



Evaluation Report CCMC 14069-R Metstar Diva, Slate, Shake, Tile, Tile 2 and DaVinci

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1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that “Metstar Diva, Slate, Shake, Tile, Tile 2 and DaVinci,” when used as a roofing system in accordance with the conditions and limitations stated in Section 3 of this Report, comply with the National Building Code (NBC) of Canada 2015:

- Clause 1.2.1.1.(1)(a) of Division A, using the following acceptable solutions from Division B:
 - Article 9.3.3.2., Galvanized Sheet Steel (Metal)
 - Article 9.26.13.1., Thickness (Sheet Metal Roofing)
- Clause 1.2.1.1.(1)(b) of Division A, as an alternative solution that achieves at least the minimum level of performance required by Division B in the areas defined by the objectives and functional statements attributed to the following applicable acceptable solutions:
 - Article 9.26.2.1., Material Standards (Roofing Materials)

This opinion is based on the CCMC evaluation of the technical evidence in Section 4 provided by the Report Holder.

2. Description

The products are formed from 0.42-mm-thick aluminum-zinc alloy steel sheet metal. The components of the panel product are shown in Figure 1:

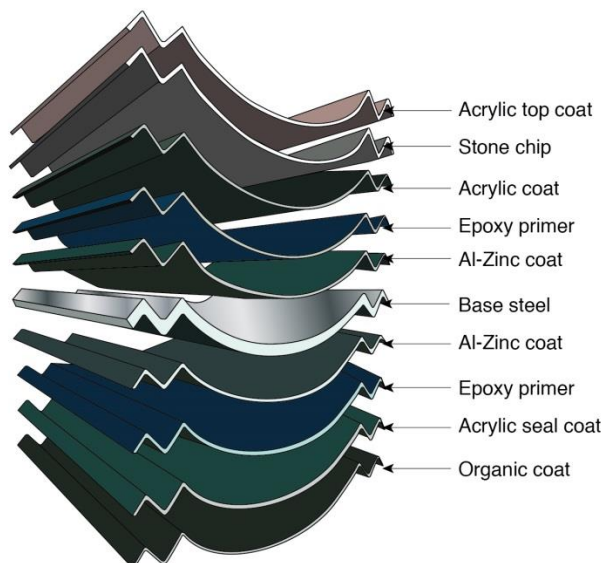


Figure 1. Components of panel product

The “Metstar Diva,” “Metstar Slate” and “Metstar Shake” panels are 1 340 mm to 1 345 mm long (1 280 mm of which is exposed) and 410 mm to 415 mm wide (370 mm of which is exposed). These panels are installed with or without battens. See Figures 2, 3 and 4.

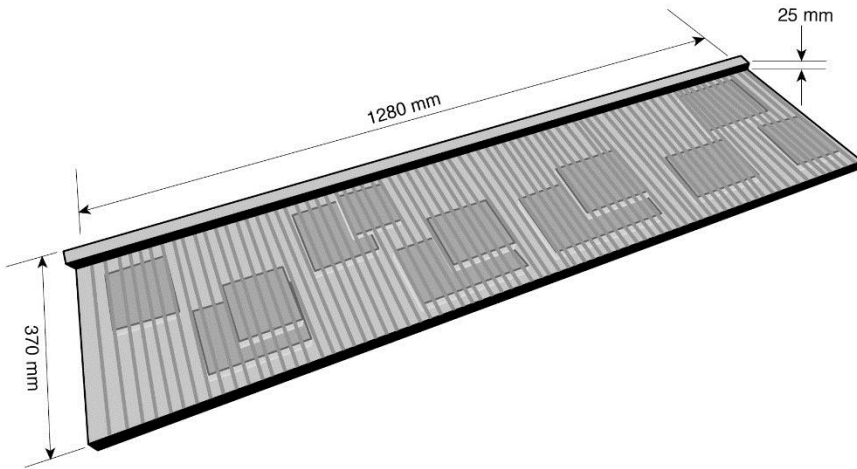


Figure 2. “Metstar Diva” panel

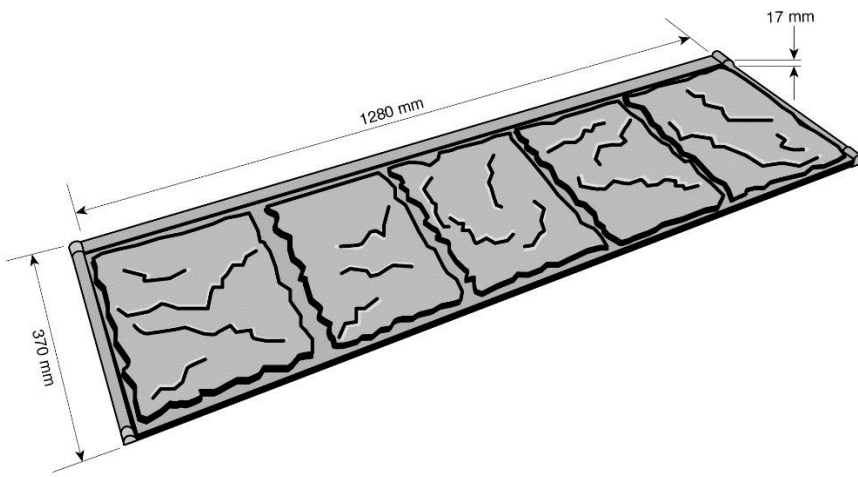


Figure 3. “Metstar Slate” panel

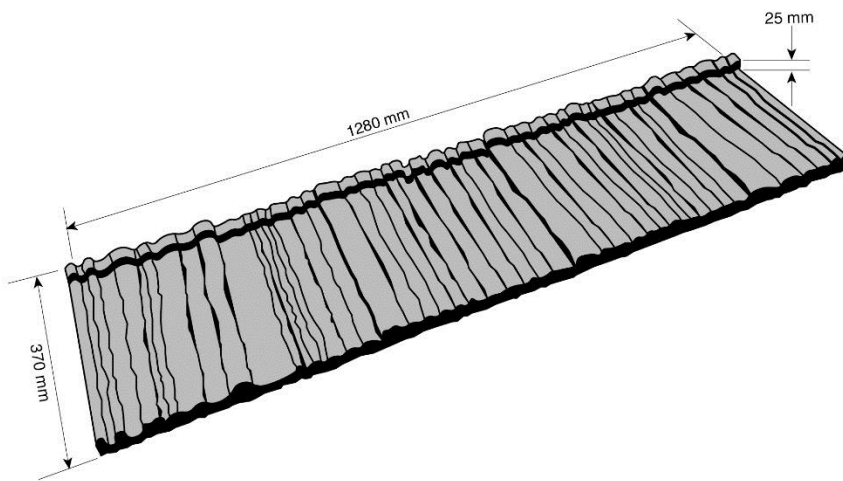


Figure 4. “Metstar Shake” panel

The “Metstar Tile” and “Metstar Tile 2” panels are 1 345 mm to 1 365 mm long (1 280 mm of which is exposed) and 415 mm wide (370 mm of which is exposed). These panels are installed with battens. See Figures 5 and 6.

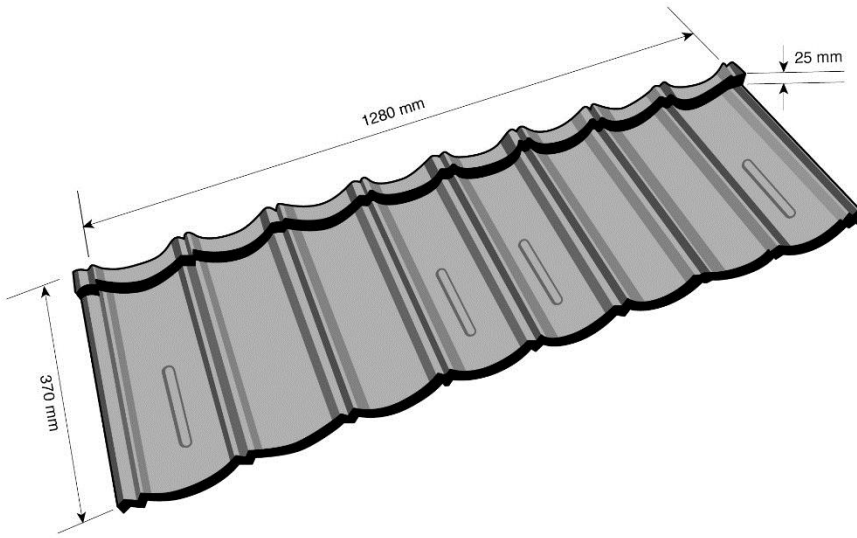


Figure 5. “Metstar Tile” panel

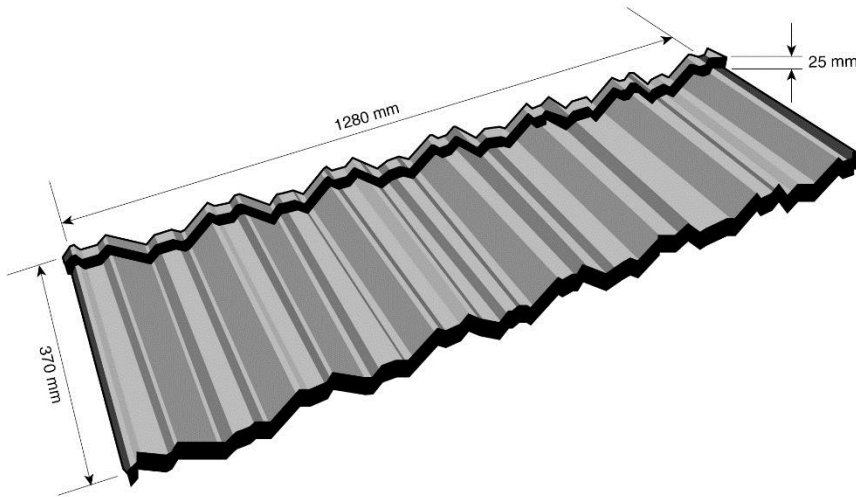


Figure 6. “Metstar Tile 2” panel

The “Metstar DaVinci” panels are 1 285 mm long (1 215 mm of which is exposed) and 410 mm wide (380 mm of which is exposed). These panels are installed without battens. See Figure 7.

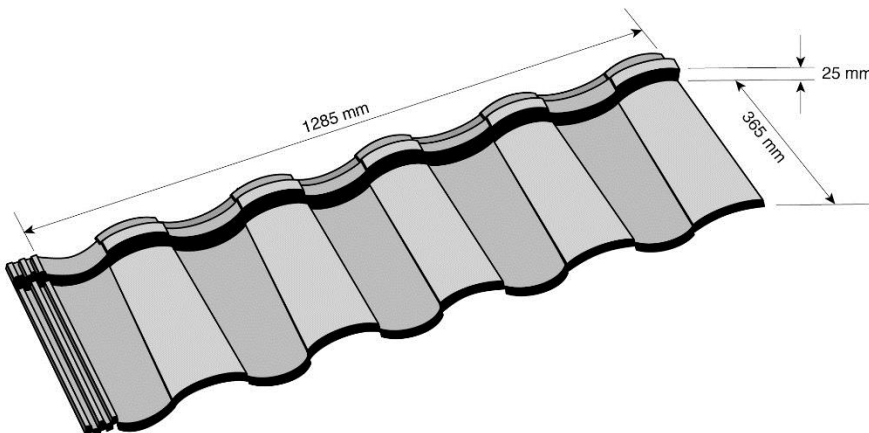


Figure 7. “Metstar DaVinci” panel

3. Conditions and Limitations

The CCMC compliance opinion in Section 1 is bound by “Metstar Diva, Slate, Shake, Tile, Tile 2 and DaVinci” being used in accordance with the conditions and limitations set out below:

- The panels must be installed on roofs with a minimum slope of 1 in 4.
- The panels must be installed over solid sheathing that complies 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 No. 15 organic felt or one layer of No. 30 organic felt that complies 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 to 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 use of the panels is limited to geographical areas where the wind load, as factored for local exposure conditions and building heights, does not exceed 170 km/h.
- The product or its packaging must be clearly identified with “CCMC 14069-R.”

4. Technical Evidence

The Report Holder has submitted technical documentation for the CCMC evaluation. Testing was conducted at laboratories recognized by CCMC. The corresponding technical evidence for this product is summarized below.

4.1 Material Requirements

4.1.1 Base Material

The panels meet the requirements of minimum thickness for galvanized steel sheet metal roofing as required in Article 9.26.13.1. of Division B of the NBC 2015.

The panels also meet the requirements for aluminum-zinc alloy material stated in ASTM A 792/A 792M–10(2015), “Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process,” and the coating designation is AZM150.

4.1.2 Traffic Load Test

Under an applied load of 1000 N, the panels withstood the force without permanent distortion.

4.1.3 Uniform Load Test

“Metstar Slate” panels were loaded in increments up to 35 kPa without failure and with no permanent deformations. “Metstar DaVinci” panels were loaded in increments up to 29 kPa without failure and with no permanent deformations. The loading was stopped when the underlayment plywood failed.

4.1.4 Wind Uplift

Table 4.1.4.1 Results of Testing the Wind Uplift of “Metstar DaVinci”¹

| Property | Pressure (kPa) | Requirement | Result ¹ |
|------------------------|------------------|---|---------------------|
| Wind uplift resistance | 0.8 | No evidence of deformation, permanent damage or failure | Pass |
| | 1.2 | No evidence of deformation, permanent damage or failure | Pass |
| | 1.5 | No evidence of deformation, permanent damage or failure | Pass |
| | 1.9 | No evidence of deformation, permanent damage or failure | Pass |
| | 2.7 | No evidence of deformation, permanent damage or failure | Pass |
| | 5.0 | No evidence of deformation, permanent damage or failure | Pass |
| | 5.7 ² | – | Fastener withdrawal |

Notes to Table 4.1.4.1:

1. “Metstar DaVinci” panels were installed on top of one layer of No. 30 organic felt that was laid over 12-mm-thick APA plywood. Each panel was fastened to the plywood with five #9 × 38-mm HWH wood screws per panel along the back flange and another five per panel secured through the vertical leg of the panel overlap.
 2. The applied pressure was increased until failure.
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4.1.5 Dynamic Pressure Water Infiltration Resistance**Table 4.1.5.1 Results of Testing the Dynamic Pressure Water Infiltration Resistance of “Metstar Tile 2” and “Metstar DaVinci”¹**

| Wind Speed (km/h) | Simulated Rainfall (L/m ² ·min) | Duration (min) | Requirement | Result ² |
|-------------------|--|----------------|----------------------|---------------------|
| 50 | 3.7 | 15 | No leakage or damage | Pass |
| 110 | 3.7 | 15 | No leakage or damage | Pass |
| 140 | 3.7 | 15 | No leakage or damage | Pass |
| 170 | 3.7 | 5 | No leakage or damage | Pass |

Notes to Table 4.1.5.1:

1. Test was performed on two different products and produced the same results.
 2. “Tile 2” and “DaVinci” panels were installed on top of one layer of No. 30 organic felt that was laid over 12-mm-thick APA plywood sheathing. Each panel was fastened to the sheathing with twelve #9 × 38-mm HWH wood screws.
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5. Other Technical Evidence**5.1 Additional Performance Data Requested by the Report Holder**

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

5.1.1 Fire Protection

Metstar Diva, Slate, Shake, Tile, Tile 2 and DaVinci are certified by UL to CAN/ULC-S107, “Methods of Fire Tests for Roof Coverings”. See UL Certificate TFX7.R27053 for more information.

Report Holder

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