	29.2	25.2
	Live Load/Deflection	875.4	437.5	205.3	117.9	76.2	53.2	39.2	30.1	23.8

22 gauge (Fy = 50 ksi) #12-14 Fasteners on 6" centers for attachment to all supporting members (16 gauge supporting members minimum)**										
SPAN TYPE	LOAD TYPE	SPAN IN FEET								
		1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0
Single	Negative Wind Load	1028.2	387.8	172.3	96.9	62.0	43.1	31.7	24.2	19.1
	Live Load/Deflection	700.3	350.2	182.5	102.6	65.7	45.6	33.5	25.7	20.3
2-Span	Negative Wind Load	411.3	205.6	137.1	100.4	64.8	45.2	33.3	25.5	20.2
	Live Load/Deflection	933.8	360.4	166.6	95.1	61.3	42.7	31.5	24.1	19.1
3-Span	Negative Wind Load	467.3	233.6	155.8	116.8	80.5	56.2	41.5	31.8	25.2
	Live Load/Deflection	875.4	437.5	205.3	117.9	76.2	53.2	39.2	30.1	23.8

** = Fastener Washer Diameter shall be 1/2" Minimum

Notes:

1. Allowable loads are based on uniform span length and uniformly distributed load.
2. Allowable gravity load is limited by bending, shear or deflection.
3. Allowable gravity loads are computed for a maximum total load deflection of L/60.
4. Weight of the panel must be included with gravity load combinations as appropriate.
5. This material is subject to change without notice.
6. This material has been developed in accordance with the 2016 North American Specification for Cold-Formed Structural Steel Members with Supplement 2 (2020).

The engineering data contained herein is for the express use of the customers of Horizon Structural Systems Inc. and qualified design professionals.