

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

Uses

Waterproofing and ground gas resistant membrane for concrete basements, lift pits, car parks and other water excluding structures. Proofex Engage can be used to achieve waterproofing to Grades 1,2 and 3 as defined in BS 8102: 2009.

Advantages

- Unique mesh system bonds permanently to concrete, remaining in place even if settlement takes place
- Smart antitracking design prevents water tracking between membrane and concrete
- Simple and quick to install - no protection film to remove
- Type A (Barrier) below ground waterproofing protection as defined in BS8102:2009
- 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, hydrocarbons 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.

Description

Proofex Engage is a unique patented waterproof membrane system comprising a cell mesh bonded to a blended polyethylene / polypropylene membrane which allows poured concrete to interlock, forming a tenacious mechanical bond.

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

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

Where ground gas protection is required Proofex Engage, in conjunction with Supercast Watertight Concrete, has been independently assessed as providing a protection score of up to

4.5 protection points sufficient for all building types constructed in ground with a Characteristic Situation 3 hazard potential.


Standard compliance

Independently certified performance, BBA certificate (No. 03/4042).

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.

British Standard 8102:2009 - Code of Practice for 'Protection Of Structures Against Water From the Ground' Classes 1, 2 and 3.

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

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Fosroc Ltd Drayton Manor Business Park, Coleshill Road, Tamworth, B78 3XN, UK 09 DOP: UK9-56 0836 FPC 09/FO13	
Proofex Engage	
EN 13967:2012 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/mm ² Trans. >8.0 N/mm ²
Water vapour resistance after artificial ageing	Pass
Resistance to tearing	>500N (longitudinal)
Shear resistance of joints	>=220 N (lap) >= 150N (butt)
Water vapour properties	Sd= 400m
Length	30m
Width	1.27m
Thickness	4-5mm



Fosroc® Proofex Engage

Specification clauses

The waterproof tanking membrane shall be Proofex Engage, consisting of a blended polyethylene / polypropylene membrane incorporating a cell mesh, enabling the membrane to mechanically bond with the poured concrete. The membrane shall be supplied with one self-adhesive sedge to provide sealed laps and comply with British Standard 8102 2009 - Code of practice for "Protection of Structures Against Water from

the Ground" to provide basement waterproofing protection to grades 1, 2 and 3. The product shall comply with the requirements of BS EN 13967:2012, Type A and Type T, "Flexible sheets for waterproofing- Plastic and rubber damp proof sheets including plastic and rubber basement tanking." The product shall have a current British Board of Agrément Certificate.

Properties

Test method	Standard	EN13967 Requirement	Result
Watertightness to liquid water	EN 1928 Method A	No evidence of water penetration @ 6 m head	Pass Also ASTM D5385 passed at 69m
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/mm ² / >200% / >65% Longitudinal: >10.0 N/mm ² / >300% / >60%
Crack bridging	ASTM C1305 modified		up to 5mm (100 cycles)
Watertightness after artificial ageing	EN 1296 / EN 1928	-	$\mu = \pm 58718.3$
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	-	Pass
Joint strength	EN 12317-2	-	≥ 220 N (lap) ≥ 150 N (butt)
Water vapour transmission	EN 1931	-	Water vapour resistance factor u = 580000 Equivalent air layer thickness S _d = 400 metres
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 1849-2 EN1850-2	-	30 metres 1.27 metres 4 – 5mm (membrane thickness 0.8mm) 1.54 kg/m ² <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 m ² /sec/Pa
Permeability to radon gas	-	-	1.6 x 10 ⁻¹¹ m ² /s

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



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Application instructions

Substrate preparation

Horizontal application - the membrane must be applied to a smooth, prepared substrate. Concrete blinding is preferred but a well compacted granular fill is acceptable for a level subbase. 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 80mm 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. The top surface of the join can be further sealed with either a 100mm wide strip of Proofex LM reinforced with Proofex LM Mesh or Nitoseal MB175 (extending 50mm either side of the formed joint), or a 60mm wide strip of Fosroc Polyurea WCS, refer to separate datasheet.

Horizontal to vertical joints - Lap Proofex Engage onto Proofex "L" section and overseal with either a 40 mm fillet of Proofex LM which may be reinforced with Proofex LM mesh, or a 60mm wide strip of Fosroc Polyurea WCS Gun Grade, refer to separate datasheet. Gun apply and trowel quickly into the net mesh either side of joint.

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

If cold or damp conditions prevail the selvedge adhesive, Proofex Engage Detail Strip and Total Tape may be tackified 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.

Penetrations

Penetrations e.g., pipe entries through Proofex Engage, require special attention to detail. Proofex Top Hat units used in conjunction with Proofex Total Tape and Nitoseal MS60 are recommended. Refer to Fosroc for more information on details.

Backfilling

Backfilling material must be free from sharp objects and debris that could damage the Proofex Engage. It should not contain house bricks, blocks or boulders larger than 50 mm.

Contaminated ground

Proofex Engage is suitable for use in many contaminated ground applications eg hydrocarbons, salts etc. Consult local Fosroc office for specific advice.

Ancillary products

Proofex LM

A two component trowellable membrane for sealing around intricate details such as pipe entries, penetrations, pile caps, etc.

Proofex corner pieces

125 mm internal and external corner pieces made from polyethylene membrane with a 100 mm butyl selvedge.

Proofex "L" section

This 10 m long x 250 mm wide section of polyethylene has 2 butyl 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 at each end, if the "L" section is cut this strip must be replaced with Proofex Engage Detail Strip or Total Tape.

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 and coated both sides with a butyl adhesive, which is protected by a removable siliconised paper.

Proofex LM Mesh

A reinforced mesh used in conjunction with Proofex LM for areas of extreme loading (covings, edges and pipe penetrations).

Proofex Top Hat

Waterproof pipe entry consisting of polyethylene / polypropylene membrane, which includes an aluminium foil layer.

Proofex Total Tape

Used to adhere Proofex Top Hats to Proofex Engage and as a closure strip to Proofex "L" section.

Nitoseal MS60

Used to seal between Proofex Top Hat and penetration pipe

Fosroc Polyurea WCS Gun Grade

Used to seal between joints in Proofex Engage.

Fosroc® Proofex Engage

Estimating

Proofex Engage

Roll size: 1.27m x 30m OR 1.15m x 33.1m

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: 7m² (at 4 mm thick)
20 linear metres for a 40mm fillet

Proofex LM Mesh

Dimensions: 100mm x 50m (nominal)

Proofex Top Hat

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

Proofex Total Tape

Dimensions: 30mm x 30m x 1.5mm

Nitoseal MS60

Supply: 380ml cartridge in boxes of 20

Fosroc Polyurea WCS Gun Grade

Pack Size: Twin 300ml cartridge (600ml total)

Coverage: 5 linear metres (600ml)
(60mm wide x 2mm thick)

Storage

Store 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. Please contact your local Fosroc Office for further project specific assistance, including when laying Proofex Engage directly onto closed cell insulation products.

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 Safety Data Sheets available at www.fosroc.com.

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Fosroc Limited

Drayton Manor Business Park
Coleshill Road, Tamworth,
Staffordshire B78 3XN. UK

www.fosroc.com

telephone:
+44 0 (1827) 262222

fax:
+44 0 (1827) 262444

email:
enquiryuk@fosroc.com

