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CCMC 13055-R



*EVALUATION
REPORT*

DIVISION	07216.4
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Re-evaluation due	2008-05-07

Re-Evaluation
in process

Enertite®

BASF Canada Inc.
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Toronto, Ontario
M9W 6N9

Tel.: (514) 341-5411
Fax: (514) 340-1248

Plants (base materials):
10 Constellation Court
Toronto, Ontario

500 Railway Avenue
Blackie, Alberta

Finished product is site manufactured.

1. Purpose of Evaluation

The proponent sought confirmation from the Canadian Construction Materials Centre (CCMC) that “Enertite®” can serve as a thermal insulation material in compliance with the intent of the National Building Code of Canada (NBC) 1995.

2. Opinion

Subject to the limitations and conditions stated in this report, test results and assessments provided by the proponent show that “Enertite®” complies with CCMC’s Technical Guide for Spray-in-Place, Open-Cell Polyurethane Foam (OPF) Thermal Insulation, MasterFormat number 07216.4, dated

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02-02-28, and provides a level of performance equivalent to that required in:

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- NBC 1995, Article 9.25.2.2.

Ruling No. 03-03-92 (13055-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 18 March, 2003 pursuant to s.29 of the Building Code Act, 1992 (see Ruling for terms and conditions).

Canada Mortgage and Housing Corporation permits the use of this product in construction financed or insured under the National Housing Act.

3. Description

“Enertite[®]” is a spray-in-place, low-density, semi-flexible polyurethane foam that has an open cell structure. The foaming system consists of two components, “Enertite[®]” isocyanate and “Enertite[®]” resin, which are mixed on site by a qualified installer with fixed-ratio positive displacement equipment.

Once “Enertite[®]” has expanded, the open cells contain air. The chemical reaction that occurs while the product is being installed takes place in seconds, with less than 15 minutes needed for curing. After curing, “Enertite[®]” remains semi-flexible.

The final cured product is yellow in colour and has a density of 8.26 kg/m³. At a 25.4-mm thickness, the design thermal resistance is 0.67 m²·K/W (R3.8).

4. Usage and Limitations

As specified by the manufacturer, “Enertite[®]” insulation shall be manufactured on site by qualified installers trained and approved by BASF Canada with subsequent field auditing of installers by Morrison Hershfield (MH) Limited.⁽¹⁾ MH is the third-party certification organization specified by BASF Canada to certify the training program and provide follow-up inspections of qualified installers who are licensed to spray semi-flexible urethane-based foam insulation in accordance with the “Enertite[®]” Installer’s Manual.

⁽¹⁾ The BASF Canada field quality assurance program calls for periodic audits of the installers,

usually random inspections with some mandatory inspections of larger projects. Building officials may contact BASF Canada (1-866-474-3538) and require an inspection for a specific job site if the building official deems it necessary. In cases where the installation is deemed non-conforming by MH/BASF Canada and is not being remedied by the installer, MH/BASF Canada will inform the owner/architect/building official of the non-conforming installation.

The installation shall be done according to the manufacturer’s instruction manual. A copy of those instructions shall be available at the job site at all times during the installation for review by the building official.

This product can be used in new or retrofitted construction, and is subject to the following conditions:

- The product is meant to be installed in open frame cavities in the following frame constructions: exterior walls including perimeter joists; cathedral ceilings (with vented air space as required by the NBC 1995); floors separating living spaces from a garage; cantilever overhang floors; and interior below-grade foundation walls (with dampproofing as required by the NBC 1995). No exterior applications are permitted. The above application locations are illustrated in Figure 1.
- For retrofit applications, the working area shall be put in a negative pressure by an exfiltration rate of 0.3 air changes per hour for at least one (1) day. Based on an independent toxicological assessment, the specified ventilation must be in effect for one (1) day before occupancy is permitted in the newly insulated suite.
- The sprayed material should completely cover the surfaces between the studs, joists, and other framing members. The surfaces to be covered should be clean, dry, and not covered in frost, oil, grease, dust or other unsuitable material. As required in Article 9.25.2.3. of the NBC 1995, the insulation shall be installed so that there is a reasonably

uniform insulating value over the entire face of the insulated area.

- The insulation product is not exempt from the requirements for vapour barrier protection and dampproofing (interior below-grade walls) as required in Article 9.13.3.3. of the NBC 1995.
- The interior side of the applied semi-flexible polyurethane insulation shall be covered with an approved thermal barrier as per applicable Articles 9.10.16.10. or 3.1.5.11. of the NBC 1995.

- The insulation should be kept at least 75 mm, or as required in building regulations and safety codes, from heat-emitting devices such as recessed light fixtures and chimneys.
- The maximum in-service temperature of the insulation shall not exceed 70°C.
- This product may not be used where it may be in contact with water and shall not be installed after its expiry date of six (6) months from the date of manufacture.
- The components, "Enertite[®]" isocyanate and "Enertite[®]" resin, must have their respective containers (i.e. drums) identified by the phrase "CCMC # 13055-R."

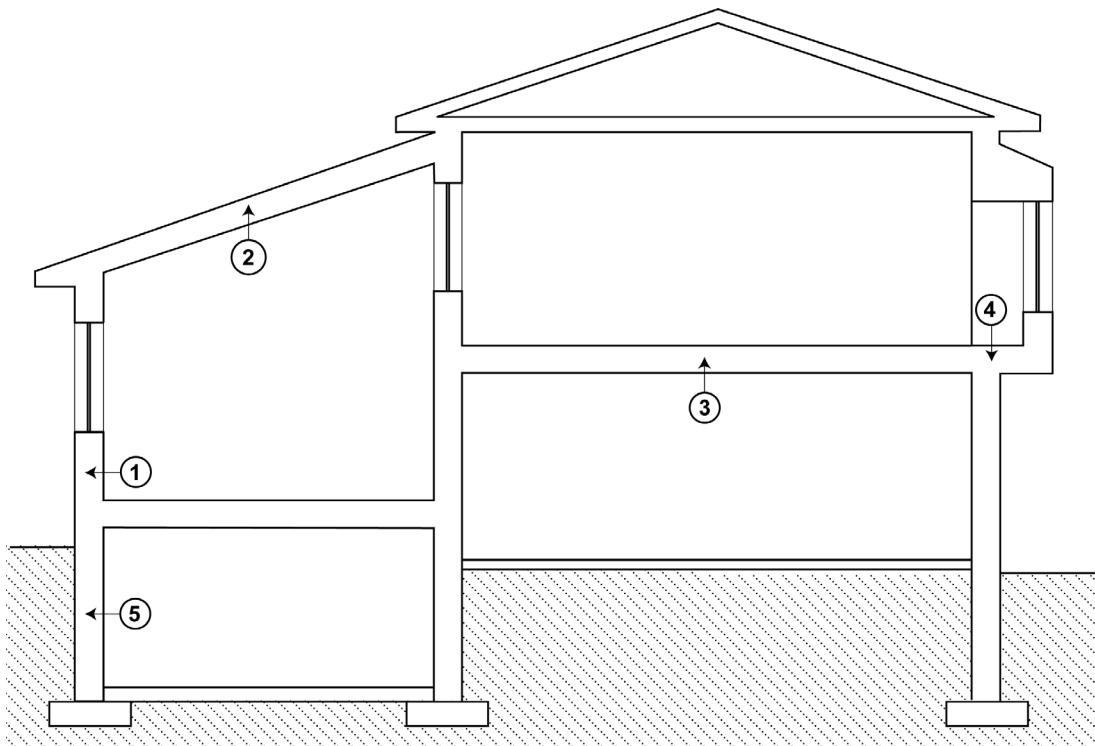


Figure 1. "Enertite[®]" application locations in open-wall cavities:

- 1) above-grade wall;
- 2) cathedral ceiling;
- 3) floor above garage;
- 4) cantilever floor; and
- 5) foundation wall.

5. Performance

Testing was conducted by laboratories recognized by the Canadian Construction Materials Centre. The “Enertite[®]” test results are summarized in Table 1.

Table 1. Test Results for “Enertite[®]” Open-cell Polyurethane Foam, Type 2

Properties and/or Test Methods	Requirements		Results
Density - ASTM D 1622 (kg/m ³)	report value		8.26
Compressive Strength (kPa)	report value		12.4
Thermal Resistivity ASTM C 518 (m·K/W)	report value		26.38
Water Vapour Permeance (ng/Pa·s·m ²) ASTM E-96 (thickness = 25 mm)	> 800		894
Water Absorption by Volume (%)	< 5%		3.2
Dimensional Changes (% volumetric) When exposed to:	Min	Ma.x	
28 days at 80°C and ambient R.H.	-15	+10	1.4
28 days at 70°C and 95% R.H.	-15	+14	5.7
28 days at -29°C and ambient R.H.	-1		0.5
Flame Spread Rating & Smoke Dev.	report value		FS 430, SD 260
Emissions During Aging	See Note 1		Pass

Note to Table 1:

⁽¹⁾ The Volatile Organic Compound (VOC) emissions under consideration were measured with an assumed room ventilation rate of 0.3 air changes per hour as per the NBC requirements for new construction. The determination of emissions and room concentration calculations were done by the Saskatchewan Research Council. An independent toxicological report recommends a residential time-to-occupancy of one (1) day. While the testing and evaluation represent the current state-of-the-art in toxicological evaluation, such tests and their results do not purport to be conclusive with respect to the impact on health.

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Note: Readers are asked to refer to limitations imposed by NRC on the interpretation and use of this report. These limitations are included in the introduction to CCMC’s Registry of Product Evaluations, of which this report is part.

Readers are advised to confirm that this report has not been withdrawn or superseded by a later issue by referring to <http://irc.nrc.gc.ca/ccmc>, or by contacting the Canadian Construction Materials Centre, Institute for Research in Construction, National Research Council of Canada, Montreal Road, Ottawa, Ontario K1A 0R6; Telephone (613) 993-6189, Fax (613) 952-0268