SINTEF Technical Approval

TG 20614

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Amended:
Valid until 01.02.2029
Provided listed on
www.sintefcertification.no

SINTEF confirms that

BACA RAD(ON) SEVEN

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

Baca Plastindustri AS
Ulsmågvegen 20
5224 Nesttun
www.baca.no

2. Product description

BACA RAD(ON) SEVEN is a rollproduct of polyamide/polyethylene (PA/PE). The colour is turquoise. The membrane is jointed with BACA RAD(ON) SKJØTETAPE.

Table 1
Dimensions and tolerances for BACA RAD(ON) SEVEN

Property	BACA RAD(ON) SEVEN	Tolerance
Thickness	0,28 mm	-5 % / +10 %
Width	259,4 g/m^2	-5 % / +10 %
Width of membrane	1,8 and 3,6 m	± 50 mm
Roll length	45 m	± 5 %

As supplementary components to the radon membrane, the following are supplied:
- BACA RAD(ON) SKJØTETAPE for jointing of membrane and for sealing of corners in combination with topptape.
- BACA RAD(ON) TOPPTAPE for sealing of corners in combination with skjøtetape and for sealing around pipe penetrations.
- RAD(ON) 4 Tettemasse for sealing clusters of pipe penetrations

3. Fields of application

BACA RAD(ON) SEVEN can be used as protection against radon in application areas B and C as shown in SINTEF Building Research Design guide 520.706, provided that the conditions described in chapter 6 in this document are followed. Principal positioning of radon membranes are shown in Fig. 1.

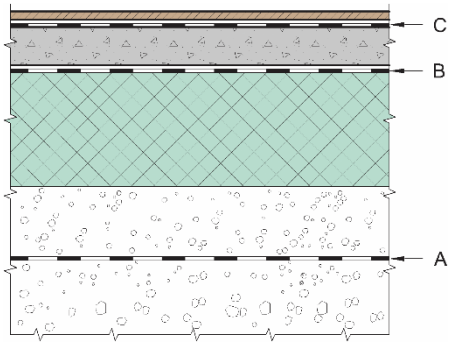

Fig. 1
Principal positioning of radon membranes in different application areas. BACA RAD(ON) SEVEN can be used in application areas B and C.

4. Properties

Material properties
Product characteristics for fresh material are shown in Table 2.

Air tightness
Produktnavn is tested for performance in relation to air tightness for joints and details with satisfactory results as shown in Table 2.

Properties related to fire
Produktnavn is not classified according to EN 13501-1.

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

Table 2
Product characteristics for BACA RAD(ON) SEVEN

Property	Test method	Control limits[1)]	Unit
Radon transmission [2)] Radon resistance	RISE-method 3873 [3)]	$0{,}3 \cdot 10^{-8}$ $130 \cdot 10^{7}$	m/s s/m
Air tightness– construction [4)]	NBI-method 167/01	≤ 5	l/min
Flexibility at low temperature	EN 495-5	- 30	°C
Dimensional stability – longitudinally – transverse	EN 1107-2	 ≤ 0,5 ≤ 0,5	 % %
Resistance to tearing – longitudinally – transverse	EN 12310-2	 ≥ 70 ≥ 70	 N N
Tensile strength – longitudinally – transverse	EN 12311-2(B)	 ≥ 350 ≥ 350	 N/50 mm N/50 mm
Elongation – longitudinally – transverse	EN 12311-2(B)	 ≥ 400 ≥ 400	 % %
Shear resistance of joints	EN 12317-2	≥ 100 [5)]	N/50 mm
Water vapour transmission properties [2)]	EN ISO 12572	144 $731.4 \cdot 10^{9}$	m eqv. airlayer m^2sPa/kg
Resistance to impact - Hard underlay-12,7 mm bale	EN 12691(A)	≥ 500	mm height
Resistance to static loading - Soft underlay	EN 12730(A)	≥ 10	kg

[1)] Control limit is the value the product must satisfies for internal control at the producer and for supervising control
[2)] Result from type testing
[3)] Test method from RISE
[4)] Calculated at a pressure difference of 30 Pa
[5)] Result for BACA RAD(ON) SKJØTETAPE with 30 mm width

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 evaluated according to SINTEF Technical Approval – Health and Environmental Requirements version 09.05.2022. 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. The product meets the requirements in BREEAM-NOR v6.0, Emissions from building products according to Hea 02 Indoor air quality.

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.

Non dry sealant is defined as hazardous waste (according to the Norwegian Waste Regulation (Avfallsforskriften)). The product must be sorted as hazardous waste on the building site, and be delivered to an authorized treatment plant for

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

6. Special conditions for use and installation

Application area B (fig. 2)
The membrane has to be installed on a pre-levelled surface of heat insulation which is secured against displacement. The top side of the membrane shall be protected with an antifriction and protective layer of minimum 0,2 mm thick plastic foil with mechanical properties and alkaline resistance corresponding to a radon membrane for use in application area C or a vapour barrier for floor installation with a SINTEF Technical Approval. The membrane shall be installed continuously over the top of the foundation to ensure airtight connections between the foundation and the floor.

Application area C (fig. 3)
The membrane is placed on levelled concrete slab or similar with clamped and glued (sealed) connections towards all construction parts and penetrations. The need to protect the membrane must be considered in each case.

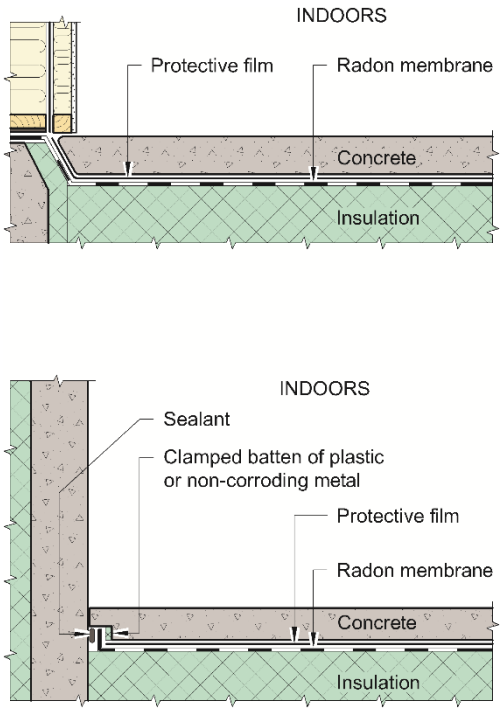

Fig. 2
Example of positioning of radon membrane in application area B. Slab on ground together with the foundation and concrete wall.

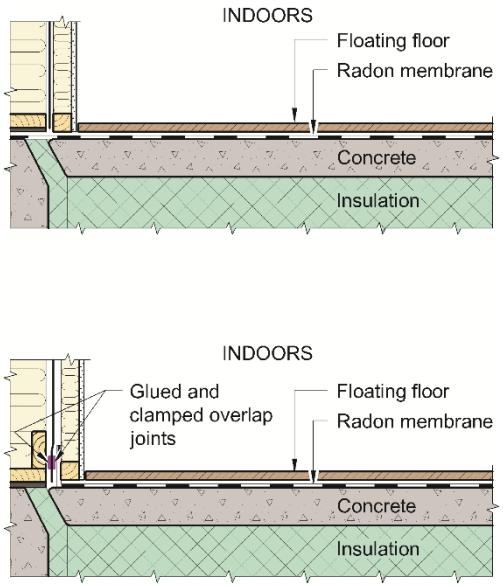

Fig. 3
Example of positioning of radon membrane in application area C. Slab on ground together with the foundation.

Installation
BACA RAD(ON) SEVEN shall be jointed with BACA RAD(ON) SKJØTETAPE.

In corners and around pipe penetrations BACA RAD(ON) TOPPTAPE must be used in combination with BACA RAD(ON) SKJØTETAPE. The temperature during installation of the tapes should be at least + 5 °C.

Cluster of pipe penetrations shall be sealed with RAD(ON) 4. The chosen formwork solution must adhere to the membrane and ensure sufficient filling height for the sealant. The sufficient filling height will be product-specific and described in the sealant's documentation. The need for refilling of sealant must always be checked and is particularly important for sealants with long curing time.

It must be checked that all joints, penetrations and transitions between floor and wall are airtight and have not opened as a result of loads and stresses during the construction period before the membrane is built in.

The design shall ensure that all joints, penetrations and transitions between floor and wall are airtight. The design should be according to the principles shown in SINTEF Building Research Design Guide 520.706 and 701.706.

Underlay and protection
It is important to avoid damaging of the radon membrane by sharp objects or objects that are being trampled down in the membrane during the construction period. After installation, the membrane shall not be locked for movement or span over cavities as this can cause the membrane or its joints to tear when exposed to loads or shrinkage. Reinforcement chairs or fasteners for floor heating that may damage the membrane shall not be used.

Radon membrane as vapour barrier
Radon membrane in application areas B and C 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.

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.

Storage
BACA RAD(ON) SEVEN shall be stored dry and protected against direct UV-radiation before use.

7. Factory production control

BACA RAD(ON) SEVEN is produced in Lithuania for Baca Plastindustri AS.

The holder of the approval is responsible for the factory production control in order to ensure that BACA RAD(ON) SEVEN is produced in accordance with the preconditions applying to this approval.

The manufacturing of the product and the manufacturer's system for factory production control (FPC) is subject to continuous surveillance in accordance with the contract regarding SINTEF Technical Approval.

The manufacturer has a quality system certified according to ISO 9001 and an environmental management system certified according to ISO 14001.

8. Basis for the approval

The evaluation of BACA RAD(ON) SEVEN is based on reports owned by the holder of the approval.

The evaluation of design and technical solutions are based on recommendations given in SINTEF Building Research Design Guides.

9. Marking

All rolls are marked with the manufacturer's name, product description and production date and time.

The approval mark for SINTEF Technical Approval TG 20614 may also be used.

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

Susanne Skjervø
Approval Manager