



Evaluation Report CCMC 12697-R SEALECTION 500®

MasterFormat:	07 21 19.03
Evaluation issued:	1995-09-13
Re-evaluated:	2017-10-17
Revised:	2020-01-06

1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that “SEALECTION 500®,” when used as a thermal insulation 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)(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:
 - Clause 9.25.2.2.(1)(g), Insulation Materials

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

Ruling No. 95-10-29 (12697-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 2007-01-19 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 spray-in-place, low-density, semi-flexible plastic foam that has an open-cell structure. The foaming system consists of two components, A100 isocyanate and B500 resin, which are mixed on site by a qualified installer with fixed-ratio positive displacement equipment.

Once the product 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, the product remains semi-flexible.

The final cured product is yellow and has a density of 8.3 kg/m³. At a thickness of 25.4 mm, the design thermal resistance is 0.61 m²·K/W (R3.48).

3. Conditions and Limitations

CCMC's compliance opinion in Section 1 is bound by the “SEALECTION 500®” being used in accordance with the conditions and limitations set out below.

3.1 General

- The product must be applied on-site by qualified installers trained and approved by Huntsman Building Solutions (Canada) Inc.
- The product can be used in new or retrofitted construction. The product is to be installed in open cavities in the following locations of wood-frame construction meeting the requirements of the NBC 2015:
 - exterior walls including perimeter joists;
 - cathedral ceilings with a vented air space as required by the NBC 2015;
 - floors separating living spaces from a garage;
 - cantilever overhang floors; and
 - interior below-grade foundation walls.
- The application locations are illustrated in Figure 1.
- The building envelope in which this product is installed must conform to the requirements of the NBC 2015 for vapour barriers, air barriers, and dampproofing (interior below-grade walls).
- For retrofit applications, the working area must be isolated and negatively pressurized by using an exfiltration rate of 0.3 air changes per hour for at least one (1) day. An independent toxicological assessment determined that this ventilation rate must also 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., Installation of Thermal Insulation, of Division B of the NBC 2015, the insulation must 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 semi-flexible polyurethane insulation must be covered with an approved thermal barrier as per Article 9.10.17.10., Protection of Foamed Plastics, of Division B of the NBC 2015.
- The insulation must be kept away from heat-emitting devices, such as recessed light fixtures and chimneys, at the minimum distance required by building regulations and safety codes.
- The maximum in-service temperature of the insulation must not exceed 70°C.
- The product must not be used where it may come into contact with water and must not be installed after its expiry date of six (6) months from the date of manufacture.
- The A and B components must have their respective containers (i.e. drums) identified by the phrase “CCMC 12697-R.”
- The installation procedure must follow the manufacturer’s instruction manual. A copy of the manual must be available at the job site at all times during the installation for review by the building official.

3.2 Qualified Installers

This is a site-manufactured product whereby Huntsman Building Solutions (Canada) Inc. requires that only specific qualified installers be authorized to install their proprietary spray polyurethane insulation in buildings. In accordance with the Huntsman Building Solutions (Canada) Inc. site quality assurance program (SQAP), the certification organization (CO) Caliber Quality Solutions Inc. (Caliber) has been commissioned to licence the specified installers and issue them the requisite CO identification card. All specified installers must have a Caliber identification card.

3.3 Third-Party Site Auditing of Qualified Installers

As part of their SQAP, Huntsman Building Solutions (Canada) Inc. also stipulates site audit inspections be conducted by site inspectors licenced by Caliber. Upon completion of the site audit, Caliber will report the product’s conformity results and any corrective action, if necessary, to Huntsman Building Solutions (Canada) Inc. Building officials who would like site-audit inspections to be conducted on specific building sites can contact Caliber at:

Caliber Quality Solutions Inc. (Caliber)
120 Eglinton Avenue East
Suite 1000
Toronto, ON M4P 1E2

Tel.: 888-572-7435

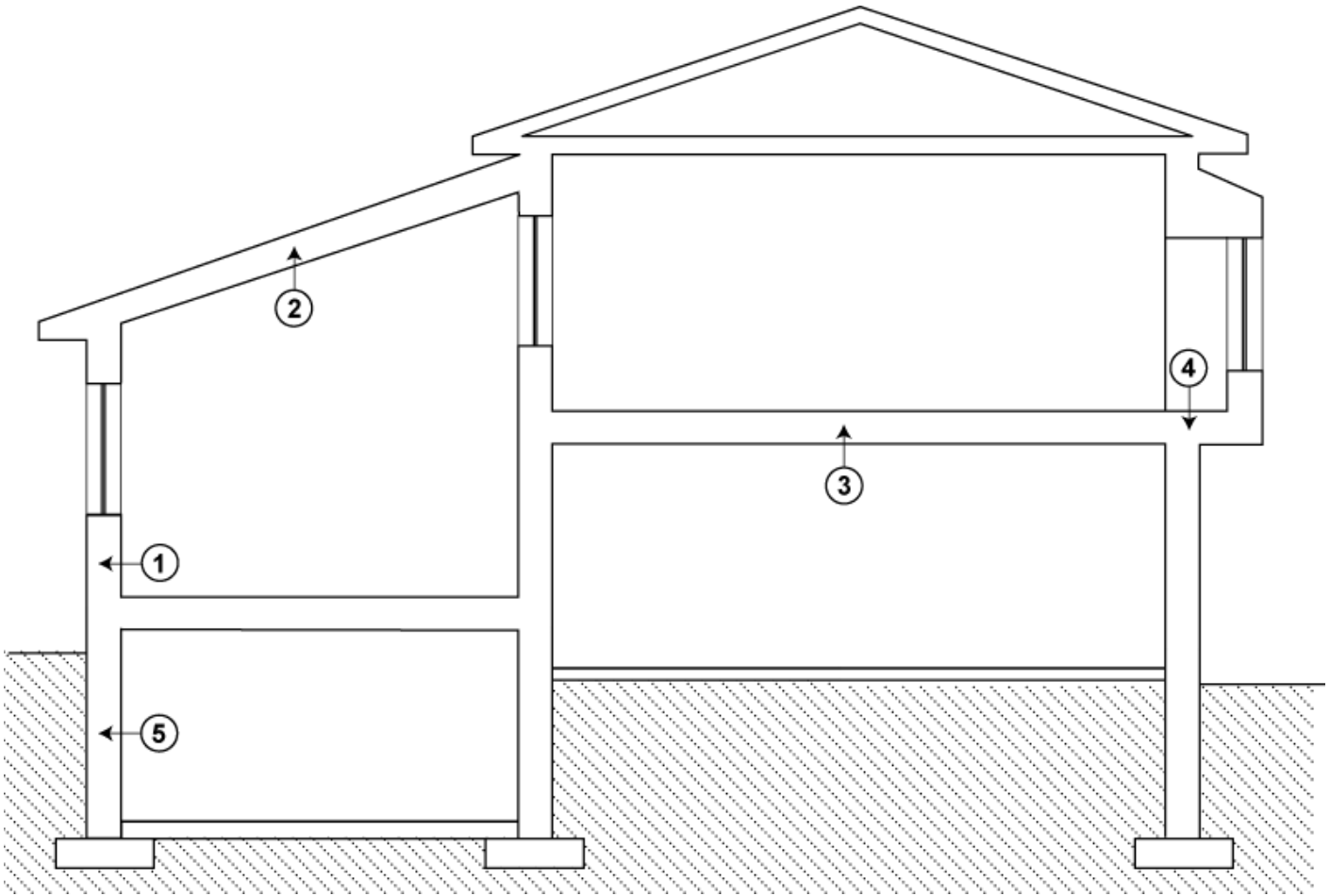


Figure 1. Application locations in wood-frame construction in open cavities

1. exterior, above-grade wall
2. cathedral ceiling (vented)
3. floor above garage
4. cantilever floor
5. interior foundation wall

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 Performance Requirements

Table 4.1.1 Results of Testing of “SEALECTION 500®” – Type 1, Open-Cell Urethane

Property	Requirement	Result
Density (kg/m ³)	> 6.8	8.3
Thermal resistance at 25.4-mm thickness (m ² ·K/W)	Report value	0.61
Water vapour transmission for 25-mm thickness (ng/(Pa·s·m ²))	> 2 800	1 300 ⁽¹⁾
Water absorption (%)	Report value	50
Emissions during aging	⁽²⁾	Pass

Table 4.1.1 Results of Testing of “SEALECTION 500®” – Type 1, Open-Cell Urethane (cont.)

Property		Requirement	Result
Dimensional changes (% volumetric) when exposed for:	28 days at 80°C and ambient RH	Min. -15	-4.4
		Max. +10	
	28 days at 70°C and 95 ± 3% RH	Min. -15	-5.1
		Max. +14	
	28 days at -29°C and ambient RH	Min. -1	-0.5
		Max. —	

Notes to Table 4.1.1:

- (1) Although the water vapour transmission is below the specified target, additional testing to simulate service conditions for the service life of this proprietary product was conducted. The resulting performance was deemed acceptable.
- (2) The volatile organic compound (VOC) emissions under consideration were below the detection limit after one (1) day with a room ventilation rate of 0.3 air changes per hour as per the NBC 2015. 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 in toxicological evaluation, such tests and their results do not purport to be conclusive with respect to the impact on health.

5. Other Technical Evidence

5.1 Additional Performance Data Requested by the Report Holder

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

5.1.1 Fire Performance

Table 5.1.1.1 Fire Test Results for “SEALECTION 500®”(1)(2)

Property	Requirement	Result
Flame-spread rating ⁽³⁾ (CAN/ULC-S102 and CAN/ULC-S127)	Report value	435
Smoke development	Report value	240

Notes to Table 5.1.1.1:

- (1) The thicknesses of the specimens tested varied from 100 mm to 150 mm.
- (2) The specimens tested were not cut as per Sentence 9.10.3.2.(2), Flame-Spread Ratings, of Division B of the NBC 2015.
- (3) Contact Huntsman Building Solutions (Canada) Inc. for a flame-spread rating when required for code compliance.

Report Holder

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Plant(s)

Boisbriand, QC

Disclaimer

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CCMC was established in 1988 on behalf of the applicable regulator (i.e., the Provinces and Territories) to ensure—through assessment—conformity of alternative and acceptable solutions to regional building codes as determined by the local authority having jurisdiction (AHJ) as part of the issuance of a building permit.

It is the responsibility of the local AHJs, design professionals, and specifiers to confirm that the evaluation is current and has not been withdrawn or superseded by a later issue. Please refer to <http://www.nrc-cnrc.gc.ca/ccmc> or contact the Canadian Construction Materials Centre, Construction Research Centre, National Research Council of Canada, 1200 Montreal Road, Ottawa, Ontario, K1A 0R6. Telephone: 613-993-6189. Fax: 613-952-0268.

The NRC has evaluated the material, product, system or service described herein only for those characteristics stated herein. The information and opinions in this evaluation are directed to those who have the appropriate degree of experience to use and apply its contents (i.e., AHJs, design professionals and specifiers). This evaluation is only valid when the product is installed in strict compliance with the stated conditions and limitations of evaluation and the applicable local building code. In circumstances where no applicable local building permit is issued and that no confirmation of compliance 'for use in the intended field application' is undertaken, this evaluation is null and void in all respects. This evaluation is provided without representation, warranty, or guarantee of any kind, expressed, or implied, and the NRC provides no endorsement for any evaluated material, product, system or service described herein. The NRC accepts no responsibility whatsoever arising in any way from any and all use and reliance on the information contained in this evaluation with respect to its compliance to the referenced code(s) and standard(s). The NRC is not undertaking to render professional or other services on behalf of any person or entity nor to perform any duty owed by any person or entity to another person or entity. Revised: 2019-12-02

Date modified:
2021-02-24

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