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# ICC-ES Evaluation Report

# ESR-3101

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Reissued 11/2018  
This report is subject to renewal 11/2019.

**DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**  
**SECTION: 07 31 16—METAL SHINGLES**  
**SECTION: 07 41 13—METAL ROOF PANELS**

**REPORT HOLDER:**

**IDEAL ROOFING COMPANY LTD.**

**EVALUATION SUBJECT:**

**WAKEFIELD BRIDGE (26 GAGE) STEEL PANELS AND  
WAKEFIELD BRIDGE (29 GAGE) STEEL PANELS**



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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)
- 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.

**Properties evaluated:**

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

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

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

**Attributes verified:**

- See Section 3.0

**2.0 USES**

Wakefield Bridge (26 gage) and Wakefield Bridge (29 gage) steel roof panels are recognized in this report as metal roof shingles conforming to IBC Section 1507.5 and IRC Section R905.4. The panels are used as Class A roof coverings on new roofs and over existing roofs over solid or closely fitted sheathing.

**3.0 DESCRIPTION**

The Wakefield Bridge (26 gage) and Wakefield Bridge (29 gage) steel roof panels are press-formed from sheet steel conforming with ASTM A792, SS Grade 33, and have a minimum AZ55 coating weight. The panels are painted with a baked-on proprietary coating. Each panel resembles four shingles of slightly varying widths. The panels have a front facing hem on the top and a rear facing hem on the

bottom to provide an interlock, with a top tab for fastening the roofing panel to the sheathing. There is a standing rib on the right side of the panel edge and a hook rib on the left side of the panel edge to allow the panels to interlock.

The attributes of the steel 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. The code may provide supplemental information as guidance.

**3.3 Wakefield Bridge (26 gage):**

The Wakefield Bridge (26 gage) steel panel is press-formed from No. 26 gage [0.018-inch (0.46 mm)] aluminum-zinc coated steel sheets. The installed weight of the panel is approximately 0.9 psf (4.39 kg/m<sup>2</sup>). The panel is 14 inches wide (356 mm) by 39<sup>3</sup>/<sub>8</sub> inches long (1000 mm), with an installed exposure 12 inches wide (305 mm) by 38<sup>7</sup>/<sub>8</sub> inches long (987 mm).

**3.4 Wakefield Bridge (29 gage):**

Wakefield Bridge (29 gage) steel panels are press-formed from No. 29 gage [0.015-inch (0.38 mm)] aluminum-zinc coated steel sheets. The installed weight of the panel is approximately 0.7 psf (3.41 kg/m<sup>2</sup>). The panel is 14 inches wide (356 mm) by 39<sup>3</sup>/<sub>8</sub> inches long (1000 mm) with an installed exposure 12 inches wide (305 mm) by 38<sup>7</sup>/<sub>8</sub> inches long (987 mm).

**3.5 Fasteners:**

Screw fasteners used to attach the Wakefield Bridge steel panels to sheathing are Master Gripper No. 10 by 1-inch-long (25.4 mm), corrosion-resistant, hex-head, self-drilling steel screws with neoprene washers. Master Gripper No. 12 by 1-inch (25.4 mm), corrosion-resistant, low-profile, self-drilling, steel screws with Teflon-coated washers are used for hidden fastener details. See Figure 2.

**3.6 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.

**3.7 Underlayment:**

For roofing assemblies permitted to be nonclassified, underlayment and ice barrier must comply with IBC Section 1507.5 or IRC Section R905.4. For roof assemblies required to have roof classification, one layer

of GAF VersaShield® Fire-Resistant Roof Deck Protection (ESR-2053) is required for No. 26 gage panels and two layers of GAF VersaShield® Fire-Resistant Roof Deck Protection are required for No. 29 gage panels.

#### 4.0 DESIGN AND INSTALLATION

##### 4.1 Installation:

Wakefield Bridge steel panels must be installed over minimum  $1\frac{5}{32}$ -inch-thick (11.9 mm) solid or closely fitted plywood sheathing complying with the applicable code. The panels must be installed as required for metal shingles in accordance with IBC Section 1507.5 or IRC Section R905.4, on roofs having a minimum slope of 3:12 (25 percent slope), except as noted in this report.

**4.1.1 New Construction:** Drip edges are attached to the sheathing at 12 inches (305 mm) on center with Master Gripper No. 12 by 1-inch-long (25.4 mm) screws. Underlayment, as described in Section 3.5, is fastened to the sheathing per IBC Section 1507.5.3, IRC Section R905.4.3, or, when using GAF VersaShield® Fire-Resistant Roof Deck Protection, the underlayment manufacturer's installation instructions. Flashing must be installed in accordance with the applicable code. A starter strip is installed on top of the underlayment, prior to installation of the roofing panels, and is attached to the sheathing at 12 inches (305 mm) on center with Master Gripper No. 12 by 1-inch-long (25.4 mm), self-drilling screws as described in Section 3.3. The roofing panels are attached to the sheathing with six Master Gripper No. 10 by 1-inch-long (25.4 mm) screws per panel, through the tab on the top of the panels. See Figure 2. The fasteners must be of sufficient length to penetrate a minimum of  $\frac{3}{4}$  inch (19.1 mm) into the roof sheathing or through the roof sheathing, whichever is less. Full panels must be placed over the underlayment and installed starting at the lower-left eave corner, and interlock with the drip edge. Subsequent courses are installed similarly, with a third-point staggered pattern, as shown in Figure 1.

**4.1.2 Reroofing:** Wakefield Bridge steel panels may be used in reroofing applications, provided the requirements of IBC Section 1510 and IRC Section R907, as applicable, are met. The existing roof covering and existing underlayment and all dissimilar materials, such as copper, lead, aluminum graphite and cement, must be completely removed and new underlayment installed in accordance with Sections 3.5 and 4.1.1 of this report. The panels may be installed over existing sheathing provided the sheathing meets the minimum requirements in Section 4.1. Wakefield Bridge steel panels must be fastened through the existing roof sheathing in the same manner as described in Section 4.1.1, with screws of sufficient length to penetrate a minimum of  $\frac{3}{4}$  inch (19.1 mm) into the roof sheathing or through the roof sheathing, whichever is less. New flashing must be installed over and around all existing, vents, valleys and chimneys in accordance with

this report and the applicable code. Raised perimeters must be covered by Wakefield Bridge steel panels.

##### 4.2 Wind Resistance:

Wakefield Bridge steel panels have a maximum allowable uplift load of 112 psf (5,365 Pa). Positive (gravity) loads are limited to the adequacy of the supporting structural sheathing and framing. The design wind pressure must be determined in accordance with ASCE 7 (2009 or 2006 IBC) or IRC Section R301.2.1.

##### 4.3 Fire Classification:

The Wakefield Bridge (26 gage) steel panels, when installed with one layer of GAF Versashield® Fire-Resistant Roof Deck Protection, and the Wakefield Bridge (29 gage) steel panels when installed with two layers of GAF VersaShield® Fire-Resistant Roof Deck Protection, are recognized as Class A roof assemblies under IBC Section 1505.2 and IRC Section R902.1.

#### 5.0 CONDITIONS OF USE

The Wakefield Bridge 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 products are manufactured, identified and installed in accordance with this report and the manufacturer's published installation instructions. In the event of a conflict between the manufacturer's installation instructions and this report, this report governs.

**5.2** Wakefield Bridge steel panels are manufactured in Brampton, Ontario, Canada, 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 box of Wakefield Bridge steel panels and accessories is labeled with the Ideal Roofing Co. Ltd. name and address, the product name [Wakefield Bridge (26 gage), or Wakefield Bridge (29 gage)] and the evaluation report number (ESR-3101).

**7.2** The report holder's contact information is the following:

**IDEAL ROOFING COMPANY LTD.**  
**1418 MICHAEL STREET**  
**OTTAWA, ONTARIO K1B 3R2**  
**CANADA**  
**(613) 746-3206**  
[www.idealroofing.ca](http://www.idealroofing.ca)

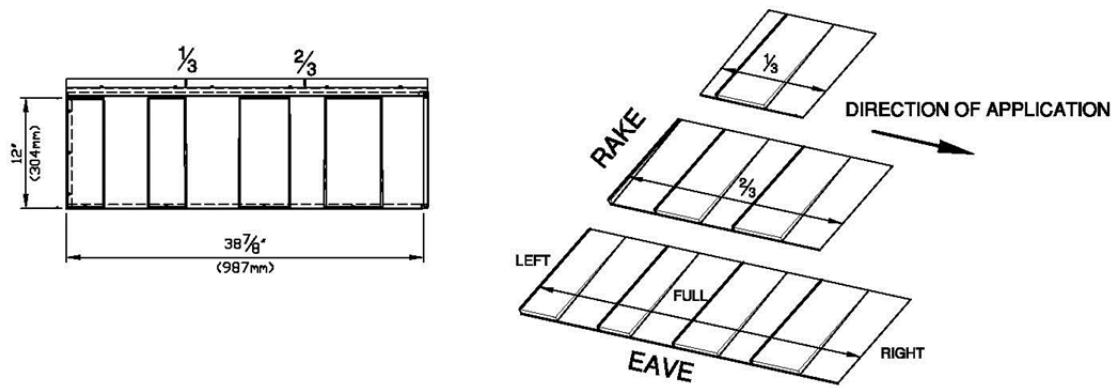


FIGURE 1—WAKEFIELD BRIDGE SHINGLE PROFILES

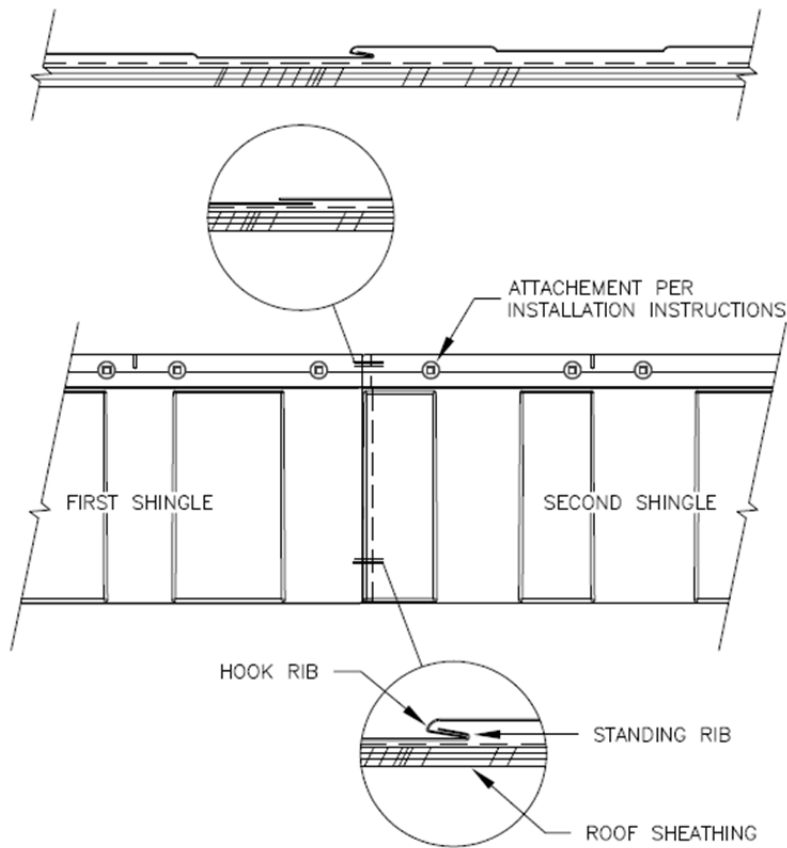


FIGURE 2—TYPICAL INSTALLATION DETAIL