



Evaluation Report CCMC 13429-R TandoStone® and TandoShake®

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1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that Derby Building Products Inc.'s "TandoStone®" and "TandoShake®" polypropylene wall siding, when used as an exterior siding for buildings of combustible construction in accordance with the conditions and limitations stated in Section 3 of this Report, complies 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:
 - Subsection 9.27.2., Required Protection from Precipitation
 - Subsection 9.27.3., Second Plane of Protection
- 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:
 - Subsection 9.27.12., Vinyl Siding

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

Ruling No. 10-06-243 (13429-R) authorizing the use of this product in Ontario, subject to the terms and conditions contained in the Ruling, was made by the Minister of Municipal Affairs and Housing on 2010-04-12 (revised on 2012-12-20) pursuant to s. 29 of the *Building Code Act, 1992* (see Ruling for terms and conditions). This Ruling is subject to periodic revisions and updates.

2. Description

The wall siding panels and corners are made of injection-molded, press-formed polypropylene and are fastened to the building structure with corrosion-resistant fasteners every 200 mm (8 in.) through pre-punched nailing slots located along the top edge of the panel, which are concealed once the upper panel is installed. The products and associated profiles evaluated under CCMC 13429-R are shown in Table 2.1. "TandoStone®" and "TandoShake®" have a nail hem wall thickness between of 2.0 mm and 2.3 mm.

Figures 1 and 2 illustrate "TandoStone® Stacked Stone" and "TandoShake® Beach House Shake®" as an example of the "TandoStone®" and "TandoShake®" profiles, respectively.

Table 2.1 Names of Profiles for “TandoStone®” and “TandoShake®”

| Product Name | Profile Name | Panel Size, mm (Length × Width) |
|----------------------|------------------------|------------------------------------|
| TandoStone® | Brick | 1 121 × 472 |
| | Creek LedgeStone | 1 159 × 495 |
| | Hand-Cut Stone | 1 122 × 467 |
| | Stacked Stone | 1 127 × 492 |
| TandoShake® | Beach House Shake® | 1 191 × 419 |
| | Cape Cod Perfection | 1 191 × 419 |
| | Hand Split | 1 019 × 476 |
| | R&R 4.5 | 1 108 × 392 |
| | RoughSawn Cedar Dual | 1 501 × 381 |
| | RoughSawn Cedar Single | 2 286 × 216 |
| | RoughSawn Staggered | 1 502 × 389 |
| | Rustic Cedar 6 | 2 426 × 216 |
| | Rustic Cedar 9 | 1 851 × 292 |
| Scalloped Perfection | 1 502 × 381 | |

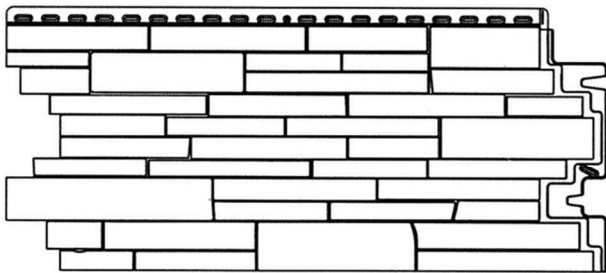


Figure 1. "TandoStone® Stacked Stone"

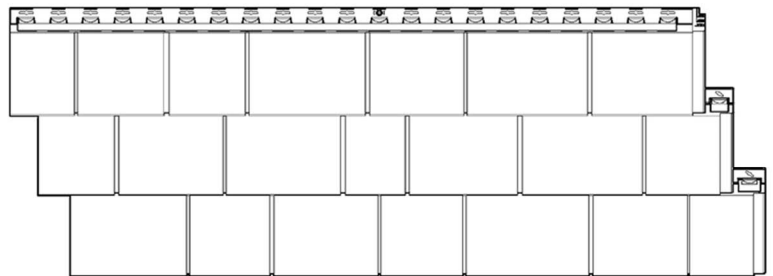


Figure 2. "TandoShake® Beach House Shake®"

3. Conditions and Limitations

CCMC’s compliance opinion in Section 1 is bound by “TandoStone®” and “TandoShake®” and being used in accordance with the conditions and limitations set out below.

- The products are limited to use as exterior siding for the buildings falling within the scope of Part 9, Housing and Small Buildings, of Division B of the NBC 2015.
- The siding panels must be installed on furring providing a second line of defence that consists of a continuous, clear, uninterrupted air space of 19 mm outboard of the sheathing membrane.
- The furring must be installed over the sheathing membrane.
- The system requires flashing at appropriate locations in order to drain water to the outside.
- Furring for the attachment of the siding must be securely nailed to the sheathing or framing, spaced at 200 mm on centre (o.c.), and be not less than 19 mm × 38 mm.
- The fasteners shall be minimum 38 mm galvanized smooth-shank nails.
- The products shall be installed in accordance with the manufacturer’s current installation instructions.
- The product must be clearly identified with the phrase “CCMC 13429-R” on its packaging.

4. Technical Evidence

The Report Holder has submitted technical documentation for CCMC’s 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 Physical Properties

Table 4.1.1.1 Results of Testing the Physical Properties of the TandoStone® Stacked Stone

| Property | Requirement | Test Method | Result |
|-------------------------|---|-------------|--------|
| Impact resistance (N·m) | ≥ 3.95 | ASTM D 7254 | Pass |
| Weathering | No structural changes or visible surface changes such as peeling, chipping, cracking, flaking or pitting. | ASTM D 7254 | Pass |

4.2 Performance Requirements

4.2.1 Wind Load Resistance

Table 4.2.1.1 Results of Testing the Wind Load Resistance of TandoShake® RoughSawn Cedar Dual at $Q_{50} < 1.00 \text{ kPa}^{(1)}$

| Property | Requirement ⁽²⁾⁽³⁾ | Result |
|--|-------------------------------|--------|
| Deformation (sustained pressure) | Sustained for 1 h ≥ 1 000 Pa | Pass |
| Repeated positive and negative pressure test (cyclic pressure), 2 000 cycles | 1 460 Pa | Pass |
| Safety test (gust loads) | 2 180 Pa | Pass |

Notes to Table 4.2.1.1:

- (1) The wind load resistance test was performed on a back-up wall consisting of 38 mm × 89 mm wood studs and 11.1 mm oriented strandboard (OSB) sheathing. The spacing between each stud section was 406 mm o.c. The 19 mm × 38 mm wood furring strips were installed at 203 mm o.c. spacing and fastened using 6d common nails. Each siding panel was installed using 38 mm galvanized smooth-shank nails at 203 mm o.c. on furring strips.
- (2) The table is intended for non-post-disaster low-rise buildings that have a height from grade to the uppermost roof of 12 m or less which are located within a built-up area, no less than 120 m away from the boundary between this area and open terrain, including bodies of water upwind of the building.
- (3) The table does not take into account the site-specific topographic factor C_t , where $C_t = 1.0$, except for buildings that are constructed on hills or escarpments with a slope defined in Article 4.1.7.4., Topographic Factor, of Division B of the NBC 2015. For buildings constructed on hills and escarpments, anticipated wind pressures may be greater.

Table 4.2.1.2 Results of Testing the Wind Load Resistance of TandoStone® Stacked Stone at $Q_{50} < 0.45 \text{ kPa}^{(1)}$

| Property | Requirement ⁽²⁾⁽³⁾ | Result |
|--|-------------------------------|--------|
| Deformation (sustained pressure) | Sustained for 1 h ≥ 450 Pa | Pass |
| Repeated positive and negative pressure test (cyclic pressure), 2 000 cycles | 660 Pa | Pass |
| Safety test (gust loads) | 980 Pa | Pass |

Notes to Table 4.2.1.2:

- (1) The wind load resistance test was performed on a back-up wall consisting of 38 mm × 89 mm wood studs and 11.9 mm plywood sheathing. The spacing between each stud section was 406 mm o.c. The 19 mm × 38 mm wood furring strips were installed at 203 mm o.c. spacing and fastened using 6d common nails. Each siding panel was installed using 50.8 mm galvanized smooth-shank nails at 203 mm o.c. on furring strips.
- (2) The table is intended for non-post-disaster low-rise buildings that have a height from grade to the uppermost roof of 12 m or less which are located within a built-up area, no less than 120 m away from the boundary between this area and open terrain, including bodies of water upwind of the building.
- (3) The table does not take into account the site-specific topographic factor C_t , where $C_t = 1.0$, except for buildings that are constructed on hills or escarpments with a slope defined in Article 4.1.7.4., Topographic Factor, of Division B of the NBC 2015. For buildings constructed on hills and escarpments, anticipated wind pressures may be greater.

4.3 Additional Performance Data

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

4.3.1 Fire Performance

Table 4.3.1.1 Results of Fire Performance Testing of TandoStone® Stacked Stone⁽¹⁾

| Property | Test Method | Results |
|---|--------------|---------------------------------|
| Flame-spread rating (FSR) ⁽²⁾ | CAN/ULC-S102 | 110 |
| Smoke developed classification (SDC) ⁽²⁾ | | >500 (estimated) ⁽¹⁾ |

Notes to Table 4.3.1.1:

- (1) Refer to the test report for details of the results.
- (2) Based on Exova Test Report 17-002-459 (issued August 16, 2017).

Report Holder

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