

Evaluation Report "Tee-Lock Panel" Metal Roof Assembly

Manufacturer:
Berridge Manufacturing Company
1720 Maury Road
Houston, TX 77026
(800) 231-8127

for

Florida Product Approval

FL 24225.1 R1

Florida Building Code 7th Edition (2020)

Method: 1 - D

Category: Structural Components

Sub - Category: Roof - Deck

Product: "Tee-Lock" Roof Panel

Material: Steel

Panel Thickness: 24 gauge

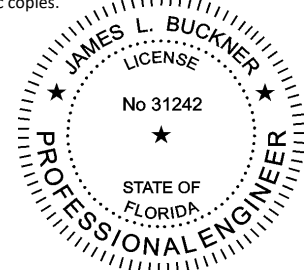
Panel Width: 15" or 18"

Support: Steel Supports

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. 20-227-TL-S4P-ER
(Revises 17-206-TL-S4P-ER, FL24225.1 R0)
Date: 09 / 17 / 20

This item has been electronically signed and sealed by James L. Buckner, P.E., on this date using a Digital Signature. Printed copies of this document are not considered signed and sealed, and the signature must be verified on any electronic copies.



A handwritten signature in blue ink, appearing to read "James L. Buckner".

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Contents:

Evaluation Report Pages 1 – 8

Manufacturer:	Berridge Manufacturing Company 1720 Maury Road Houston, TX 77026 (800) 231-8127 www.berridge.com								
Product Name:	"Tee-Lock" Panel								
Product Category:	Structural Components								
Product Sub-Category	Roof - Deck								
Compliance Method:	State Product Approval Rule 61G20-3.005 (1) (d)								
Product/System Description:	"Tee-Lock" Standing Seam Roof Panel 2-3/8" Rib Height, 15" or 18" wide, 24 ga. Steel tee rib roof panel restrained by panel clips, fastened into Steel Supports.								
Product Assembly as Evaluated:	Refer to Page 4 of this report for product assembly components/materials & standards: <table><tr><td>1. Roof Panel</td><td>"Tee-Lock"</td></tr><tr><td>2. Panel Clip</td><td>Tee-Lock fixed or continuous panel clip</td></tr><tr><td>3. Fasteners</td><td>#12 SD</td></tr><tr><td>4. Insulation (Optional):</td><td>See "Components & Materials"</td></tr></table>	1. Roof Panel	"Tee-Lock"	2. Panel Clip	Tee-Lock fixed or continuous panel clip	3. Fasteners	#12 SD	4. Insulation (Optional):	See "Components & Materials"
1. Roof Panel	"Tee-Lock"								
2. Panel Clip	Tee-Lock fixed or continuous panel clip								
3. Fasteners	#12 SD								
4. Insulation (Optional):	See "Components & Materials"								
Support:	Type: Steel Purlins (Design of steel purlins and its attachment to support framing is outside the scope of this evaluation.) Description: <ul style="list-style-type: none">• 16 Gauge minimum• Yield Strength: 50 ksi minimum								
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 (Refer to "Table A" attachment details herein)								

- Performance Standards:** The product described herein has demonstrated compliance with:
- TAS 125-03 – *Standard Requirements for Metal Roofing Systems*
 - ASTM E 1592-05 – *Test Method for Structural Performance of Sheet Metal Roof and Siding Systems By Uniform Static Air Pressure Difference*
- 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:**
- Diaphragm and axial load capacity is outside the scope of this evaluation.
 - Scope of “Limitations and Conditions of Use” for this evaluation:
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 CBUCK 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.
 - All metal components and fasteners shall be corrosion resistant in accordance with applicable sections of FBC.
 - Design of support system is outside the scope of this report. Support shall be designed by others and shall comply with the FBC Chapters 22 for steel and Chapter 16 for structural loading.
 - 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 UL, LLC (FBC Organization #: QUA 9625).

Components/Materials (by Manufacturer):	Roof Panel:	Berridge "Tee-Lock"
	Material:	Steel
	Thickness:	24 gauge (min.)
	Panel Width:	15" or 18" Coverage
	Rib Height:	2-3/8"
	Yield Strength:	50 ksi
	Steel Grade:	40
	Corrosion Resistance:	In compliance with FBC Section 1507.4.3
	Roof Panel Seam Cap:	Berridge Tee-Lock Seam Cap
	Overall Dimensions:	0.60" (tall) x 1.223" (wide) x continuous (w/panel length)
	Material:	Galvanized Steel
	Thickness:	24 Gauge
	Yield Strength:	40 ksi min.
	Roof Panel Clip:	Berridge Tee-Lock Roof Clips
	<u>Type 1:</u>	One-Piece, Fixed panel clip
	Overall Dimensions:	2.69"(tall) x 2.45"(wide) x 6" (long)
	Material:	Galvanized Steel
	Thickness:	16 Gauge
	Yield Strength:	50 ksi min.
	Steel Grade:	50
<u>Type 2:</u>	One-Piece, continuous fixed clip	
Overall Dimensions:	2.67"(tall) x 2.15"(wide) x continuous (w/panel length)	
Material:	Galvanized Steel	
Thickness:	22 Gauge	
Yield Strength:	50 ksi min	
Fastener:		
Type:	Hex Head Self Drilling Screw	
Size:	#12 - 14 x 1-1/4"	
Corrosion Resistance:	Per FBC Section 1506.6 and 1507.4.4	
Standard:	Per FBC Section 1507.4.4 and Per SAE J78-1979	
Components& Materials: (by Others)	Insulation (Optional):	
	<u>Type 1:</u>	
	Type:	Rigid Insulation Board
	Thickness:	3" (max.)
	Properties:	
	Density:	20 psi min.
	Or Compressive Strength:	2.25 pcf (lbs/ft ³) min.
	<u>Type 2:</u>	Compressible Blanket Insulation
	Thickness:	6" max. before compression
	Insulation Notes:	
		<ul style="list-style-type: none">• 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 3/4".

Installation:

Installation Method:

(Refer to "TABLE A" below and drawings at the end of this report.)

- Purlin Spacing: Refer to "TABLE A" Below
- # fasteners (at each purlin intersection): Refer to "TABLE A" Below
- Rib Interlock: Mechanically seamed
- Minimum fastener penetration thru bottom of support, 3/4".
- For panel construction at the end of panels, refer to manufacturer's instructions and any site-specific design.

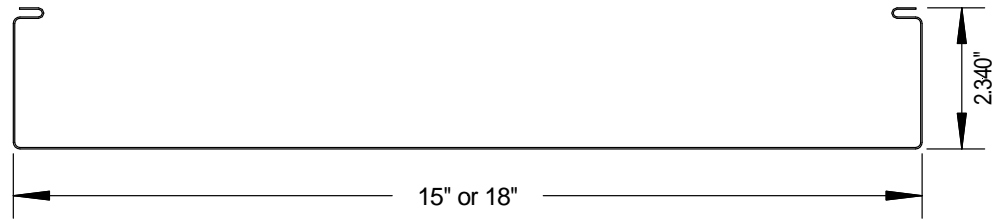
TABLE "A" ALLOWABLE LOADS "Tee-Lock" (24 ga. Steel) 15" or 18" Wide Roof Panel					
	METHOD 1	METHOD 2	METHOD 3	METHOD 4	METHOD 5
Design Pressure (PSF):	- 36	-85.5	- 33.5	-67.5	-140.5
Panel Width:	15"	15"	18"	18"	18"
Max. Purlin Spacing:	5'- 0" (60")	2'- 6" (30")	5'- 0" (60")	2'- 6" (30")	5'- 0" (60")
Span Condition:	3 or more	3 or more	3 or more	3 or more	3 or more
Panel Clip Type:	6" Fixed	6" Fixed	6" Fixed	6" Fixed	Continuous
Fastener:	#12	#12	#12	#12	#12
# Fasteners per Clip:	2	2	2	2	2
#Fasteners per Purlin Connection:	2	2	2	2	4
Notes:					
<ul style="list-style-type: none"> • Allowable design pressure(s) for allowable stress design (ASD). • Fastener Attachment to Steel Supports May Be Designed By A Qualified Design Professional As Required By The Florida Building Code For Site Specific Projects. • Diaphragm and axial load capacity are not included in this evaluation. 					

Install the "Tee-Lock" roof panel assembly in compliance with the installation method listed in this report and applicable code sections of FBC 7th Edition (2020). 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.

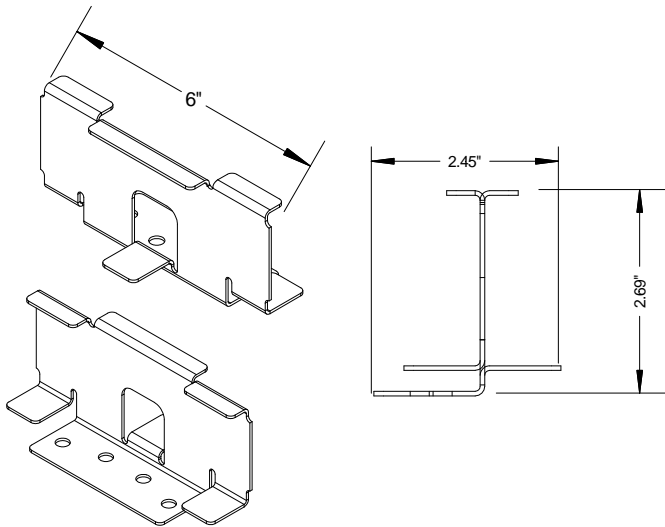
Referenced Data:

1. TAS 125-03 Uplift Test (Per TAS 125-03 and ASTM E 1592-01 & 05)
 By Force Engineering & Testing Inc., Inc. (TST ID: 5328)
 - Report # 49-0259T-15 A,B, Report Date: 12/10/15
 - Report # 49-0297T-15 A,B, Report Date: 1/4/16
 - Report # 49-0229T-16, Report Date: 11/3/16
2. Quality Assurance
 UL, LLC (FBC Organization #: QUA 9625)
3. Certification of Independence
 By James L. Buckner, P.E. @ CBUCK Engineering
 (FBC Organization # ANE 1916)

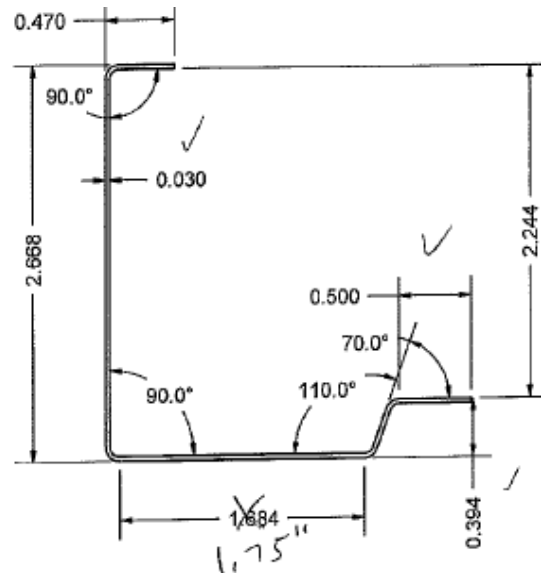
Installation Method Berridge Manufacturing Company "Tee-Lock" (24 ga. Steel) Roof Panel



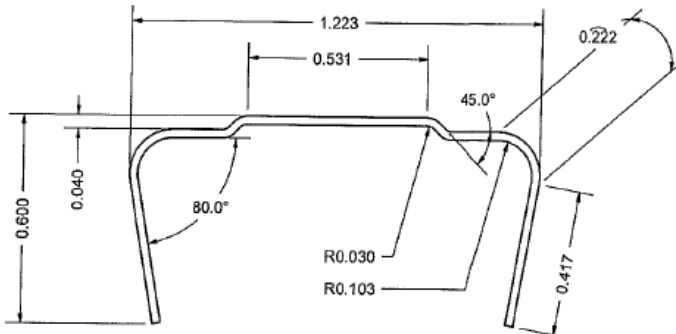
**Berridge Tee Panel
Typical Panel Profile**



**Berridge One-Piece Fixed
Tee-Lock Panel Clip
Typical Clip Profile**

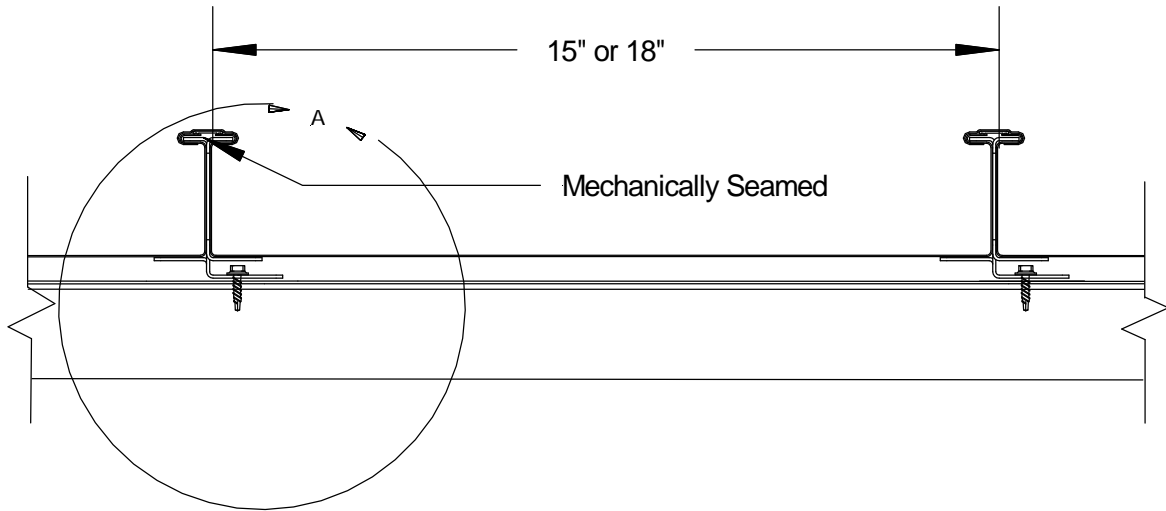


**Berridge One-Piece Continuous
Tee-Lock Panel Clip
Typical Clip Profile**

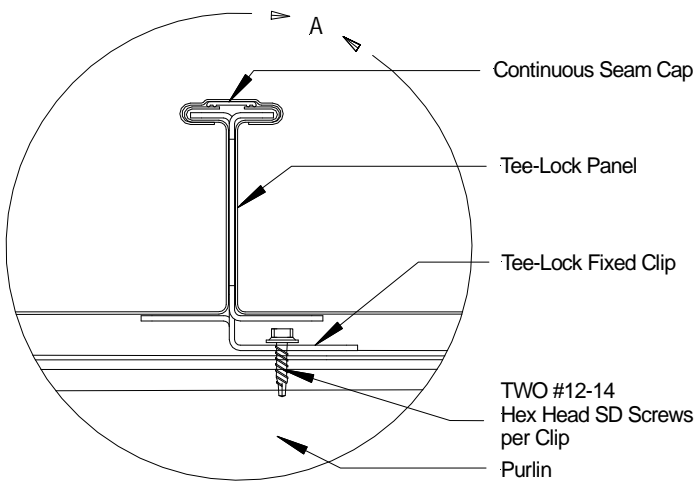


**Berridge Tee-Lock Seam Cap
Typical Profile**

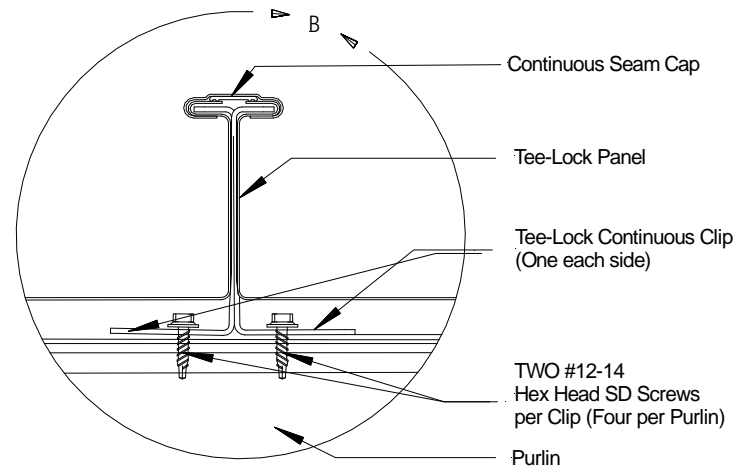
Installation Method Berridge Manufacturing Company "Tee-Lock" (24 ga. Steel) Roof Panel



**Typical Assembly Profile View
 (Typical Fastening Pattern Across Width)**

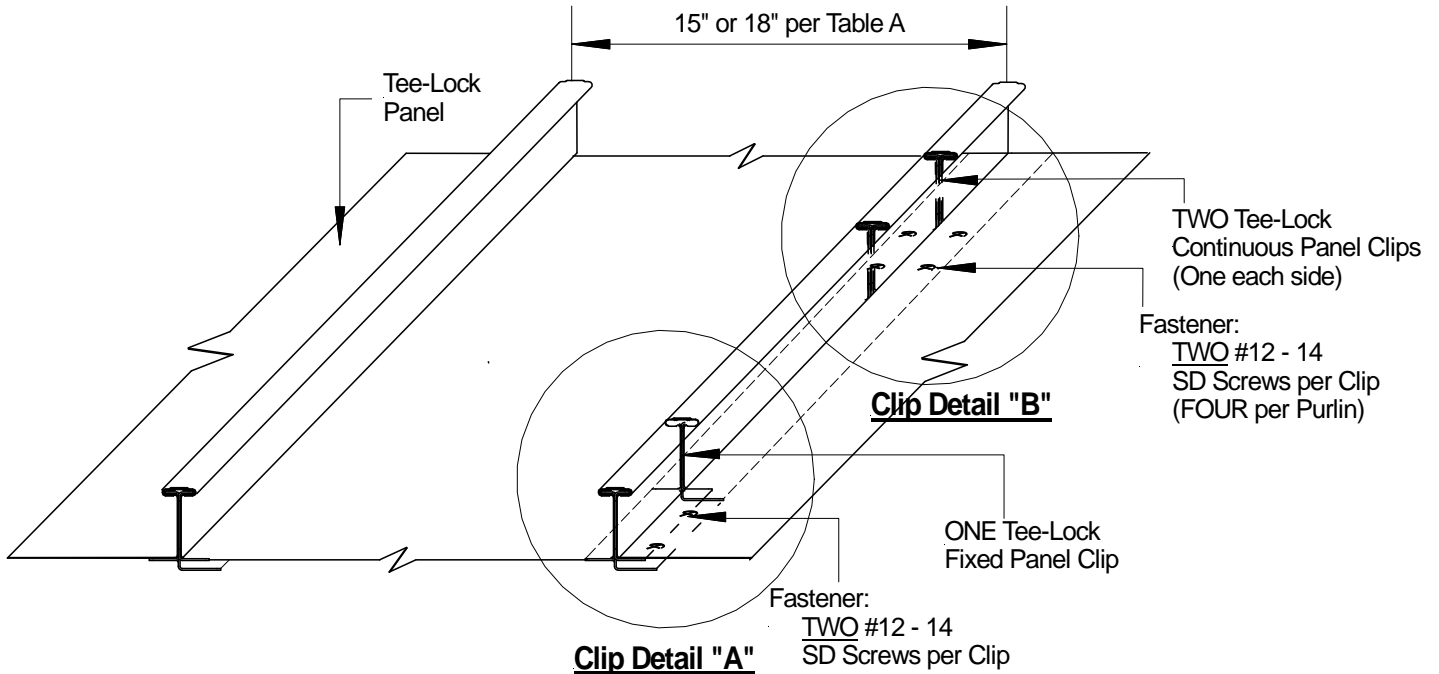


**DETAIL A
 Berridge Tee-Lock Assembly with
 One-Piece Fixed Clip**



**DETAIL B
 Berridge Tee-Lock Assembly with
 One-Piece Continuous Clip**

Installation Method Berridge Manufacturing Company "Tee-Lock" (24 ga. Steel) Roof Panel



**Typical Roof Assembly
Isometric View**

TABLE "A"					
ALLOWABLE LOADS					
"Tee-Lock" (24 ga. Steel) 15" or 18" Wide Roof Panel					
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Span Condition:	3 or more	3 or more	3 or more	3 or more	3 or more
Panel Clip Type:	6" Fixed	6" Fixed	6" Fixed	6" Fixed	Continuous
Fastener:	#12	#12	#12	#12	#12
# Fasteners per Clip:	2	2	2	2	2
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