SKILLFLEX RN

Waterproofing membrane for use of Radon gas barrier
C.S.I. Certification - Test report n. 054/LCF/EDI/03

DESCRIPTION

Pre-fabricated waterproofing membrane for specific use as a total barrier to the passage of Radon gas. The waterproofing mass is made of distilled bitumen and elasto-plastomeric polymers (APP), reinforced with a rot proof fibre glass reinforcement and aluminium film which allows to obtain a barrier to the transmission of Radon gas. Due to the characteristics, the membranes of the SKILLFLEX RN range are used with success in the waterproofing of both civil and industrial works where an absolute barrier to the transmission of Radon gas is required.

RADON GAS

Radon is a colourless and odourless natural radioactive gas produced during the radioactive decay of radium which, in turn, is created as a result of the radioactive decay of uranium; variable quantities of both elements are present in the earth's crust. The main sources that release Radon into the environment are the soil and various construction materials – like volcanic tuff – and, in some cases, water. Radon comes out of the ground, construction materials and water and disperses in the atmosphere, but accumulates in closed environments. Radon is an inhalation hazard and is considered to be the second cause of lung cancer after cigarette smoke. SKILLFLEX RN is designed especially to protect buildings against Radon gas.

Reinforcement: Fiberglass + Aluminium
Compound: Elasto-plastomeric polymer bitumen (APP)
Upper finish: Polypropylene mat
Lower finish: PE film
Intended use:
EN 13969 Retaining walls
Application method: Torch

METHODS OF APPLICATION

For the application of the membrane the use of heat is generally used by means of a gas torch or specific hot air machine. The application by heat is not suggested when on heat sensitive materials (polystyrene insulation).

- Coordinate the operations in a way to not cause damage to the construction elements and underground structure. Avoid to leave the structure for the night or for periods of prolonged work interruptions without having been properly sealed.
- **The application surface must not have any depressions to avoid the risk of ponding water, the slope must be at least 1.5% on concrete decks and 3% for steel or wooden ones, this to guarantee a proper run off of rainwater.**
- The water drainage spouts should be sufficiently big enough to allow for rain water to be eliminated in an efficient way.
- Prepare cementitious substrates, including verticals and details, with a bituminous primer either by brush or airless, approx. 300 g/m^2 (approximate consumption; it may vary depending on the absorption level of the substrate and the type of primer used).
- Allow this preparation layer to dry before proceeding with any other operation.
- With prefabricated constructions, apply a suitable reinforcing strip along all joints. In the presence of construction joints, prefabricated panels or metal decks, suitable expansion joints are to be considered.
- The membranes must be applied to the substrate fully bonded.
- All details, perimeters, verticals, change of slope as well as projecting area must be fully bonded.

Technical Data Sheet

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APPLICATION

- ✓ On cementitious surfaces and similar apply, by roller or airless, bituminous primer, approx. consumption 300 g/m^2.
- ✓ Apply by torch application a 25 cm strip of membrane reinforced with polyester along all vertical up stands.
- ✓ To have all overlaps with the slope, position the membrane always starting from the lowest point, alternating the overlapping areas.
- ✓ To facilitate the flow of water towards the drains, so as to encounter as few joints as possible between the sheets, the direction of installation of the membranes must be longitudinal to the direction of the slope of the roof.
- ✓ In case of installation of the waterproof sealing element on top of an insulating package, the main direction of the insulating panels must be perpendicular to the direction of installation of the membranes, taking care to install the panels with staggered quincunx combinations.
- ✓ Cut the corners of membrane sheet which will be laid under the next sheet at a 45° angle (10x10 cm).
- ✓ The joints, both side and head, must be respectively overlapped by 10 & 15 cm.
- ✓ The second layer of membrane will be applied astride and over the first one, always in the same direction, and approx. 1/4 of its length from the previous sheet.
- ✓ The bituminous membrane will be applied with a propane gas torch to the substrate. It is necessary to heat the entire surface, except for the side & head laps, making sure that the compound forms a liquid mass in front of the roll to assure that it saturates any superficial porosity.
- ✓ The side laps (10 cm) and head laps (15 cm) will be heat welded with an appropriate torch; during this stage the overlaps should be pressed by using a roller (15 kg) from which a bead of compound should flow and therefore avoiding to have to iron the overlaps.
- ✓ Apply the vertical membrane sheet having the same characteristics of the waterproofing membrane and dimensions equal to the width of the roll, making sure that it overlaps the horizontal one by at least 10 cm, heating it with a gas torch and squeezing it with a trowel until a bead of compound appears from underneath.
- ✓ The height of the verticals must be equivalent or superior to the finished surface by at least 15 cm.

RECOMMENDATIONS

To best use the technical characteristics of bituminous membranes and guarantee the maximum performance and durability of the jobs where they are used, some simple but fundamental rules must be respected.

- The rolls are to be stored in an upright position, indoors in a dry and ventilated area, away from heat sources. Absolutely avoid the stacking of rolls and pallets for storage or transport to avoid possible deformations which may compromise a perfect installation. It is recommended to store the product at temperatures above 0°C.
- The rolls shall be kept in a warm or heated storage area during application, should the workability of the material deteriorate or become stiff and difficult to install during application, these should be returned to the heated storage area and substituted with new rolls. The rolls that are temporarily stored on the roof before application, shall be kept elevated by being left on their own pallets and shall be covered and protected from the weather.
- The application surface must be smooth dry & clean.
- The application surface must be previously treated with a suitable bituminous primer, to eliminate dust and enhance the adhesion of the membrane.
- The application surface must not have any depressions to avoid the risk of ponding water, the slope must be at least 1.5% on concrete decks and 3% for steel or wooden ones, this to guarantee a proper run off of rainwater.
- In situations of application on vertical surfaces superior to 2 meters or on very sloped substrates, apply suitable mechanical fixings to the head laps, after which they will be sealed when torching the head laps.
- The application must be done at temperature higher than +5°C.
- The application must be interrupted in adverse weather conditions (high humidity, rain, etc.).
- The pallets on which the rolls are packaged are intended for normal warehouse use.
- The materials on stock should be rotated following a first in first out rotation.

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TECHNICAL SPECIFICATIONS

CHARACTERISTICS	TESTING METHOD	M.U.	TOLERANCE	V
Length/Width	EN 1848-1	m	MLV ≥	10,0 / 1,0
Visible defects	EN 1850-1	visual		None
Thickness	EN 1849-1	mm	MDV ±5%	4
Straightness	EN 1848-1	mm/10 m	MLV	< 20
Watertightness	EN 1928	kPa	MLV ≥	60
External Fire Performance	EN 13501-5			F ROOF
Reaction to fire	EN 13501-1	class		NPD
Maximum tensile strength (L/T)	EN 12311-1	N/50 mm	MDV -20% +50%	450/350
Elongation (L/T)	EN 12311-1	%	MDV -2 +30	2/2
Resistance to tearing (L/T)	EN 12310-1	N	MDV -20% +50%	100/100
Dimensional stability	EN 1107-1	%	MLV ≤	0,1
Peel resistance of joints (L/T)	EN 12316-1	N/50 mm	MDV ±20N	NPD/NPD
Cold flexibility	EN 1109	°C	MLV ≤	-10
Cold flexibility after ageing	EN 1296	°C	MDV +15°C	-5
Flow resistance	EN 1110	°C	MLV ≥	120
Flow resistance after ageing	EN 1296	°C	MDV -10°C	110
Joint strength (shear resistance) (L/T)	EN 12317-1	N/50 mm	MDV -20% +50%	350/250
Resistance to impact	EN 12691-B	mm	MLV ≥	500
Resistance to static loading	EN 12730-A	Kg	MLV ≥	5
Root resistance	EN 13948			NPD
Water vapour permeability	EN 1931	μ	MLV ≥	1500000
Water vapour permeability after ageing	EN 1296	μ	MLV ≥	NPD
Permeability to Radon	Indirect method CSI	cm^3 / (m^2 x 24h x atm)	MLV <	1 highly impermeable
Watertightness after ageing	EN 1296	kPa	MLV ≥	60

MDV : value declared by the manufacturer associated with a declared tolerance.
MLV : limit value, minimum or maximum, declared by the manufacturer.
NPD : No Performance Declared in accordance with the EU Construction Products Directive.

PACKAGING

PRODUCT	ROLL SIZE	WEIGHT KG/M²	THICKNESS MM	SQUARE METRES PER PALLET
SKILLFLEX RN	10 m x 1 m	-	4	240

The waterproofing membrane based on distilled bitumen and polymers, as shown in this data sheet does not require the issue of a MSDS, because it does not contain dangerous substances. The information data sheet for the proper use of products is available. The technical data given is based on average values obtained during production. We reserve the rights to change or modify the nominal values without prior notice or advice. The information contained in this data sheet are based on our experience. We cannot take any responsibility for a possible incorrect use of the products. The customer has to choose under their own responsibility a product fit for the intended use.
26/02/2025 - This version supersedes all previous ones.