Evaluation Report CCMC 12878-R
Platon

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1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that "Platon," when used as a foundation wall drainage material in accordance with the conditions and limitations stated in Section 3 of this Report, complies with the Ontario Building Code (OBC) 2012:

- Clause 1.2.1.1.(1)(a) of Division A, using the following acceptable solutions from Division B:
  - Clause 9.14.2.1.(2)(b), Foundation Wall Drainage

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

Ruling No. 99-10-69 (12878-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 1999-07-30 (revised on 2014-10-27) 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 carbon-compounded, high-density, polyethylene sheet roll. The material has a dimpled surface on one side that provides an air gap between the concrete wall and the adjacent soil.

The product's sheet pattern features double cone dimples 6 mm high, which are spaced at 30 mm on centre (o.c.) and joined by channels. The product is available in rolls 20 m long, 0.6 mm thick and up to 3.05 m wide.

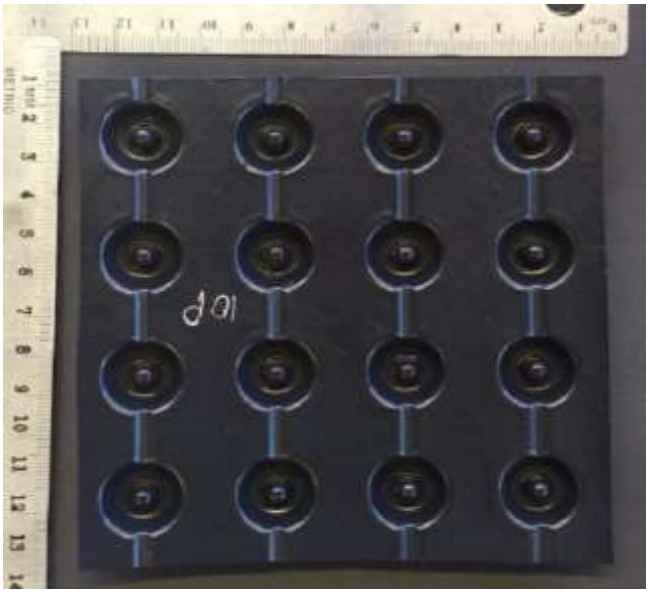

Figure 1. Side-facing soil

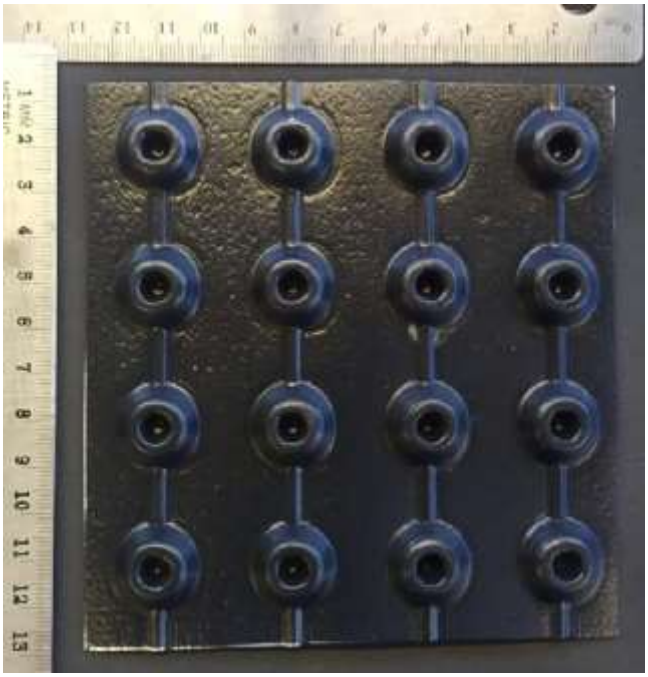

Figure 2. Side-facing wall

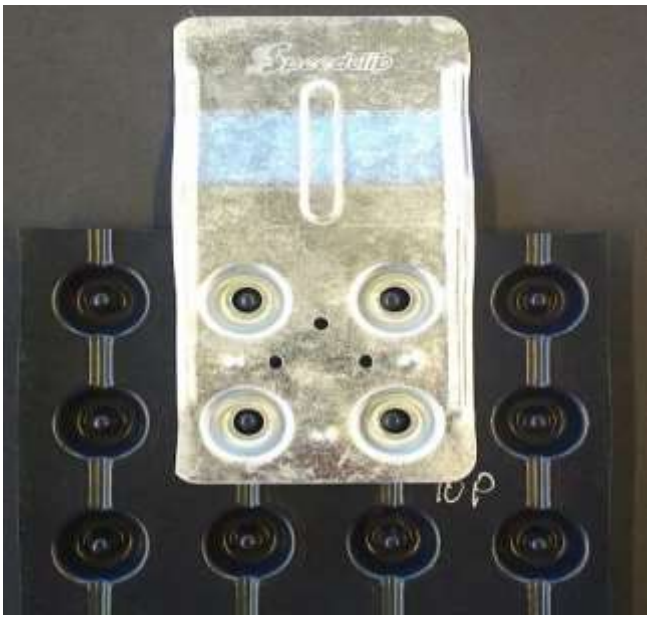

Figure 3. Anchor

3. Conditions and Limitations

CCMC's compliance opinion in Section 1 is bound by the "Platon" 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 (depths of 3.7 m), Class B (cups facing soil).
- The product must be installed in accordance with the manufacturer's instructions.
- The product was evaluated for use against cast-in-place concrete and concrete block foundations only.
- The product is a dimpled membrane drainage product designed to act as a protective layer or a capillary breaking layer against the foundation wall to protect the wall against 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 (Type 2) 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, it must be bent at the footing to guide water past the cold joint to a drainage pipe located outside of the footing at the bottom of the wall. 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 2012.

- The placement and grading of backfill must conform to the requirements of Subsection 9.12.3., Backfill, of Division B of the OBC 2012. It is recommended that an impervious "topping off" layer of clay or silt material be placed on top of the backfill with a positive slope leading surface water away from the building.
- The product must be protected from exposure to ultraviolet (UV) sunlight within a maximum of six months of its installation.
- 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.
- The performance of fixtures used to anchor the product in the wall was evaluated for a single anchor. It is the manufacturer's responsibility to define the pattern and spacing of anchors considering the anchor strength as well as site-specific issues such as the type of soil, how it will interact with the product, and the backfilling method 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. Accessories used to anchor the product are part of the Evaluation.
- The product must be labelled with the manufacturer's name or logo and the phrase "CCMC 12878-R."

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 Test Results for "Platon"

Property		Unit	Requirement	Result
Compressive strength (initial)		**kPa**	**150**	**176.5**
Dynamic impact resistance (mean failure energy)		**J**	**≥ 2.45**	**2.6**
Creep resistance (residual thickness at 25 years/10°C)		**%**	**≥ 40% at 25 years/10°C**	**64.8**
Cold bending at -30°C		**N/A**	**No visible crack**	**No visible crack**
Tensile strength	**at yield**	**kN/m**	**≥ 8**	**XD 10.1(1)**
	elongation at break	**%**	**≥ 25**	**XD 26.3**
	anisotropy ratio		**≥ 0.5**	**0.67**
Heat aging after 2 weeks	**OIT after 2 weeks**	**minutes**	**5**	**5.95(2)**
	dimensional change	**%**	**≤ 1**	**MD -0.9, XD -1.0**
	weight change	**%**	**≤ |0.1|**	**-0.2**
	residual compression strength	**%**	**≥ 80 of initial**	**127**
	creep resistance after heat aging (residual thickness at 25 years/10°C	**%**	**≥ 40% at 25 years/10°C**	**62.6**
Resistance to alkaline environment	**appearance**	**N/A**	**No visible crack**	**No visible crack**
	residual compression strength	**%**	**≥ 80 of initial**	**118**
	bending resistance	**N/A**	**No visible crack**	**No visible crack**
Geometrical Properties:				
Orientation of dimples		**-**	**Report value**	**Square**
Number of dimples per unit area		**dimples/m^2**	**Report value**	**884**
Overall thickness		**mm**	**Report value**	**6.18**
Sheet thickness		**mm**	**Report value**	**0.86**
Hollow core thickness		**mm**	**Report value**	**5.32**
Anchorage performance	**anchorage efficiency**	**kN/anchor**	**Report value**	**1.03**

Notes to Table 4.1.1:

(1) "MD" refers to the "machine direction" of the product. "XD" refers to "cross direction" of the product.
(2) For products exhibiting an oxidation induction time (OIT) greater than five minutes after exposure to heat for two weeks, the test duration is limited to two weeks.

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