

# ICC-ES Evaluation Report

**ESR-2048**

Reissued March 2024

This report also contains:


- CBC\_CRC Supplement

Subject to renewal March 2026

- LABC\_LARC Supplement

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<p><b>DIVISION: 07 00 00— THERMAL AND MOISTURE PROTECTION</b></p> <p><b>Section: 07 41 13—Metal Roof Panels</b></p>	<p><b>REPORT HOLDER: CUSTOM-BILT METALS</b></p>	<p><b>EVALUATION SUBJECT: CUSTOM-BILT STANDING SEAM METAL ROOF PANELS: CB-150 AND SL-1750</b></p>	
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## 1.0 EVALUATION SCOPE

### 1.1 Compliance with the following codes:

- 2021, 2018, 2015, 2012 and 2009 [International Building Code® \(IBC\)](#)
- 2021, 2018, 2015, 2012 and 2009 [International Residential Code® \(IRC\)](#)
- 2013 *Abu Dhabi International Building Code (ADIBC)*<sup>†</sup>

<sup>†</sup>The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see [ESR-2048 LABC and LARC Supplement](#).

### Properties evaluated:

- Weather resistance
- Fire classification
- Wind uplift resistance

### 1.2 Evaluation to the following green code:

- 2022 [California Green Building Standards Code \(CALGreen\)](#), Title 24, Part 11

### Attributes verified:

- See Section 3.1.

## 2.0 USES

Custom-Bilt Standing Seam Metal Roof Panels are steel panels complying with IBC Section 1507.4 and IRC Section R905.10. The panels have been evaluated for use as Class A roof coverings when installed in accordance with this report.

## 3.0 DESCRIPTION

### 3.1 Roofing Panels:

Custom-Bilt standing seam roof panels are fabricated from steel and are available in the CB-150 and SL-1750 profiles. The panels are roll-formed at the jobsite to provide the standing seams between panels. See [Figures 1](#) and [3](#) for panel profiles.

The standing seam roof panels are roll-formed from minimum No. 24 gage [0.024-inch-thick (0.61 mm)] cold-formed sheet steel. The steel conforms to ASTM A792, with an aluminum-zinc alloy coating designation of AZ50.

The panel profiles are as follows:

- CB-150: This profile is formed to 12- or 16-inch-wide (305 or 406 mm) panels, with 1<sup>1</sup>/<sub>2</sub>-inch-high (38 mm) mechanically locking seams. See [Figure 1](#).
- SL-1750: This profile is formed to 14- or 18-inch-wide (356 or 457 mm) panels, with 1<sup>3</sup>/<sub>4</sub>-inch-high (44 mm) snap-locking seams. See [Figure 3](#).

The attributes of the metal roofing 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 Decking:

Solid or closely fitted decking must be minimum <sup>15</sup>/<sub>32</sub>-inch-thick (11.9 mm) wood structural panel or lumber sheathing, complying with IBC Section 2304.8.2 (2012 and 2009 IBC Section 2304.7.2) or IRC Section R803, as applicable.

### 3.3 Underlayment and Flashing:

Underlayment must comply with ASTM D226 or GAF VersaShield® Fire-Resistant Roof Deck Protection (ESR-2053). Flashing must be in accordance with IBC Section 1503.2 or IRC Section 903.2, as applicable.

### 3.4 Panel Clips:

Panel clips are supplied by Custom-Bilt, and are fabricated from ASTM A653 sheet steel with a zinc coating designation of G90, and a base-metal thickness of 0.024 inch [0.61 mm (No. 24 gage)] for the CB-150 and 0.048 inch [1.22 mm (No. 18 gage)] for the SL-1750. See [Figures 2](#) and [4](#) for panel clips and dimensions.

### 3.5 Fasteners:

Fasteners for attaching the anchor clips to the sheathing must be corrosion-resistant screws of sufficient length to penetrate into the sheathing a minimum of <sup>3</sup>/<sub>4</sub> inch (19 mm) or through the thickness of the sheathing, whichever is less.

## 4.0 DESIGN AND INSTALLATION

### 4.1 General:

Installation of the Custom-Bilt Standing Seam Roof Panels must be in accordance with this report, Section 1507.4 of the IBC or Section R905.10 of the IRC, and the manufacturer's published installation instructions. The manufacturer's installation instructions must be available at the jobsite at all times during installation.

The roof panels must be installed on solid or closely fitted decking, as specified in Section 3.2. Accessories such as gutters, drip angles, fascias, ridge caps, window or gable trim, valley and hip flashings, etc., are fabricated to suit each job condition. Details must be submitted to the code official for each installation.

### 4.2 Roof Panel Installation:

**4.2.1 CB-150:** The CB-150 roof panels are installed on roofs having a minimum slope of 2:12 (17 percent). The roof panels are installed over underlayment, when required by the applicable codes, and secured to the sheathing with the panel clip shown in [Figure 2](#). The clips are located at each panel rib side lap spaced 6 inches (152 mm) from all ends and at a maximum of 4 feet (1.22 m) on center along the length of the rib, and fastened with a minimum of two No. 10 by 1-inch pan head corrosion-resistant screws. The panel ribs are mechanically seamed twice, each pass at 90 degrees, resulting in a double-locking fold as shown in [Figure 1](#).

**4.2.2 SL-1750:** The SL-1750 roof panels are installed on roofs having a minimum slope of 2:12 (17 percent). The roof panels are installed over underlayment, when required by the applicable codes, and secured to the sheathing with the panel clips shown in [Figure 4](#). The clips are located at each panel rib side lap spaced 6 inches (152 mm) from all ends and at a maximum of 3 feet (914 mm) on center along the length of the rib, and fastened with a minimum of two No. 10 by 1-inch pan head corrosion-resistant screws. After installation of fasteners along one side, each panel is lapped over the preceding panel and snap-locked into place.

### 4.3 Fire Classification:

The roof covering system described in [Table 1](#), when installed in accordance with this report, is a Class A roof covering in accordance with ASTM E108 (UL 790).

**4.4 Wind Uplift Resistance:**

The systems described in Section 3.0 and installed in accordance with Sections 4.1 and 4.2 have an allowable wind uplift resistance of 45 pounds per square foot (2.15 kPa).

**5.0 CONDITIONS OF USE:**

The standing seam metal 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 The panels are manufactured, identified and installed in accordance with this report, the applicable code, and the manufacturer’s published installation instructions. In the event of a conflict between this report and the manufacturer’s published installation instructions, this report governs.
- 5.2 The required design wind loads must be determined for each project. Wind uplift pressure on any roof area must not exceed 45 pounds per square foot (2.15 kPa).
- 5.3 The Custom-Bilt Standing Seam Roof Panels are manufactured in McClellan, California, 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 February 2021.

**7.0 IDENTIFICATION**

- 7.1 Pallets of the standing seam metal roof panel are identified with a label bearing the product name, the material type and gage, the Custom-Bilt Metals name and address, and the evaluation report number (ESR-2048).
- 7.2 The report holder’s contact information is the following:

**CUSTOM-BILT METALS**  
**1333 CORPORATE DRIVE, SUITE 103**  
**IRVING, TEXAS 75038**  
**(888) 875-8484**  
[www.custombiltmetals.com](http://www.custombiltmetals.com)  
[info@custombiltmetals.com](mailto:info@custombiltmetals.com)

**TABLE 1—ROOF CLASSIFICATION**

SYSTEM	MAXIMUM SLOPE (inch/foot)	DECK <sup>1</sup>	UNDERLAYMENT	METAL PANEL	ROOF CLASS
1	Unlimited	Minimum 15/32" Plywood	One Layer of Type II (No. 30) Underlayment and Two Layers of GAF VersaShield® Fire-Resistant Roof Deck Protection	CB-150 or SL-1750	A

<sup>1</sup> See Section 3.2.

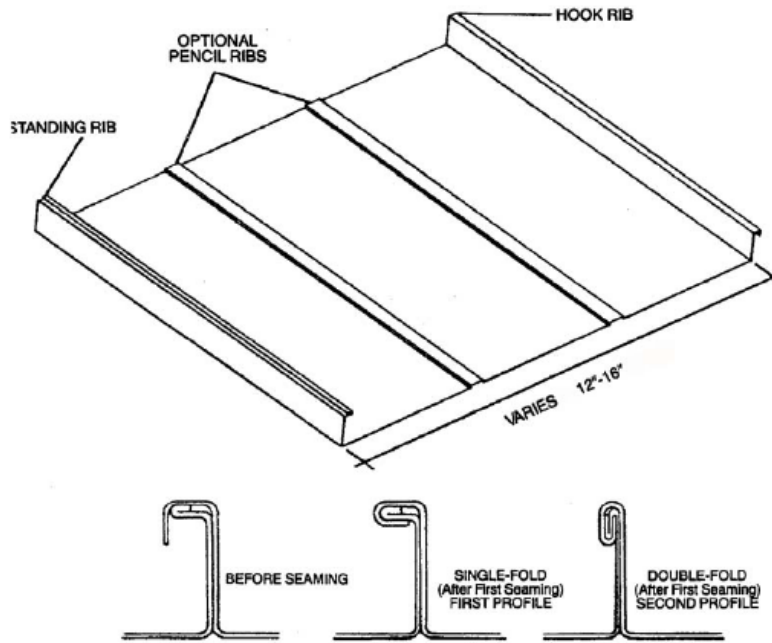


FIGURE 1—CB-150 PANEL  
For SI: 1 inch = 25.4 mm

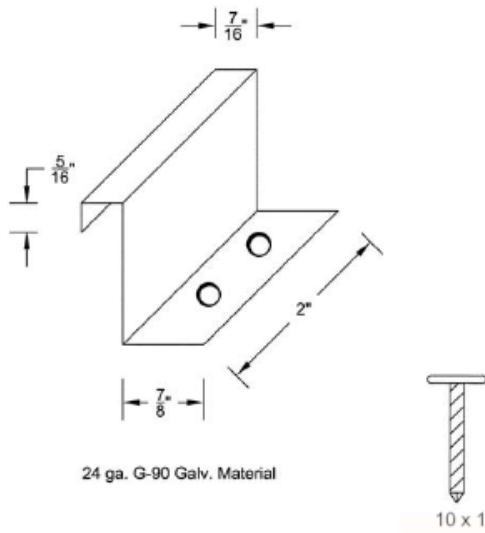


FIGURE 2—CB-150 ANCHOR CLIP  
For SI: 1 inch = 25.4 mm

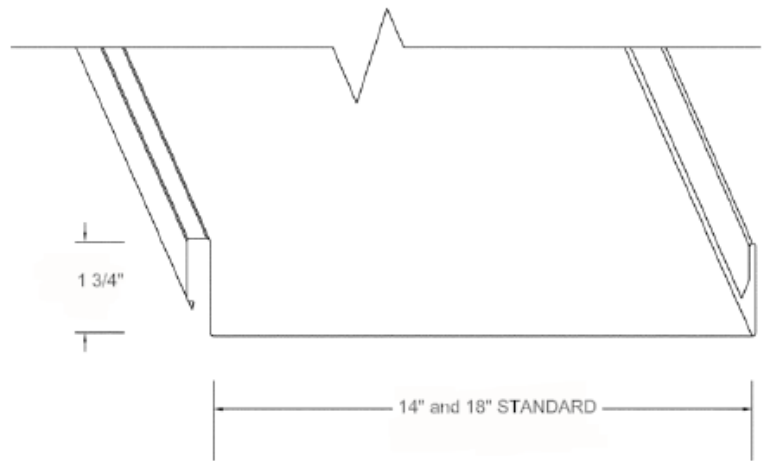


FIGURE 3—SL-1750 PANEL  
For SI: 1 inch = 25.4 mm

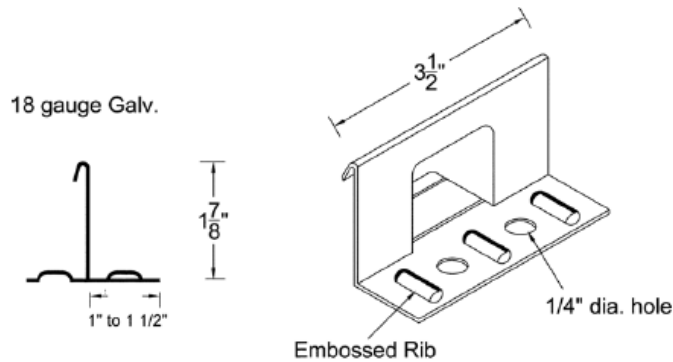


FIGURE 4—SL-1750 ANCHOR CLIP  
For SI: 1 inch = 25.4 mm

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**  
**Section: 07 41 13—Metal Roof Panels**

**REPORT HOLDER:**

**CUSTOM-BILT METALS**

**EVALUATION SUBJECT:**

**CUSTOM-BILT STANDING SEAM METAL ROOF PANELS: CB-150 AND SL-1750**

## 1.0 REPORT PURPOSE AND SCOPE

**Purpose:**

The purpose of this evaluation report supplement is to indicate that the Custom-Bilt Standing Seam Metal Roof Panels, described in ICC-ES evaluation report [ESR-2048](#), have also been evaluated for compliance with the codes noted below as adopted by the Los Angeles Department of Building and Safety (LADBS).

**Applicable code editions:**

- 2020 *City of Los Angeles Building Code* (LABC)
- 2020 *City of Los Angeles Residential Code* (LARC)

## 2.0 CONCLUSIONS

The Custom-Bilt Standing Seam Metal Roof Panels, described in Sections 2.0 through 7.0 of the evaluation report [ESR-2048](#), comply with the LABC Chapter 15, and LARC Chapter 9, and are subject to the conditions of use described in this supplement.

## 3.0 CONDITIONS OF USE

The Custom-Bilt Standing Seam Metal Roof Panels described in this evaluation report supplement must comply with all of the following conditions:

- All applicable sections in the evaluation report [ESR-2048](#).
- The design, installation, conditions of use and identification of the Custom-Bilt Standing Seam Metal Roof Panels are in accordance with the 2018 *International Building Code*® (IBC) and 2018 *International Residential Code* (IRC) provisions noted in the evaluation report [ESR-2048](#).
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- Under the LARC, an engineered design in accordance with LARC Section R301.1.3 must be submitted.

This supplement expires concurrently with the evaluation report, reissued March 2022.

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**  
**Section: 07 41 13—Metal Roof Panels**

**REPORT HOLDER:**

**CUSTOM-BILT METALS**

**EVALUATION SUBJECT:**

**CUSTOM-BILT STANDING SEAM METAL ROOF PANELS: CB-150 AND SL-1750**

**1.0 REPORT PURPOSE AND SCOPE**

**Purpose:**

The purpose of this evaluation report supplement is to indicate that Custom-Bilt Standing Seam Metal Roof Panels, described in ICC-ES evaluation report ESR-2048, have also been evaluated for compliance with the codes noted below.

**Applicable code editions:**

- 2019 *California Building Code* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD)AKA: California Department of Health Care Access and Information (HCAI) and Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2019 *California Residential Code* (CRC)

**2.0 CONCLUSIONS**

**2.1 CBC:**

The Custom-Bilt Standing Seam Metal Roof Panels described in Sections 2.0 through 7.0 of the evaluation report ESR-2048 may be used where the CBC requires a Class A roof covering complying with CBC Section 1505.1.1, a Class B roof covering complying with CBC Section 1505.1.2, or a Class C roof covering complying with CBC Section 1505.1.3, provided the design and installation are in accordance with the 2018 *International Building Code*® (IBC) provisions noted in the evaluation report, as applicable.

**2.1.1 OSHPD:** The applicable OSHPD Sections of the CBC are beyond the scope of this supplement.

**2.1.2 DSA:** The applicable DSA Sections of the CBC are beyond the scope of this supplement.

**2.2 CRC:**

The Custom-Bilt Standing Seam Metal Roof Panels described in Sections 2.0 through 7.0 of the evaluation report ESR-2048 may be used where the CRC requires a Class A roof cover complying with CRC Section R902.1.1, a Class B roof covering complying with CRC Section R902.1.2, or a Class C roof covering complying with CRC Section R902.1.3, provided the design and installation are in accordance with the 2018 *International Residential Code*® (IRC) provisions noted in the evaluation report and the additional requirements of Section R905.4 of the CRC.

This supplement expires concurrently with the evaluation report, reissued March 2022.