

Fosroc® Proofex Total

High performance, ground gas-resistant, reinforced damp proof membrane

Uses

Suitable for ground level construction applications above and below the main structural element.

Reinforced gas membrane - designed to protect buildings and their occupants from the effects of methane, radon and carbon dioxide. Also protection against hydrocarbon vapours, when not in direct contact with the source.

Damp-proof membrane – protection against ingress of moisture from the ground where not exposed to hydrostatic pressure.

Advantages

- Multi-layer product design for maximum gas protection.
- Polyester reinforcing grid for puncture resistance during application.
- Loose-laid system for ease of application.
- Suitable for installation with taped or welded lap joints.
- Suitable for use with ground-bearing reinforced concrete or precast floor construction methods.
- Can be used within masonry wall construction, eliminating the need for a separate damp-proof course.



Description

Proofex Total is a black/white, multi-layer, low density polyethylene, ground gas resistant based membrane with an integral aluminium foil layer and a polypropylene reinforcing grid.

Properties

Characteristic	Test Method	Unit	Result
Physical Properties			
Thickness	EN 1849-2	mm	0.6
Thickness – Between Scrim	BS EN ISO 9863-1:2016	mm	0.4
Width	EN 1849-2	m	2
Length	EN 1849-2	m	50
Weight	EN 1849-2	g/m ²	370
Hydraulic Properties			
Water Column	EN 20811	m	>300
Resistance to Water Penetration	EN 13967, EN 1928	-	Pass
Water Tightness	EN 1296, EN 1367, EN 1928	-	Pass
Mechanical Properties			
Resistance to Static Load	EN 12730-B	Kg	20
Tensile Strength (MD)	EN 12311-1	N/50mm	600
Tensile Strength (CMD)	EN 12311-1	N/50mm	480
Tensile Elongation (MD)	EN 12310-1	%	20
Tensile Elongation (CMD)	EN 12310-1	%	20
Puncture Resistance	EN 12236	kN	1.25
Resistance to Tearing (Nail Shank) MD	EN 12310-1	N	330
Resistance to Tearing (Nail Shank) CMD	EN 12310-1	N	400
Durability and Chemical Resistance (Transmission Rate of Volatile Liquids)			
Diesel	ISO 6179:2010 (B)	g/m ² /h	0.246
Xylene	ISO 6179:2010 (B)	g/m ² /h	0.571
Toluene	ISO 6179:2010 (B)	g/m ² /h	0.583
Petrol	ISO 6179:2010 (B)	g/m ² /h	0.135
Gas Permeability			
Methane Permeability	BS EN ISO 15105-1	ml/m ² /day/atm	<0.09
Carbon Dioxide Permeability	BS EN ISO 15105-1	ml/m ² /day/atm	<0.09
Radon Permeability	K124/02/95	m ² /s	8.0 x 10 ⁻¹⁵

Standards Compliance

Independently certified performance, BBA certificate (No. 21/5880).

BRE Digest 211:2015 Radon: Guidance on protective measures for new buildings.

BRE Digest 212: Construction of new buildings on gas contaminated land.

CIRIA 665 - CS 2 to 6

BS8485:2015 + A1:2019: Table 7

NHBC Technical Extra 07 - AMBER 1 & 2

Specification Clause

The gas resistant membrane shall be Proofex Total, laid onto a suitably prepared surface, and jointed using Proofex Total Tape or with specialist welding equipment in accordance with the manufacturer's written instructions. Where the product installation is required to contribute to a BS8485:2015+A1:2019 ground gas protection solution, the product installation shall be assessed by an independent suitably qualified verification specialist.

Application Instructions

For more detailed guidance refer to the Proofex Total Method Statement

Preparation

Under-slab membrane installation

The membrane may be laid onto rigid insulation board, well compacted stone with no sharp projections, smooth, level concrete blinding or geo-composite void formers. The sub-base should be firm and able to support the membrane with no deflection or depressions forming during the subsequent reinforcement and concrete installation. Dry and dusty surfaces should be wetted to increase cohesion. The membrane should be protected from damage from point loads above and/or below the membrane through the use of rigid insulation board, Proofex Protection Board or a protective geotextile (300g/m² minimum weight)

Over-slab / precast floor membrane installation

The top surface of the concrete slab or precast flooring system (plank or beam and block) should be free from ridges, undulations and sharp projections. If this is not the case the membrane should be laid onto a protective layer such as rigid insulation boards or a geotextile (300g/m² minimum weight).

Laying

The membrane should be laid neatly without creases with the black surface facing upwards. Angles and corners should be formed in accordance with Fosroc standard detail drawings with the membrane tucked well into angles and fully supported so that there are no voids underneath. At locations where there is the potential for settlement or movement to occur the membrane should be folded.

Lapping and jointing

Laps and joints may be sealed with a minimum 100mm lap by welding with specialist equipment or by using Proofex Total Tape.

Where Proofex Total Tape is to be used the membrane surfaces to which the tape is to be applied should be clean and dry. The tape should be positioned on the lower sheet 50mm away from the edge of the membrane. Firmly bond to the membrane with a solid wheel roller before removing the protective film from the tape. Position the second upper sheet over the tape to form the 100mm lap with the edge of the membrane flush with the edge of the tape. Ensure that the surface of the membrane that is to bond to the tape is clean and dry before removing the protective film from the tape and firmly bonding the membrane to the tape using a solid wheel roller. N.B. There should be no gaps in the tape installation.

Welded joints should be undertaken by a Construction Skills NVQ Level 2 qualified operative using suitable specialist equipment. The welding temperature for Proofex Total is 180°C - 240°C depending on air temperature, power supply and welding equipment condition and therefore trials should be undertaken prior to start of the welding work. The recommended welding speed is 1.5m/min on low air flow. The welded seam should be 50mm wide and positioned close to the edge of the upper membrane forming the 100mm lap. N.B. There should be no gaps in the welded seams.

All laps whether welded or taped should be integrity tested in accordance with CIRIA C735 as part of the installation assessment by an independent validation specialist in accordance with the validation plan issued for the project.

Protection

Protect the completed membrane installation adequately to prevent damage and puncture using rigid insulation board, a geotextile (300g/m² minimum weight) or Proofex Protection Board prior to continuing with the construction work. Any areas of membrane that are not immediately covered should be clearly excluded from site traffic.

Penetrations

Where possible, services should be routed such that they do not pass through the membrane, thus minimising the number of penetrations where there is greater vulnerability to gas ingress in accordance with BS8485:2015+A1:2019.

Where penetrations are unavoidable, the membrane should be sealed to the pipe or duct using Proofex Top Hats, Proofex Total Flashing Tape or Proofex 3000MR as detailed in Fosroc standard detail drawing GRB03.

Other forms of penetration such as steel stanchions or access chambers should be detailed in accordance with the relevant Fosroc standard or project specific detail drawing.

Inspection and Repair

The membrane should be inspected immediately prior to concealment and, should any holes or tears be found, these should be repaired using patches of Proofex Total taped or welded in place using Proofex Total Tape with at least a 150mm lap beyond the extremity of the puncture using the method detailed above with no gaps in the tape or welded seam. Alternatively patches of Proofex 3000MR or Proofex Flashing Strip may be used.

Installation Assessment

Where the membrane installation is required to contribute to a ground gas protection solution in accordance with BS8485:2015+A1:2019, the membrane installation should be assessed by an independent validation specialist in accordance with the project specific validation plan.

Ancillary products

Proofex Total Tape

50mm wide double-sided butyl tape for sealing lap joints and for use in detailing work.

Proofex Top Hats

Pre-formed pipe collar with a flat base to simplify pipe penetration details. Available in standard diameters 110mm and 160mm. Other sizes available to order.

Proofex Total Flashing Strip

300mm wide gas-resistant self-adhesive tape for detailing around penetrations and columns and for repair of localised damage to the membrane damaged during and after installation.

Estimating

Proofex Total

Roll width:	2m
Roll length:	50m

Proofex Total Tape

Tape width:	50mm
Tape length:	30m
Tape thickness:	1.5mm

Proofex Total Flashing Strip

Length	10m
Width	300mm
Thickness	1.5mm

Storage

Store in original unopened packaging, in cool dry conditions, away from direct sunlight.

Precautions

Health and safety

Rolls of membrane should be handled in accordance with safe working practices. Suitable personal protective equipment should be used during membrane installation in accordance with the method statement issued by the installation contractor.

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Supports construction of Passivhaus buildings which can achieve net zero carbon emissions over the life of the structure. Energy required for heating can be 90% less than a conventional design.



Important note

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