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# ICC-ES Evaluation Report

# ESR-3486

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Reissued 10/2018  
This report is subject to renewal 10/2020.

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**  
**SECTION: 07 41 13—METAL ROOF PANELS**

**REPORT HOLDER:**

**BERRIDGE MANUFACTURING COMPANY**

**EVALUATION SUBJECT:**

**BERRIDGE CEE-LOCK AND ZEE-LOCK STANDING SEAM ROOF PANELS**



*“2014 Recipient of Prestigious Western States Seismic Policy Council (WSSPC) Award in Excellence”*



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**1.0 EVALUATION SCOPE**

**1.1 Compliance with the following codes:**

- 2012 and 2009 *International Building Code*® (IBC)
- 2012 and 2009 *International Residential Code*® (IRC)

**Properties evaluated:**

- Physical properties
- Wind uplift resistance
- Fire classification

**1.2 Evaluation to the following green code:**

- 2016 California Green Building Standards Code (CALGreen), Title 24, Part 11

**Attributes verified:**

- See Section 3.1

**2.0 USES**

The Cee-Lock and Zee-Lock Standing Seam roof panels are used as Class A roof covering over solid sheathing.

**3.0 DESCRIPTION**

**3.1 General:**

The Berridge Standing Seam roof panels are roll-formed from minimum No. 24 gage [base-metal thickness 0.0230 inch (0.5842 mm)] grade 40 sheet steel with an aluminum-zinc coating conforming to ASTM A792 and AZ55.

The attributes of the metal roof panels have been verified as conforming to the provisions of CALGreen Section A5.406.1.2 for reduced maintenance. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

**3.2 Cee-Lock Standing Seam Roof Panel:**

The Cee-Lock Standing Seam roof panel is produced in panel widths of 16<sup>1</sup>/<sub>2</sub> inches (419 mm) with a seam height of 1<sup>1</sup>/<sub>2</sub> inches (38 mm). See Figure 1 for panel profile and dimensions.

**3.3 Cee-Lock Clip:**

The Cee-Lock Clip is a one-piece clip fabricated from No. 24 gage [base-metal thickness 0.0230 inch (0.5842 mm)] grade 40 sheet steel with an aluminum-zinc coating conforming to ASTM A792 and AZ55. The clip is 3<sup>1</sup>/<sub>2</sub> inches long (89 mm) by 1<sup>11</sup>/<sub>64</sub> inches (30 mm) wide by 1<sup>15</sup>/<sub>32</sub> inches (37 mm) high. See Figure 3 for the Cee-Lock Clip profile.

**3.4 Continuous Cee-Rib:**

The Continuous Cee-Rib is fabricated from No. 24 gage [base-metal thickness 0.0230 inch (0.5842 mm)] grade 40 sheet steel with an aluminum-zinc coating conforming to ASTM A792 and AZ55. The Cee-Rib is 1<sup>11</sup>/<sub>64</sub> inches (30 mm) wide by 1<sup>15</sup>/<sub>32</sub> inches (37 mm) high. See Figure 3 for the Continuous Cee-Rib profile.

**3.5 Zee-Lock Standing Seam Roof Panel:**

The Zee-Lock Standing Seam roof panel is produced in panel widths of 16 inches (406 mm) with a seam height of 2 inches (51 mm). See Figure 2 for panel profile and dimensions.

**3.6 Zee-Lock Clip:**

The Zee-Lock Clip is a one-piece clip fabricated from No. 24 gage [base-metal thickness 0.0230 inch (0.5842 mm)] grade 40 sheet steel with an aluminum-zinc coating conforming to ASTM A792 and AZ55. The clip is 3 inches long (76 mm) by 1<sup>47</sup>/<sub>128</sub> inches (35 mm) wide by 2<sup>3</sup>/<sub>32</sub> inches (53 mm) high. See Figure 4 for the Zee-Lock Clip profile.

**3.7 Continuous Zee-Rib:**

The Continuous Zee-Rib is fabricated from No. 24 gage [base-metal thickness 0.0230 inch (0.5842 mm)] grade 40 sheet steel with an aluminum-zinc coating conforming to ASTM A792 and AZ55. The Zee-Rib 1<sup>47</sup>/<sub>128</sub> inches (35 mm) wide by 2<sup>3</sup>/<sub>32</sub> inches (53 mm) high. See Figure 4 for the Continuous Zee-Rib profile.

**3.8 Sheathing:**

Solid sheathing must be minimum 1<sup>5</sup>/<sub>32</sub>-inch-thick (11.9 mm) plywood or closely-fitted lumber sheathing. The sheathing must be structurally adequate and fastened to resist the wind loads specified by the applicable code.

### 3.9 Underlayment:

Underlayment must be a minimum of one layer of GAF® VersaShield® Fire-Resistant Roof Deck Protection, as specified in [ESR-2053](#).

### 3.10 Fasteners:

Fasteners for attaching the Cee-Lock and Zee-Lock Clips to the sheathing must be No. 10 by 1-inch-long (25.4 mm) corrosion-resistant screws.

## 4.0 INSTALLATION

### 4.1 General:

Except as noted in Sections 3.9 and 4.2 with regard to underlayment, installation of the standing seam roof panels must be in accordance with this report, the manufacturer's published installation instructions, and IBC Section 1507.4 or IRC Section R905.10, as applicable. The manufacturer's installation instructions must be available at the jobsite at all times during installation.

### 4.2 Roof Panel Installation:

**4.2.1 Cee-Lock Panel:** The Cee-Lock roof panels must be installed on roof decks with sheathing, as specified in Section 3.8, at a minimum slope of 2:12 (17 percent slope). The sheathing must be covered with underlayment, as specified in Section 3.9. The roof panels are installed over the underlayment and secured to the sheathing with the Cee-Lock Clips, as specified in Section 3.3, or with the Continuous Cee-Rib, as specified in Section 3.4. The clips are located at each panel rib side lap and spaced at a maximum of 3 feet (0.91 m) on center along the length of the panel and fastened with a minimum of two fasteners. The Cee-Ribs are secured to the sheathing with two fasteners at a maximum of 3 feet (0.91 m) on center along the length of the panel.

**4.2.2 Zee-Lock Panel:** The Zee-Lock roof panels must be installed on roof decks with sheathing, as specified in Section 3.8, at a minimum slope of 2:12 (17 percent slope). The sheathing must be covered with underlayment, as specified in Section 3.9. The roof panels are installed over the underlayment and secured to the sheathing with the Zee-Lock Clips, as specified in Section 3.6, or with the Zee-Rib, as specified in Section 3.7. The clips are located at each panel rib side lap and spaced at a maximum of 3 feet (0.91 m) on center along the length of the panel and fastened with a minimum of two fasteners. The Zee-Ribs are secured to the sheathing with two fasteners at a maximum of 3 feet (0.91 m) on center along the length of the panel.

### 4.3 Fire Classification:

When installed in accordance with this report, the panels are a Class A roof covering in accordance with IBC Section 1505.5 and IRC Section R902.1.

### 4.4 Wind Uplift Resistance:

The systems described in Section 3.0 have the following allowable uplift resistance when installed as noted:

- 24 gage Cee-Lock Panels with 24 gage Continuous Cee-Rib [0.023 inch (0.584 mm) coated thickness] and #10-13 by 1-inch (25.4 mm) GP fasteners by Triangle Fasteners at 10 inches (254 mm) on center: *Allowable uplift resistance = 108 psf (527.26 kg/m<sup>2</sup>).*
- 24 gage Cee-Lock Panels with 24 gage Cee-Lock Clip [0.023 inch (0.584 mm) coated thickness] and 2 - #10 by 1-inch-long (25.4 mm) corrosion-resistant screws at 36 inches (914 mm) on center: *Allowable uplift resistance = 53 psf (258.75 kg/m<sup>2</sup>).*
- 24 gage Zee-Lock Double Lock Panels with 24 gage Continuous Zee-Rib [0.023 inch (0.584 mm) coated thickness] and #12-11 by 1-inch (25.4 mm) Type A fasteners by Buildex at 16 inches (406 mm) on center: *Allowable uplift resistance = 93 psf (454 kg/m<sup>2</sup>).*
- 24 gage Zee-Lock Single Lock Panels with 24 gage Zee-Lock Clip [0.023 inch (0.584 mm) coated thickness] and 2 - #10 by 1-inch-long (25.4 mm) corrosion-resistant screws at 36 inches (914 mm) on center: *Allowable uplift resistance = 53 psf (258.75 kg/m<sup>2</sup>).*

## 5.0 CONDITIONS OF USE

The Berridge Standing Seam roof panels described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** Installation must comply with this report, the applicable code, and the manufacturer's published installation instructions. If there is a conflict between this report and the manufacturer's published installation instructions, this report governs.
- 5.2** The roofing panels are manufactured in Seguin, Texas, under a quality control program with inspections by ICC-ES.

## 6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Metal Roof Coverings (AC166), dated October 2012.

## 7.0 IDENTIFICATION

- 7.1** Each standing seam metal roof panel is identified with a label bearing the manufacturer's name and address, the product name, the material type and gage, the production date code, the evaluation report number (ESR-3486).
- 7.2** The report holder's contact information is the following:

**BERRIDGE MANUFACTURING COMPANY**  
**6515 FRATT ROAD**  
**SAN ANTONIO, TEXAS 78218**  
**(800) 669-0009**  
[www.berridge.com](http://www.berridge.com)

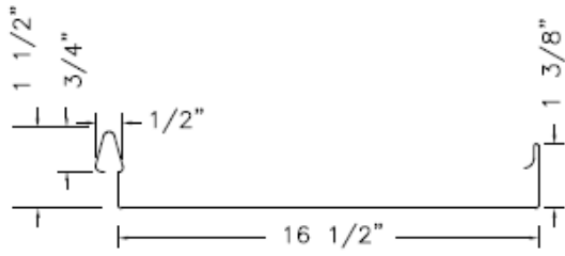


FIGURE 1—CEE-LOCK PANEL

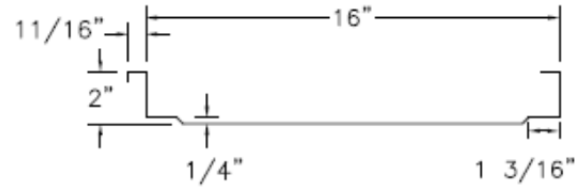


FIGURE 2—ZEE-LOCK PANEL

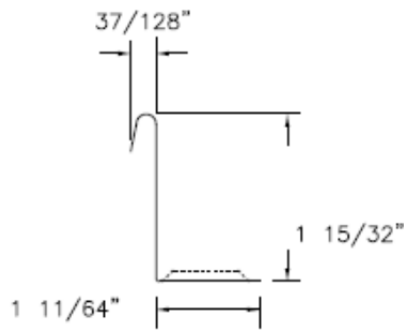


FIGURE 3—CEE-LOCK CLIP  
OR CONTINUOUS CEE-RIB

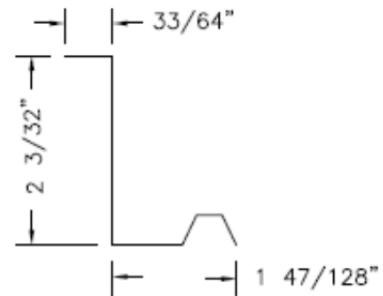


FIGURE 4—ZEE-LOCK PANEL  
OR CONTINUOUS ZEE-RIB