

CCMC 13182-R

CCMC Canadian code compliance evaluation

CCMC number:	13182-R
Status:	Active
Issue date:	2005-03-21
Modified date:	2023-02-24
Evaluation holder:	<p>DMX Membranes Limited 165 Orenda Road Brampton ON L6W 1W3 Canada Website: www.dmxmembranes.com Telephone: 905-458-8998 Email: sbahr@dmxmembranes.com</p>
Product name:	DMX AG
Code compliance:	OBC 2017
Evaluation requirements:	CCMC-TG-334623.01-17 "CCMC Technical Guide for Foundation Wall Drainage Systems – Dimpled Membranes"

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

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Code compliance opinion

It is the opinion of the Canadian Construction Materials Centre that the evaluated product, when used as a foundation wall drainage material in accordance with the conditions and limitations stated in this evaluation, complies with the following code:

Ontario Building Code 2017

Code provision	Solution type
9.14.2.1.(2)(b) Foundation Wall Drainage	<u>Acceptable</u>

The above opinion is 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

DMX AG

Product description

The product is a high-density polyethylene (HDPE), semi-rigid, thermally formed sheet that is smooth on one side and dimpled on the other side to provide an air gap between the membrane and the wall surface. The sheet thickness is 0.6 mm. The product is available in rolled sheets 3.05 m (10 ft.) wide. When two sheets are joined side by side, they must be overlapped by 200 mm to 300 mm with the dimples meshing. When two sheets are joined top to bottom, they must be overlapped by 150 mm.

To ensure correct application, a range of accessories, such as fasteners, anchors and moulding strips, are included with the product. Photos of the product are below.

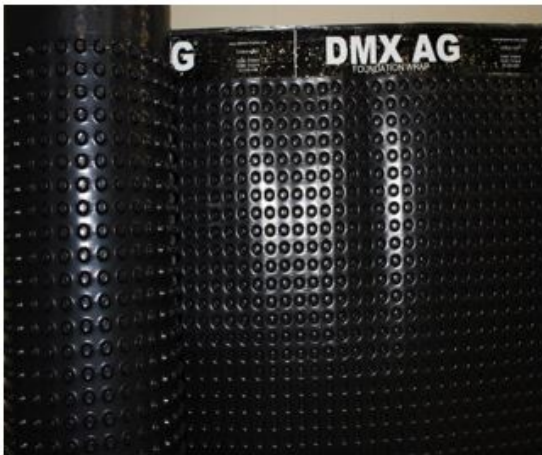


Figure 1. Product



Figure 2. Anchor

Manufacturing plant

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

Product name	Manufacturing plant
	Brampton, ON, CA
DMX AG	☉

☉ 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.

- Based on the evidence provided, the product has been classified as Type 2, Class B.
- The product must be installed in accordance with the manufacturer's instructions.
- The product was evaluated for use against cast-in-place and concrete block foundations only.
- The product is a dimpled membrane designed to act as a protective or capillary breaking layer against a foundation wall to protect it from transient or intermittent water that may come in contact with the surface of the wall.
- The product has been evaluated for use in vertical applications in depths of 3.7 m below grade. Applications greater than 3.7 m are considered to be outside the scope of this evaluation.
- The product is only one portion of the total foundation drainage system, which consists of a combination of design and construction processes that use different products. In particular, the product must be bent at the footing that is at the bottom of the wall to guide water past the cold joint to a drainage pipe located beyond the footing. This pipe will drain the water collected by the product toward an outflow (i.e., sewer). The product relies on a foundation wall drainage system that conforms to Subsection 9.14.3., Drainage Tile and Pipe, or to Subsection 9.14.4., Granular Drainage Layer, of Division B of the OBC 2017.
- The placement and grading of backfill must conform to the requirements of Subsection 9.12.3., Backfill, of Division B of the OBC 2017. It is recommended that an impervious "topping off" layer of clay or silt material be placed on top of the backfill to create a positive slope that would lead surface water away from the building.
- The product must be protected from exposure to ultraviolet (UV) radiation from the sun within a maximum of 30 days of its installation.
- The long-term performance of a drainage system will depend on local conditions such as the soil type, hydrogeology of the site, mineralogy and presence of microorganisms in the soil (i.e., iron ochre), as well as compatibility of the filter with the soil, among other issues. There should be a proper engineering design for the drainage system.
- Pattern and spacing of anchors must be designed to consider the site-specific issues such as the type of soil and how it will react to the product, as well as the backfilling methods used.
- The top of the membrane and all vertical joints and terminations must be mechanically fastened and sealed to prevent soil particles from entering behind the membrane.
- The product must be labelled with the manufacturer's name or logo and the phrase "CCMC 13182-R."

Technical information

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

Criteria number	Criteria name
CCMC-TG-334623.01-17	CCMC Technical Guide for Foundation Wall Drainage Systems – Dimpled Membranes

The evaluation 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.

Table 1. Results of testing the performance requirements of the product

Property	Unit	Requirement	Result
Compressive strength (initial)	kPa	150	322.6
Dynamic impact resistance (mean failure energy)	J	≥ 2.45	10.8
Creep resistance (residual thickness at 25 years/10°C)	%	≥ 40% at 25 years/10°C	87.7
Cold bending at –30°C	–	No visible crack	No
Tensile strength – at yield	kN/m	≥ 8	MD ⁽¹⁾ 8.3, XD 8.0
Tensile strength – elongation at break	%	≥ 25	36.8
Heat aging ⁽²⁾ – dimensional change	%	≤ 1	MD –0.6, CD –0.7
Heat aging – weight change	%	≤ 0.1	–0.2 ⁽³⁾
Heat aging – residual compression strength	%	≥ 80% of initial	97.6
Heat aging – creep resistance (residual thickness at 25 years/10°C)	%	≥ 40% at 25 years/10°C	85.5
Resistance to alkaline environment – appearance	–	No visible crack	No visible crack
Resistance to alkaline environment – residual compression strength	%	≥ 80 of initial	94.7
Resistance to alkaline environment – cold bending at –30°C	–	No cracks at room temperature	-
Geometrical properties – orientation of dimples	-	Report value	Perpendicular
Geometrical properties – number of dimples per unit area	Dimples/m ²	Report value	1 676
Geometrical properties – overall thickness	mm	Report value	7.67
Geometrical properties – sheet thickness	mm	Report value	0.58
Geometrical properties – hollow core thickness	mm	≥ 5.0	7.09
Anchorage performance	kN/anchor	Report value	0.406

This PDF is an alternative version. This document was published on 2023-02-24 and may not be the latest version of this evaluation. Users should consult the latest [published assessment](#) on the [CCMC Registry of Product Assessments](#), which contains the most up to date information. This PDF is intended for use as a record, not the latest information available.

Notes:

- 1 MD refers to the machine direction of the product; XD refers to the cross direction of the product.
 - 2 Aging of the samples is limited to 2 weeks if OIT > 5 minutes after 2 weeks, and extended to 8 weeks otherwise.
 - 3 If the weight change is greater than 0.1%, an additional creep resistance test must be conducted and the residual thickness must be greater than 40% at 25 years/10°C.
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Administrative information

Disclaimer

This evaluation is issued by the Canadian Construction Materials Centre (CCMC), a part of the Construction Research Centre at the National Research Council of Canada (NRC). The evaluation must be read in the context of the entire [CCMC Registry of Product Assessments](#) and the legislated applicable building code in effect.

The 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 [the website](#) or contact:

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

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Language

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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)



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(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.

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