

**PRODUCT EVALUATION REPORT**  
**Horizon Structural Systems, Inc.**

**TS-324 Standing Seam Roof Panel  
Over Open Framing  
Florida Product Approval Number FL 46664.2**

**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 45, Ste 115 #622  
New Braunfels, TX 78132**

**Manufacturing Location**

**Horizon Structural Systems, Inc.  
3950 Hwy 46 West #200  
New Braunfels, TX 78132**

**Engineer Evaluator**

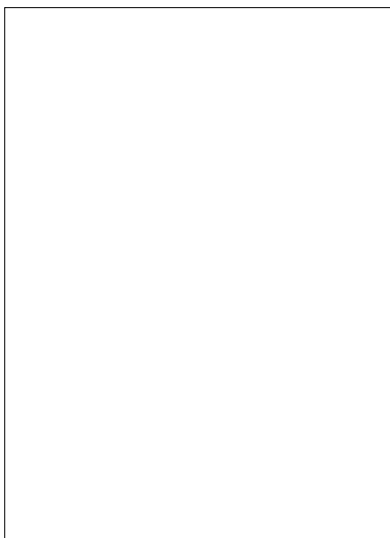
**R. Keith Joyce, P.E. Florida 59081**

**Validator**

**Dennis L. Johnson, P.E., Florida 54340  
Florida C.O.A. 30308**

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### **Compliance Statement**

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

### **Product Description**

TS-324 Cold-Formed Standing Seam structural roof panels applied over open framing:

1. TS-324 24 Gauge Triple-Lok (0.0228 Sheet Thickness) with a minimum Fy = 50 ksi and Fu = 65 ksi
2. TS-324 24 Gauge Quad-Lok (0.0228 Sheet Thickness) with a minimum Fy = 50 ksi and Fu = 65 ksi
3. TS-324 22 Gauge Triple-Lok (0.0272 Sheet Thickness) with a minimum Fy = 50 ksi and Fu = 65 ksi
4. TS-324 22 Gauge Quad-Lok (0.0272 Sheet Thickness) with a minimum Fy = 50 ksi and Fu = 65 ksi

### **Panel Material Standard**

Formed steel in compliance with the 2023 (8<sup>th</sup> Edition) Florida Building Code Section 1507.4.3 with optional painted finish.

### **Roof Panel Clips**

Product Name: MPS 602  
Type: Sliding Standing Seam Clips  
Corrosion Resistance: Per 2023 (8<sup>th</sup> Edition) Florida Building Code 1507.2 (Table 2)

### **Panel Fastener**

(2) 1/4 – 14 HWH SD per clip 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 (8<sup>th</sup> Edition) Florida Building Code

### **Scope of Evaluation Report**

This Product Evaluation is limited to compliance with the 2023 (8<sup>th</sup> Edition) Florida Building Code wind load as it relates to Rule 61G20-3.005(3)

### **Reference Data**

1. ASTM E1592-05  
Encon Technology, Inc. (FBC Organization Number TST-6485) Report Number C1950-1
2. FM4470 Section 5.5 Foot Traffic Resistance Test

### **Quality Assurance Entity**

The manufacturer has established compliance of products in accordance with the 2023 (8<sup>th</sup> Edition) Florida Building Code as relates to Rule 61G62-3 for manufacturing under a quality assurance program audited by an approved quality assurance entity.

### **Minimum Roof Slope**

Minimum roof slope shall be ¼:12 in compliance with the 2023 (8<sup>th</sup> Edition) Florida Building Code, Including Section 1507.4.2 and in accordance with the Manufacturers recommendations.

### **Insulation**

Manufacturer's approved products (optional)

### **Fire Classification**

Fire Classification is outside the scope of this evaluation

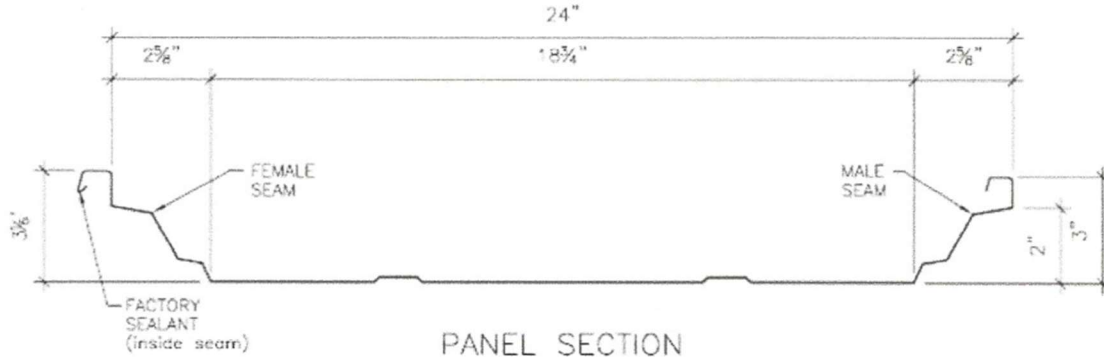
### **Shear Diaphragm**

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 (8<sup>th</sup> 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 (8<sup>th</sup> Edition) Florida Building Code.

# TS-324



TS-324 Panel			Section Properties						
Panel Gauge	Fy	Fu	Weight	Negative Bending			Positive Bending		
	ksi	Ksi		Ixe	Sxe	Maxo	Ixe	Sxe	Maxo
			Psf	In <sup>4</sup>	In <sup>3</sup>	Kip-in	In <sup>4</sup>	In <sup>3</sup>	Kip-in
24	50	65	1.18	0.332	0.200	5.90	0.786	0.326	9.76
22	50	65	1.41	0.413	0.252	7.54	0.947	0.393	11.77

Note: Section Properties shown are for one full panel width (24").

TS-324 Panel (24 Gauge)			Allowable Gravity Load				
Span Type	Span (ft)						
	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
Single	516	413	342	265	203	160	130
2 Span	332	213	148	108	83.2	65.8	53.3
3-Span	416	266	185	135	104	82.2	66.6

TS-324 Panel (22 Gauge)			Allowable Gravity Load				
Span Type	Span (ft)						
	2'-0"	2'-6"	3'-0"	3'-6"	4'-0"	4'-6"	5'-0"
Single	616	493	411	320	245	193	157
2 Span	421	269	187	137	105	83.2	67.4
3-Span	513	336	234	171	131	104	84.2

## TS-324 Design Uplift Pressures

### 24 Gauge Triple-Lok (2 Screws Per Clip)

#### 24 Gauge Triple-Lok (2 Screws per Clip)

Purlin Spacing	Ultimate Load psf	Allowable Load psf
5'-0"	72.0	36.0
4'-6"		45.0
4'-0"		54.0
3'-6"		63.0
3'-0"		72.0
2'-6"		81.0
2'-0"	180.0	90.0

#### 24 Gauge Quad-Lok (2 Screws per Clip)

Purlin Spacing	Ultimate Load psf	Allowable Load Psf
5'-0"	90.0	45.0
4'-6"		57.5
4'-0"		70.0
3'-6"		82.5
3'-0"		85.0
2'-6"		107.5
2'-0"	240.0	120.0

#### 22 Gauge Triple-Lok (2 Screws per Clip)

Purlin Spacing	Ultimate Load psf	Allowable Load psf
5'-0"	88.0	44.0
4'-6"		57.1
4'-0"		70.2
3'-6"		83.2
3'-0"		96.3
2'-6"		109.4
2'-0"	245.0	122.5

#### 22 Gauge Quad-Lok (3 Screws per Clip)

Purlin Spacing	Ultimate Load psf	Allowable Load Psf
5'-0"	112.0	56.0
4'-6"		72.9
4'-0"		89.8
3'-6"		106.7
3'-0"		123.7
2'-6"		140.6
2'-0"	315.0	157.5

### **Notes:**

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.