

ICC-ES Evaluation Report

ESR-3101

Reissued December 2023

This report also contains:


- CBC Supplement

Subject to renewal November 2024

- FBC Supplement

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<p>DIVISION: 07 00 00 — THERMAL AND MOISTURE PROTECTION</p> <p>Section: 07 31 16 — Metal Shingles</p> <p>Section: 07 41 13 — Metal Roof Panels</p>	<p>REPORT HOLDER: IDEAL ROOFING COMPANY LTD.</p>	<p>EVALUATION SUBJECT: WAKEFIELD BRIDGE (26 gage) STEEL PANELS AND WAKEFIELD BRIDGE (29 gage) STEEL PANELS</p>	
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1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2021, 2018, 2015, 2012, 2009 and 2006 [International Building Code® \(IBC\)](#)
- 2021, 2018, 2015, 2012, 2009 and 2006 [International Residential Code® \(IRC\)](#)
- 2013 *Abu Dhabi International Building Code (ADIBC)*[†]

[†]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:

- 2022, 2019 [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 have been evaluated 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.

3.1 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/m²). The panel is 14 inches wide (356 mm) by 39³/₈ inches long (1000 mm), with an installed exposure 12 inches wide (305 mm) by 38⁷/₈ inches long (987 mm).

3.2 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/m²). The panel is 14 inches wide (356 mm) by 39³/₈ inches long (1000 mm) with an installed exposure 12 inches wide (305 mm) by 38⁷/₈ inches long (987 mm).

3.3 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](#).

3.4 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.

3.5 Underlayment:

For roofing assemblies permitted to be nonclassified, underlayment and ice barrier must comply with IBC Sections 1507.1.1 and 1507.1.2 (2015, 2012, 2009 and 2006 IBC Section 1507.5), respectively or IRC Sections R905.1.1 and R905.1.2 (2012, 2009 and 2006 IRC Section R905.4), respectively. 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 ¹⁵/₃₂-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 1507.1.1 (2015, 2012, 2009 and 2006 IBC Section 1507.5.3), IRC Section R905.1.1 (2012, 2009 and 2006 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 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 1511 (2012, 2009 and 2006 IBC Section 1510) and IRC Section R908 (2012, 2009 and 2006 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 (2021, 2018, 2015, 2012, 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, have been evaluated 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 February 2021.

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:

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1418 MICHAEL STREET
OTTAWA, ONTARIO K1B 3R2
CANADA
(613) 746-3206
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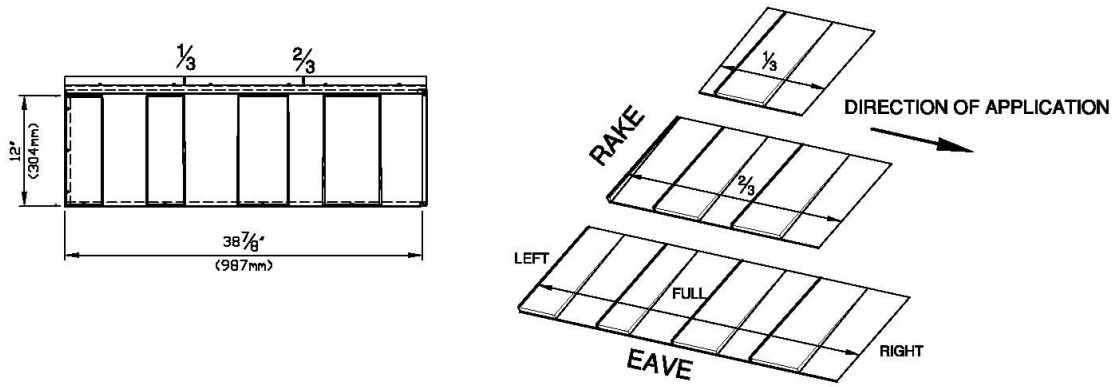


FIGURE 1—WAKEFIELD BRIDGE SHINGLE PROFILES

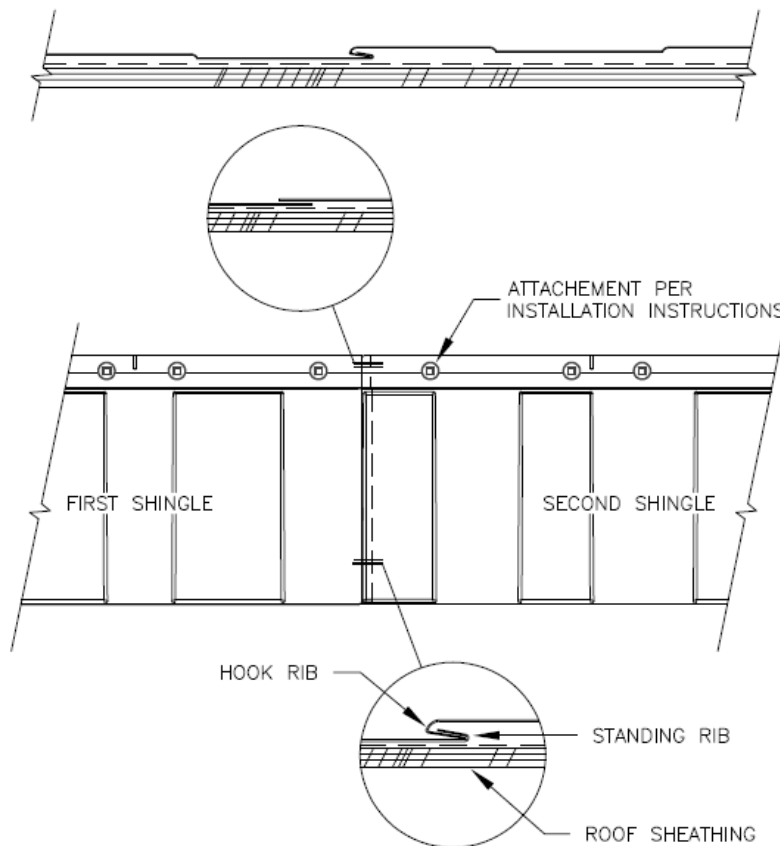


FIGURE 2—TYPICAL INSTALLATION DETAIL

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION**Section: 07 31 16—Metal Shingles****Section: 07 41 13—Metal Roof panels****REPORT HOLDER:****IDEA ROOFING COMPANY LTD.****EVALUATION SUBJECT:****WAKEFIELD BRIDGE (26 gage) STEEL PANELS AND WAKEFIELD BRIDGE (29 gage) STEEL PANELS****1.0 REPORT PURPOSE AND SCOPE****Purpose:**

The purpose of this evaluation report supplement is to indicate that Wakefield Bridge (26 gage) Steel Panels And Wakefield Bridge (29 gage) Steel Panels, described in ICC-ES evaluation report ESR-3101, have also been evaluated for compliance with the code(s) noted below.

Applicable code edition(s):

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

- 2022 and 2019 *California Residential Code* (CRC)

2.0 CONCLUSIONS**2.1 CBC:**

The Wakefield Bridge (26 gage) Steel Panels And Wakefield Bridge (29 gage) Steel Panels, described in the evaluation report ESR-3101, may be used where the CBC requires a Class A roof covering complying with 2022 or 2019 CBC Section 1505.1.1, a Class B roof covering complying with 2019 CBC Section 1505.1.2, or a Class C roof covering complying with 2022 CBC Section 1505.1.2 or 2019 CBC Section 1505.1.3, provided the design and installation are in accordance with the 2021 and 2018 *International Building Code*® (IBC) provisions noted in the evaluation report, as applicable.

The products have not been evaluated under Chapter 7A for use in exterior design and construction of new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area.

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 Wakefield Bridge (26 gage) Steel Panels And Wakefield Bridge (29 gage) Steel Panels, described in the evaluation report ESR-3101, may be used where the CRC requires a Class A roof covering complying with 2022 or 2019 CRC Section R902.1.1, a Class B roof covering complying with 2019 CRC Section R902.1.2, or a Class C roof covering complying with 2022 CRC Section R902.1.2 or 2019 CRC Section R902.1.3, provided the design and installation are in accordance with the 2021 and 2018 *International Residential Code*® (IRC) provisions noted in the evaluation report and the additional requirements of CRC Section R905.4, as applicable.

The products have not been evaluated under CRC Section R337 for use in the exterior design and construction of new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or any Wildland-Urban Interface Fire Area.

The products recognized in this supplement have not been evaluated for compliance with the *International Wildland-Urban Interface Code*[®].

This supplement expires concurrently with the evaluation report, reissued December 2023.

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

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the Wakefield Bridge (26 gage) and Wakefield Bridge (29 gage) steel roof panels, described in ICC-ES evaluation report ESR-3101, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2020 *Florida Building Code—Building*
- 2020 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The Wakefield Bridge (26 gage) and Wakefield Bridge (29 gage) steel roof panels, described in Sections 2.0 through 7.0 of ICC-ES evaluation report ESR-3101, comply with the *Florida Building Code—Building* and *Florida Building Code—Residential*. The design requirements shall be determined in accordance with the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable. The installation requirements noted in ICC-ES evaluation report ESR-3101 for the 2018 *International Building Code*® meet the requirements of the *Florida Building Code—Building* or the *Florida Building Code—Residential*, as applicable, with the following conditions:

1. Flashing must be in accordance with Section 1503.2 of the *Florida Building Code—Building* or Sections R903.2 and R905.4.3 of the *Florida Building Code—Residential*, as applicable.
2. Gutters and roof downspouts must be installed in accordance with Section 1503.7 of the *Florida Building Code—Building* or Section R903.4.2 of the *Florida Building Code—Residential*, as applicable.
3. Fasteners must be in accordance with Section 1506.5, 1506.6, or 1506.7, as applicable, of the *Florida Building Code—Building* or Section R904.5 of the *Florida Building Code—Residential*, as applicable.
4. Underlayment and underlayment installation must be in accordance with Section 1507.1.1 of the *Florida Building Code—Building* or Section R905.1.1 of the *Florida Building Code—Residential*, as applicable.

Use of the Wakefield Bridge (26 gage) and Wakefield Bridge (29 gage) steel roof panels for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* or the *Florida Building Code—Residential* has not been evaluated and is outside the scope of this supplemental report.

For products falling under Florida Rule 61G20-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

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