

ICC-ES Evaluation Report


ESR-3100

Reissued December 2023

Subject to renewal November 2024

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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: IDEAL ROOFING COMPANY LTD</p>	<p>EVALUATION SUBJECT: HF-16 AND HF-20.25 ROOF PANELS</p>	
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1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2009 and 2006 [International Building Code® \(IBC\)](#)
- 2009 and 2006 [International Residential Code® \(IRC\)](#)

Properties evaluated:

- Fire classification
- Wind uplift resistance and gravity loads
- Weather resistance

1.2 Evaluation to the following green code:

- 2022 and 2019 [California Green Building Standards Code \(CALGreen\)](#), Title 24, Part 11

Attributes verified:

- See Section 3.0

2.0 USES

The HF-16 and HF-20.25 roof panels are metal roof panels conforming to IBC Section 1507.4 and IRC Section R905.10. The panels are used as Class A roof coverings on new roofs over solid or closely fitted sheathing. The panels are also used on roofs permitted to be nonclassified when installed over spaced sheathing.

3.0 DESCRIPTION

The HF-16 and HF-20.25 roof panels are metal roof panels that are roll-formed from sheet steel conforming to ASTM A653, SS Grade 33, with a galvanized coating designation of Z275 (G90). The panels are painted with a baked-on proprietary coating. See [Figure 1](#) for panel profiles.

The attributes of the metal roofing panels have been verified as conforming to the requirements 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.

3.1 HF-16:

The HF-16 roof panel is formed from sheet steel having a design base-metal thickness of 0.018 inch (0.46 mm) (No. 26 gage). The panel is 17³/₄ inches wide (451 mm) with 1⁷/₁₆-inch-high (36.5 mm) profiles on 16-inch (406 mm) centers, with four lower ribs located adjacent to the rib on either side and at third points between the ribs. The panel is available in lengths up to 42 feet (12.8 m).

3.2 HF-20.25:

The HF-20.25 roof panel is formed from sheet steel having a design base-metal thickness of 0.024 inch (0.61 mm) (No. 24 gage). The panel is 22 inches wide (559 mm) with 1⁷/₁₆-inch-high (36.5 mm) profiles on 20¹/₄-inch (514 mm) centers, with five lower ribs located adjacent to the rib on either side and at three other equidistant points between the ribs. The panel is available in lengths up to 42 feet (12.8 m).

3.3 Fasteners:

Screw fasteners used to attach the HF panel to sheathing or supports are Master Gripper No. 12 by 1-inch (25.4 mm), corrosion-resistant, self-drilling steel screws with Teflon-coated washers. Master Gripper No 10 by 1¹/₂-inch (38 mm), corrosion-resistant, hex-head, self-drilling steel screws with neoprene washers are used to attach accessory components.

3.4 Accessories:

Accessories such as drip edges and ridge caps are manufactured from the same material as the panels. Details must be submitted to the code official for each installation.

4.0 DESIGN AND INSTALLATION

4.1 Installation:

The HF-16 and HF-20.25 roof panels may be installed over solid, spaced or closely fitted sheathing complying with the IBC or IRC, as described in Section 4.2 Installation and roof slope must be in accordance with IBC Section 1507.4.2, Item 1 or 2; or, for roof slopes of 2:12 up to less than 3:12, where a lap sealant is not used, an underlayment complying with ASTM D226, Type II, must be used.

The HF-16 and HF-20.25 roof panels are attached to sheathing or framing with the fasteners specified in Section 3.3. At the eave, fasteners are positioned as shown in [Figure 2](#), with one fastener for the HF-16 Panel and two fasteners for the HF-20.25 panel. Fasteners along the length of the panel are spaced at 16 inches (406 mm) on center.

4.2 Wind Resistance and Gravity Loads:

When attached to solid or closely fitted sheathing in accordance with Section 4.1, the roof panels are limited to use in areas subject to maximum basic wind speeds of 100 mph, on roofs having a mean height of 40 feet, in Exposure B areas. When attached to framing or nominally 1-by spaced sheathing, the allowable wind uplift loads are 53 psf (2.5 kPa) for the HF-16 panel and 45 psf (2.2 kPa) for the HF-20.25 panel. The design wind pressure must be determined in accordance with ASCE 7 (IBC) or IRC Section R301.2.1.

The allowable gravity loads are 156 psf (761 kg/m²) for the HF-16 panel and 156 psf (761 kg/m²) for the HF-20.25 panel. Positive (gravity) loads are limited to the adequacy of the supporting structural framing and sheathing.

4.3 Fire Classification:

The HF-16 and HF-20.25 roof panels, when installed in accordance with Section 4.1, are recognized as Class A roof assemblies in accordance with IBC Section 1505.2 and IRC Section R902.1, when installed over minimum 1⁵/₃₂-inch (11.9 mm) plywood sheathing covered with two layers of GAF VersaShield[®] Fire-Resistant Roof Deck Protection ([ESR-2053](#)). Other installation configurations are considered nonclassified roofing.

5.0 CONDITIONS OF USE:

The HF 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 instructions. In the event of a conflict between the manufacturer's published installation instructions and this report, this report governs.

- 5.2 The minimum roof slope must be determined in accordance with Section 4.1 of this report.
- 5.3 Sealants must be approved by the code official.
- 5.4 The HF-16 and HF-20.25 roof panels are manufactured in Ottawa, Ontario, Canada, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the [ICC-ES Acceptance Criteria for Metal Roof Coverings \(AC166\)](#), dated October 2012.
- 6.2 Reports of fire classification tests in accordance with ASTM E108.

7.0 IDENTIFICATION

- 7.1 Each pallet of panels must be labeled with the Ideal Roofing Company Ltd. name and address, the product name (HF-16 or HF-20.25) and the evaluation report number (ESR-3100).
- 7.2 The report holder’s contact information is the following:

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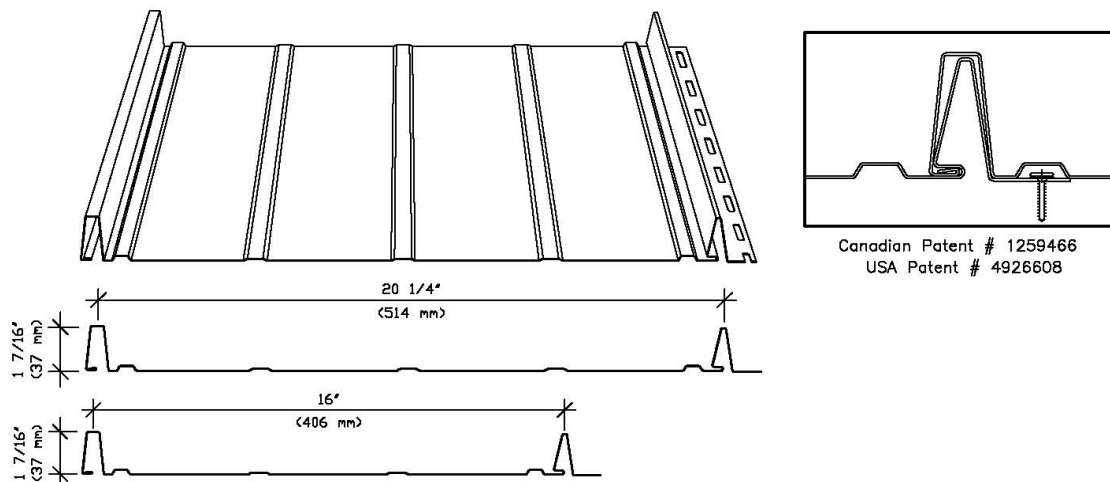


FIGURE 1—HF PANELS

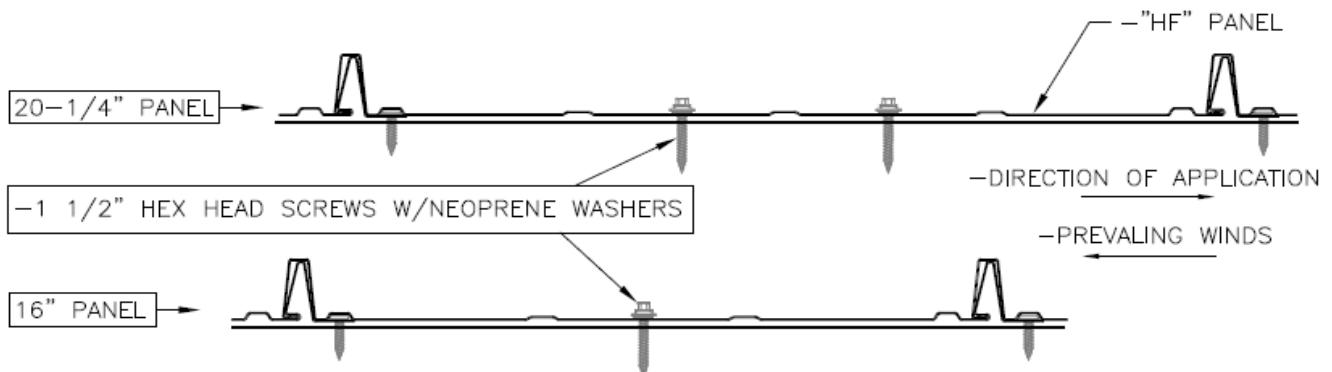


FIGURE 2—HF PANEL