



Evaluation Report CCMC 13113-R PermaBase™ Cement Board

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1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that “PermaBase™ Cement Board”, when used as an interior moisture resistant backerboard or exterior wall sheathing in accordance with the conditions and limitations stated in Section 3 of this Report, complies with the National Building Code 2010:

- Clause 1.2.1.1.(1)(a), Division A, using the following acceptable solutions from Division B:
 - Article 9.29.10.4., Moisture-Resistant Backing
- Clause 1.2.1.1.(1)(b), 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 9.23.17., Wall Sheathing

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

Ruling No. 07-23-181 (13113-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 2007-11-07 (revised on 2017-01-30) 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 product is a cementitious board reinforced with glass-fibre mesh. The core is made from a mixture of polystyrene beads, sand, and Portland cement. The glass-fibre mesh is bonded to both surfaces of the board with a Portland cement slurry.

The product is 12.7 mm thick and has a nominal mass per unit area of 14.6 kg/m². The product is available in sheets that are 813 mm, 914 mm or 1 219 mm wide and 1 524 mm or 2 438 mm long. The ends of the boards are cut square and the side edges are tapered. The board’s construction is shown in Figure 1.

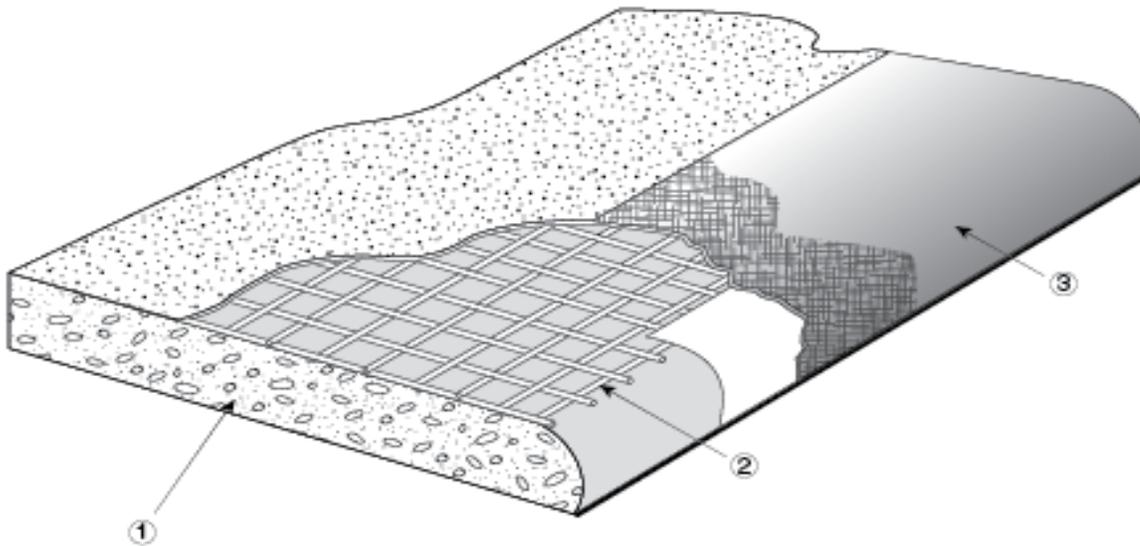


Figure 1. “PermaBase™ Cement Board”

1. mixture of polystyrene beads, sand and Portland cement
2. glass-fibre mesh, top and bottom
3. tapered edge, reinforced with a synthetic mat

3. Conditions and Limitations

CCMC’s compliance opinion in Section 1 is bound by the “PermaBase™ Cement Board” being used in accordance with the conditions and limitations set out below.

- The product may be used as an interior backerboard on wood or metal studs for ceramic tile installations around showers, tubs and other interior areas requiring a moisture-resistant backing.
- The product may be used as a non-structural exterior wall sheathing to provide intermediate support for exterior cladding, such as metal and vinyl sidings. The board must not be used for the attachment of cladding materials.
- When the board is used as an exterior wall sheathing it must be protected by a second plane of protection as required in Subsection 9.27.3., Second Plane of Protection, of Division B of the NBC 2010.
- When the product is installed adjacent to a concealed space within a wall assembly (e.g., adjacent to an air space behind cladding), proper fire stops may be required as per Subsection 9.10.16., Fire Blocks, of Division B of the NBC 2010.
- The product is not water impermeable; any areas behind the product that must be kept totally free of moisture, water or steam must be protected by a water impermeable membrane installed between the board and the framing.
- The exterior and interior backerboard installations are limited to stud support spacing no greater than 400 mm on centre (o.c.). In these installations, the product will not be providing appropriate bracing that complies with Subsection 9.23.13., Bracing to Resist Lateral Loads Due to Wind and Earthquake, of Division B of the NBC 2010. The product must not be used in areas that need to provide lateral strength or other structural loading resistance.
- The product must be installed in accordance with the manufacturer’s instructions. The board must be fastened to the supports with fasteners spaced at 200 mm o.c. for wall applications and at 150 mm o.c. for ceiling applications. The penetration of the fasteners into the supports must be at least 20 mm for nails and 15 mm for screws. Fasteners along the edge of the board must be installed not less than 10 mm from the edge.
- The product must not be used where it may be subjected to common hard body impact.
- The product must not be used as a panel-type underlay.

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

Table 4.1.1 Results of Testing of Physical Properties of the Product

Property	Unit	Requirement	Result
Length tolerance	mm	± 3.0	Passed
Width tolerance	mm	± 3.0	Passed
Thickness tolerance	mm	± 1.6	Passed
Squareness	mm/m	≤ 2	Passed
Mass per unit area	kg/m ²	$\pm 5\%$ of nominal value given as 14.7 kg/m ²	15.1
Water absorption	% by weight	Report value	7.85 (24-h submersion)
			7.97 (48-h submersion)

4.2 Performance Requirements

Table 4.2.1 Results of Testing of Performance Requirements for the Product

Property	Unit	Requirement	Result
Humidified deflection	Ratio	$\leq L/360$	Passed
Linear variation	%	≤ 0.20	Passed
Water vapour permeance	ng/(Pa·s·m ²)	≥ 170	231
Hardness	N	$\geq 2\ 200$	1 520 ¹ (core)
			1 370 ¹ (end)
			1 450 ¹ (edge on tape)
			1 620 ¹ (edge adjacent to tape)
Flexural strength	MPa	≥ 5.17	7.63
Fastener pull-through resistance	N	≥ 356	759
Fastener lateral resistance	N	≥ 400	540 ²
Hard body impact indentation @ 5.4 N·m	mm	≤ 1	Passed
Hard body impact resistance	N·m	≥ 10.9	9.5 ³
Soft body impact indentation @ 40.8 N·m	mm	≤ 5	Passed
Soft body impact resistance	N·m	≥ 102	Passed

Notes to Table 4.2.1:

- 1 The product must not be used as a panel-type underlay.
- 2 The fastener lateral resistance is at 19 mm from the edge.
- 3 The product must not be used where it may be subjected to common hard body impact.

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