



CANADIAN CODE
COMPLIANCE EVALUATION



CCMC 14113-R

CCMC Canadian code compliance evaluation

CCMC number:	14113-R
Status:	Active
Issue date:	2018-11-30
Modified date:	2023-11-08
Evaluation holder:	Westlake Royal Roofing LLC. 3093 Industry Street Oceanside CA 92054 United States Website: WestlakeRoyalRoofing.com Telephone: 760-435-9842
Product name:	Unified Steel Stone Coated Roofing - GRANITE-RIDGE Shingle
Compliance:	NBC 2015
Criteria:	CCMC-TG-074113-15A, "CCMC Technical Guide for Metal Roof Panels"

In most jurisdictions this document is sufficient evidence for approval by Canadian authorities.

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Compliance opinion

It is the opinion of the Canadian Construction Materials Centre that the evaluated product, when used as a metal roofing system in accordance with the conditions and limitations stated in this evaluation, complies with the following code:

National Building Code of Canada 2015

Code provision	Solution type
9.3.3.2. Galvanized Sheet Steel	<u>Acceptable</u>
9.26.1.2.(1) Roofs shall be protected with roofing, i ...	<u>Acceptable</u>
9.26.2. Roofing Materials	<u>Alternative</u>
9.26.13.1. Thickness	<u>Acceptable</u>

The above opinion(s) is/are based on the evaluation by the CCMC of technical evidence provided by the evaluation holder, and is bound by the stated conditions and limitations. For the benefit of the user, a summary of the technical information that forms the basis of this evaluation has been included.

Product information

Product name

Unified Steel Stone Coated Roofing - GRANITE-RIDGE Shingle

Product description

The panels are formed from 0.42-mm-thick aluminum zinc alloy steel sheet metal. The underside of the panels is finished with a corrosion-resistant coating. The upper surface of the panels is finished with an acrylic resin base coat onto which crushed natural stone chips are spread and then covered with an acrylic overglaze (see [Figure 1](#)). The panels are interlocked at both horizontal and vertical joints when installed.

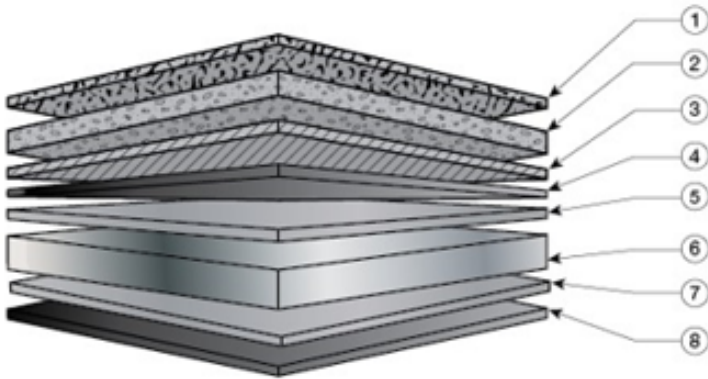


Figure 1. Material layers in the products

1. Pure acrylic overglaze
2. Crushed natural stone chips
3. Acrylic resin base coat
4. Acrylic film
5. Aluminum zinc coating
6. Base steel
7. Aluminum zinc coating
8. Acrylic film

The Unified Steel Stone Coated Roofing - GRANITE-RIDGE Shingle panel is 1 170 mm in overall length of which 1 118 mm is exposed and 397 mm in overall width of which 348 mm is exposed width (course cover). The panel is installed without battens. The Unified Steel Stone Coated Roofing - GRANITE-RIDGE Shingle panel is shown in [Figure 2](#).

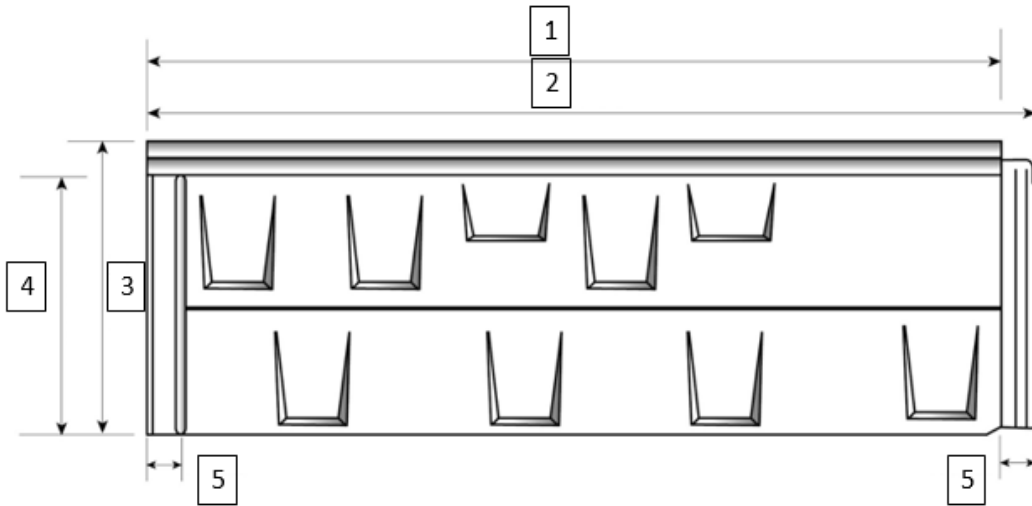


Figure 2. Unified Steel Stone Coated Roofing - GRANITE-RIDGE Shingle panel

- 1. Measurement of 1 118 mm
- 2. Measurement of 1 170 mm
- 3. Measurement of 348 mm
- 4. Measurement of 397 mm
- 5. Measurement of 52 mm

The complete roofing system includes accessories such as the starter strip, rake cover, hip and ridge cover, valley and valley cap, reglet and Z-bar.

Manufacturing plant

This evaluation is valid only for products produced at the following plant:

Product name	Manufacturing plant
	Oceanside, CA, US
Unified Steel Stone Coated Roofing - GRANITE-RIDGE Shingle	☑

☑ Indicates that the product from this manufacturing facility has been evaluated by the CCMC

Conditions and limitations

The CCMC's compliance opinion is bound by this product being used in accordance with the conditions and limitations set out below.

- The panels must be installed on roofs having a minimum slope of 1 in 3.
- The panels must be installed over solid sheathing complying with the requirements of Subsection 9.23.16., Roof Sheathing, of Division B of the NBC 2015.
- Flashing must be installed in compliance with the requirements of Subsection 9.26.4., Flashing at Intersections, of Division B of the NBC 2015.
- The panels must be installed with eave protection as indicated in Subsection 9.26.5., Eave Protection for Shingles and Shakes, of Division B of the NBC 2015.
- The panels must be installed with an underlay consisting of two layers of Type 15 organic felt or one layer of Type 30 organic felt complying with the requirements of Subsection 9.26.6., Underlay beneath Shingles, of Division B of the NBC 2015.
- Only fasteners and accessories supplied by the manufacturer may be used in conjunction with the products. The fasteners and accessories must be compatible with the base metal of the panels.
- The panels must be installed in strict conformance with the manufacturer's instructions.
- The roofing systems are for use in locations where access is limited for maintenance or repair purposes. When access is needed, temporary walkways or roof boards are recommended to avoid any permanent damage to the panels.
- The product or its packaging must be clearly identified with the phrase "CCMC 14113-R."

Technical information

This evaluation is based on demonstrated conformance with the following criteria:

Criteria number	Criteria name
CCMC-TG-074113-15A	CCMC Technical Guide for Metal Roof Panels

Material requirements

Table 1. Galvanized and aluminum-zinc alloy coated steel base material requirements and performance data

Property	Requirement	Result
Thickness (mm)	≥ 0.33	0.42
Thickness of aluminum-zinc coating (g/m ²)	≥ 150	171
Flexibility	No flaking or micro-cracking	Pass
Humidity resistance	No formation of blisters	Pass
Salt spray resistance	≥ 7 rating	Pass
Durability	Slight colour change; not greater than No. 8 degree of chalking; no flaking or cracking	Pass

Performance requirements

Traffic load test

Under an applied load of 890 N, the panel withstood the force without permanent distortion.

Wind uplift

Table 2. Results of testing the wind uplift of Unified Steel Stone Coated Roofing - GRANITE-RIDGE shingle ⁽¹⁾

Pressure (kPa)	Requirement	Result
1.4	No evidence of deformation, permanent damage or failure	Pass
2.9	No evidence of deformation, permanent damage or failure	Pass
4.3	No evidence of deformation, permanent damage or failure	Pass
9.1 ⁽²⁾	No evidence of deformation, permanent damage or failure	Plywood fastener pull-through

Notes

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- 1 Unified Steel Stone Coated Roofing - GRANITE-RIDGE Shingle panels were installed on top of one layer of Type 30 organic felt that was laid over 12-mm, Grade B-C APA-rated plywood. Each panel was fastened to the plywood with seven No. 8-14 32-mm screws. The plywood was fastened onto 50-mm × 250-mm joists that were spaced 600 mm on centre (o.c.) using No. 8 coarse thread screws.
- 2 The applied pressure exceeded the maximum required pressure (4.8 kPa) and continued to increase until failure.

Dynamic pressure water infiltration resistance

Table 3. Results of testing the dynamic pressure water infiltration resistance of Unified Steel Stone Coated Roofing - GRANITE-RIDGE shingle ⁽¹⁾

Wind speed (km/h) ⁽²⁾	Simulated rainfall (L/m ² ·min)	Duration (min)	Requirement	Result
50	3.4	15	No leakage or damage	Pass
110	3.4	15	No leakage or damage	Pass
140	3.4	15	No leakage or damage	Pass
170	3.4	5	No leakage or damage	Pass

Notes

- 1 Unified Steel Stone Coated Roofing - GRANITE-RIDGE Shingle panels were installed on top of 2 layers of Type 15 organic felt that were laid over 12-mm APA 32/16 span-rated sheathing. Each panel was fastened to the sheathing with eight 9.5-mm × 32-mm galvanized ring shank nails.
- 2 The wind speed values presented in the table are unfactored. Local exposure conditions and building heights need to be taken into consideration.

Other technical evidence

Additional performance data requested by the report holder

Data in this section do not form part of CCMC's opinion in Section 1.

Granular mineral surfacing

Table 4. Results of testing the granule adhesion of the products

Sample	Average initial weight (g)	Average final weight (g)	Average weight loss (g)
Colour quartz	65.074	64.985	0.096

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Sample	Average initial weight (g)	Average final weight (g)	Average weight loss (g)
Roofing granule	63.88	63.71	0.176

Administrative information

Use of Canadian Construction Materials Centre (CCMC) assessments

This assessment must be read in the context of the entire [CCMC Registry of Product Assessments](#), any applicable building code or by-law requirements, and/or any other regulatory requirements (for example, the [Canada Consumer Product Safety Act](#), the [Canadian Environmental Protection Act](#), etc.).

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Language

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CCMC recognition

The Canadian Construction Materials Centre (CCMC) assesses compliance with Canadian building, energy and safety codes. We are the only construction code compliance service supported and operated by the Government of Canada. Trusted by over 6,000 regulators across Canada.

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(Alliance of Canadian Building Official Associations (ACBOA))

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(First Nations National Building Officers Association (FNNBOA))

Canadian Home Builders' Association (CHBA)



(Canadian Home Builders' Association (CHBA))

Alberta Building Officials Association (ABOA)



(Alberta Building Officials Associations (ABOA))

Saskatchewan Building Officials Association (SBOA)



(Saskatchewan Building Officials Association (SBOA))

Manitoba Building Officials Association (MBOA)



(Manitoba Building Officials Association (MBOA))

Ontario Building Officials Association (OBOA)



(Ontario Building Officials Association (OBOA))

New Brunswick Building Officials Association (NBBOA)



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(Nova Scotia Building Officials Association (NSBOA))

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For more information, contact the CCMC by phone at (613) 993-6189 or by email at ccmc@nrc-cnrc.gc.ca

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Code compliance as an acceptable solution

Code Compliance via Acceptable Solutions

If a building design (e.g. material, component, assembly or system) can be shown to meet all provisions of the applicable **acceptable solutions** in Division B (e.g. it complies with the applicable provisions of a referenced standard), it is deemed to have satisfied the objectives and functional statements linked to those provisions and thus to have complied with that part of the Code.

— National Building Code of Canada, Sentence A-1.2.1.1.(1)(a)

The CCMC has determined that compliance with this provision of the Code has been demonstrated as an **Acceptable Solution**. The evaluation report provides a summary of the basis of CCMC's compliance opinion.

CCMC's code compliance opinions

All CCMC evaluation reports are opinions of code compliance established in accordance with the National Building Code of Canada, Subsection 1.2.1. "Compliance with this Code," which requires compliance to be achieved by:

- complying with the applicable acceptable solutions in Division B, or
- using an alternative solution that will achieve at least the minimum level of performance required by Division B in the areas defined by the objective and functional statements attributed to the applicable acceptable solutions.

The CCMC assesses compliance with Canadian building, energy and safety codes, and is trusted by over 6,000 regulators across Canada.

Code compliance as an alternative solution

Code Compliance via Alternative Solutions

Where a design differs from the acceptable solutions in Division B, then it should be treated as an **"alternative solution."** A proponent of an alternative solution must demonstrate that the alternative solution addresses the same issues as the applicable acceptable solutions in Division B and their attributed objectives and functional statements. However, because the objectives and functional statements are entirely qualitative, demonstrating compliance with them in isolation is not possible. Therefore, Clause 1.2.1.1.(1)(b) identifies the principle that Division B establishes the quantitative performance targets that alternative solutions must meet. In many cases, these targets are not defined very precisely by the acceptable solutions [...] Nevertheless, Clause 1.2.1.1.(1)(b) makes it clear that an effort must be made to demonstrate that an alternative solution will perform as well as a design that would satisfy the applicable acceptable solutions in Division B—not “well enough” but “as well as.”

— National Building Code of Canada, Sentence A-1.2.1.1.(1)(b)

The CCMC has determined that compliance with this provision of the Code has been demonstrated as an **Alternative Solution**. The evaluation report provides a summary of the basis of CCMC's compliance opinion.

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