

Fosroc Solutions

Green Roofing

www.fosroc.com



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!

FOSROC GREEN ROOFING

FOSROC's vast experience in providing constructive solutions to many buildings around the world has been built on a broad portfolio of products. These include waterproof membranes, waterstops, concrete repair mortars, resin flooring, protective coatings, structural strengthening, grouts, concrete admixtures and joint sealants manufactured to the highest quality standards backed by independent test certificates.

At Fosroc we recommend the best technology for each project rather than being driven by one particular response. We liaise and evaluate with our customers the most appropriate solution for what they are trying to achieve. We just want to deliver what is best to the customer providing peer to peer based solutions for engineering problems to ultimately find a number of ways to create value.

Fosroc have successfully supplied products to many green roof projects around the world including the Central Government Pier project in Hong Kong where Fosroc Polyurea WPE was the chosen waterproofing system.



SOCIAL, ENVIRONMENTAL AND ECONOMIC BENEFITS



Aesthetics

Green roofing is growing rapidly in popularity with building owners and community planners across the world. A green roof can transform an underused and functional area into an attractive feature, such as a garden or open space that can be visited and enjoyed by building occupants. Realisable property values are higher for such buildings and this form of roofing can sustain the marketability of office structures.



Increased durability

A well-designed green roof system can outperform other forms of roofing, which may suffer from wide temperature variations or the effects of Ultra-Violet (UV) radiation.



Providing storm water retention

Green roofing may also have benefits in storm water management. Rain water is captured and held within the growing media for release back into the atmosphere through evaporation. This decreases the amount of water run-off into local water systems; by delaying and reducing peak storm water run-off rates and volumes, lower loading is placed on drainage systems.



Additional energy savings

Green roofing acts as a thermal insulator to protect buildings from high external temperatures in hot climates and retaining heat in colder climates, minimising air conditioning or heating costs. In hot climates green roofing also helps in cooling surrounding areas, but in any area the installation of a green roof may also reduce the requirements for traditional insulation.



Improved sound insulation

The green roof can be used as an acoustic barrier, creating a healthier environment for the occupants. The growing medium serves to block lower sound frequencies, whilst the plants block higher frequencies.



Environmentally friendly air purification

As well as absorbing carbon dioxide during photosynthesis and releasing oxygen into the built environment, plants can also reduce particulate and other pollution by filtering these from the air. Materials trapped at the greenery surface area is washed by rain or watering into the growing medium below.



GREEN ROOF TYPES

A green roof is a designated green area created by adding layers of growing medium and plants on top of a functional roofing system and typically consists of:

- > Plants selected to suit client specifications
- > A growing medium, which may or may not include soil
- > A filter geotextile to contain the roots and the growing medium while allowing for water penetration
- > A specialised drainage layer, sometimes with built-in water reservoirs to retain water
- > The waterproofing/ roofing membrane, with an integral root resistance
- > The roof structure, with traditional insulation either above or below

Intensive Green Roof

Deep soil, more favourable conditions for plants, high plant diversity

- > Greater choice of plants
- > More visually attractive
- > Often accessible, more recreational
- > More energy efficiency benefits
- > Higher weight loading on roof
- > Higher maintenance costs
- > Higher complexity systems

Extensive Green Roof

Shallow growing medium, low plant diversity

- > Lightweight roof and long life
- > Low maintenance and long life
- > Relatively low cost
- > Vegetation left to grow freely
- > Restricted access
- > More limited choice of plants
- > Less energy efficiency benefits

Fosroc System Solutions

A successful, functional and aesthetic green roof can only be delivered through holistic design of a complete system. Inappropriate interface, 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 a value-adding asset.

WATERPROOFING

The waterproofing membrane forms the core part of the green roof and must provide a permanent barrier that retains long-term resistance to root penetration.

Selection of membrane type must consider factors such as structural loading, substrate type and material, fixing preferences and design detailing. This detailing to perimeters, outlets, upstands and protrusions through the roof is also affected by the depth of the green roof build up.

Fosroc Product Name	Product Type	Key Features
Proofex OGP	TPO/FPA membrane	Root resistant
Proofex ORG	Reinforced TPO/FPA membrane	Welded laps Large roll size
Proofex OFB	Fully bonded TPO/FPA membrane	
Nitoproof 800	Liquid-applied membrane	Root resistant Seamless Good crack bridging Easy to apply
Polyurea WH 200GR	Spray-applied Polyurea Hybrid membrane	Root resistant Seamless
Fosroc Polyurea WPE	Spray-applied Polyurea membrane	Rapid curing return to service Fast application

DRAINAGE LAYER

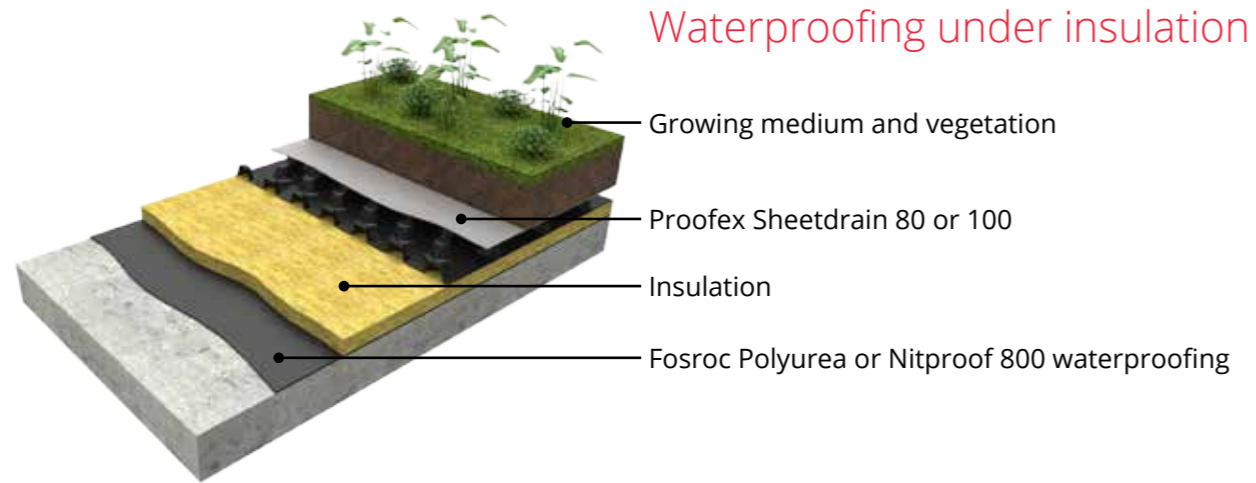
The second key design consideration is the drainage requirement. For flat or shallow green roofing particularly, care must be taken to ensure that rainwater is adequately drained to prevent potentially harmful pooling.

Fosroc Proofex Sheetdrain/ Cavitydrain products are designed to allow excess water to drain from the roof and are particularly good for large depth vegetation layers.

For shallow depth vegetation the drainage membrane must also perform as a water storage and irrigation system, sometimes referred to as a reservoir sheet. Proofex Cavitydrain 200P drainage membrane creates a water storage capacity in the form of cups, whilst perforations allow excess water to drain away. These are covered with a separate geotextile prior to soil backfill to prevent soil filling the reservoir cups and reducing the water storage and handling capacity.

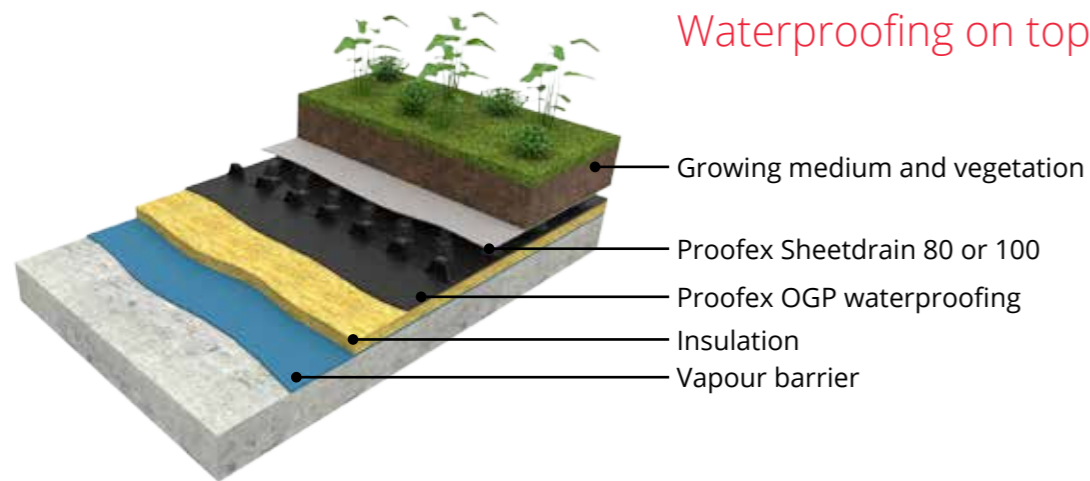
Fosroc Product Name	Product Type	Key Features
Proofex Sheetdrain 80	8mm HDPE cusped drainage membrane	Excellent water flow capacities
Proofex Sheetdrain 100	10mm HDPE cusped drainage membrane	High compressive strengths HDPE core with non-woven fabric
Proofex Cavitydrain 200P	20mm HDPE cusped drainage membrane	5.6l/m ² water storage capacity Large roll size for quick application

TYPICAL DETAILS



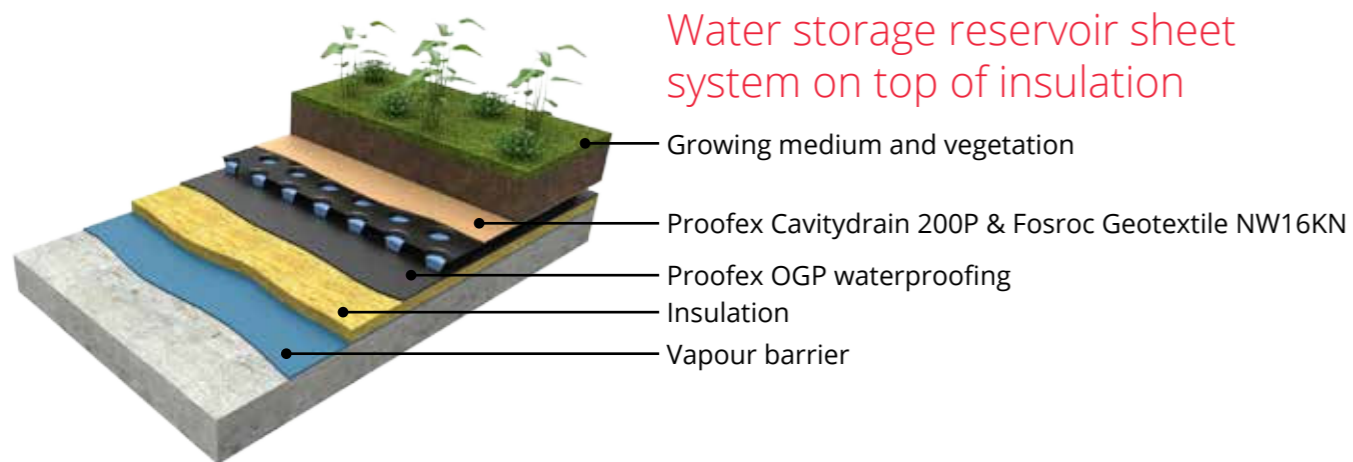
Waterproofing under insulation

- Growing medium and vegetation
- Proofex Sheetdrain 80 or 100
- Insulation
- Fosroc Polyurea or Nitproof 800 waterproofing



Waterproofing on top of insulation

- Growing medium and vegetation
- Proofex Sheetdrain 80 or 100
- Proofex OGP waterproofing
- Insulation
- Vapour barrier



Water storage reservoir sheet system on top of insulation

- Growing medium and vegetation
- Proofex Cavitydrain 200P & Fosroc Geotextile NW16KN
- Proofex OGP waterproofing
- Insulation
- Vapour barrier



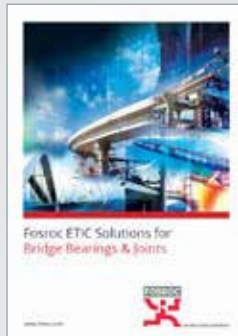
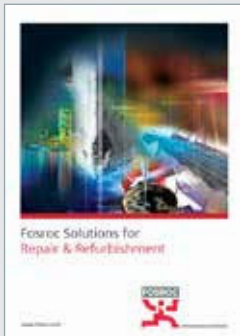
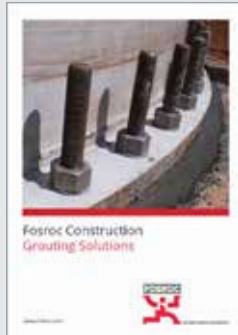
FOSROC PROTECT YOUR WHOLE BUILDING ASSET

All the way from below ground to above ground, Fosroc's vast experience in providing constructive solutions to protect many famous building structures around the world has been built on a broad portfolio of products. These include waterproof membranes, waterstops, joint sealants, concrete repair mortars, resin flooring, protective coatings, structural strengthening, grouts and concrete admixtures manufactured to the highest quality standards backed by independent test certificates. The full portfolio of Fosroc solutions can be found on our website.

- > Basements
- > Underground car parks
- > Façade sealants
- > Podium decks
- > Garden areas
- > Wet rooms
- > Balconies

www.fosroc.com

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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