

CCMC 14005-R

CCMC Canadian code compliance evaluation

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| CCMC number: | 14005-R |
| Status: | Active |
| Issue date: | 2014-12-19 |
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| Evaluation holder: | <p>Mainline Backflow Products Inc. 12530-128st, Edmonton AB T5L 1C8 Canada Telephone: 1-877-734-8691 (toll free); 780-413-7204</p> |
| Product name: | Greenskin™ |
| Compliance: | NBC 2010 |
| Criteria: | CCMC-TG-076519.03-10, "CCMC Technical Guide for Prefabricated Polyethylene Flashing for HVAC, Duct and Electrical Penetrations at Wall Sheathing Membrane" |

In most jurisdictions this document is sufficient evidence for approval by Canadian authorities.

[Learn more about CCMC recognition](#) [Look for the trusted CCMC mark on products to verify compliance.](#)

Compliance opinion

It is the opinion of the Canadian Construction Materials Centre that the evaluated product, when used as a water entry barrier for building wall penetrations in accordance with the conditions and limitations stated in this evaluation, complies with the following code:

National Building Code of Canada 2010

| Code provision | Solution type |
|-----------------------------|-------------------|
| 9.27.4.1. Required Sealants | <u>Acceptable</u> |
| 9.27.4.2. Materials | <u>Acceptable</u> |

The above opinion(s) is/are based on the evaluation by the CCMC of technical evidence provided by the evaluation holder, and is bound by the stated conditions and limitations. For the benefit of the user, a summary of the technical information that forms the basis of this evaluation has been included.

Product information

Product name

Greenskin™

Product description

The product is intended to prevent water entry into the structure by providing a friction fit seal around exterior and interior building HVAC, electrical, and plumbing penetrations.

The product is manufactured from 17.5 ± 1.5 mil low density polyethylene material with or without spacer buttons (dimples), which, when installed, are placed against the structure. The product is available in panels of various sizes with openings to accommodate any size of round, square, rectangular and octagon shaped penetrations.

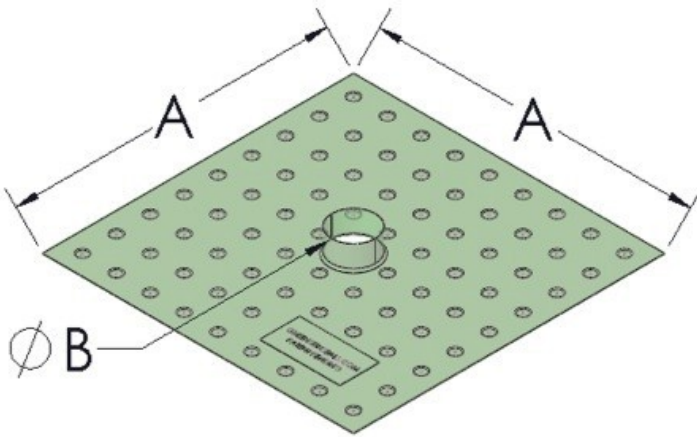


Figure 1. Greenskin™

- A. Panel size
- B. Penetration diameter

Manufacturing plant

This evaluation is valid only for products produced at the following plant:

| Product name | Manufacturing plant |
|--------------|---------------------|
| | Edmonton, AB, CA |
| Greenskin™ | ☉ |

☉ Indicates that the product from this manufacturing facility has been evaluated by the CCMC

Conditions and limitations

The CCMC's compliance opinion is bound by this product being used in accordance with the conditions and limitations set out below.

- The CCMC has not evaluated the performance of the product as air barrier material or as a component of an air barrier system.
- The product is manufactured from material that is of low vapour permeance. The installation of the product shall meet all of the requirements of Subsection 9.25.5, Properties and Position of Materials in the Building Envelope, of Division B of the NBC 2010.
- For each façade, the product shall not make up more than 15% of the gross wall area.
- The product must be installed in accordance with Greenskin™ Building Penetration Seals Installation Instructions.
- The product must be installed in combination with a sheathing membrane that meets the requirements of Articles 9.27.3.2., Sheathing Membrane Material Standard, and 9.27.3.3., Required Sheathing Membrane and Installation, of Division B of the NBC 2010.
- The product is made from low density polyethylene and supplied by Western Concord Manufacturing Ltd.
- The product must be protected from exposure to ultraviolet (UV) radiation from the sun within 30 days.
- The product packaging must be clearly identified with the phrase "CCMC 14005-R."

Technical information

This evaluation is based on demonstrated conformance with the following criteria:

| Criteria number | Criteria name |
|----------------------|--|
| CCMC-TG-076519.03-10 | CCMC Technical Guide for Prefabricated Polyethylene Flashing for HVAC, Duct and Electrical Penetrations at Wall Sheathing Membrane |

The Report Holder has submitted technical documentation for the CCMC's evaluation. Testing was conducted at laboratories recognized by the CCMC. The corresponding technical evidence for this product is summarized below.

Performance requirements

The product was tested for water tightness capacity against two conventional building envelope penetration solutions. The first was a code benchmark solution using a code-referenced sealant to seal the duct perimeter. The second was a CCMC-approved sheathing tape to seal the duct perimeter. Note that the product, sealant, and sheathing tape were all tested and evaluated with an integrated sheathing membrane.

The test protocol calls for a set of static applied pressure tests. In the static testing, water was at a full spray condition at three pressure rates: 1.0, 2.0 and 3.4 L/m²/min, and pressure was applied to the exterior of the wall at seven different pressure rates: 0, 50, 75, 150, 300, 500, and 700 Pa. In each test, the product, sealant, and sheathing tape solutions did not allow water entry (0 mL) through the duct perimeter seal.

Table 1. Results of testing of water entry before aging

| Pressure applied | Leakage at 1.0 L/m ² /min (mL) | | | Leakage at 2.0 L/m ² /min (mL) | | | Leakage at 3.4 L/m ² /min (mL) | | |
|------------------|---|----------------------|-----------------------------|---|----------------------|-----------------------------|---|----------------------|-----------------------------|
| | Greenskin™ | Benchmark 1: sealant | Benchmark 2: sheathing tape | Greenskin™ | Benchmark 1: sealant | Benchmark 2: sheathing tape | Greenskin™ | Benchmark 1: sealant | Benchmark 2: sheathing tape |
| 0 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 150 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 300 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 500 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 700 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 2. Results of testing of water entry after aging^{(1), (2)}

| Pressure applied | Leakage at 1.0 L/m ² /min (mL) | | | Leakage at 2.0 L/m ² /min (mL) | | | Leakage at 3.4 L/m ² /min (mL) | | |
|------------------|---|----------------------|-----------------------------|---|----------------------|-----------------------------|---|----------------------|-----------------------------|
| | Greenskin™ | Benchmark 1: sealant | Benchmark 2: sheathing tape | Greenskin™ | Benchmark 1: sealant | Benchmark 2: sheathing tape | Greenskin™ | Benchmark 1: sealant | Benchmark 2: sheathing tape |
| 0 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 50 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 75 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 150 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 300 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 500 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 700 Pa | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Notes:

- 1 The specimens were dynamically conditioned (aging) to simulate potential wall deterioration that can occur due to pressure fluctuations over the wall's service life. The conditioning process consists of dynamically pressurizing the wall from 0 to maximum (either ± 800 Pa) in one second, holding it at maximum pressure for three seconds, and then depressurizing the wall back to 0 Pa in one second, and finally holding the wall at 0 Pa for 3 seconds. This eight second cycle repeats 1 000 times for negative 800 Pa, and 1 000 times for positive 800 Pa.
- 2 The results show no water entry occurred through any of the duct perimeter seals during the testing.

Administrative information

Use of Canadian Construction Materials Centre (CCMC) assessments

This assessment must be read in the context of the entire [CCMC Registry of Product Assessments](#), any applicable building code or by-law requirements, and/or any other regulatory requirements (for example, the [Canada Consumer Product Safety Act](#), the [Canadian Environmental Protection Act](#), etc.).

It is the responsibility of the user to confirm that the assessment they are using is current and has not been withdrawn or superseded by a later version on the [CCMC Registry of Product Assessments](#).

Disclaimer

The National Research Council of Canada (NRC) has evaluated only the characteristics of the specific product described 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 (such as authorities having jurisdiction, design professionals and specifiers). This evaluation is valid when the product is used as part of permitted construction, respecting all conditions and limitations stated in the evaluation, and in accordance with applicable building codes and by-laws.

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Language

Une version française de ce document est disponible.

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CCMC recognition

The Canadian Construction Materials Centre (CCMC) assesses compliance with Canadian building, energy and safety codes. We are the only construction code compliance service supported and operated by the Government of Canada. Trusted by over 6,000 regulators across Canada.

Most Canadian authorities having jurisdiction (AHJs) consider CCMC product assessments acceptable as evidence for product approval.

CCMC assessments are recognized by construction authorities across Canada:

Alliance of Canadian Building Official Associations (ACBOA)



(Alliance of Canadian Building Official Associations (ACBOA))

First Nations National Building Officers Association (FNNBOA)



(First Nations National Building Officers Association (FNNBOA))

Canadian Home Builders' Association (CHBA)



(Canadian Home Builders' Association (CHBA))

Alberta Building Officials Association (ABOA)



(Alberta Building Officials Associations (ABOA))

Saskatchewan Building Officials Association (SBOA)



(Saskatchewan Building Officials Association (SBOA))

Manitoba Building Officials Association (MBOA)



(Manitoba Building Officials Association (MBOA))

Ontario Building Officials Association (OBOA)



(Ontario Building Officials Association (OBOA))

New Brunswick Building Officials Association (NBBOA)



(New Brunswick Building Officials Association (NBBOA))

Nova Scotia Building Officials Association (NSBOA)



(Nova Scotia Building Officials Association (NSBOA))

The CCMC provides code compliance assessments to Canadian code requirements, consulting nationwide with construction regulators to elicit regional variations in code requirements as well as provincial and local interpretations. Users are advised to review the technical information presented in CCMC assessments when making approval decisions. [Learn more about how the CCMC provides a unique service for Canada.](#)

For more information, contact the CCMC by phone at (613) 993-6189 or by email at ccmc@nrc-cnrc.gc.ca

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Code compliance as an acceptable solution

Code Compliance via Acceptable Solutions

If a building design (e.g. material, component, assembly or system) can be shown to meet all provisions of the applicable **acceptable solutions** in Division B (e.g. it complies with the applicable provisions of a referenced standard), it is deemed to have satisfied the objectives and functional statements linked to those provisions and thus to have complied with that part of the Code.

— National Building Code of Canada, Sentence A-1.2.1.1.(1)(a)

The CCMC has determined that compliance with this provision of the Code has been demonstrated as an **Acceptable Solution**. The evaluation report provides a summary of the basis of CCMC's compliance opinion.

CCMC's code compliance opinions

All CCMC evaluation reports are opinions of code compliance established in accordance with the National Building Code of Canada, Subsection 1.2.1. "Compliance with this Code," which requires compliance to be achieved by:

- complying with the applicable acceptable solutions in Division B, or
- using an alternative solution that will achieve at least the minimum level of performance required by Division B in the areas defined by the objective and functional statements attributed to the applicable acceptable solutions.

The CCMC assesses compliance with Canadian building, energy and safety codes, and is trusted by over 6,000 regulators across Canada.

Code compliance as an alternative solution

Code Compliance via Alternative Solutions

Where a design differs from the acceptable solutions in Division B, then it should be treated as an "**alternative solution**." A proponent of an alternative solution must demonstrate that the alternative solution addresses the same issues as the applicable acceptable solutions in Division B and their attributed objectives and functional statements. However, because the objectives and functional statements are entirely qualitative, demonstrating compliance with them in isolation is not possible. Therefore, Clause 1.2.1.1.(1)(b) identifies the principle that Division B establishes the quantitative performance targets that alternative solutions must meet. In many cases, these targets are not defined very precisely by the acceptable solutions [...] Nevertheless, Clause 1.2.1.1.(1)(b) makes it clear that an effort must be made to demonstrate that an alternative solution will perform as well as a design that would satisfy the applicable acceptable solutions in Division B—not "well enough" but "as well as."

— National Building Code of Canada, Sentence A-1.2.1.1.(1)(b)

The CCMC has determined that compliance with this provision of the Code has been demonstrated as an **Alternative Solution**. The evaluation report provides a summary of the basis of CCMC's compliance opinion.

CCMC's code compliance opinions

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