SINTEF

SINTEF Certification

No. 20178

Technical Approval

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Valid until: 01.04.2022
Provided listed on www.sintefcertification.no

SINTEF Building and Infrastructure confirms that

Derbicoat Radon membrane

has been found to be fit for use in Norway and to meet the provisions regarding product documentation given in the regulation relating to the marketing of products for construction works (DOK) and regulations on technical requirements for building works (TEK), with the properties, fields of application and conditions for use as stated in this document

1. Holder of the approval

Derbigum Norge AS
Brevikbråteveien 9
NO-1555 Son

2. Product description

Derbicoat Radon is a SBS modified bituminous membrane with a glass-polyester reinforcement. Both surfaces are protected by PE film. Weight of reinforcement is 150 gr/m².

Table 1
Dimension and tolerances for Derbicoat Radon

Designation	Value	
Thickness	2,5 mm	
Weight	3,1 kg/m²	± 10 %
Width	1,1 m	± 1 %
Roll length	12,73 m	+ 2 / - 0 %

3. Fields of application

Derbicoat Radon can be used as protection towards radon in several types of constructions, application types A, B and C as shown in SINTEF Building Research Design Guide 520.706, provided that the conditions as described in chapter 6 are followed. Alternative positioning of radon membranes are shown in fig. 1.

4. Properties

Material properties

Product properties for fresh material are shown in Table 2.

Air tightness

Derbicoat Radon is tested for performance in relation to air tightness for joints and details with satisfactory results.

Properties related to fire

Derbicoat Radon is not classified according to EN 13501-1.

Durability

Derbicoat Radon is assessed as having satisfactory durability when the product is used as specified in this Technical Approval document.

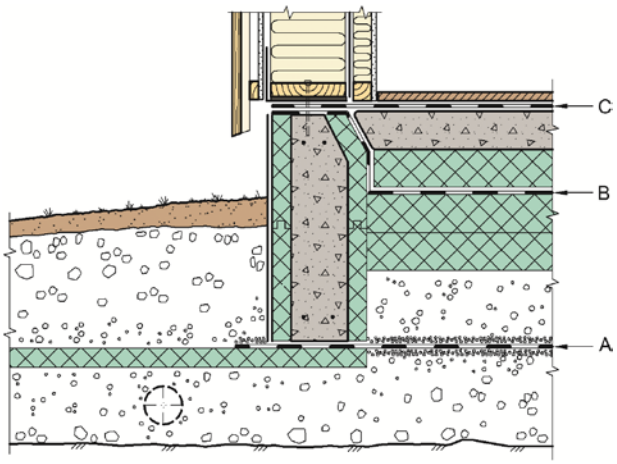

Fig. 1
Alternative positioning of radon membranes in different applications

5. Environmental aspects

Substances hazardous to health and environment

The product contains no hazardous substances with priority in quantities that pose any increased risk for human health and environment. Chemicals with priority include CMR, PBT or vPvB substances.

Effect on indoor environment

The product is not regarded as emitting any particles, gases or radiation that have a perceptible impact on the indoor climate, or to have any significant impact on health.

Effect on soil, surface water and ground water

The leaching properties of the product are evaluated to have no negative effects on soil or water.

Waste treatment/recycling

The product shall be sorted as residual waste. The product shall be delivered to an authorized waste treatment plant for energy recovery.

Environmental declaration

No environmental declaration (EPD) has been worked out for the product.

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Table 2
Product properties for Derbicoat Radon

Property	Test-method	Control limits[1)]	Unit
Radontransmission [3)] Radon resistance	SP-method 3873	$0{,}1 \cdot 10^{-8}$ $90 \cdot 10^{7}$	m/s s/m
Air tightness - construction[2)3)]	NBI-method 167/01	≤ 3	l/min
Flexibility at low temperature	EN 1109:1999	≤ - 15	°C
Dimensional stability - longitudinally - transverse	EN 1107-1:1999	± 0,5 ± 0,5	% %
Resistance to tearing - longitudinally - transverse	EN 12310-1:2000	≥ 150 ≥ 150	N N
Tensile strength - longitudinally - transverse	EN 12311-1:2000	≥ 480 ≥ 320	N/ 50 mm N/ 50 mm
Elongation - longitudinally - transverse	EN 12311-1:2000	≥ 25 ≥ 25	% %
Resistance to shear of joints	EN 12317-1:2000	≥ 500	N/50 mm
Resistance to impact - Soft underlay - cylinder	EN 12691:2001	≤ 15	mm diameter
Resistance to static loading - Soft underlay	EN 12730:2001(A)	≥ 15	kg

1) Control limit is the value the product must satisfies for internal control at the producer and for supervising control
2) Calculated at a pressure difference of 30 Pa
3) Result from type testing

6. Special conditions for use and installation

Application type A

The membrane has to be installed in the construction pit on an even underlay of crushed stone or gross sand with flatness and stability at least as compressed sandy soil, and preferably under the pipes- and wire penetrations.. The membrane shall be installed with an air-tight connection towards the sole foundation or the base plate. Installation in application type A requires that the sole foundation is designed as an air-tight construction, and also that any pipe penetrations through the sole foundation are airtight.

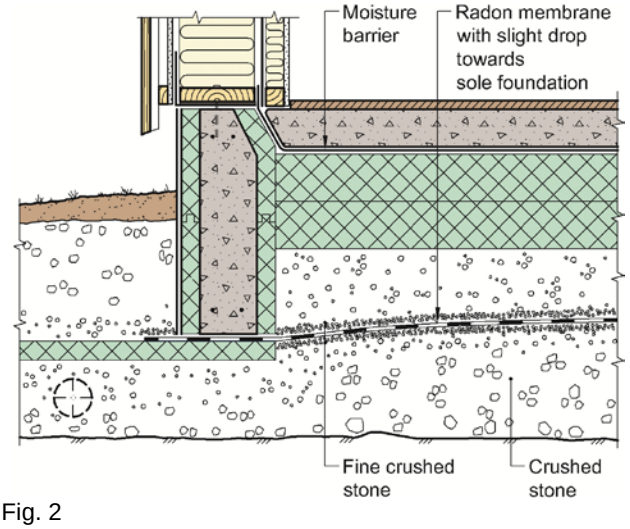

Fig. 2
Example of positioning of radon barrier in application type A.

Application type B

The membrane has to be installed on a pre-leveled surface of insulation. The membrane has then to be protected with insulation also at the top side, and the insulation has finally to be protected with a plastic film, or the membrane has to be protected with another protection type of film or an antifriction layer, at the top. At least two thirds of the insulation thickness should be installed at the underside of the membrane. The membrane has to be installed continuous over the top of the foundation to ensure air tight connections between the foundation and the floor.

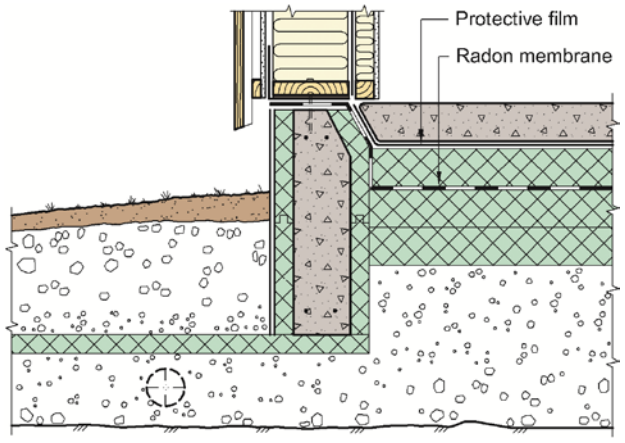

Fig. 3
Example of positioning radon barrier in application type B. Slab on ground together with the foundation

Application type C

The membrane has to be installed on leveled concrete slab or similar with clamped glued (sealed) connections towards all construction parts and penetrations. The need to protect the membrane must be considered in each case.

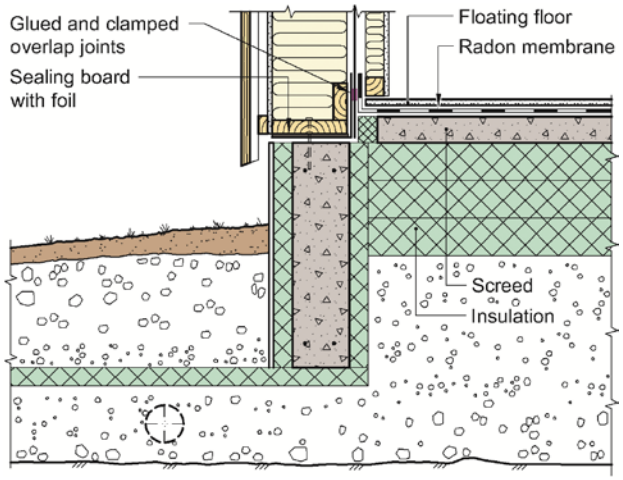

Fig. 4
Example of positioning radon barrier in application type C. Slab on ground together with the foundation.

Installation

The radon membrane shall be welded by open flame or hot air with minimum 100 mm overlap joints. It must be shown caution when use of heat during installation on combustible underlay in order to avoid ignition.

The performance shall ensure that all joints, penetrations and transitions are airtight. See fig. 2-5 and SINTEF Building Research Design Guide 520.706.

The design must ensure that all joints, penetrations and transitions between floor and wall are airtight. See fig. 2-4 and Building Research Design Guide 520.706.

Derbicoat Radon has to be installed in accordance with the producer's instructions.

Underlay and protection

It is important to avoid that the radon membrane is damaged by sharp objects or objects that are being trampled down in the membrane during the construction period. When installed according to application type B, it is recommended to protect the membrane at the top side. The membrane has to be installed in such a way that it's not sticked and, in turn, teared to pieces by smaller movements.

Floor heating

Heating cables shall not be placed directly on the membrane, and there shall be a minimum of 5 mm non-combustible material between the heating cables and the membrane.

Radon membrane as vapour barrier

Radon membrane in use group B will replace the plastic membrane as vapour barrier, because the radon membrane will work both as vapour barrier and radon membrane. The plastic membrane with function as protection must still be used as described.

Water in the construction pit

When the insulation is placed above the radon membrane it is a risk of accumulation of water in the construction pit during the constuction period. It must therefore be taken action to avoid such water accumulation. Alternatively actions can be made to drain the water. To secure air- and radontightness, it is imprtant that the drainage solution can be closed when the construction period is finished.

Backfill in use group A

In order to avoid that backfill above the membrane submits dangerous consentration of radon to the indoor air, the backfill must have documented low radon emittance, see SINTEF Building Research Design Guide 520.706.

Storage

Derbicoat Radon shall be stored dry, rolls satnding on pallet.

7. Factory production control

The product is produced by Derbigum - Imperbel SA B-1360 Perwez, Belgium.

The holder of the approval is responible for the factory production control in order to ensure that the product is produced in accordance with the preconditions applying to this approval.

The manufacturing of the product is subject to continuous surveillance of the factory production control in accordance with the contract regarding SINTEF Technical Approval.

Derbigum have a quality assurance system which is certified according ISO 9001 by BUREAU VERITAS, certificate NO. BE009216-1.

8. Basis for the approval

The approval is based on product characteristics which are documented in the following reports:

- SINTEF Byggforsk, report 3D1258, dated 08.12.2011 (material properties, FTIR)
- SINTEF Byggforsk, report 3D1258, dated 08.12.2011 (air tightness)
- SP Sveriges Provnings- och Forskningsinstitut: Report PX14531-1 dated 06.07.2011. (radon resistance)
- SP Sveriges Provnings- och Forskningsinstitut: Report FX116897 dated 08.11.2011. (emission)

9. Marking

All rolls are maked with the producers name, product description, dimesions and production time. The approval mark for SINTEF Technical Approval No. 20178 may also be used.

Approval mark

10. Liability

The holder/manufacturer has sole product responsibility according to existing law. Claims resulting from the use of the product cannot be brought against SINTEF beyond the provisions of Norwegian Standard NS 8402

for SINTEF Building and Infrastructure

Hans Boye Skogstad
Approval Manager