



Fosroc Waterproofing Proofex Engage

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constructive solutions

ABOUT FOSROC INTERNATIONAL

Since the company's beginnings over 80 years ago, Fosroc has developed into an international leader in delivering Constructive Solutions for projects across a broad range of market segments including transport, utilities, industrial and general buildings.

Fosroc's commitment to customer service and technical support is second to none. We work closely with architects, structural engineers, contractors and owners to best understand their requirements. Together we can develop a bespoke solution for a construction project, adding value and becoming more than just a materials supplier, but a solution provider.

Fosroc has an extensive network of offices and manufacturing locations across Europe, Africa the Middle East, India, North and South Asia, and is further represented in other regions across the world by distributor and licensee partners.

Selecting from the full portfolio of Fosroc products and services and integrating expert technical support, world class customer service and innovation, Fosroc goes beyond just product selling to ensure that we partner with our customers to deliver complete constructive solutions.

- > Admixtures
- > Adhesives
- > Protective Coatings
- > Concrete Repairs
- > Industrial Flooring
- > Grouts & Anchors
- > Joint Sealants
- > Surface Treatments
- > Grinding Aids
- > Waterproofing



FOSROC DELIVER SOLUTIONS NOT JUST PRODUCTS

CAD Details

A library of standard CAD details are available, bespoke CAD details can be created for your specific project

Project Specifications

Dedicated specification managers on hand to assist with correct system choices and tailored solutions

Site Support

Expert product and application support made available from our specialist teams.

Seminar & Training

Comprehensive programme of seminars and training courses designed to expand and reinforce your knowledge.

Leader in delivering
Constructive Solutions
Worldwide!



PROOFEX ENGAGE

THE ORIGINAL MECHANICALLY
BONDED PRE-APPLIED BELOW
GROUND WATERPROOFING SYSTEM

The Proofex Engage system is proven technology and has successfully waterproofed millions of sqm of below-ground structures since its launch. It can be found in projects in many countries around the world and is quite simply one of the best performing cost-effective below-ground waterproofing solutions available today.

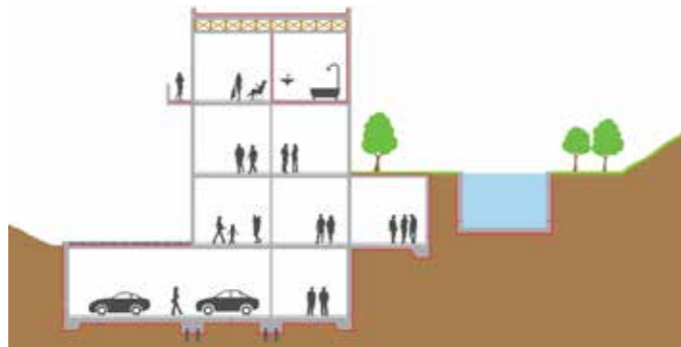


BELOW-GROUND WATERPROOFING

For below-ground structures where the exterior face of the structural concrete is inaccessible, the waterproofing must be applied prior to pouring the concrete. Conventional systems are either loose-laid or self-adhering to the substrate not the structural concrete, this means there is no seal between the waterproofing and the structural concrete which can lead to water travelling between the waterproofing and the structure from any leakages that may occur. BS8102:2009 highlights this problem and recommends that a fully-bonded pre-applied waterproofing system be used to mitigate this risk. A similar problem occurs where ground settlement takes place.

Fosroc have developed an innovative system, **Proofex Engage**, which incorporates a unique cell mesh which mechanically bonds to freshly placed concrete giving a tenacious waterproof seal, preventing water migration even if ground settlement occurs. It is installed rapidly with no need for blinding concrete, priming or protection and can be trafficked immediately after application. It is also a gas barrier, highly durable and is unaffected by contaminants within the ground. Quality is assured through BBA and EN13967:2004 and the system is suitable for use in accordance with BS8102:2009 Grades 1, 2 and 3.

- Rapid installation - no blinding concrete or protection required.
- Assured watertight integrity even in the event of ground settlement.
- No water-tracking.
- Easy jointing and compatible full range of ancillaries.
- Integrity assured at pile heads.
- Excellent solution for precast concrete.
- Protects structure against ground contaminants.
- Long term watertight durability.



SAVE TIME & MONEY WITH PROOFEX ENGAGE

Based on a typical 1,000m² project area, Proofex Engage can be installed up to 5 days faster than a PVC waterproofing membrane type system. The Proofex Engage option uses roughly 12 fewer concrete mixer trucks since it does not need protection screed, saving in installation time and labour. It also saves vehicle fuel which is better for the environment.



Proofex Engage pre-applied premium waterproofing system

- Structural concrete
- Steel reinforcement
- Proofex Engage membrane



Self-adhesive / Torch-on waterproofing system

- Structural concrete
- Steel reinforcement
- Screed or board protection
- Self-adhesive / Torch-on membrane
- Blinding concrete



PVC waterproofing system

- Structural concrete
- Steel reinforcement
- Screed or board protection
- Geotextile
- PVC loose laid membrane
- Geotextile
- Blinding concrete

BS8102:2009

BS8102:2009 standard for waterproofing below-ground structures, gives recommendations and provides guidance on methods of dealing with and preventing the entry of water from surrounding ground into a structure below ground level. Designers are encouraged to follow a process chart, to ensure that the correct waterproofing system will be selected. Some of the recommendations are highlighted below;

- To help mitigate risk, specify a combination of various types of compatible protection sourced from the same manufacturer.
- Where a waterproofing barrier is required for a structure supported on piled foundations, special consideration should be given to the detailing so that structural continuity is not compromised.
- Strategies for dealing with groundwater, soil gases and contaminants should be considered from the earliest stages of the planning and design processes.
- Products that are both water and gasproof are more cost-effective.
- Where waterproofing admixtures are used, these should be in conjunction with other waterproofing components supplied by the same manufacturer, e.g. waterstops, membranes and sealants.
- Fully bonded systems allow potential defects to be located and made good more easily.
- Each project structure should be designed to its particular Grade



Grade	Example of use of structure	Performance level
1	Car parking; Plant rooms (excluding electrical equipment); Workshops.	Some seepage and damp areas tolerable, dependent on the intended use. Local drainage might be necessary to deal with seepage.
2	Plant rooms and Workshops requiring a drier environment (than grade 1); Storage areas.	No water penetration acceptable. Damp areas tolerable; ventilation might be required.
3	Ventilated residential and commercial areas, including offices, restaurants etc ; Leisure centres.	No water penetration acceptable. Ventilation, dehumidification or air conditioning necessary, appropriate to the intended use.

WATERPROOFING PROTECTION

One, or a combination, of the following types of waterproofing protection should be selected:

Proofex Engage is an excellent choice for fully-bonded Type A barrier protection for below-ground structures for basement Grades 1, 2 and 3. It is fully compatible with the Fosroc Proofex Cavitydrain internal drainage systems and Conplast WP grades of waterproof concrete admixtures assuring best system performance sourced from the one supplier.



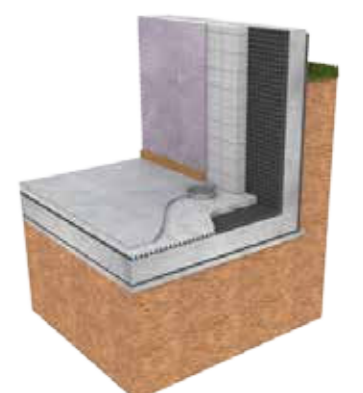
Type A Barrier protection

Protection against water ingress which is dependent on a separate barrier system applied to the structure.



Type B Structural integral protection

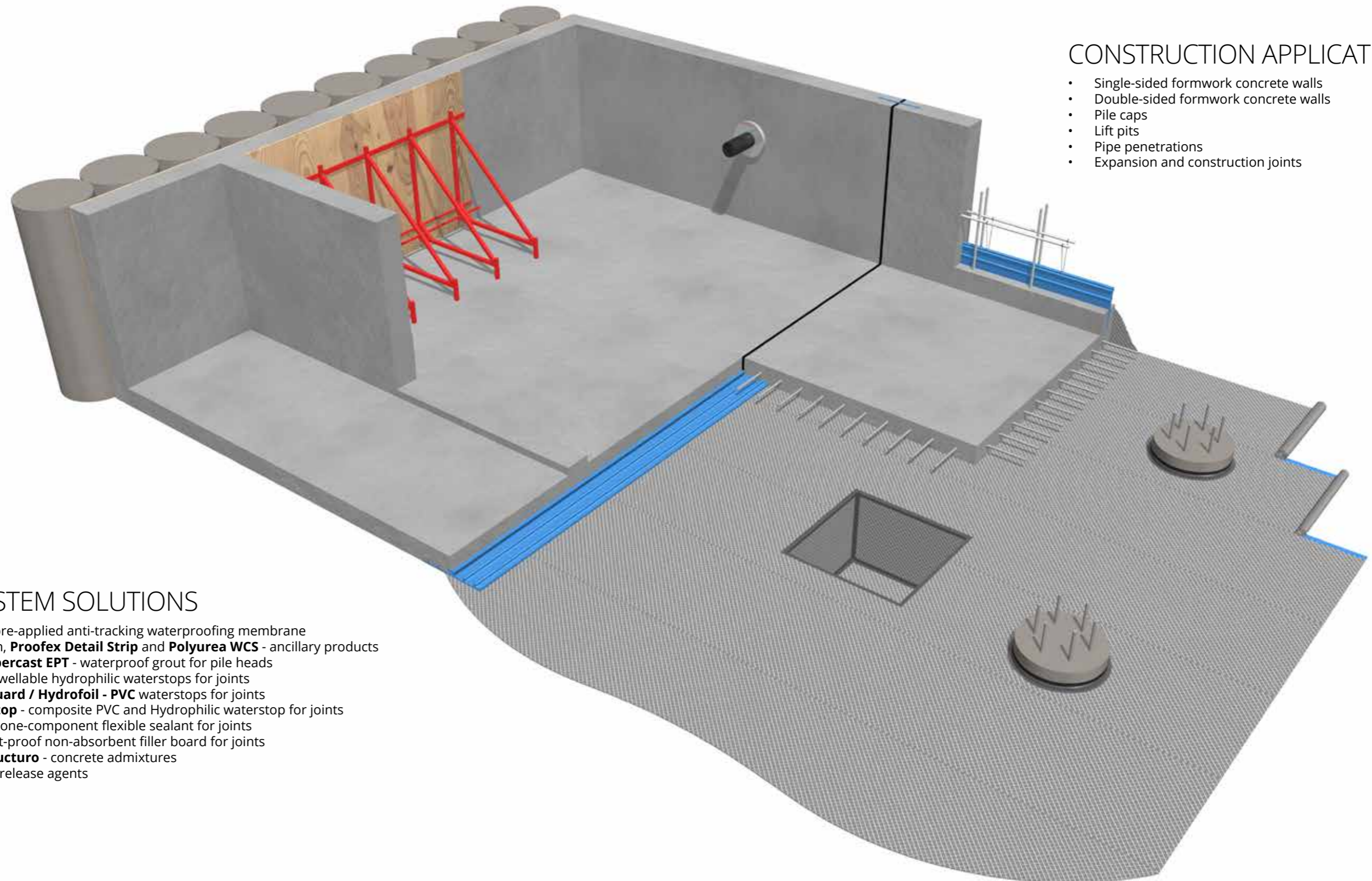
Protection against water ingress which is provided by the structure.



Type C Drained protection

Protection against water ingress into usable spaces which is provided by the incorporation of an appropriate internal water management system.

FOSROC BELOW-GROUND WATERPROOFING SOLUTIONS



CONSTRUCTION APPLICATIONS

- Single-sided formwork concrete walls
- Double-sided formwork concrete walls
- Pile caps
- Lift pits
- Pipe penetrations
- Expansion and construction joints

FOSROC SYSTEM SOLUTIONS

- **Proofex Engage** pre-applied anti-tracking waterproofing membrane
- Proofex "L" section, **Proofex Detail Strip** and **Polyurea WCS** - ancillary products
- **Proofex WG / Supercast EPT** - waterproof grout for pile heads
- **Supercast SW** - swellable hydrophilic waterstops for joints
- **Supercast Rearguard / Hydrofoil** - PVC waterstops for joints
- **Supercast Twinstop** - composite PVC and Hydrophilic waterstop for joints
- **Nitoseal MS300** - one-component flexible sealant for joints
- **Hydrocell XL** - rot-proof non-absorbent filler board for joints
- **Conplast** and **Structuro** - concrete admixtures
- **Auramol** - mould release agents

PROOFEX ENGAGE BENEFITS

NON WATER-TRACKING

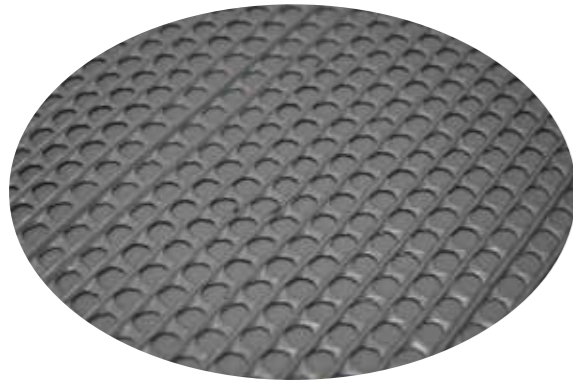


In the unlikely event of damage to the membrane during installation, the smart anti-tracking mesh design of Proofex Engage will prevent water tracking between the membrane and the concrete.

Proofex Engage has been tested to ASTM D5385 and shows no lateral water migration when tested at 70m hydrostatic water pressure.

This high performance means that unlike loose-laid membrane systems, there is no requirement for expensive PVC waterstop and injection compartment systems.

STRONG MECHANICAL BOND



The unique mesh design of Proofex Engage gives a permanent tenacious mechanical bond to freshly placed concrete.

This bond is not dependent on any chemical reaction and can be assured each time concrete is cast.

The heavy-duty mesh design and properties result in a robust, proven membrane which is ideally suitable for project conditions.

PERMANENTLY BONDS TO STRUCTURAL CONCRETE



PVC membranes, self-adhesive and torch-on membranes can collapse where ground settlement takes place.

This can lead to stretching and tearing of the membrane and can result in leakages.

Proofex Engage however, will remain in place fully bonded to the structural concrete assuring complete waterproof integrity even if ground settlement occurs.

NO BLINDING CONCRETE REQUIRED



Blinding concrete is preferred, however Proofex Engage can be placed directly on top of a well compacted smooth granular fill substrate. A broadcast of damp sand on top of the granular material is useful.

Removal of the blinding concrete means less concrete and less labour time but also means less concrete truck movements which not only saves time and money but is more environment friendly.

NO MEMBRANCE PROTECTION REQUIRED



Proofex Engage is a robust, heavy duty membrane with millions of sqm in projects throughout the world.

The structural steel reinforcement is laid directly on top of the membrane ready for the structural concrete placement.

There is no requirement for screed protection which saves valuable time and money.

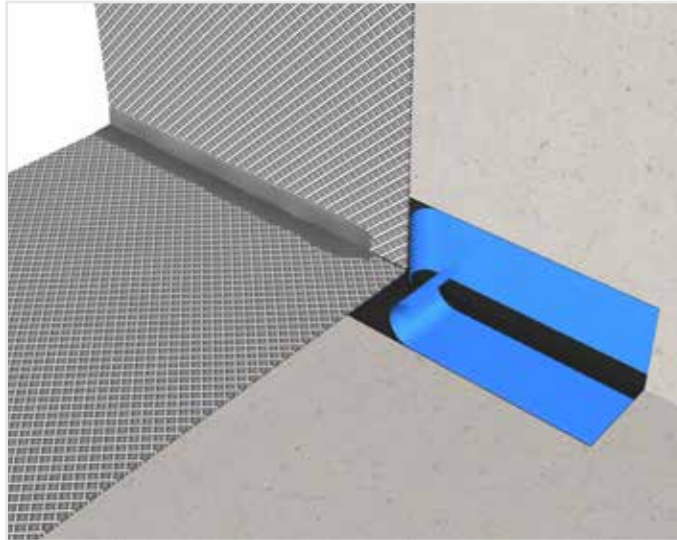
BENEFITS TO OWNER / DESIGNERS

Proofex Engage has a successful long track record spanning over 17 years giving owners and designers peace of mind that their below-ground asset is fully protected against the harmful effects of water ingress. The system is independently certified to the BBA and complies with recognised worldwide standards. Fosroc local specification managers are available to assist you in specification writing and creation of bespoke project details, including CAD drawings. The Proofex Engage system has excellent holistic cost benefits due to its single layer quick, easy installation method. No protection screed is required which saves time and money, this also negates the need for many concrete mixer trucks which saves fuel and is more environmental friendly. The smart anti-tracking cell matrix in Proofex Engage is very robust even for highly congested rebar configurations and thick section concrete pours. The matrix assures a tenacious mechanical bond to fresh concrete and is independently certified for non-water tracking to over 7 bar water pressure. Some buildings over their lifetime can be subjected to minor concrete cracking which can result in water ingress, however due to Proofex Engage's excellent tensile and elongation properties it will retain its waterproof integrity spanning concrete cracks even up to 3mm.

BENEFITS TO CONTRACTORS / INSTALLERS

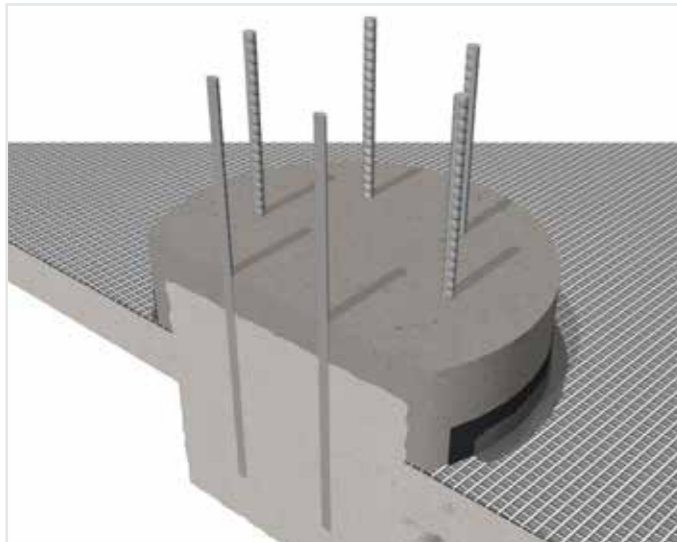
Proofex Engage has been successfully installed throughout the world in many different project site conditions. From cold to hot climates, small to large mega projects the system has proven its suitability for easy application and assured durability. The large 38m2 roll size is easily kicked-out in rapid speed and sealed along its length using the factory installed adhesive selvedge strip. Once joined Proofex Engage is unaffected by rainwater allowing other trades to continue. The cell matrix is extremely robust, when tested for puncture resistance in accordance with EN12691 a drop height value of more than 1.5m is achieved. Fosroc has a tried and tested solution at pile heads involving compatible waterproof epoxy grout which interlocks with the Proofex Engage cell matrix resulting in continuity of waterproofing integrity and strength at these critical locations. Fosroc not only supply quality proven systems but can provide on-site application training and guidance for complicated details, please contact your local Fosroc office.

TYPICAL DETAILS



Floor/Wall transitions are easily achieved using Proofex “L” section rolls. The release film is peeled off leaving a sticky butyl adhesive on to which the Proofex Engage is attached.

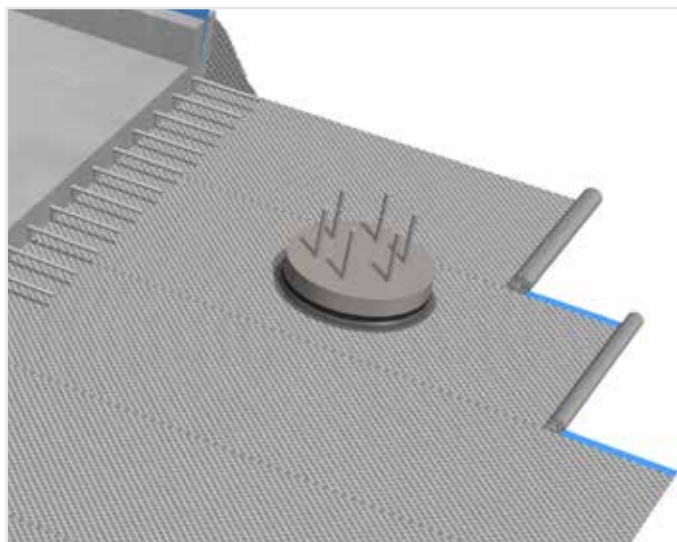
The seal is completed with a seam of Polyurea WCS.



Pile Head waterproofing integrity is critical in deep basement construction and careful attention must be given to ensure that no leakages occur.

The Fosroc solution has proven successful over a number of years with Proofex WG / Supercast EPT waterproof epoxy grout providing continuity with the Proofex Engage.

The free-flowing grout forms a secure connection with the mesh of the Proofex Engage. The seal is complete with a seam of Polyurea WCS.



Lapping of Proofex Engage is simple. Along the length of each roll there is a selvedge strip consisting of a release film and a sticky butyl adhesive.

The release film is peeled off and adjacent rolls are laid on top of the butyl adhesive.

At roll ends the Proofex Engage is butted together on a strip of Proofex Detail Strip then sealed with a seam of Polyurea WCS.



CAD DRAWINGS

Standard CAD drawings are available for the Proofex Engage system, covering the typical construction methods encountered in below-ground waterproofing projects.

Should you require bespoke CAD drawings for your project then please contact your local Fosroc office where we can put you in contact with one of our local specification managers.

SPECIFICATION CLAUSES

Full specification clauses are available for below-ground waterproofing with the Proofex Engage system, including waterstops, pile cap grouting and ancillaries.

Specification formats are; CSI and NBS

Please contact your local Fosroc office for full details.

CASE STUDIES & REFERENCES

Proofex Engage has been successfully waterproofing many structures across the world since its launch in 1999.

Case studies are available along with project references, please contact your local Fosroc office for full details.

FOSROC PRODUCT SYSTEMS

A successful, fully waterproof below-ground structure complying to the recognised standards, can only be delivered through holistic design of a complete system. Inappropriate interfaces, poor installation, and inadequate product selection can create weak points that are expensive to correct. The Fosroc systems-based approach is essential in creating and maintaining structural durability and assured internal protection against water, gases and other contaminants for below-ground structures.

Fosroc's comprehensive range of below-ground waterproofing products are innovative, high quality and have been developed as compatible systems to help reduce the risk of basement leakages. Dedicated specification managers, fluent in the content of BS8102:2009 are available to give you technical support and to guide you through the various system options for your specific project.

SUPERCAST WATERSTOPS

Every sizeable concrete retaining wall, basement floor slab, buried roof slab, length of tunnel or reservoir wall must have joints. These may be a mixture of construction or expansion joints but all such joints in direct contact with water or wet ground, even when shielded by a membrane, need protection by waterstops.

Waterstops can be found in the form of PVC profiles or swellable strips, both types are installed to prevent the passage of water through joints in the structure.

The Fosroc **Supercast SW** range of swellable waterstops are "base polymer" type strips which provide class-leading wet/dry cycling and hydrostatic pressure vs time performance giving assured long term watertight integrity, backed with independent test certificates.

For critical applications and extra protection, Fosroc have developed **Supercast Twinstop**, a composite PVC / swellable waterstop which utilises both technologies and is fully compatible with the Proofex membrane portfolio.



Supercast Rearguard Twinstop
Composite PVC / swellable waterstop giving an extra level of protection.

Supercast SW 10 / 20 / 30
Base polymer swellable waterstop strips with class-leading wet/dry cycling long term performance.

PROOFEX DRAINAGE MEMBRANES

External drainage

Where sub-surface drainage is deemed necessary to lower the potential for hydrostatic pressure on the waterproofing system and lessen the risk of water ingress through defects, it can be provided by means of an externally placed HDPE geosynthetic drainage membrane. **Proofex Sheetdrain 80 and 100** can provide up to 3.5L/m/s water flow capacity and are suitable for soil depths up to 20m.

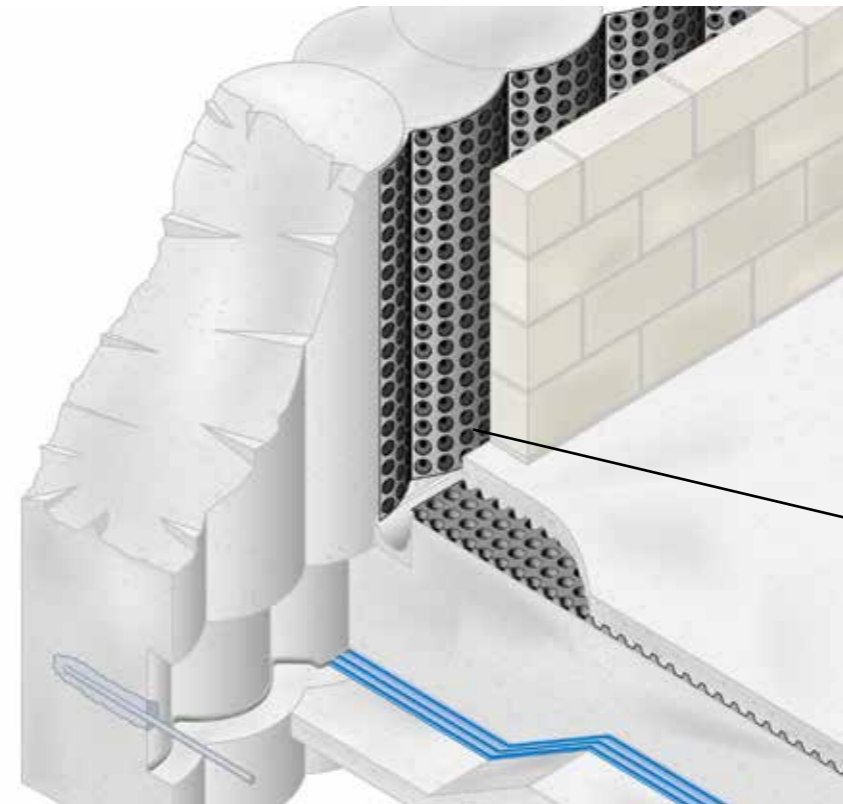
- Cost effective - no need for up to 500mm thick stone drainage layer behind retaining walls.
- Easy site application.
- Reduced environmental impact - no need for vehicular removal and transportation of spoil off site and subsequent replacing with expensive stone drainage layer.
- Secondary waterproofing.
- Protection to the main waterproofing.
- Single solution for both drainage and protection.



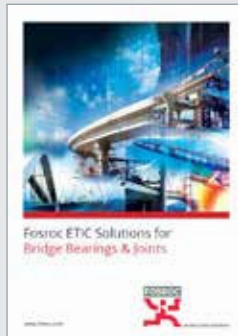
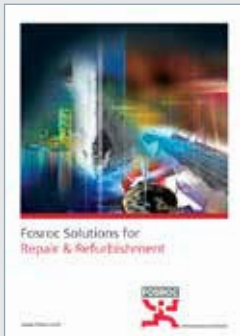
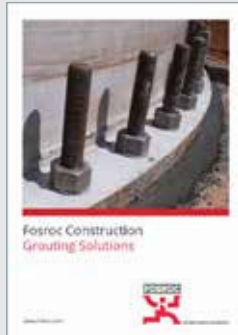
Internal drainage

For BS8102:2009 Type C drained cavity waterproofing, the structural concrete is designed to minimise water penetration and a suitable HDPE studded drainage membrane is installed to collect groundwater seepage. The groundwater is then directed to suitable discharge points.

A full range of **Proofex Cavitydrain** drainage membranes providing water flow capacity up to 13L/m/s are available along with all ancillary products.



Fosroc offers a full range of construction chemical solutions, helping to protect structures throughout the world. Please refer to our brochures, which include:



Details of your local Fosroc office can be found at www.fosroc.com

Important Note

Fosroc products are guaranteed against defective materials and manufacture and are sold subject to its standard terms and conditions of sale, copies of which may be obtained on request. Whilst Fosroc endeavours to ensure that any advice, recommendation, specification or information it may give is accurate and correct, it cannot, because it has no direct or continuous control over where or how its products are applied, accept any liability either directly or indirectly arising from the use of its products, whether or not in accordance with any advice, specification, recommendation or information given by it.



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