Evaluation Report CCMC 13134-R
Duradek Ultra

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1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that "Duradek Ultra," when used as a waterproof membrane covering for decks and balconies subject to light pedestrian traffic in accordance with the conditions and limitations stated in Section 3 of this Report, complies with the National Building Code of Canada (NBC) 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:
  - Section 9.26., Roofing

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

Ruling No. 05-02-126 (13134-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 2005-04-05 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 polyvinyl chloride membrane with a 1.5-mm nominal thickness and a laminated, heat-set polyester fabric attached to the back. The surface is embossed to provide a textured finish. The membrane is manufactured in rolls that are 1 372 mm or 1 829 mm wide and 18.29 m or 22.86 m in length. The product can also be cut to a required length.

The product is available in various colors. A typical roof/deck application is shown in Figure 1.

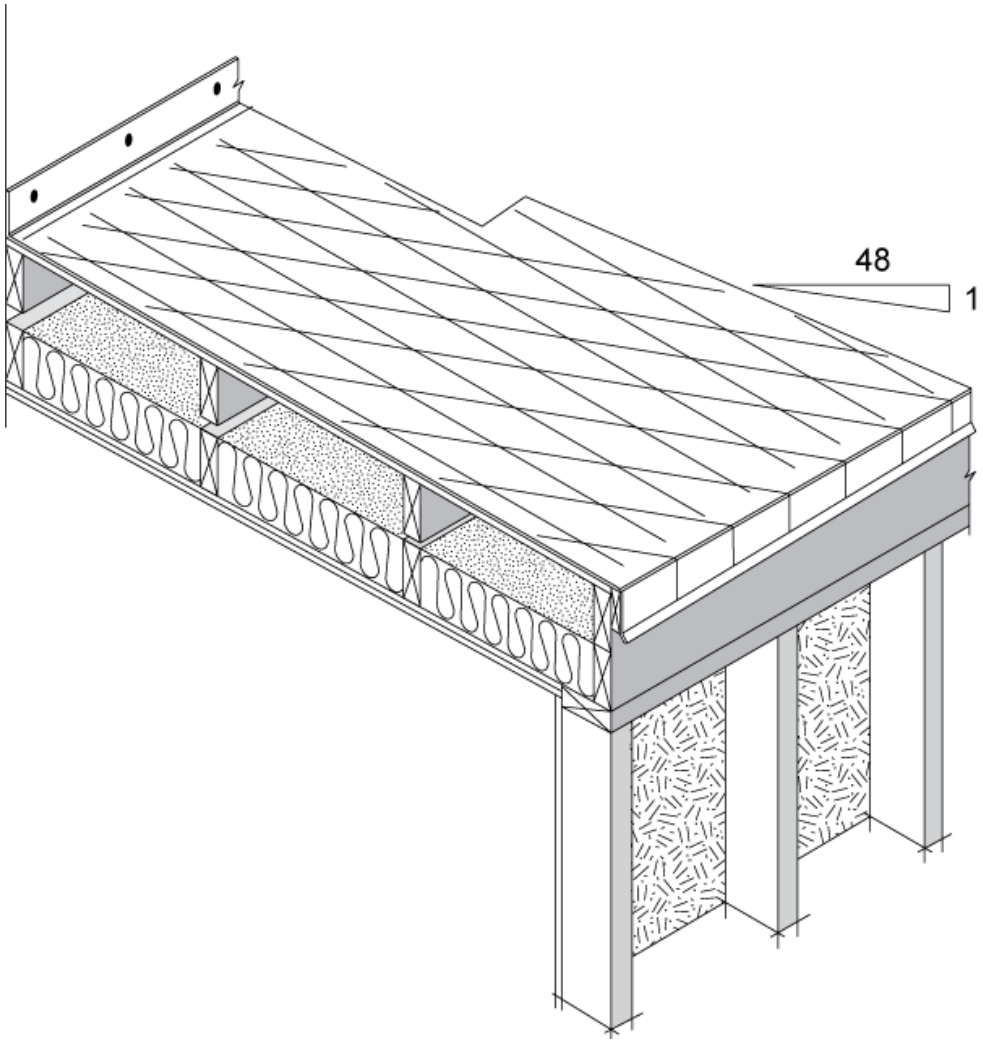

Figure 1. "Duradek Ultra" – typical roof/deck application

3. Conditions and Limitations

CCMC's compliance opinion in Section 1 is bound by the "Duradek Ultra" being used in accordance with the conditions and limitations set out below:

- The product can be used as a waterproof membrane that is fully adhered to a continuous solid substrate, such as plywood or concrete decks and balconies that are subject to light pedestrian traffic.
- The product must be used only in conjunction with plywood or concrete substrates. The membrane must be fully adhered to the substrate with adhesives D-763 and D-811, and applied as per the installation manual.
- The product's deck membrane can be considered as an alternative solution to materials referenced in Section 9.26. of Division B of the NBC 2015.
- The product is limited for use in areas that are subject to traffic loads generated by residential occupancies only.
- The product must not be exposed to chemical attack or spillage. In situations where extended contact with chemicals or pollutants may occur, the suitability of the product must be determined.
- The roof/deck must provide a minimum slope of 1:48.
- Any physical or chemical damage to the membrane must be repaired in accordance with the manufacturer's instructions.
- The product must not be installed with butt seam joints.
- Joints must be shingle-lapped in order to shed water.
- The product must be installed by approved applicators only and in strict conformance with the current installation instructions dated March 2016.
- The product or its packaging must be identified with the manufacturer's name or logo and the phrase "CCMC 13134-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 Material Requirements

Table 4.1.1 Results of Testing the Material Requirements of the Product

Property	Unit	Requirement	Result
Overall thickness	mm	Report value	1.53
Coating thickness	mm	Min. 0.4 (no measurement less than 0.32)	0.87

4.2 Performance Requirements

Table 4.2.1 Results of Testing the Performance Requirements of the Product

Property		Unit	Requirement	Result
Load strain energy		kN/m	Min. 30	MD 32; XD 27[(1),(2)]
Water vapour transmission		$g/m^2/d$	Max. 4.0	1.06
Water absorption mass		%	3.0	2.58
Static puncture		Rating	≥ 3	3
Dynamic puncture		Rating	≥ 3	4
Low temperature impact	**original**	–	8 out of 10 pass	Pass
	after weathering	–	8 out of 10 pass	Pass
Low temperature flexibility	**original**	–	Material must not crack or exhibit any visible defects.	Pass
	after heat aging	–	Material must not crack or exhibit any visible defects.	Pass
	after weathering	–	Material must not crack or exhibit any visible defects.	Pass
Lap joint strength	**unaged**	%	Min. 75% of original membrane	78%
	after heat aging	%	Min. 70% of original membrane	67%[(2)]
Resistance to accelerated weathering (visual)		–	No cracking, blistering or colour change	Pass
Abrasion resistance	**weight loss**	g	0.4	Pass
	depth of wear	mm	Max. 0.30	Pass
Adhesion to substrate		N	125	1 404; 192; 457; 352[(3)]
Slip resistance	**dry condition**	Rating	Leather ≥ 0.50 and rubber ≥ 0.70	Pass
	wet condition	Rating	Leather ≥ 0.60 and rubber ≥ 0.65	Pass

Notes to Table 4.2.1:

(1) MD = machine direction; XD = cross-machine direction.

(2) It is CCMC's opinion that the result falls within an acceptable range of tolerance.

(3) Obtained with water-based adhesive D-763 on plywood; obtained with solvent-based adhesive D-811 on plywood; obtained with water-based adhesive D-763 on cement board; obtained with solvent-based adhesive D-811 on cement board.

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