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CCMC 12840-R

CCMC *EVALUATION REPORT*

DIVISION	07216.3
Issued	1997-11-10
Re-evaluated	2004-09-29
Revised	2006-05-16
Re-evaluation due	2006-11-10

Walltite®

BASF Canada Inc.
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1. Purpose of Evaluation

The proponent sought confirmation from the Canadian Construction Materials Centre (CCMC) that “Walltite®” can serve as an 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 “Walltite®” complies with CCMC’s Technical Guide for Spray-In-Place Urethane Foam Insulation, Masterformat number 07216.3, dated 99-10-29, and provides a level of performance equivalent to that required in:

- NBC 1995, Article 9.25.2.2.; and
- CAN/ULC-S705.1-98, “Standard for Thermal Insulation — Spray-Applied Rigid Polyurethane Foam, Medium Density, Material Specification”

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Ruling No. 06-08-152 (12840-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 10 May, 2006 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.

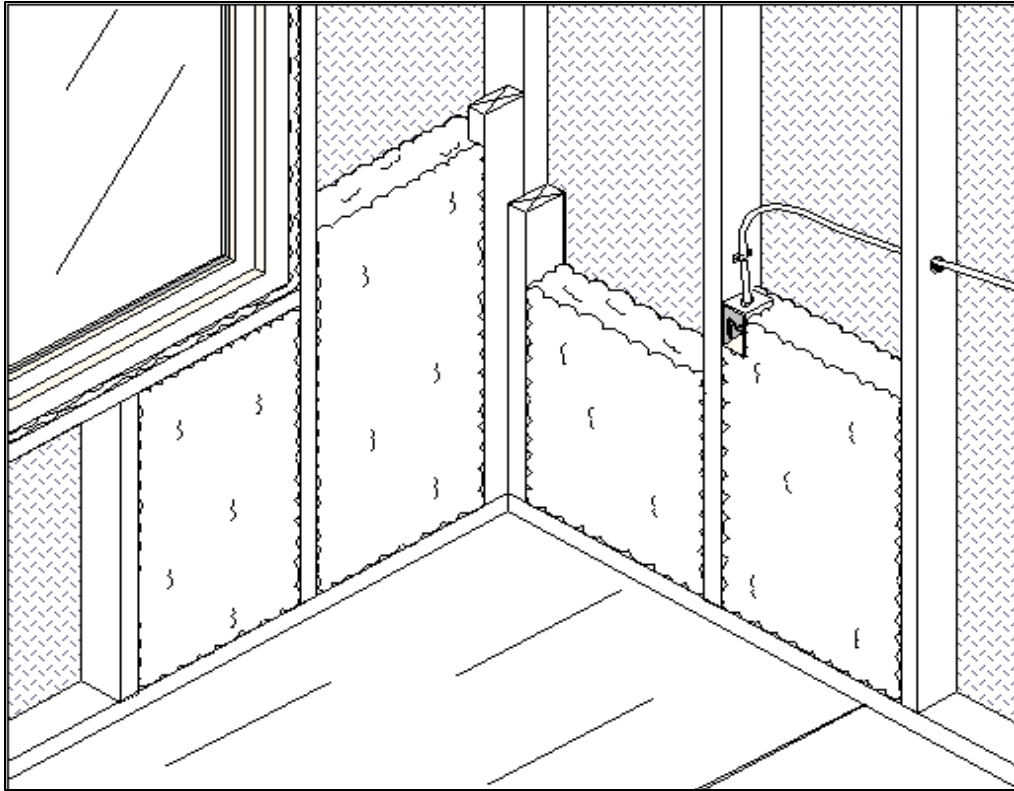


Figure 1. Installation in open wall cavities

3. Description

The foam system, “Walltite®”, consists of two components: “Walltite®” polyurethane resin and “Lupranate® 17 Isocyanate.” The two components are mixed on-site by a qualified installer with fixed-ratio positive displacement equipment. The “Walltite®” product is light blue in colour.

The final cured product has a nominal density of 30.4 kg/m³ and an assigned design thermal resistance of 1.05 m² · °C/W per 25 mm (R6 per inch).

4. Usage and Limitations

BASF Canada mandates, as part of their field quality control assurance and training program, that the “Walltite®” spray foam insulation material shall be manufactured on-site by qualified installers licensed by BASF Canada with field inspections carried out by a third-party certification organization. The third-party certification organization certifies the BASF Canada training program and provides follow-up inspection of installers in the field for installations in accordance with CAN/ULC-S705.2-98, “Standard for Thermal Insulation-Spray Applied Rigid Urethane Foam,

Medium Density, Installer's Responsibilities-Specification".

The third-party certification organization¹ specified by BASF Canada Inc. is Morrison Hershfield (MH) Limited. The installation procedure shall follow the manufacturer's installation instruction manual. A copy of this manual shall be available at the job site at all times during the installation. All installers shall present their BASF Canada licensing card and specific site work sheet upon request by the building official.

1. Note: 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 jobsite 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.

This product may be used in new construction and in retrofit installations (open-cavity only), but is subject to the following conditions:

- The product is an insulation intended to be installed where insulation is required in accordance with the NBC 1995. Applications include but are not limited to: open wall cavities such as stud walls or basement walls, or on surfaces such as masonry or exterior sheathing.
- In retrofit applications where an occupancy may take place earlier than in new construction, at least 24 h must pass before an occupancy is permitted within the newly insulated suite(s).
- When the product is installed in an exterior insulative sheathing-type application, the low water vapour permeance value requires

that the wall assembly conform to Table 9.25.1.2. in the NBC 1995

- The sprayed insulation material shall completely cover the surfaces and the product must be applied in passes of between 15 mm and 50 mm thick.
- For proper adhesion, the substrate surface must be clean and dry and neither damp or covered in frost, oil, grease, dust, loose scale, rust 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 interior side of the applied rigid polyurethane cellular plastic shall be covered with an approved thermal barrier in accordance with Article 9.10.16.10. or Article 3.1.5.11. of the NBC 1995. The exterior surface of an exterior wall containing this insulation must be protected in accordance with Sentence 3.2.3.7.(7) of the NBC 1995 when applicable. The product shall not be used in exposed interior or exterior locations.
- The product is not exempt from the requirements for vapour barrier and dampproofing (interior below-grade walls) as required in Subsection 9.25.4. and Article 9.13.3.3. of the NBC 1995, respectively.
- The insulation shall 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 insulation shall not be used inside electrical outlets of junction boxes.
- The requirement that the spray insulation not encapsulate electrical wiring by more than 20 mm has been deleted from the soon to be published new edition of ULC S705.2.

- This product shall not be left exposed to continuous ultraviolet light.
- The product shall not be installed after the expiry date printed on the label of each container. The product has a shelf life of 6 months from the date of manufacture.
- The continuous in-service temperature of the insulation shall not exceed the range of -60°C to 80°C.
- The components, “Walltite®” polyurethane resin and Lupranate® 17 Isocyanate, must have their respective containers (i.e. drums) identified by the phrase “CCMC 12840-R.”

5. Performance

Testing was conducted by laboratories recognized by the Canadian Construction Materials Centre. The results of testing “Walltite®” are summarized in Table 1.

Table 1. Test Results for “Walltite®”

Property	Unit	CAN/ULC-S705.1-98 CAN/CGSB-51.23-92 Requirements	Results
Density	kg/m ³	≥ 28	30.4
Compressive Strength	kPa	≥ 170	222
Tensile Strength	kPa	≥ 200	337
Water Vapour Permeance	ng/Pa·s·m ²	≤ 170*	125
Thermal Resistance	m ² ·°C/W	≥ 1.25	1.46 ⁽¹⁾
2 d @ 24°C 90 d @ 24, 50%RH°C		≥ 1.05	1.14 ⁽²⁾
Dimensional Stability (% Volume Change)	%	≥ -1	-0.047
28d @ -20°C		≤ +10	8.45
28d @ 100°C 28d @ 70°C, 90±3% RH		≤ +14	7.64
Water Absorption by Volume	%	≤ 4	2.5
Open Cell Content	%	≤ 8	<1
Flame Spread Rating		< 500	375 ⁽³⁾
Emissions during Aging			Passed ⁽⁴⁾

Note to table 1:

(1) For a 25 mm thick specimen.

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- (2) The oven-aged thermal resistance is used for comparative purposes and does not yield a design value for long-term thermal performance. The assigned design thermal resistance is 1.05 RSI per 25 mm or R6 per inch.
 - (3) For a 50 mm thick specimen.
 - (4) The Volatile Organic Emissions (VOC) under consideration were below the detection limit after 24 hours. The determination of emissions and room concentration calculations were done by the Saskatchewan Research Council. Reported results from emission tests indicate that the product would be unlikely to cause a major adverse health problem. While the testing and evaluation represent the current state-of-the-art tests in toxicological evaluation, such tests and their results do not purport to be conclusive with respect to the impact on health.

For additional information contact:

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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 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.

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