

Evaluation Report "1.5 Standing Seam" Metal Roof Assembly

Manufacturer:
Extreme Metal Fabricators, LLC.

2160 SW Poma Drive
Palm City, FL 34990
for

Florida Product Approval
FL 20378.7

Florida Building Code 5th Edition (2014)

Method: 1 - D

Category: Roofing

Sub - Category: Metal Roofing

Product: 1.5 Standing Seam

Material: Steel

Panel Thickness: 24 gauge

Panel Width: 16"

Support: Wood Deck

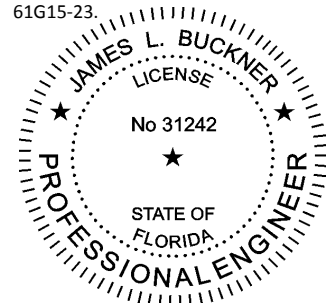
Prepared by:

James L. Buckner, P.E., S.E.C.B.
Florida Professional Engineer # 31242
Florida Evaluation ANE ID: 1916
Project Manager: Diana Galloway
Report No. 16-124-1.5-S4W-ER
(Replaces 11-219-1.5-S4W-ER)
Date: 4 / 14 / 16

Contents:

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Digitally signed by James L. Buckner, P.E.
Electronically signed and sealed documents
shall comply with the provisions of FAC Rule
61G15-23.



A handwritten signature in blue ink that reads "James L. Buckner".

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| | |
|---------------------------------------|---|
| Manufacturer: | Extreme Metal Fabricators, LLC. 2160 SW Poma Drive Palm City, FL 34990 (772) 872-8034 |
| Product Name: | 1.5 Standing Seam |
| Product Category: | Roofing |
| Product Sub-Category | Metal Roofing |
| Compliance Method: | State Product Approval Rule 61G20-3.005 (1) (d) |
| Product/System Description: | “JM 1.5 Standing Seam” 24-gauge Steel Standing Seam roof panel, 16” wide, mechanically attached to Wood Deck with panel clips, screws and adhesive. |
| Product Assembly as Evaluated: | Refer to Page 4 of this report for product assembly components/materials & standards: <ol style="list-style-type: none">1. Roof Panel2. Panel Clips3. Fasteners4. Adhesive5. Underlayment6. Insulation (Optional) |
| Support: | Type: Wood Deck (Design of support and its attachment to support framing is outside the scope of this evaluation.) Description: <ul style="list-style-type: none">• 15/32 (min.) or greater plywood,• or Wood plank (min. specific gravity of 0.42) |
| Slope: | Minimum slope shall be in compliance with FBC Chapter 15 Section 1507.4.2, applicable code sections and in accordance with manufacturer’s recommendations. |
| Performance: | Wind Uplift Resistance: <ul style="list-style-type: none">• Design Uplift Pressure: (Refer to “Table A” attachment details herein) <p style="text-align: right;">Refer to Table A</p> |

- Performance Standards:** The product described herein has demonstrated compliance with:
- UL580-06 – *Test for Uplift Resistance of Roof Assemblies*
 - UL 1897-04 – *Uplift test for roof covering systems*
 - TAS 125-03 – *Standard Requirements for Metal Roofing Systems*
- Standards Equivalency:** The UL 580-94 & UL 1897-98 standard version used to test the evaluated product assembly is equivalent with the prescribed standards in UL 580-06 & UL 1897-04 adopted by the Florida Building Code 5th Edition (2014).
- Code Compliance:** The product(s) described herein have demonstrated compliance with the performance standards listed above as referenced in the current Florida Building Code.
- Evaluation Report Scope:** This product evaluation is limited to compliance with the structural requirements of the Florida Building Code, as related to the scope section to Florida Product Approval Rule 61G20-3.001.
- Limitations and Conditions of Use:**
- This evaluation report for “Optional Statewide Approval” contains technical documentation, specifications and installation method(s) which include “Limitations and Conditions of Use” throughout the report in accordance with Rule 61G20-3.005. Per Rule 61G20-3.004, the Florida Building Commission is the authority to approve products under “Optional Statewide Approval”.
Option for application outside “Limitations and Conditions of Use”
 - Rule 61G20-3.005(1)(e) allows engineering analysis for “project specific approval by the local authorities having jurisdiction in accordance with the alternate methods and materials authorized in the Code”. Any modification of the product as evaluated in this report and approved by the Florida Building Commission is outside the scope of this evaluation and will be the responsibility of others.
 - This report is a building code product evaluation per FLPE rule (FAC) 61G15-36 to comply with Florida product approval rule (FAC) 61G20-3. This evaluation report is part of the Florida Building Commission approval for the listed code related criteria. This report by James Buckner, P.E. and CBUGK Engineering is not a design certification of code compliance construction submittal documentation, per FBC section 107, for any individual structure, site specific or permit design.
 - Deck shall be in compliance with applicable building code.
 - Design of support system is outside the scope of this report.
 - Fire Classification is outside the scope of Rule 61G20-3, and is therefore not included in this evaluation.
 - This evaluation report does not evaluate the use of this product for use in the High Velocity Hurricane Zone code section. (Dade & Broward Counties)
- Quality Assurance:** The manufacturer has demonstrated compliance of roof panel products in accordance with the Florida Building Code and Rule 61G20-3.0005 (3) for manufacturing under a quality assurance program audited by an approved quality assurance entity through **Keystone Certifications, Inc.** (FBC Organization #: QUA 1824).

**Components/Materials
(by Manufacturer):**

Roof Panel: "1.5 Standing Seam"
Material: Steel
Thickness: 24 gauge (min.)
Panel Width: 16" (max.) Coverage
Rib Height: 1-1/2"
Yield Strength: 40 ksi min.
Corrosion Resistance: In compliance with FBC Section 1507.4.3:

- ASTM A792 coated, or
- ASTM A653 G90 galvanized steel

Roof Panel Clips:

Type: One-piece, fixed clip
Material: Galvanized Steel
Thickness: 24 gauge
Yield Strength: 40 ksi min.
Dimensions: 1.5 in (wide) x 2.0 in (long) x 1.625 in (high)
Corrosion Resistance: Per FBC Section 1506.7

Seam Adhesive/Sealant:

Product Name: Bostik Chem-Chaulk 915
Type: One component, polyurethane adhesive
Application Size: 1/4" bead
Application Location: along male flange the full length of panel
(Refer to Table "A" and drawing Page 7)

Fastener:

Type: Pancake-Head Wood Screw
Size : #10 x 1"
Corrosion Resistance: Per FBC Section 1506.6 and 1507.4.4
Standard: Per FBC 1507.4.4 and ANSI/ASME B18.6.1

**Components/Materials
(by Others):**

Underlayment:

Material and application shall be in compliance with FBC Chapter 15 based on the type of roof covering, applicable codes and in accordance with manufacturer's recommendations.

Insulation (Optional):

Type: Rigid Insulation Board
Thickness: 3" (max.)
Properties:
Density: 2.25 pcf (lbs/ft³) min.
Or Compressive Strength: 20 psi min.

Insulation Notes:

- Rigid Insulation shall meet minimum density OR compressive strength.
- Insulation shall comply with FBC Section 1508. When insulation is incorporated, fastener length shall conform to penetrate thru bottom of support a minimum of 3/16".

Installation:

Installation Method:

(Refer to Table A and the drawings at the end of this report.)

- Clip spacing: **Refer to Table “A” Below**
(along the length of the panel)
- #Fasteners per Clip: 2
- Rib Interlock: 90° (SINGLE-LOCK)
(Panel ribs shall be Mechanically seamed 90° (SINGLE-LOCK))
- Minimum fastener penetration thru bottom of support, 3/16”.
- For panel construction at the end of panels, refer to manufacturer’s instructions and any site specific design.

| TABLE “A” “1.5 Standing Seam” (24 ga. Steel) 16” Wide Panel Attached to Wood Deck ALLOWABLE LOADS | | | | | | | |
|--|-----------------------|---------------------|----------------------|----------|------------|---|------------------------|
| # | Deck Thickness (min.) | Clip Spacing (max.) | # Fasteners per Clip | Fastener | Panel Seam | Adhesive Placement | Design Pressure (ASD)* |
| 1 | 15/32” min. | 16” | 2 | #10 | 90° | Not Required | - 95 PSF |
| 2 | 15/32” min. | 12” | 2 | #10 | 90° | 1/4” bead along male flange <i>(Refer to Dwgs Pg7)</i> | - 159.25 PSF |
| <i>* Allowable design pressure(s) for allowable stress design (ASD) with a margin of safety of 2 to 1.</i> | | | | | | | |

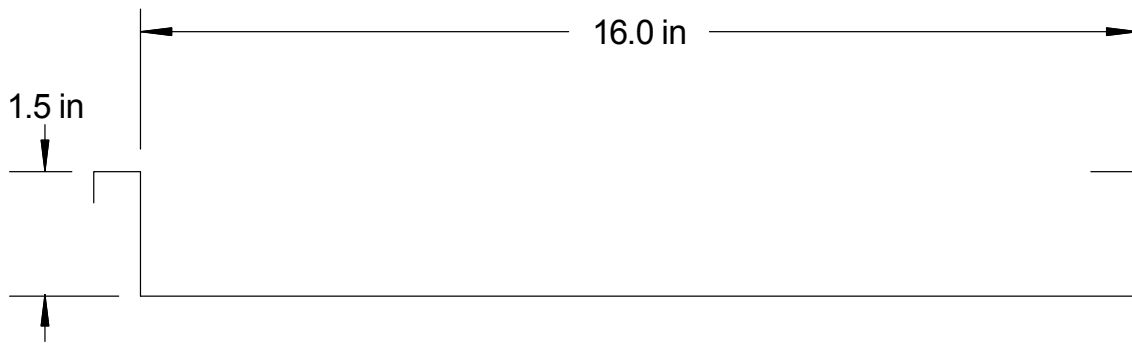
Install the “1.5 Standing Seam” roof panel assembly in compliance with the installation method listed in this report and applicable code sections of FBC 5th Edition (2014). The installation method described herein is in accordance with the scope of this evaluation report. Refer to manufacturer’s installation instructions as a supplemental guide for attachment.

Referenced Data:

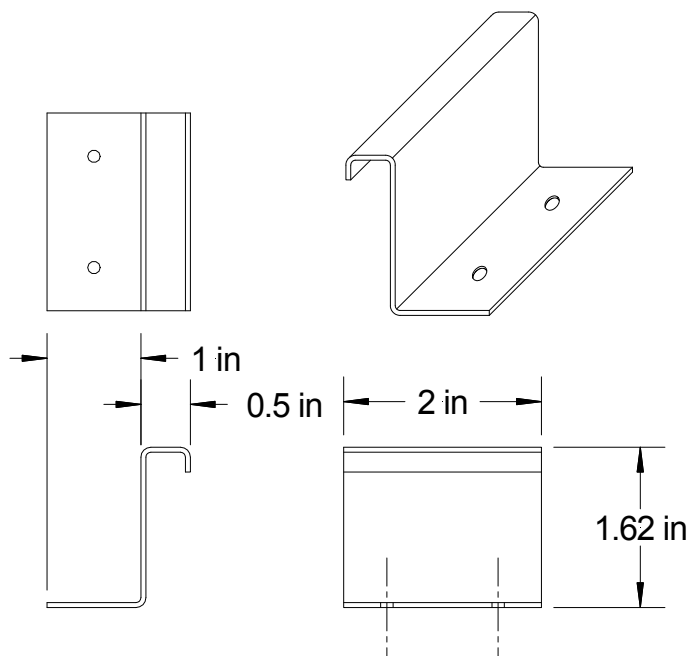
1. TAS 125-03 Uplift Test
By Hurricane Test Laboratory, LLC (FBC Organization #TST ID: 1527) Method 1: Report 0223-0301-00; Test Date: 05 / 05 / 00
Method 2: Report 0223-1009-06; Test Date: 10 / 18 / 06 – 10/20/06
2. Quality Assurance
By Keystone Certifications, Inc. (QUA ID: 1824)
Extreme Metal Fabricators, Inc. Licensee #974
3. Equivalency of Test Standard Certification
By James L. Buckner, P.E. @ CBUCK Engineering
(FBC Organization # ANE 1916)
4. Certification of Independence
By James L. Buckner, P.E. @ CBUCK Engineering
(FBC Organization # ANE 1916)
5. Additional Reference Data
By USBC, #6:15-bk-03351-KSJ Doc 85, Dated 2/29/2016

Installation Method
Extreme Metal Fabricators, LLC.
“1.5 Standing Seam” (24 gauge) Roof Panel Attached to Wood Deck

Profile Drawings

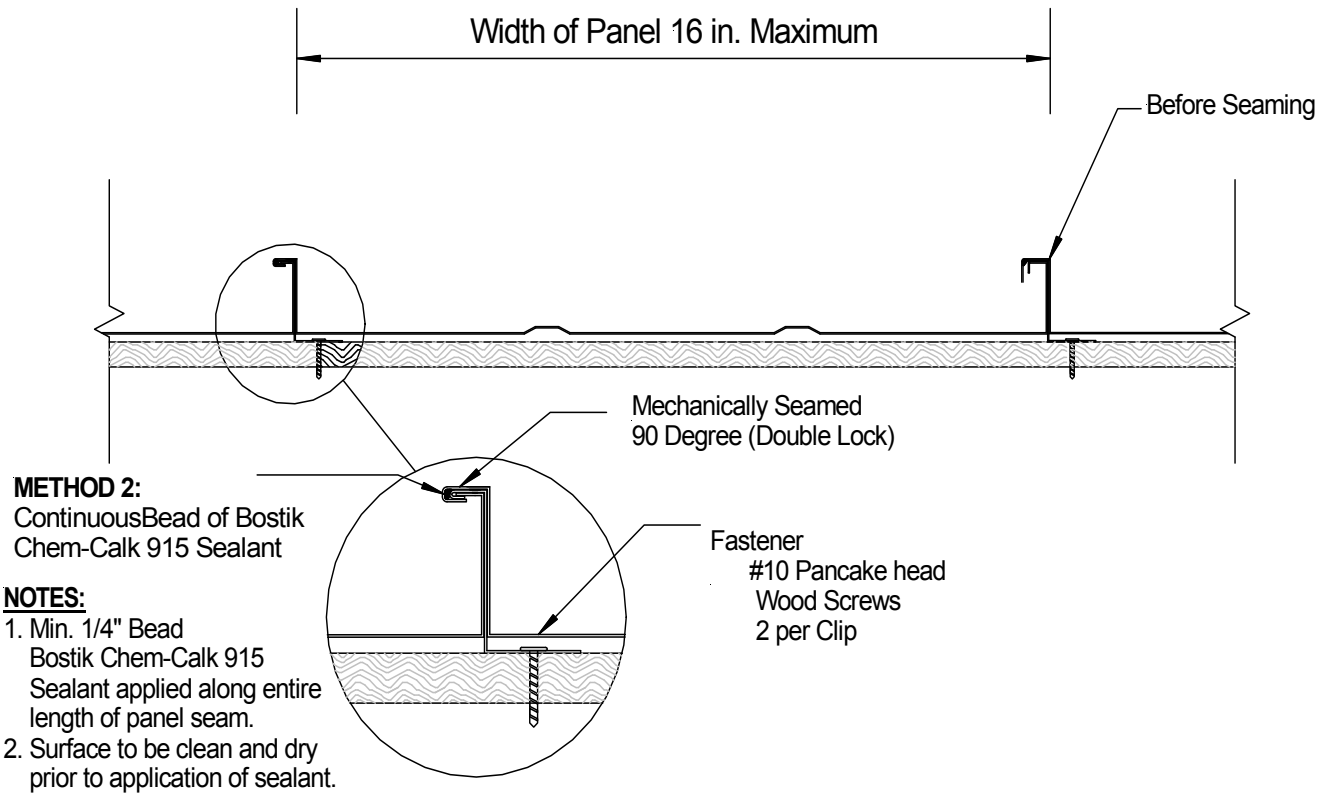


“1.5 Standing Seam” Panel
Typical Panel Profile View

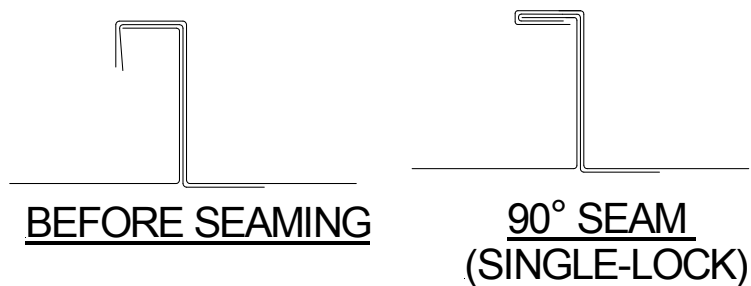


Clip Profile Drawings

Installation Method Extreme Metal Fabricators, LLC. "1.5 Standing Seam" (24 gauge) Roof Panel Attached to Wood Deck

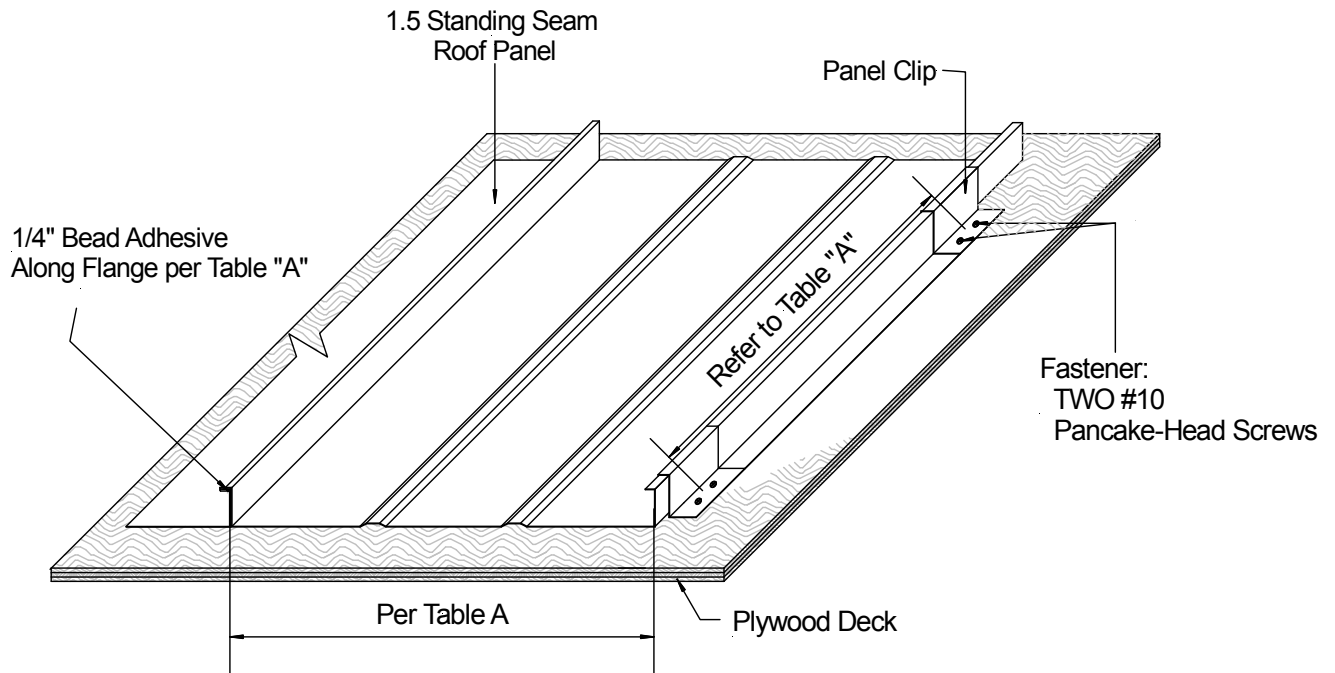


**Assembly Profile View
 Typical Fastening Pattern Across Row**



Panel Seam

Installation Method Extreme Metal Fabricators, LLC. "1.5 Standing Seam" (24 gauge) Roof Panel Attached to Wood Deck



Typical Assembly Isometric View

(Optional) Rigid Insulation Board per Page 4 of this report

| TABLE "A" | | | | | | | |
|---|-----------------------|---------------------|----------------------|----------|------------|--|------------------------|
| "1.5 Standing Seam" (24 ga. Steel) 16" Wide Panel Attached to Wood Deck | | | | | | | |
| ALLOWABLE LOADS | | | | | | | |
| # | Deck Thickness (min.) | Clip Spacing (max.) | # Fasteners per Clip | Fastener | Panel Seam | Adhesive Placement | Design Pressure (ASD)* |
| 1 | 15/32" min. | 16" | 2 | #10 | 90° | Not Required | - 95 PSF |
| 2 | 15/32" min. | 12" | 2 | #10 | 90° | 1/4" bead along male flange <i>(Refer to Dwg Pg7)</i> | - 159.25 PSF |

* Allowable design pressure(s) for allowable stress design (ASD) with a margin of safety of 2 to 1.