

FOSROC



constructive solutions

Fosroc total waterproofing protection of below-ground structures



Our profile

Since the company's beginnings over 50 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 has an extensive network of offices and manufacturing locations across Europe, the Middle East, India, North and South Asia, and is further represented in other regions across the world by distributor and licensee partners. For details of your local offices, please refer to www.fosroc.com.

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.

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



**International leader
in delivering
Constructive Solutions**



how we can help you

For a tailored project solution please contact your local Fosroc office where experienced staff will assist and provide you with a high level of support, including;

- Seminars
- Project specifications
- CAD details
- Site support



Below-ground structures

Waterproofing is required each time a structure is built below ground and especially where the water table is permanently above the underside of the basement floor level. A high water table causes hydrostatic pressures to be exerted underneath basement floors and against basement walls. This hydrostatic pressure forces water into the building through cracks, joints and any porous substrates causing possible major structural damage and is likely to contribute to mould, corrosion and other moisture related problems.

To minimise risk, strategies for dealing with groundwater, soil gases and contaminants should be considered from the earliest stages of the planning and design processes with designers, specialists and manufacturers establishing and maintaining effective channels of communication, by being involved at the early stages of any project.

An ever increasing level of importance is being placed by clients and designers with regards to structural integrity, cost-effectiveness and durability. Fosroc recognise this, and offer an unparalleled range of waterproofing solutions for below ground structures to combat these demands, providing clients with high performance products backed by excellent customer/technical service delivered through a comprehensive international network.

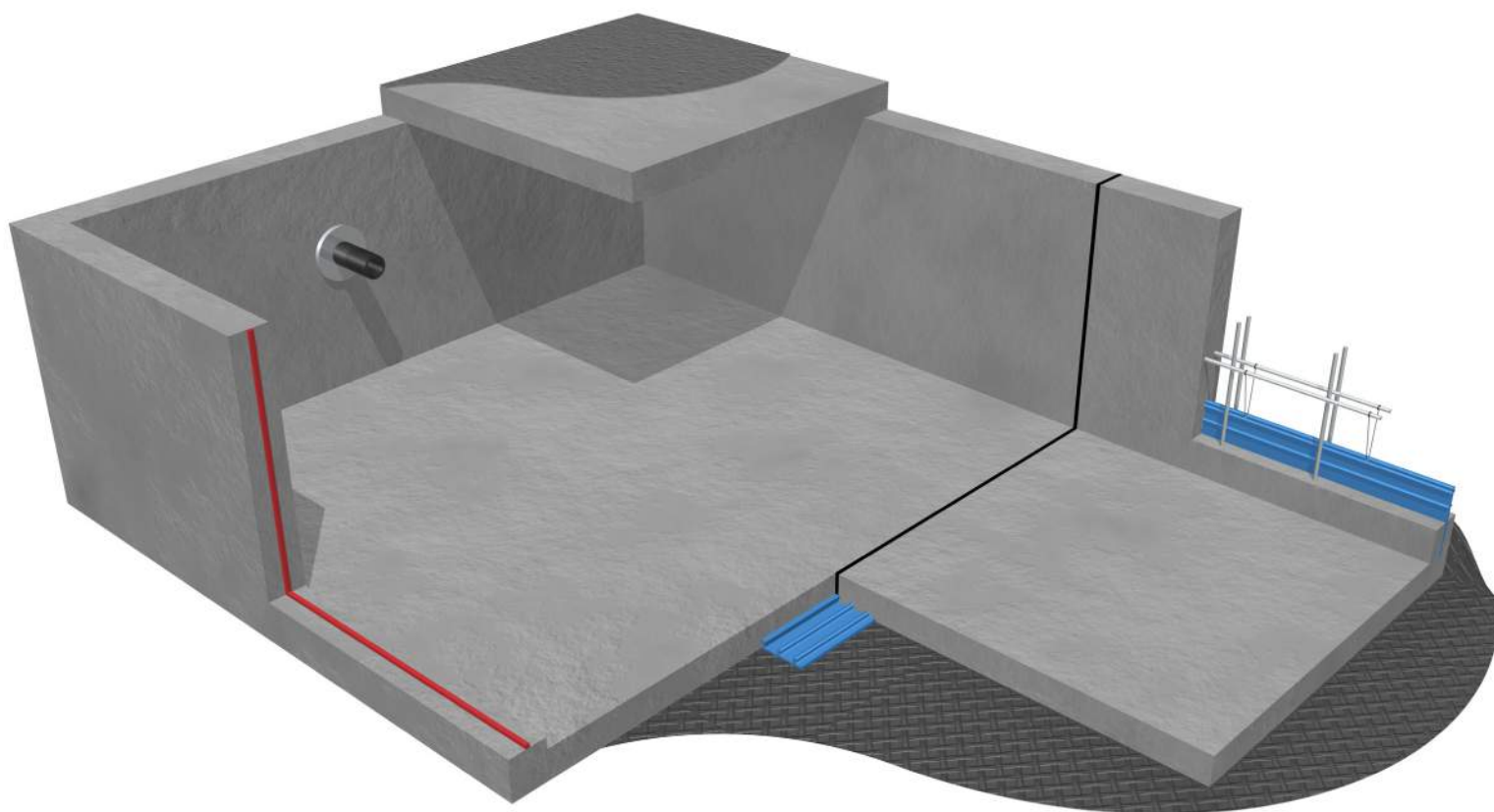
In some countries as shortages of available inner city and urban land increases, the need for building on contaminated ground becomes more widespread. Clients therefore are demanding that proper precautions be taken to prevent danger to health and safety when building on this type of ground.

Fosroc's innovative below-ground waterproofing systems are both gas and waterproof utilising membranes and waterstops which comply with recognised guidelines, providing clients with the most cost-effective solutions possible which have been proven successful over a long number of years for all types of below-ground construction.

Fosroc below-ground waterproofing systems are fully compatible, giving designers peace of mind and assured quality from a single source, worldwide company.



**successful over
a long number
of years**



BS8102:2009



The recently revised 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 it's 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.

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

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.

**system compliance
and peace of mind**

Fosroc's comprehensive range of below-ground waterproofing products are innovative, high quality and have been developed 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.



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.

	Concrete basements	Block/brick walls	Contaminated land Gas
Pre-applied membranes	Proofex Engage Proofex Hydromat		Proofex Engage
Self-adhesive membranes	Proofex GP Proofex 3000	Proofex GP Proofex 3000	Proofex 3000MR
Torch-on membranes	Proofex Torchseal	Proofex Torchseal	
Loose-laid membranes	Proofex PGP	Proofex PGP	Proofex Total
Liquid-applied membranes	Nitoproof 10/120	Nitoproof 10/120	
Cementitious	Brushbond Nitocote CM210	Brushbond Nitocote CM210	
Waterstops	Supercast PVC Supercast SW		Supercast PVC Supercast SW

Our vast experience in providing waterproofing solutions to many iconic structures around the world has been built on a broad range of products. These include pre-applied, loose-laid, liquid-applied, cementitious, drainage, self-adhesive, torch-on and spray-applied membranes; along with PVC, swellable, composite PVC/swellable and injection hose waterstops.

Fosroc offers the most comprehensive range of below-ground waterproofing product systems, manufactured to the highest quality standards backed by independent test certificates. Our wealth of experienced technical experts and specification managers will help you find the best system solution for your project.



systems-based approach



Proofex Engage

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.

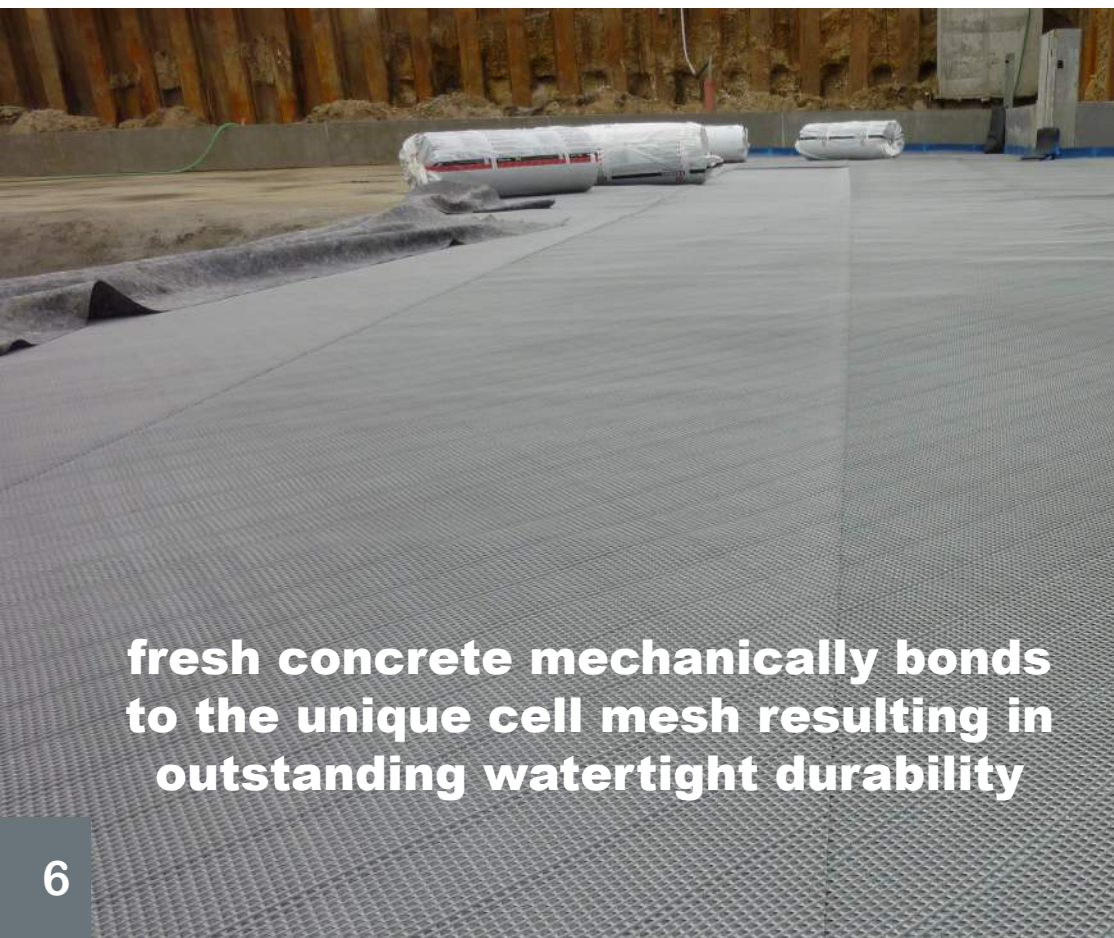
Fosroc have developed an innovative system, **Proofex Engage**, which incorporates a unique cell mesh which mechanically bonds to freshly placed concrete giving a tenacious waterproof seal, preventing water migration even if ground settlement occurs. It is installed rapidly with no need for blinding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

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

- 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 caps.
- Excellent solution for precast concrete.
- Protects structure against ground contaminants.
- Long term watertight durability.



**solutions
through
innovation**



**fresh concrete mechanically bonds
to the unique cell mesh resulting in
outstanding watertight durability**

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. Future cracks or leakages at joints can be resin injected by means of **Supercast Predimax** injection hose waterstops which are installed during the construction phase, ready for future sealing if required.

The Fosroc **Supercast SW** range of swellable waterstops are “basic polymer” type strips which provide class-leading wet/dry cycling and hydrostatic pressure vs time performance giving assured long term watertight integrity.

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.



**class-leading
wet/dry cycling**

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 4.8L/s/m water flow capacity and are suitable for soil depths up to 20m.

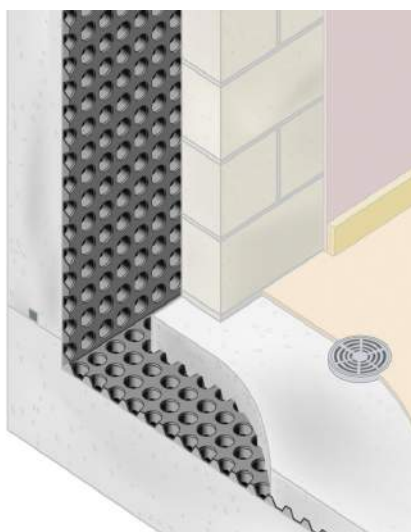
- Cost effective - no need for up to 500mm thick stone drainage layer behind retaining walls.
- Easy site application.
- Reduced environmental impact - no need for vehicular removal and transportation of spoil off site and subsequent replacing with expensive stone drainage layer.
- Secondary waterproofing.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



Internal drainage

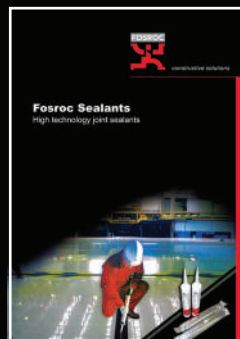
For BS8102:2009 Type C drained cavity waterproofing, the structural concrete is designed to minimise water penetration and a suitable HDPE studded drainage membrane is installed to collect groundwater seepage, this is then directed to suitable discharge points.

Proofex Cavitydrain 80/200 drainage membranes can provide up to 10L/s/m water flow capacity.



www.fosroc.com

Fosroc offers a full range of construction solutions, helping to protect structures throughout the world. Please refer to our other 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.