Fosroc® Proofex Engage

constructive solutions

Robust pre-applied, fully bonded, gas-resistant waterproofing membrane for use in below ground, reinforced concrete structures

Uses

Waterproofing and ground gas resistant membrane for concrete basements, lift pits, carparks and other water excluding structures.

Proofex Engage provides water, water vapour and gas protection to water excluding structures and protects concrete from aggressive ground salts, chemicals and hydrocarbons.

Advantages

- Unique mesh system bonds permanently to concrete, remaining in place even if settlement takes place
- Smart anti-tracking design prevents water tracking between membrane and concrete
- Simple and quick to install - no protection film to remove
- Provides Methane and Carbon Dioxide protection as defined in BRE Report 212 and independent assessment report
- Crack bridging up to 5mm (100 cycles) ASTM C1305 modified
- Radon protection as defined in BRE Report 211
- BBA certification
- Protects concrete from attack from chemicals, hydro-carbons and aggressive ground salts in contaminated sites
- Simple application - requires no primer or protection, and blinding concrete may be eliminated
- Inert product - no risk of a reaction with ponded water prior to concrete being poured
- Membrane composition gives excellent flexibility for detailing, combined with high durability and toughness for site trafficking.
- Root resistant
- Long life expectancy

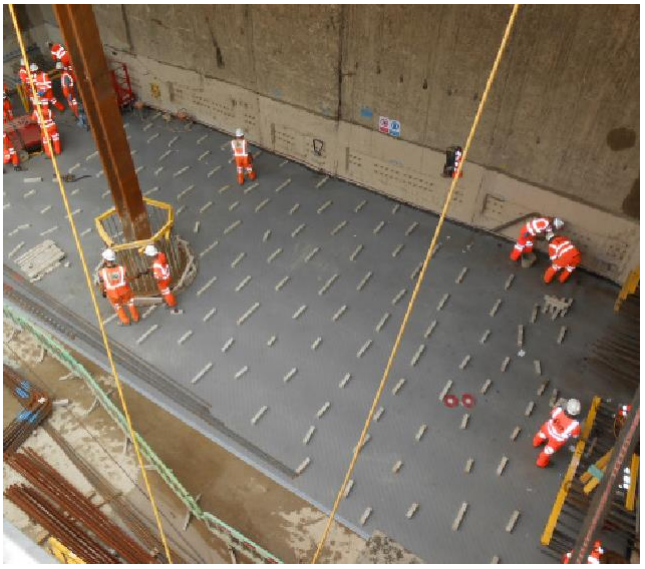
Description

Type A (Barrier) below ground waterproofing protection as defined in BS8102:2022.

Proofex Engage is a unique patented Type A waterproofing barrier membrane system, as defined in BS8102:2022 'Protection of Below Ground Structures Against Water Ingress', comprising a cell mesh bonded to a blended polyethylene / polypropylene membrane which allows poured concrete to interlock, forming a tenacious mechanical bond. The bonding mechanism eliminates water migration pathways between the membrane and the concrete

Proofex Engage is supplied with a self-adhesive selvedge along one side of the roll to provide sealed laps and a comprehensive range of auxiliary products to simplify the application process.

BBA APPROVAL INSPECTION TESTING CERTIFICATION
CERTIFICATE 22/6095



Where ground gas protection is required, Proofex Engage, in conjunction with Supercast Watertight Concrete, has been independently assessed as providing a protection score of 4.5 points, sufficient for all building types constructed in ground with a Characteristic Situation 3 hazard potential.

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Proofex Engage	
EN 13967:2012+A1:2017 Flexible sheets for waterproofing (Class Type A & Type T)	
Watertightness	No evidence of penetration at 6m head
Resistance to impact	1500 mm
Dangerous substances	Conforms with 5.17
Resistance to static load	20kg
Elongation at break	Long. > 300% Trans. >200%
Tensile properties	Long.>10.0 N/mm² Trans. >8.0 N/mm²
Water vapour transmission properties	μ = 1400000 ±30%
Resistance to tearing	>500N (longitudinal)
Shear resistance of joints	> 400 N (lap)
Length	30m
Width	1.27m
Thickness	4-5mm

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Properties

Test method	Standard	EN13967 Requirement	Result
Watertightness to liquid water	EN 1928	No evidence of waterpenetration at 6m head	Method A: Passed at 6m head Method B: Passed at 70m head
	ASTM D5385	-	Passed at 69m head
Resistance to static loading	EN 12730 method B	-	20kg
Tensile properties (unreinforced membrane): Tensile strength/ elongation at break/ elongation at peak load	EN 12311-2	-	Transverse: >8.0 N/mm² / >200% / >65% Longitudinal: >10.0 N/mm² / >300% / >60%
Crack bridging	ASTM C1305 modified		Up to 5mm (100 cycles)
Watertightness after artificial ageing	EN 1296 / EN 1928	-	Pass
Resistance to impact	EN 12691 Method A	-	1500 mm
Resistance to tear (nail shank)	EN 12310-1	-	>500N (longitudinal)
Reaction to fire	EN ISO 11925-2	-	Centre application of flame: no ignition Edge application of flame: 88mm spread
Joint strength	EN 12317-2	-	>400 N (lap)
Water vapour transmission	EN 1931	-	μ = 1400000 ±30%
Resistance to alkali	EN 1847 / EN 1928	Watertight at 2kPa at 60kPa	Pass Pass
Length **Width** **Thickness** **Mass** **Straightness** **Visible defects**	EN 1848-2 EN 1848-2 EN1849-2 EN1850-2	-	30 metres 1.27 metres 4 – 5mm (membrane thickness 0.8mm) 1.54 kg/m² <75 mm per 10 metre length Free from visible defects
Methane permeability	BS ISO 15105-1: 2007	-	127 ml·m^{-2}·day^{-1}·atm^{-1} (unjointed)
CO_2 permeability	Rilem Report 12	-	<5.12 E^{-13} m²/sec/Pa
Permeability to radon gas	-	-	1.6 x 10^{-11} m²/s
Life expectancy	BS EN 13251:2016 BS EN 13252:2016		125 years

Clarification of property values: The typical properties given above are derived from laboratory testing. Results derived from field applied samples may vary.

Specification Clause

The waterproofing membrane shall be Proofex Engage, BBA Certificate 22/6095, mechanically bonded to concrete placed onto it and supplied with an integral selvedge lap detail. The product shall comply with the requirements of BS EN 13967:2012, Flexible sheets for waterproofing (Class Type A & Type T). Installation shall be in accordance with the manufacturer's published instructions.

Standard Compliance

Independently certified performance, BBA certificate (No. 22/6095).

BS EN 13967:2012 - Flexible sheets for waterproofing - Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheet. Type A and Type T.

Proofex Engage complies with LU Standard 1-085 'Fire Safety Performance of Materials'

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Application Instructions

Substrate Preparation

Horizontal application - the membrane must be applied to a smooth, prepared substrate. Concrete blinding is preferred particularly for complex application profiles but a well compacted stone sub-base is acceptable for areas of flat formation. Any fines should be worked into the stone surface. Application onto a sand blinding layer is not recommended. The substrate shall be free from loose aggregate or other sharp protrusions. Standing water must be removed to prevent contamination of overlaps and subsequent compromise of waterproof properties.

Vertical application - the membrane is applied to temporary or permanent formwork or adjoining structures.

Proofex Engage must not be applied directly onto contiguous or secant piled walls. A plywood sacrificial shutter or spray concrete finish should be used prior to application.

Membrane Installation

Cut the membrane to a convenient length for installation. Carefully align the membrane and roll it out with the ribbed surface uppermost. Lay adjacent sheets accurately so they overlap the previous sheet 65mm along the adhesive selvedge. When laying adjacent full rolls there should be a stagger of half a roll length to avoid a build-up of end joints in one area.

End joints and cut edges: butt join the Proofex Engage sheets onto Proofex Engage Detail Strip on the under side. Seal on the top side with a either an 8-10mm thick x 100mm wide strip of Proofex LM reinforced with Proofex LM Mesh (extending 50mm either side of the formed joint), or a 6-8mm thick x 60mm wide strip of Fosroc Proofex EFS, (refer to separate datasheet).

Horizontal to vertical joints: lap adjacent sheets of Proofex Engage over the horizontal and vertical legs of Proofex L Section, then seal with either an 8-10mm thick, 40mm x 40mm concave fillet of Proofex LM reinforced with Proofex LM Mesh, or a 6-8mm thick x 60mm wide strip of Fosroc Proofex EFS (refer to separate data sheet). Gun apply and trowel quickly into the net mesh either side of joint.

N.B. The use of Proofex L Section and Corner Pieces facilitate straightforward membrane installation at angles and corners. These ancillaries can be omitted although care should be taken to ensure any alternative methods are suitably robust and in accordance with construction requirements.

All overlaps and joints should be firmly rolled to ensure complete adhesion between layers.

If cold or damp conditions prevail the adhesive performance of the selvedge strip, Proofex Engage Detail Strip and Proofex Total Tape may be improved by gently warming.

Removal of Formwork

Where the membrane has been applied to removable shuttering it is recommended that a minimum concrete compressive strength of 10 N/mm² is reached before the formwork is stripped.

Further installation details

For additional details on the above, as well as instructions for secant & contiguous piled walls, pile head treatment, pipe / duct penetrations, treatment of movement joints & damage repair, please refer to the Proofex Engage Method Statement.

Backfilling

Backfilling material must be free from sharp objects and debristhat could damage the Proofex Engage. It should not containhouse bricks, blocks or boulders larger than 50 mm. The use of a protection board is not normally required.

Contaminated Ground

Proofex Engage is suitable for use in many contaminated ground applications e.g. hydrocarbons, salts etc. Consult Fosroc's Technical Department for specific advice.

Ancillary Products

Proofex Engage Detail Strip

A reinforced, double sided waterproof adhesive tape for sealing and jointing roll ends, cut edges and corner pieces. It consists of a strong synthetic fibre fabric impregnated andcoated both sides with a butyl adhesive, which is protected by a removable siliconised paper.

Proofex L Section

This 10 m long x 250 mm wide section of polyethylene has 2butyl selvedge strips. It is used by bending at 90° along its length for application between horizontal and vertical membrane to provide waterproofing continuity and it also connects with internal and external corner pieces. Proofex L Section is supplied with a butyl "closure" strip ateach end, if the L Section is cut this strip must be replacedwith Proofex Engage Detail Strip or Proofex Total Tape.

Proofex Corner Pieces

125 mm internal and external corner pieces made from polyethylene membrane with a 100 mm butyl selvedge for use in conjunction with Proofex L Section.

Proofex LM*

A two component trowellable membrane for sealing around intricate details such as pipe entries, penetrations, pile caps, etc. A 40mm concave fillet should be applied incorporating Proofex LM Mesh. Use of a bull nose trowel is recommended for application. Refer to Fosroc standard detail drawings for further information. (e.g. ESD03)

Proofex LM Mesh

A reinforcing mesh for use in conjunction with Proofex LM for angles and pipe penetrations etc.

Proofex Top Hat

Preformed pipe collar for use at service penetrations.

Proofex Total Tape

Used to adhere Proofex Top Hats to Proofex Engage and asa closure strip to Proofex L Section.

Fosroc® Proofex Engage

Fosroc Proofex EFS*

Used to form butt joints and corner fillets between rolls of Proofex Engage.

Fosroc Proofex Adhesive Tape 101*

Used to form a secure waterproof lap with other types of membrane, such as Proofex Alkorplan.

*See separate product datasheets for further details

Estimating

Proofex Engage

Roll size:	1.27m x 30m
Coverage:	38.10m² (excluding laps)
Roll weight:	58kg

Proofex L Section

Roll size:	125mm x 125mm x 10 m

Proofex Engage Detail Strip

Roll size:	200mm x 10m x 1.5mm

Proofex LM

Pack size:	28kg
Coverage:	28 linear metres for a 40mm concave fillet

Proofex LM Mesh

Dimensions:	100mm x 50m (nominal)

Proofex Top Hat

Diameter:	110mm	160mm
Flange size:	330mm x 330mm	380mm x 380mm

Proofex Total Tape

Dimensions:	30mm x 30m x 1.5m

Proofex WG

Pack Size 15 litres 1.5m² at 10mm thick

Fosroc Proofex EFS

Pack Size:	Twin 280ml sachet (560ml total)
Coverage (Butt joint):	2 – 2.5 linear metres / pack
Coverage (Corner fillet):	2.5 – 3 linear meters / pack

Fosroc Proofex Adhesive Tape 101

Roll widths:	60mm, 100mm
Roll length:	33m

For estimating guidance for other listed products refer to the relevant product data sheet.

Storage

Store Proofex Engage in original unopened packaging, in cool dry conditions, away from sunlight, in a flat position.

Proofex L Section should be stored vertically as supplied, in cool dry conditions. Do not distort or crush the coil.

Limitations

For cold weather working below +5°C, Proofex Engage can normally be applied if the following additional measures are taken; apply heat using a hot air blower to all adhesive tapes, store all materials in heated conditions and mix Proofex LM in heated conditions. In some cases a heated tented working area should be used especially where Proofex LM and Proofex self-adhesive membranes are used. Normal precautions for winter working should be adopted when placing concrete.

For high temperature/humidity climates, during installation the membrane should not be left exposed for more than 6 to 8 weeks.

When laying Proofex Engage directly onto closed cell insulation products, refer to Method Statement guidance.

Precautions

Health and safety

Proofex Engage weighs approximately 58kg and should be lifted by a minimum of three site operatives. For further information refer to appropriate Product SafetyData Sheets available at www.fosroc.com.

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