

Waterproofing below-ground with Proofex Engage



Our profile

Parchem Construction Supplies (Parchem) is a leading manufacturer and supplier of products and equipment to the Australian & New Zealand concrete and construction markets.

Through its divisions and heritage, Parchem has built over 50 years experience in servicing the construction, civil, and concrete industries. It brings solid experience and technical expertise in the supply and manufacture of construction and decorative concrete products, equipment and tools.

Parchem has a wide geographical footprint with 23 locations across Australia. Parchem are also represented by over 70 Account Managers, focused on supporting customers on-site and providing solutions across our serviced industries. A National Specifications Team also provides expertise to Architects, Engineers and Specifiers at all stages of any project.

Parchem is a business that consists of passionate people focussed on delivering for our customers. We have strong brands and a broad range of products. Parchem pride themselves on their expertise and continue to seek innovation with access to new technologies through global networks.



Australian manufacturer

Parchem is a proud manufacturer of construction products and equipment for the Australian market. With manufacturing locations in both Victoria and New South Wales, QA and product development teams, Parchem design and manufacture goods specifically for the Australian market. Quality and performance are key, and this can be seen in our enviable product offering.

Specification services

We provide our specification services to Architects, Engineers, New Residential Builders, Landscape Architects and Specifiers throughout the design and documentation stages. Parchem can provide ongoing support to the completion of your project through our national network of Trade Stores and field sales team.

Our Services:

- Product / Application Selection
- Product Documentation:
- Product Samples
- Specification Clause: writing & review
- Continuing Professional Development seminars
- Contractor Referral
- Advice on Green Star requirements & documentation



Our range

Parchem's range of construction products include concrete repair, grouts and anchoring systems, engineering and architectural coatings, concrete curing compounds, flooring and surface treatments, jointing systems, sealants, waterproofing materials and water stops.



successful over
a long number
of years

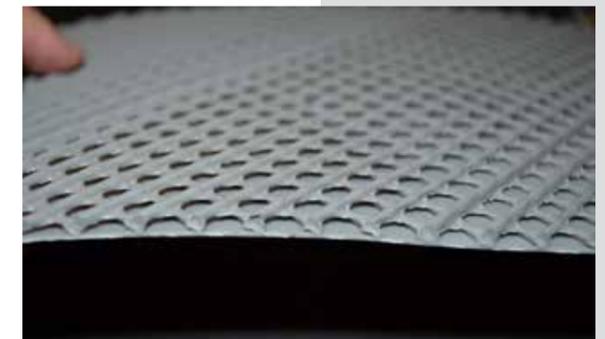


Proofex Engage waterproofing

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.

Brochure contents

- Innovative technology
- BS8102:2009
- The benefits of using Proofex Engage
- Typical applications
- A system-based solution





Proofex Engage

Innovative anti-tracking, pre-applied waterproofing system

The solution that stands the test of time



Walls



Floors



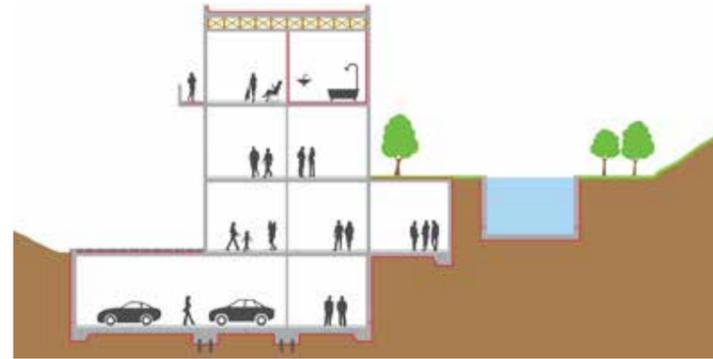
Precast concrete

Below-ground waterproofing

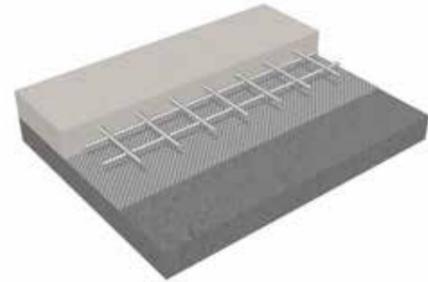
For below-ground structures where the exterior face of the structural concrete is inaccessible, the waterproofing must be applied prior to pouring the concrete. Conventional systems are either loose-laid or self-adhering to the substrate not the structural concrete, this means there is no seal between 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 gas resistant and 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 caps.
- Excellent solution for precast concrete.
- Protects structure against ground contaminants.
- Long term watertight durability.



Proofex Engage - saves time and money



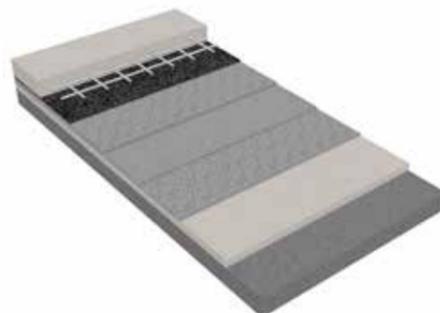
Proofex Engage pre-applied premium waterproofing system

- 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 membrane
- Geotextile
- Blinding concrete

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 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.

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

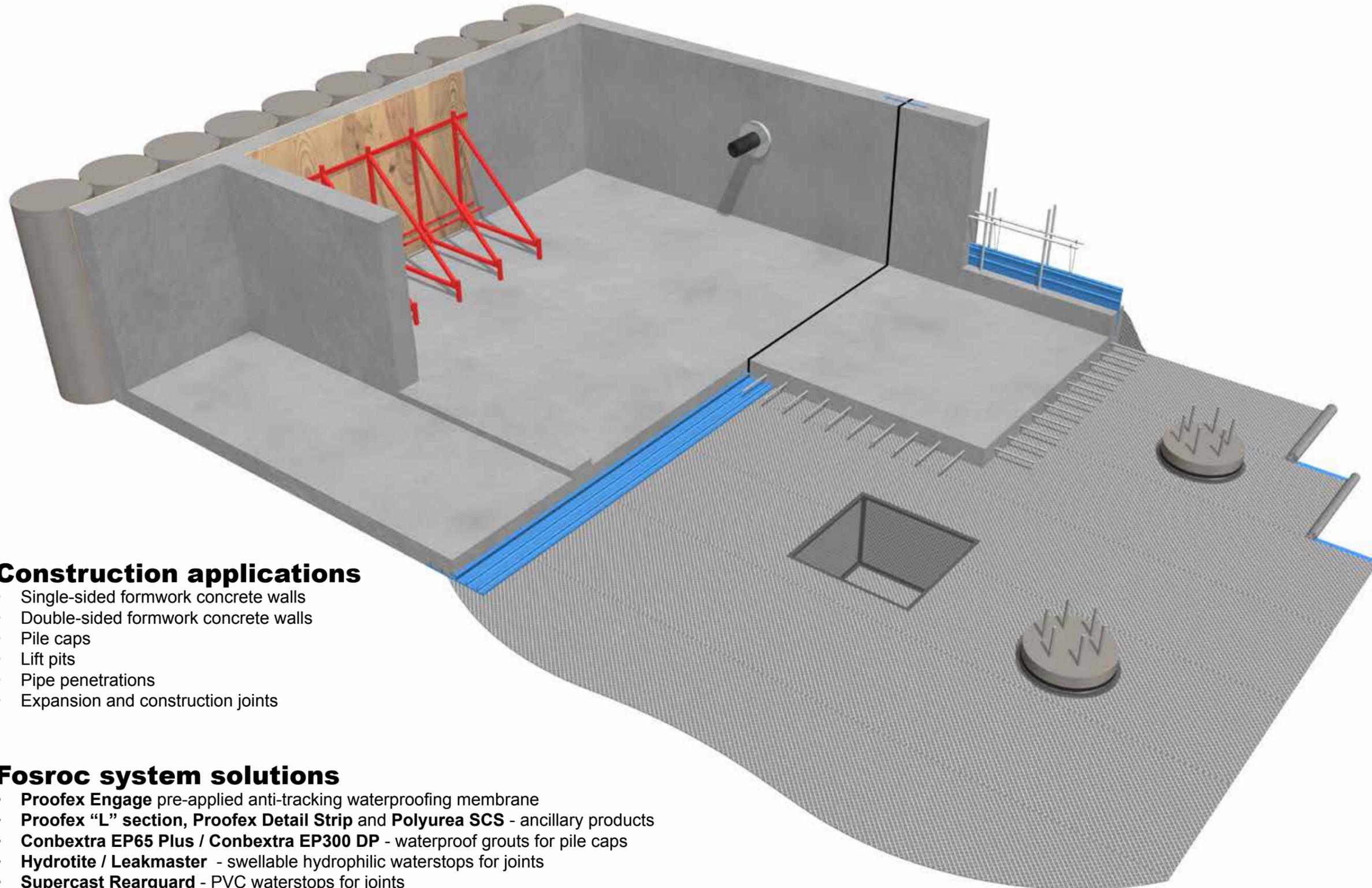
Protection against water ingress which is provided by the structure.

Type C – (drained) protection

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

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.

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 SCS** - ancillary products
- **Conbextra EP65 Plus / Conbextra EP300 DP** - waterproof grouts for pile caps
- **Hydrotite / Leakmaster** - swellable hydrophilic waterstops for joints
- **Supercast Rearguard** - PVC waterstops for joints
- **Nitoseal MS400** - one-component flexible sealant for joints
- **Hydrocell** - rot-proof non-absorbent filler board for joints
- **Fosroc Form Release Agent** - mould release agents

Proofex Engage benefits

Non water-tracking

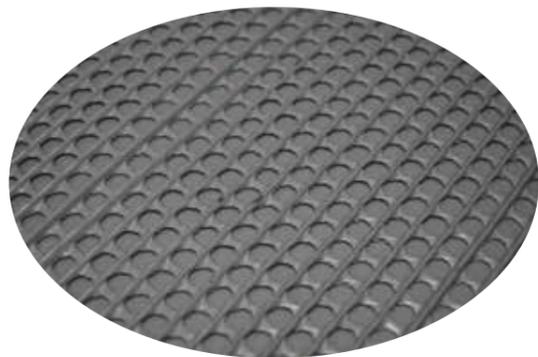


In the unlikely event of damage to the membrane during installation, the smart anti-tracking mesh design of Proofex Engage will prevent water tracking between the membrane and the concrete.

Proofex Engage has been tested to ASTM D5385 and shows no lateral water migration when tested at 100m 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

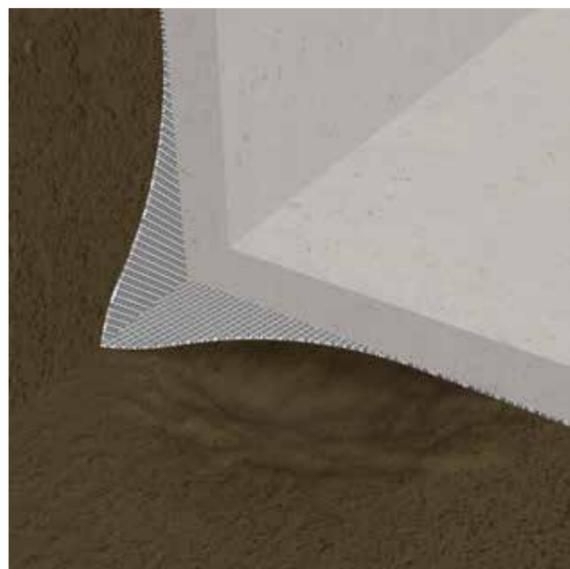


The unique mesh design of Proofex Engage gives a permanent tenacious mechanical bond to freshly placed concrete.

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.

**solutions
through
innovation**

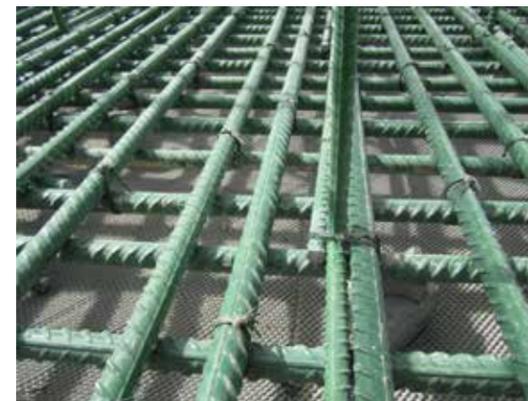
No blinding concrete required



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 membrane 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.

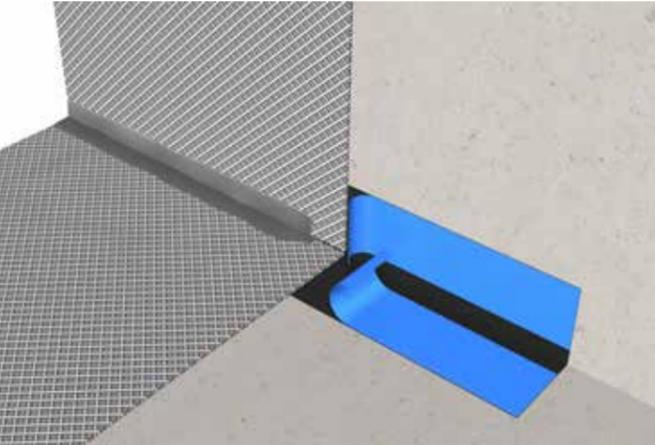
Benefits to owners / designers

An ever increasing level of importance is being placed by owners and designers with regards to structural integrity, cost-effectiveness and durability. Fosroc recognise this, and Proofex Engage with its proven history, excellent holistic cost benefits and independent certification offers an unparalleled system solution for below-ground structures to combat these demands. It provides owners, clients and designers with a high performance system backed by excellent customer/technical service delivered through a comprehensive international network.

Benefits to contractors / installers

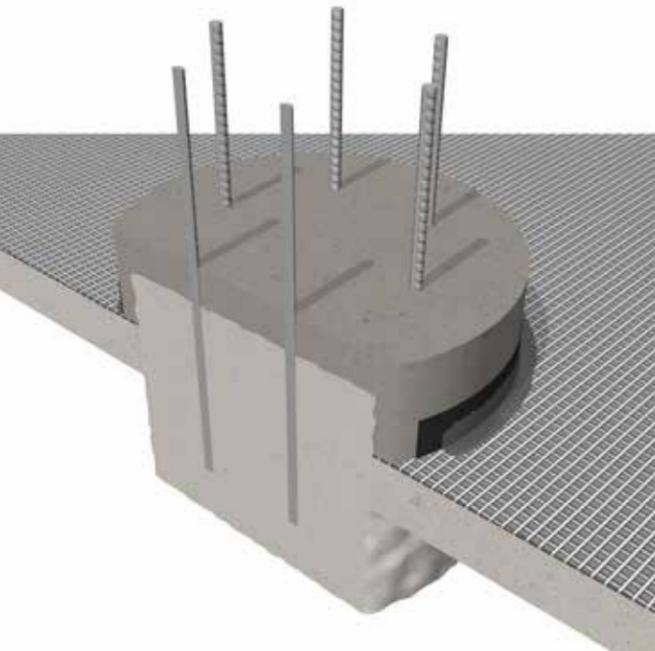
Proofex Engage is designed for typical site conditions. It is heavy duty, robust and can be rapidly installed with easy to apply jointing ancillaries which are system-compatible. The system has a long track record, however Parchem can offer on-site training assistance for specific projects, delivered through teams of local experts. Contact your local Parchem office for more details.

Typical details



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

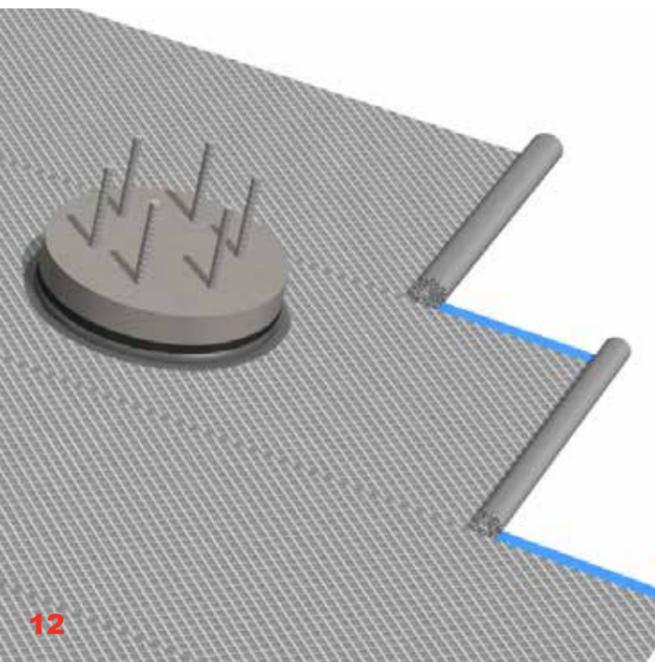
The seal is completed with a seam of Polyurea SCS Gun Grade.



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

The Fosroc solution has been proven successful over a number of years where Conbextra EP65 Plus / Conbextra EP300 DP, waterproof epoxy grouts provide a connection 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 SCS Gun Grade.

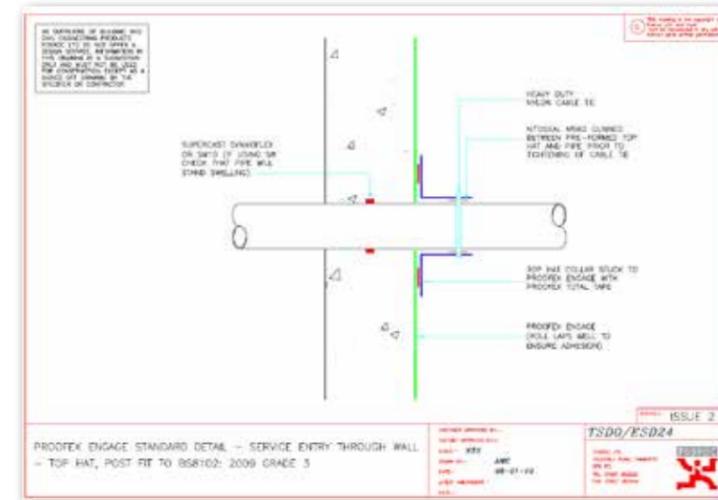


Lapping of Proofex Engage is simple. Along the length of each roll there is a selvedge strip consisting of a blue release film and a sticky butyl adhesive.

The blue 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 SCS Gun Grade.

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 Parchem 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 and 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 Parchem and 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. 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 Hydrotite / Leakmaster 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.



Leakmaster
Gun applied, water-swellable, waterstop paste.



Hydrotite
Premium grade, water swellable, waterstop range for use in cast in-situ concrete.

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 Sheedrain 81** can provide up to 4.6L/s/m water flow capacity and is suitable for soil depths up to 20m.

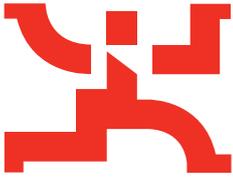
- Cost effective - no need for up to 500mm thick stone drainage layer behind retaining walls.
- Easy site application.
- Reduced environmental impact - no need for vehicular removal and transportation of spoil off site and subsequent replacing with expensive stone drainage layer.
- Secondary waterproofing.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



**reduced
environmental impact**



FOSROC



World leaders in construction solutions

Fosroc is a world leader in the delivery in virtually any type of construction project, combining high quality products, expert technical support, customer service and innovation.

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