

ICC-ES Evaluation Report

ESR-3422

Reissued September 2023

This report also contains:


Revised September 2024

- CBC and CRC Supplement

Subject to renewal September 2025

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<p>DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION</p> <p>Section: 07 41 13—Metal Roof Panels</p>	<p>REPORT HOLDER:</p> <p>HOLCIM SOLUTIONS AND PRODUCTS US, LLC</p>	<p>EVALUATION SUBJECT:</p> <p>UNA-CLAD® STANDING SEAM METAL ROOF PANELS UC-3, UC-4, UC-6, AND UC-14</p>	
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1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2024, 2021, 2018, 2015, 2012 and 2009 [International Building Code® \(IBC\)](#)
- 2024, 2021, 2018, 2015, 2012 and 2009 [International Residential Code® \(IRC\)](#)

Properties evaluated:

- Weather resistance
- Fire classification
- Wind uplift resistance

1.1 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

UNA-CLAD® Standing Seam Metal Roof Panels are used as roof coverings and may be used as Class A roof coverings when installed in accordance with this report.

3.0 DESCRIPTION

3.1 General:

UNA-CLAD® Standing Seam Metal Roof Panels are available in preformed standing seam profiles produced from steel, aluminum, and copper sheet. Materials used in panel fabrication conform to the following specifications:

Aluminum: ASTM B209; minimum 0.032-inch thick (0.81 mm); F_y = minimum 21 ksi.

Galvanized Steel: ASTM A653 G90; minimum 24-gauge [0.025-inch thick (0.64 mm)]; F_y = minimum 50 ksi.

Galvalume® Steel: ASTM A792 AZ50; minimum 24-gauge [0.025-inch thick (0.64 mm)]; F_y = minimum 50 ksi.

Copper: ASTM B370; minimum 16 oz./sq.ft. (0.0416 kg/m²); F_y = minimum 38 ksi.

The panel profiles are as follows:

- **UC-3:** Formed to 8-inch- to 20-inch-wide (203 mm to 508 mm) panels, with 1.0-inch- or 1.5-inch-high (25 mm or 38 mm) mechanically locking seams. See [Figure 1](#).
- **UC-4:** Formed to 9.75-inch- to 17.75-inch-wide (248 mm to 451 mm) panels, with 1.5-inch-high (38 mm) snap-locking seams. See [Figure 2](#).
- **UC-6:** Formed to 8-inch- to 24-inch-wide (203 mm to 610 mm) panels, with 1.5-inch- or 2.0-inch-high (38 mm or 51 mm) mechanically locking seams. See [Figure 3](#).
- **UC-14:** Formed to 8-inch- to 18-inch-wide (203 mm to 457 mm) panels, with 1.75-inch-high (44 mm) snap-locking seams. See [Figure 4](#).

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 Roof Deck:

Solid or closely fitted decking must be minimum $1\frac{5}{32}$ -inch-thick (11.9 mm) plywood or lumber sheathing, or non-veneer APA rated minimum $\frac{7}{16}$ -inch-thick (11.1 mm) oriented-strand board (OSB) complying with 2024, 2021, 2018 and 2015 IBC Section 2304.8.2 (2012 and 2009 IBC Section 2304.7.2) or IRC Section R803, or minimum No. 22 gauge [0.030 inch thick (0.76 mm)] steel complying with 2024 IBC Section 2208.1 (2021, 2018 and 2015 IBC Section 2210.1.1.2).

3.3 Underlayment and Flashing:

Underlayment must be in accordance with IBC Section 1507.4.5 or 2024 IRC Section R905.10.6 (2021, 2018 and 2015 IRC Section R905.10.5), as applicable. Flashing must be in accordance with IBC Section 1503.2 or IRC Section R903.2, as applicable.

3.4 Insulation:

Foam plastic insulation, where used, must have a flame-spread index of not more than 75 in accordance with ASTM E84 or UL 723 when tested at the maximum thickness intended for use. Polyisocyanurate and polystyrene foam plastic insulation must comply with ASTM C1289 and ASTM C578, respectively. See [Tables 1](#) and [2](#) for insulations used with specific roof systems.

3.5 Panel Clips and Bearing Plates:

Panel clips are fabricated as described below. Dimensional drawings are shown in [Figures 5](#) through [12](#).

- **UC-3 Fixed Clip:** ASTM A653 G90, minimum 24-gauge [0.024-inch thick (0.61 mm)]; or 300 series stainless steel, minimum No. 26 gauge [0.018-inch thick (0.46 mm)].
- **UC-3 Expansion Clip:** 300 series stainless steel, minimum No. 28 gauge [0.016-inch thick (0.41 mm)].
- **UC-3 Super Clip:** ASTM A653 G90 or 300 series stainless steel; G90, minimum No. 22 gauge [0.031-inch thick (0.79 mm)] base with 24-gauge [0.025 (0.64 mm)] tab. Stainless steel, minimum No. 24 gauge [0.024-inch thick (0.61 mm)] base with 26-gauge [0.018-inch thick (0.46 mm)] tab.
- **UC-6 Fixed Clip:** ASTM A653 G90 steel, minimum No. 24 gauge [0.023-inch thick (0.58 mm)].
- **UC-6 Low-Float Clip:** ASTM A653 G90 or 300 series stainless steel; G90, minimum No. 16 gauge [0.058-inch thick (1.47 mm)] base with No. 22 gauge [0.031-inch thick (0.79 mm)] tab. Stainless steel, minimum No. 22 gauge [0.031-inch thick (0.79 mm)] tab.
- **UC-6 Super Clip:** ASTM A653 G90 or 300 series stainless steel; G90, minimum No. 22 gauge [0.031-inch thick (0.79 mm)] base with No. 24 gauge [0.025-inch (0.64 mm)] tab. Stainless steel, minimum No. 24 gauge [0.024-inch thick (0.61 mm)] base with 26-gauge [0.018-inch thick (0.46 mm)] tab.
- **UC-14 Clip:** ASTM A653 G90 or 300 series stainless steel, minimum No. 18 gauge [0.050-inch thick (1.27 mm)].
- **UC Bearing Plate:** ASTM A653 G90 or 300 series stainless steel; minimum No. 20 gauge [0.037-inch thick (0.94 mm)] and No. 22 gauge [0.032-inch thick (0.82 mm)], respectively.

3.6 Fasteners:

- Tru-Fast Corp T-17: No.10-12 by 1-inch self-drilling fasteners with a 0.435-inch-diameter (11 mm) pancake head. Available in galvanized and stainless steel.

- UNA-CLAD Drill Point Fasteners: #12-13 self-drilling fasteners with 0.435-inch-diameter (11 mm) pancake head. UNA-CLAD Drill Point Fasteners, as specified in the manufacturer's published installation instructions, are made from carbon steel and have a red epoxy coating.

4.0 DESIGN AND INSTALLATION

4.1 General:

Installation of the UNA-CLAD® standing seam metal roof panels must be in accordance with this report, IBC Section 1507.4 or IRC Section R905.10, as applicable, and the manufacturer's published installation instructions. The manufacturer's installation instructions must be available on the jobsite at all times during installation.

The roof panels must be installed on solid or closely fitted decking or steel decking, as specified in Section 3.2, having a minimum roof slope of 3:12 (25 percent). Penetrations and terminations of the panels must be flashed and made weathertight in accordance with the manufacturer's published installation instructions and IBC Section 1503.2 or IRC Section R903.2, as applicable.

4.2 Fire Classification:

The steel, copper, and aluminum roof panels are components of roof assemblies classified as Class A or B roof assemblies in accordance with ASTM E108 or UL 790 when installed as specified in [Table 1](#).

Under the 2024, 2021, 2018, 2015 and 2012 IBC or 2024, 2021, 2018, 2015 and 2012 IRC, copper and steel roof panels are considered Class A roof coverings, when installed, without insulation, as described in Section 4.1 of this report on steel roof decks in accordance with Exception 2 to IBC Section 1505.2 and Exception 2 to IRC Section R902.1. The copper roof panels are considered Class A roof coverings, when installed, without insulation, as described in Section 4.1 of this report in accordance with Exception 3 to IBC Section 1505.2 and Exception 3 to IRC Section R902.1.

Under the 2009 IBC or 2009 IRC, copper and steel roof panels are considered Class A roof coverings, when installed as described in Section 4.1 of this report, without insulation, on steel roof decks in accordance with Exception 2 to IBC Section 1505.2 and Exception 2 to IRC Section R902.1.

4.3 Wind Uplift Resistance:

The allowable wind uplift pressures for UNA-CLAD® Standing Seam Metal Roof Panels are provided in [Table 2](#).

5.0 CONDITIONS OF USE:

The UNA-CLAD® 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 Installation must comply with the applicable code, this report and the manufacturer's published installation instructions. In the event of conflicts between this report and the manufacturer's instructions, this report governs.
- 5.2 The metal panels must be installed only by applicators approved by Holcim Solutions and Products US, LLC.
- 5.3 Foam plastic insulation must be separated from the interior of the building by an approved thermal barrier in accordance with IBC Section 2603.4.1.5 or 2024 IRC Section R303.5.2 (2021, 2018 and 2015 IRC Section R316.5.2), as applicable.
- 5.4 Foam plastic insulation, where used, must bear the label of an approved agency indicating that the foam plastic has a flame-spread index of not more than 75 when tested at the maximum thickness intended for use in accordance with ASTM E84 or UL 723, subject to the approval of the code official.
- 5.5 Above-deck thermal insulation must comply with the applicable standard specified in IBC Table 1508.2 or IRC Table R906.2, as applicable.
- 5.6 Design wind uplift pressure on any roof area, including edge and corner zones, must not exceed the allowable wind pressure for the system. Refer to the allowable wind uplift pressure for the metal panels as listed in [Table 1](#).
- 5.7 The allowable wind uplift pressures listed in [Table 2](#) are for the roof covering only. The deck and framing to which the roof covering is attached must be designed for the applicable components and cladding wind loads in accordance with the IBC or IRC, as applicable.

5.8 Calculations demonstrating that the required wind resistance is less than the allowable wind resistance must be submitted to the code official.

5.9 The panels are manufactured in Anoka, Minnesota, 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 (editorially revised June 2024).

7.0 IDENTIFICATION

7.1 The ICC-ES mark of conformity, electronic labeling, or the evaluation report number (ICC-ES ESR-3422) along with the name (Holcim Solutions and Products US, LLC), registered trademark, or registered logo of the report holder must be included in the product label.

7.2 Additionally, the panels are identified with a label bearing the product name and the material type.

7.3 The report holder’s contact information is the following:

HOLCIM SOLUTIONS AND PRODUCTS, LLC
26 CENTURY BOULEVARD, SUITE 205
NASHVILLE, TENNESSEE 37214
(800) 428-4442
www.holcimelevate.com



FIGURE 1—UNA-CLAD® UC-3



FIGURE 2—UNA-CLAD® UC-4

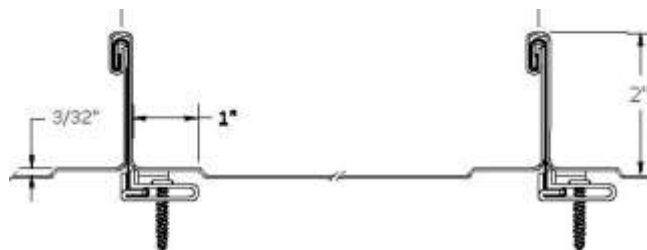


FIGURE 3—UNA-CLAD® UC-6

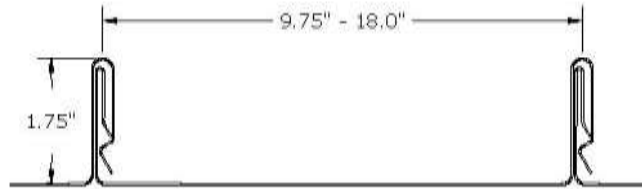


FIGURE 4—UNA-CLAD® UC-14

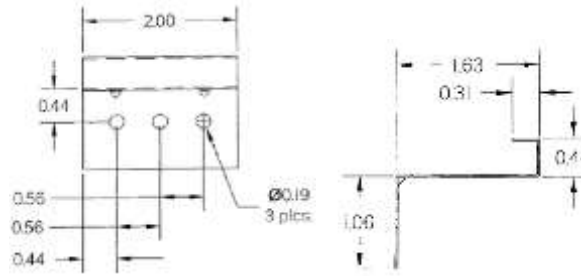


FIGURE 5—UNA-CLAD® UC-3 FIXED CLIP

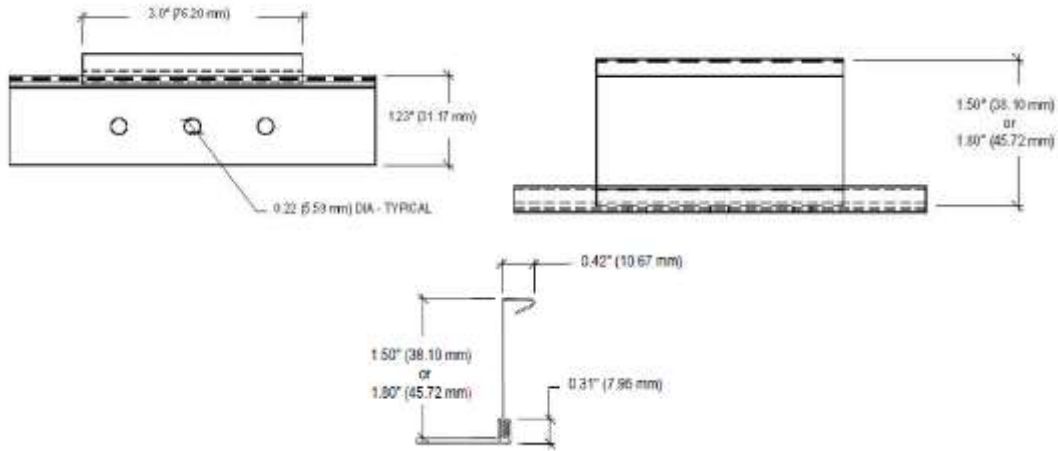


FIGURE 6—UNA-CLAD® UC-3 SUPER CLIP

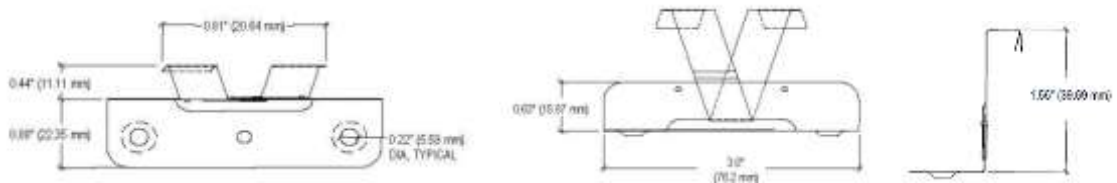


FIGURE 7—UNA-CLAD® UC-3 EXPANSION CLIP



FIGURE 8—UNA-CLAD® UC-6 FIXED CLIP

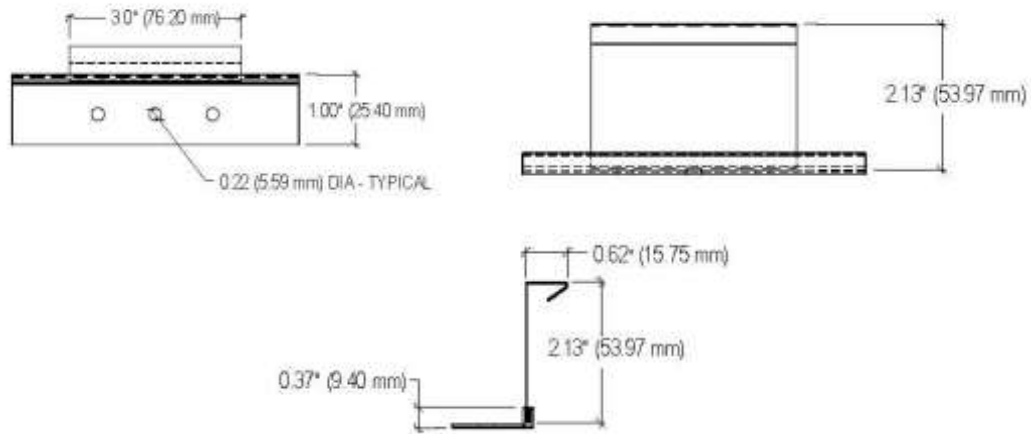


FIGURE 9—UNA-CLAD® UC-6 SUPER CLIP

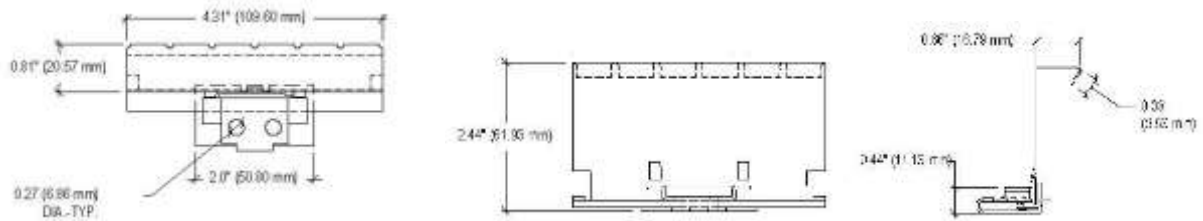


FIGURE 10—UNA-CLAD® UC-6 LOW-FLOAT CLIP

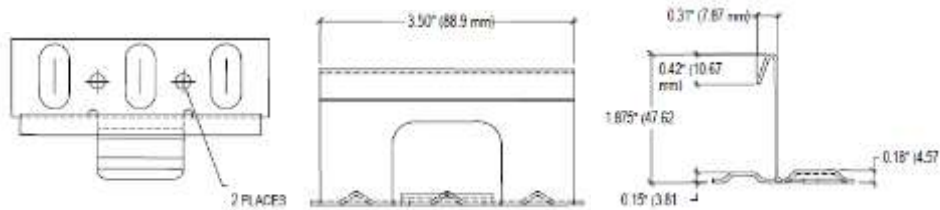


FIGURE 11—UNA-CLAD® UC-14 CLIP

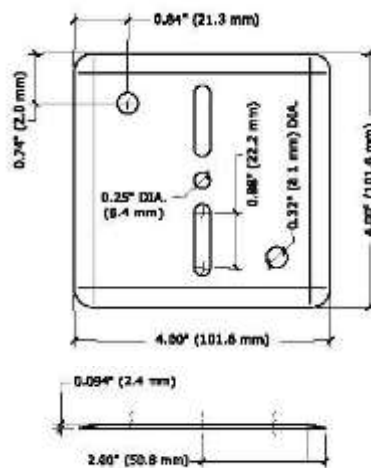


FIGURE 12—UNA-CLAD® UC BEARING PLATE

TABLE 1—FIRE CLASSIFICATION ASSEMBLIES

SYSTEM NO.	ROOF CLASS	SUBSTRATE ¹	MAX. ROOF SLOPE	ASSEMBLY DETAIL ^{2,3}	
				Component	Description
1	A	Combustible	Unlimited	Insulation (Optional):	Any thickness Elevate "ISO 95+GL"
				Cover Board:	Georgia-Pacific Building Products "DensDeck®", 1/4-in. thick min, or 1/2-in. thick min UL Classified gypsum board with joints in barrier board offset 6 in. with joints in deck.
				Ply Sheet (Optional):	Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15, 20 or 30 felt or equivalent UL Classified Prepared Roofing Accessory.
				Panel:	UC-3, UC-4, UC-6, and UC-14 in steel, copper, or aluminum.
2	A	Combustible	Unlimited	Barrier Board:	Georgia-Pacific Building Products "DensDeck®", 1/4-in. thick min, or 1/2-in. thick min UL Classified gypsum board with joints in barrier board offset 6 in. with joints in deck.
				Insulation (Optional):	Any thickness Elevate "ISO 95+ GL" or "HailGard".
				Ply Sheet (Optional):	Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15, 20 or 30 felt or equivalent UL Classified Prepared Roofing Accessory.
				Panel:	UC-3, UC-4, UC-6, and UC-14 in steel, copper, or aluminum.
3	A	Combustible	Unlimited	Barrier Board:	Georgia-Pacific Building Products "DensDeck®", 1/4-in. thick min, or 1/2-in. thick min UL Classified gypsum board with joints in barrier board offset 6 in. with joints in deck.
				Insulation (Optional):	Any thickness Elevate "ISO 95+ GL" or "HailGard".
				Ply Sheet (Optional):	Any UL Classified Type G1, G2 or G3 base/ply sheet, Type 15, 20 or 30 felt or equivalent UL Classified Prepared Roofing Accessory.
				Panel:	UC-3, UC-4, UC-6, and UC-14 in steel.
4	A	Combustible	Unlimited	Barrier Board:	G-P Products "DensDeck®", 1/4 in. thick min, or 1/2 in. thick min UL Classified gypsum board with joints in barrier board offset 6 in. with joints in deck.
				Insulation (Optional):	Any thickness Elevate "ISO 95+ GL" or "HailGard".
				Ply Sheet:	Any UL Classified Type G2 or G3 base/ply sheet, Type 30 felt or equivalent UL Classified Prepared Roofing Accessory.
				Panel:	UC-3, UC-4, UC-6, and UC-14 in copper.
5	A	Combustible	Unlimited	Insulation (Optional):	Elevate "ISO 95+ GL."
				Barrier Board or Cover Board:	Georgia-Pacific Building Products "DensDeck®", 1/4-in. thick min, or 1/2-in. thick min UL Classified gypsum board with joints in barrier board offset 6 in. with joints in deck.
				Panel:	UC-3, UC-4, UC-6, and UC-14 in steel.
6	A	Combustible	Unlimited	Insulation (Optional):	Elevate "ISO 95+ GL."
				Barrier Board or Cover Board:	Georgia-Pacific Building Products "DensDeck®", 1/4-in. thick min, or 1/2-in. thick min UL Classified gypsum board with joints in barrier board offset 6 in. with joints in deck.
				Panel:	UC-3, UC-4, UC-6, and UC-14 in copper.
7	A	Combustible	Unlimited	Insulation (Optional):	Elevate "ISO 95+ GL."
				Barrier Board or Cover Board:	Georgia-Pacific Building Products "DensDeck®", 1/4-in. thick min, or 1/2-in. thick min UL Classified gypsum board with joints in barrier board offset 6 in. with joints in deck.
				Panel:	UC-3, UC-4, UC-6, and UC-14 in aluminum.
8	A	Noncombustible	Unlimited	Insulation (Optional):	Any thickness Elevate "ISO 95+GL", Resista, Elevate HailGard, Any UL Classified insulation any thickness.
				Cover Board (Optional):	Elevate ISOGARD HD, Georgia-Pacific Building Products "DensDeck®", 1/4-in. thick min, 7/16-inch OSB, 1/2-in. high density wood fiber board or 15/32-in. plywood.
				Ply Sheet:	Clad Gard SA-N, Clad-Gard SA-S, Clad Gard R, or Clad-Gard MA (not UL Classified).
				Panel:	UC-3, UC-4, UC-6, and UC-14 in steel, copper, or aluminum.

For SI: 1 inch = 25.4 mm.

¹Wood deck must be a minimum of 15/32-inch-thick (11.9 mm) plywood or non-veneer APA-rated 7/16-inch-thick (11.1 mm) oriented-strand board (OSB). Steel deck must be a minimum of No. 22 gauge galvanized steel [0.030 inch (0.76 mm)].

²All foam plastic insulation must be UL-classified foam plastic for roofing systems, and must be limited to the maximum thickness noted.

³Barrier or cover boards, ply sheets, underlayments, and panels must be UL-classified for roofing systems.

TABLE 2—WIND RESISTANCE ASSEMBLIES

System No.	Deck ¹	Insulation ²	Barrier or Cover Board ⁶	Under-layment	Panel		Allowable Uplift Pressure (psf)
					Type	Attachment ^{3, 4, 5}	
W-1	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 24 ga. steel UC-3 with 1½-inch seam (max. 16-inch wide)	UC-3 Super Clip at 36 inches o.c. attached with (2) #10-12 x 1½-inch Pancake Head screws	30
W-2	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 24 ga. steel UC-3 with 1½-inch seam (max. 16-inch wide)	UC-3 Super Clip at 30 inches o.c. attached with (2) #10-12 x 1½-inch Pancake Head screws	67.5
W-3	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 24 ga. steel UC-3 with 1½-inch seam (max. 16-inch wide)	UC-3 Expansion Clip SS at 24 inches o.c. attached with (2) #10-12 x 1.5-inch Pancake Head screws	75
W-4	Plywood	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-3 with 1½-inch seam (max. 16-inch wide)	UC-3 Expansion Clips at 18 inches o.c. attached with (2) #10-12 x 1-inch Pancake Head wood screws	79
W-5	Plywood	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-3 with 1½-inch seam (max. 16-inch wide)	UC-3 Expansion Clips at 12 inches o.c. attached with (2) #10-12 x 1-inch Pancake Head wood screws	86
W-6	Plywood	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-3 with 1½-inch seam (max. 16-inch wide)	UC-3 Expansion Clips at 8 inches o.c. attached with (2) #10-12 x 1-inch Pancake Head wood screws	101
W-7	Plywood	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-3 with 1½-inch seam (max. 16-inch wide)	UC-3 Super Clips at 6 inches o.c. attached with (2) #10-12 x 1½-inch Pancake Head screws	129
W-8	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-3 1½-inch seams (max. 16-inch wide)	UC-3 Expansion Clip SS at 24 inches o.c. attached with (2) #10-12 x 1½-inch Pancake Head screws	45
W-9	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-3 with 1½-inch seams (max. 16-inch wide)	UC-3 Super Clip at 24 inches o.c. attached with (2) #10-12 x 1½-inch Pancake Head screws	52.5
W-10	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-3 with 1½-inch seams (max. 16-inch wide)	UC-3 Expansion Clip SS at 18 inches o.c. attached with (2) #10-12 x 1½-inch Pancake Head screws	75
W-11	Plywood	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-3 with 1½-inch seam (max. 20-inch wide)	UC-3 Super Clips at 18 inches o.c. attached with (2) #10-12 x 1½-inch Pancake Head wood screws	111
W-12	Plywood	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-3 with 1½-inch seam (max. 20-inch wide)	UC-3 Super Clips at 12 inches o.c. attached with (2) #10-12 x 1½-inch Pancake Head wood screws	129
W-13	Plywood	Optional	Optional	Section 3.3	Minimum 16 oz. Copper UC-3 with 1½-inch seam (max. 20-inch wide)	UC-3 Super Clips at 12 inches o.c. attached with (2) #10-12 x 1½-inch Pancake Head wood screws	77
W-14	5/8-inch Plywood	Optional	Optional	Section 3.3	Minimum 26-gauge steel UC-4 (max. 9¾-inch wide)	(2) #10-12 x 1-inch PH wood screws with washers at 12 inches o.c.	53
W-15	5/8-inch Plywood	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-4 (max. 18-inch wide)	(2) #10-12 x 1-inch PH wood screws with washers at 18 inches o.c.	53
W-16	Plywood	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-4 (max. 9¾-inch wide)	(2) #10-12 x 1-inch Pancake Head wood screws at 12 inches o.c.	109
W-17	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 24 ga. steel UC-4 (max. 18-inch wide)	Two (2) #10-12 x 1½-inch Pancake Head screws with nylon washers spaced 1-inch, fastened 30 inches o.c. along each nail strip	45

TABLE 2—WIND RESISTANCE ASSEMBLIES (Continued)

System No.	Deck ¹	Insulation ²	Barrier or Cover Board ⁶	Under-layment	Panel		Allowable Uplift Pressure (psf)
					Type	Attachment ^{3, 4, 5}	
W-18	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 24 ga. steel UC-4 (max. 18-inch wide)	Two (2) #10-12 x 1 1/2-inch Pancake Head screws with nylon washers spaced 1 inch, fastened 24 inches o.c. along each nail strip	75
W-19	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 24 ga. steel UC-4 (max. 18-inch wide)	Two (2) #10-12 x 1 1/2-inch Pancake Head screws with nylon washers spaced 1 inch, fastened 18 inches o.c. along each nail strip	90
W-20	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-4 (max. 18-inch wide)	Two (2) #10-12 x 1 1/2-inch Pancake Head screws with nylon washers spaced 1 inch, fastened 24 inches o.c. along each nail strip	45
W-21	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-4 (max. 18-inch wide)	Two (2) #10-12 x 1 1/2-inch Pancake Head screws with nylon washers spaced 1 inch, fastened 12 inches o.c. along each nail strip	52.5
W-22	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-4 (max. 18-inch wide)	Two (2) #10-12 x 1 1/2-inch Pancake Head screws with nylon washers spaced 1 inch, fastened 18 inches o.c. along each nail strip	67.5
W-23	3/4-inch Plywood	Optional	Optional	Section 3.3	Minimum 16 oz. Copper C-4 (max. 14-inch wide)	#10-12 x 1-inch PH wood screws at 9 inches o.c.	53
W-24	OSB	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-6 (max. 18-inch wide)	UC-6 Clip at 30 inches o.c. attached with (2) #12-12 x 2-inch Pancake Head wood screws	53
W-25	OSB	Optional	Optional	Section 3.3	Minimum 24-ga. steel UC-6 with 1 1/2-inch seam (max. 18-inch wide)	UC-6 Low-Float clip at 30 inches o.c. attached with two (2) #10-12 x 1 1/2-inch Pancake Head wood screws	41.5
W-26	OSB	Optional	Optional	Section 3.3	Minimum 24-ga. steel UC-6 (max. 18-inch wide)	UC-6 Low Float Clip at 24 inches o.c. attached with (2) #10-12 x 1 1/2-inch Pancake Head screws	60
W-27	5/8-inch Plywood	Optional	Optional	Section 3.3	Minimum 0.032-inch Aluminum UC-6 (max. 18-inch wide)	UC-6 Clip at 30 inches o.c. attached with (2) #12-12 x 2-inch Pancake Head wood screws	53
W-28	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 0.032-inch Aluminum UC-6 (max. 18-inch wide)	UC-6 Low Float Clip at 24 inches o.c. attached with (2) #10-12 x 1 1/2-inch Pancake Head screws	52.5
W-29	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 0.032-inch Aluminum UC-6 with 1 1/2-inch seam (max. 18-inch wide)	UC-6 Low-Float clip at 30 inches o.c. attached with two (2) #10-12 x 1 1/2-inch Pancake Head wood screws	30
W-30	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 0.032-inch Aluminum UC-6 with 1 1/2-inch seam (max. 18-inch wide)	UC-6 Low Float Clip at 30 inches o.c. attached with (2) #10-12 x 1 1/2-inch Pancake Head screws	45
W-31	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 24-ga. steel UC-14 (max. 18-inch wide)	UC-14 Clip at 24 inches o.c. attached with (2) #10-12 x 1 1/2-inch Pancake Head screws	67.5

TABLE 2—WIND RESISTANCE ASSEMBLIES (Continued)

System No.	Deck ¹	Insulation ²	Barrier or Cover Board ⁶	Underlayment	Panel		Allowable Uplift Pressure (psf)
					Type	Attachment ^{3, 4, 5}	
W-32	5/8-inch Plywood	Optional	Optional	Section 3.3	Minimum 24-gauge Steel UC-14 (max. 16-inch wide)	UC-14 Clip at 12 inches o.c. attached with (2) #10-12 x 1-inch Pancake Head wood screws	79
W-33	5/8-inch Plywood	Optional	Optional	Section 3.3	Minimum 24-gauge Steel UC-14 (max. 16-inch wide)	UC-14 Clip at 6 inches o.c. attached with (2) #10-12 x 1-inch Pancake Head wood screws	100
W-34	Plywood or OSB	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-14 (max. 18-inch wide)	UC-14 Clip at 18 inches o.c. attached with (2) #10-12 x 1 1/2-inch Pancake Head screws	52.5
W-35	5/8-inch Plywood	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-14 (max. 16-inch wide)	UC-14 Clip at 12 inches o.c. attached with (2) #10-12 x 1-inch Pancake Head wood screws	74
W-36	5/8-inch Plywood	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-14 (max. 16-inch wide)	UC-14 Clip at 6 inches o.c. attached with (2) #10-12 x 1-inch Pancake Head wood screws	86
S-1	Steel	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-3 with 1 1/2-inch seam (max. 16-inch wide)	UC-3 Super Clip with (2) #12-13 PH screws at 30 inches o.c.	53
S-2	Steel	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-3 with 1 1/2-inch seam (max. 16-inch wide)	UC-3 Expansion Clip with (2) #12-13 PH screws at 24 inches o.c.	53
S-3	Steel	Optional	7/16-inch-thick OSB installed with Elevate HD HailGard Fasteners at a rate of 24 per 4 ft x 8 ft board	Section 3.3	Minimum 24-gauge UC-3 with 1 1/2-inch seam (max. 20-inch wide)	UC-3 Expansion Clip at 12 inches o.c. attached to the cover board with (2) UNA-CLAD #10 fasteners	53
S-4	Steel	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-3 with 1 1/2-inch seam (max. 20-inch wide)	UC-3 Expansion Clip at 12 inches o.c. attached with (2) UNA-CLAD #12 Drill Point Fasteners. UNA-CLAD Bearing Plates are placed under each clip prior to installing the screws.	53
S-5	Steel	Optional	7/16-inch-thick OSB installed with Elevate All-Purpose Fasteners and Insulation Fastening Plates at rate of 16 per 4 ft x 8 ft board	Section 3.3	Minimum 24-gauge steel UC-3 with 1 1/2-inch seam (max. 20-inch wide)	UC-3 Expansion Clip at 12 inches o.c. attached with (2) UNA-CLAD #10-12 x 1-inch screws secured to cover board.	60
S-6	Steel	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-3 with 1 1/2-inch seam (max. 16-inch wide)	UC-3 Super Clips at 12 inches o.c. attached with (2) #12-13 Pancake Head SMS screws	81
S-7	Steel	Optional	1 1/2-in. HailGard Composite Board installed with HailGard Fasteners at a rate of 8 per 4 ft x 8 ft board	Section 3.3	Minimum 0.032-inch Aluminum UC-3 with 1 1/2-inch seam (max 16-inch wide)	UC-3 Super Clip at 24 inches o.c. attached with (2) #10-12 x 1 1/2-inch Pancake Head screws	45
S-8	Steel	Optional	1 1/2-in. HailGard Composite Board installed with HailGard Fasteners at a rate of 8 per 4 ft x 8 ft board	Section 3.3	Minimum 0.032-inch Aluminum UC-3 with 1 1/2-inch seam (max 16-inch wide)	UC-3 Expansion Clip SS at 18 inches o.c. attached with (2) #10-12 x 1 1/2-inch Pancake Head screws	52.5
S-9	Steel	Optional	7/16-inch-thick OSB installed with HD HailGard Fasteners at rate of 24 per 4 ft x 8 ft board	Section 3.3	Minimum 0.032-inch Aluminum UC-3 with 1 1/2-inch seam (max. 20-inch wide)	UC-3 Expansion Clips at 12 inches o.c. attached with (2) #10-12 x 1-inch Pancake Head screws secured to cover board	53

TABLE 2—WIND RESISTANCE ASSEMBLIES (Continued)

System No.	Deck ¹	Insulation ²	Barrier or Cover Board ⁶	Under-layment	Panel		Allowable Uplift Pressure (psf)
					Type	Attachment ^{3,4,5}	
S-10	Steel	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-3 with 1½-inch seam (max. 20-inch wide)	UC-3 Expansion Clip with (2) #12-13 PH screws at 12 inches o.c.	53
S-11	Steel	Optional	1½-in. HailGard Composite Board installed with HailGard Fasteners at a rate of 12 per 4 ft x 8 ft board	Section 3.3	Minimum 0.032 Aluminum UC-3 with 1½-inch seam (max 16-inch wide)	UC-3 Expansion Clip SS at 18 inches o.c. attached with (2) #10-12 x 1½-inch Pancake Head screws	67.5
S-12	Steel	Optional	Optional	Section 3.3	Minimum 0.040 Aluminum UC-3 with 1½-inch seam (max. 12-inch wide)	UC-3 Super Clip at 18 inches o.c. attached with (2) #12-13 Pancake Head screws	134
S-13	Steel	Optional	Optional	Section 3.3	Minimum 0.040 Aluminum UC-3 with 1½-inch seam (max. 12-inch wide)	UC-3 Super Clip at 12 inches o.c. attached with (2) #12-13 Pancake Head screws	150
S-14	Steel	Optional	Optional	Section 3.3	Minimum 16 oz. Copper UC-3 with 1½-inch seam (max. 20-inch wide)	UC-3 Super Clip at 8 inches o.c. attached with (2) #12-13 Pancake Head screws	84
S-15	Steel	Optional	7/16-inch-thick OSB installed with Elevate All-Purpose Fasteners and Insulation Fastening Plates at rate of 16 per 4 ft x 8 ft board	Section 3.3	Minimum 24-gauge steel UC-4 (max. 9¾-inch wide)	(2) UNA-CLAD #10-12 Fasteners with washers at 12 inches o.c. secured to cover board	53
S-16	Steel	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-4 (max. 18-inch wide)	(2) #12-15 PH screws with washers at 18 inches o.c.	53
S-17	Steel	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-4 (max. 9¾-inch wide)	(2) UNA-CLAD #12 Drill Point Fasteners with washers at 12 inches o.c. UNA-CLAD Bearing Plates are placed under the metal panels at each bearing attachment point prior to installing the screws.	83
S-18	Steel	Optional	Optional	Section 3.3	Minimum 0.040-inch Aluminum UC-4 (max. 18-inch wide)	(2) #12-15 PH screws with washers at 18 inches o.c.	53
S-19	Steel	Optional	7/16-inch-thick OSB installed with Elevate All-Purpose Fasteners and Insulation Fastening Plates at rate of 16 per 4 ft x 8 ft board	Section 3.3	Minimum 24-gauge UC-6 (max. 18-inch wide)	UC-6 Super Clip at 12 inches o.c. attached with (2) UNA-CLAD #10-12 x 1-inch fasteners to cover board	45
S-20	Steel	Optional	N/A	Section 3.3	Minimum 24-gauge steel UC-6 (max. 18-inch wide)	UC-6 Low Float Clip or UC-6 Super Clip with (2) #14-13 Pancake Head screws at 30 inches o.c. UNA-CLAD Bearing Plates are placed under each clip prior to installing the screws.	53
S-21	Steel	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-6 (max. 18-inch wide)	UC-6 Low Float Clip or UC-6 Super Clip at 30 inches o.c. attached with (2) #14 Pancake Head screws. UNA-CLAD Bearing Plates are placed under each clip prior to installing the screws.	53

TABLE 2—WIND RESISTANCE ASSEMBLIES (Continued)

System No.	Deck ¹	Insulation ²	Barrier or Cover Board ⁶	Under-layment	Panel		Allowable Uplift Pressure (psf)
					Type	Attachment ^{3, 4, 5}	
S-22	Steel	Optional	Optional	Section 3.3	Minimum 24-gauge steel UC-6 (max. 18-inch wide)	UC-6 Super Clip at 12 inches o.c. attached with (2) UNA-CLAD #12 Drill Point Fasteners. UNA-CLAD Bearing Plates are placed under each clip prior to installing the screws.	68
S-23	Steel	Optional	1½-inch HailGard Composite Board installed with HailGard Fasteners at a rate of 8 per 4 ft x 8 ft board	Section 3.3	Minimum 0.032-inch Aluminum UC-6 (max 18" wide)	UC-6 Low Float Clip at 24 inches o.c. attached with two (2) #10-12 x 1½-inch Pancake Head screws to the cover board	45
S-24	Steel	Optional	7/16-inch-thick OSB installed with HD HailGard Fasteners at rate of 24 per 4-ft x 8-ft board	Section 3.3	Minimum 0.032-inch Aluminum UC-6 (max. 18-inch wide)	UC-6 Low Float Clip or UC-6 Super Clip at 24 inches o.c. attached with (2) #10-12 x 1-inch Pancake Head screws to the cover board	53
S-25	Steel	Optional	1½-in. HailGard Composite Board installed with HailGard Fasteners at a rate of 8 per 4 ft x 8 ft board	Section 3.3	Minimum 0.032-inch Aluminum UC-6 (max. 18-inch wide)	UC-6 Low Float Clip at 18 inches o.c. attached with two (2) #10-12 x 1½-inch Pancake Head screws to the cover board	52.5
S-26	Steel	Optional	1½.in. HailGard Composite Board installed with HailGard Fasteners at a rate of 8 per 4 ft x 8 ft board	Section 3.3	Minimum 24-gauge steel UC-14 (max. 18" wide)	UC-14 Clip with (2) #10-12 x 1½-inch PH screws at 18 inches o.c. secured to cover board	52.5
S-27	Steel	Optional	7/16-inch-thick OSB installed with HD HailGard Fasteners at rate of 24 per 4-ft x 8-ft board	Section 3.3	Minimum 24-gauge steel UC-14 (max. 18-inch wide)	UC-14 Clips with (2) #10-12 x 1-inch PH screws at 36 inches o.c. secured to cover board	53
S-28	Steel	Optional	7/16-inch-thick OSB installed with HD HailGard Fasteners at rate of 24 per 4-ft x 8-ft board	Section 3.3	Minimum 0.032 Aluminum UC-14 (max. 16-inch wide)	UC-14 Clips with (2) #10-12 x 1-inch PH screws at 18 inches o.c. secured to cover board	53
S-29	Steel	Optional	Optional	Section 3.3	Minimum 0.032 Aluminum UC-14 (max. 18-inch wide)	UC-14 Clips at 18 inches o.c. attached with (2) #12-13 Pancake Head screws. UNA-CLAD Bearing Plates are placed under each clip prior to installing the screws	53

For SI: 1 inch = 25.4 mm; 1 ft = 0.305 m; 1 psf = 47.88 Pa.

¹Wood deck must be a minimum 15/32-inch-thick (11.9 mm) plywood or non-veneer APA-rated minimum 7/16-inch-thick (11.1 mm) oriented-strand board (OSB), unless otherwise noted in this report. Steel deck must be a minimum No. 22 gauge galvanized steel [0.030 inch (0.76 mm)].

²All foam plastic insulation must be limited to lesser of 10-inch maximum thickness or the maximum thickness for which the flame spread index (in accordance with ASTM E84 or UL 723) is no greater than 75.

³All installations over foam plastic insulation require use of UC Bearing Plate.

⁴Fastener spacing is the maximum allowable for the rated pressure.

⁵Minimum penetration through the deck for fasteners is 1 inch for wood decks and 3/4 inch for steel decks.

⁶Optional barrier board to be minimum 7/16-inch thick OSB installed with HD Hailgard Fasteners at a rate of 24 per 4 ft x 8 ft board, where applicable.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 41 13—Metal Roof Panels

REPORT HOLDER:

HOLCIM SOLUTIONS AND PRODUCTS US, LLC

EVALUATION SUBJECT:

UNA-CLAD® STANDING SEAM METAL ROOF PANELS UC-3, UC-4, UC-6, AND UC-14

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that UNA-CLAD® Standing Seam Metal Roof Panels UC-3, UC-4, UC-6, and UC-14, described in ICC-ES evaluation report ESR-3422, have also been evaluated for compliance with the codes noted below.

Applicable code edition(s):

- 2022 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 the Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2022 California Residential Code (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The UNA-CLAD® Standing Seam Metal Roof Panels UC-3, UC-4, UC-6, and UC-14, described in Sections 2.0 through 7.0 of the evaluation report ESR-3422, may be used where the CBC requires a Class A roof covering complying with CBC Section 1505.1.1 or a Class C roof covering complying with CBC Section 1505.1.2, provided the design and installation are in accordance with the 2021 *International Building Code*® (IBC) provisions noted in the evaluation report, as applicable.

2.1.1 OSHPD:

The applicable OSHPD Sections and Chapters of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections and Chapters of the CBC are beyond the scope of this supplement.

2.2 CRC:

The UNA-CLAD® Standing Seam Metal Roof Panels UC-3, UC-4, UC-6, and UC-14, described in Sections 2.0 through 7.0 of the evaluation report ESR-3422, may be used where the CRC requires a Class A roof covering complying with CRC Section R902.1.1 or a Class C roof covering complying with CRC Section R902.1.2, provided the design and installation are in accordance with the 2021 *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 September 2023 and revised September 2024.