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# Fosroc Supercast Watertight Concrete



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*constructive solutions*





# FOSROC SUPERCAST WATERTIGHT CONCRETE

Supercast watertight concrete is a concrete with hydrophobic, pore blocking properties suitable for use in Type B (Integral) watertight concrete construction and forms part of Fosroc's full range of waterproofing solutions compliant with BS8102:2009.

## Description

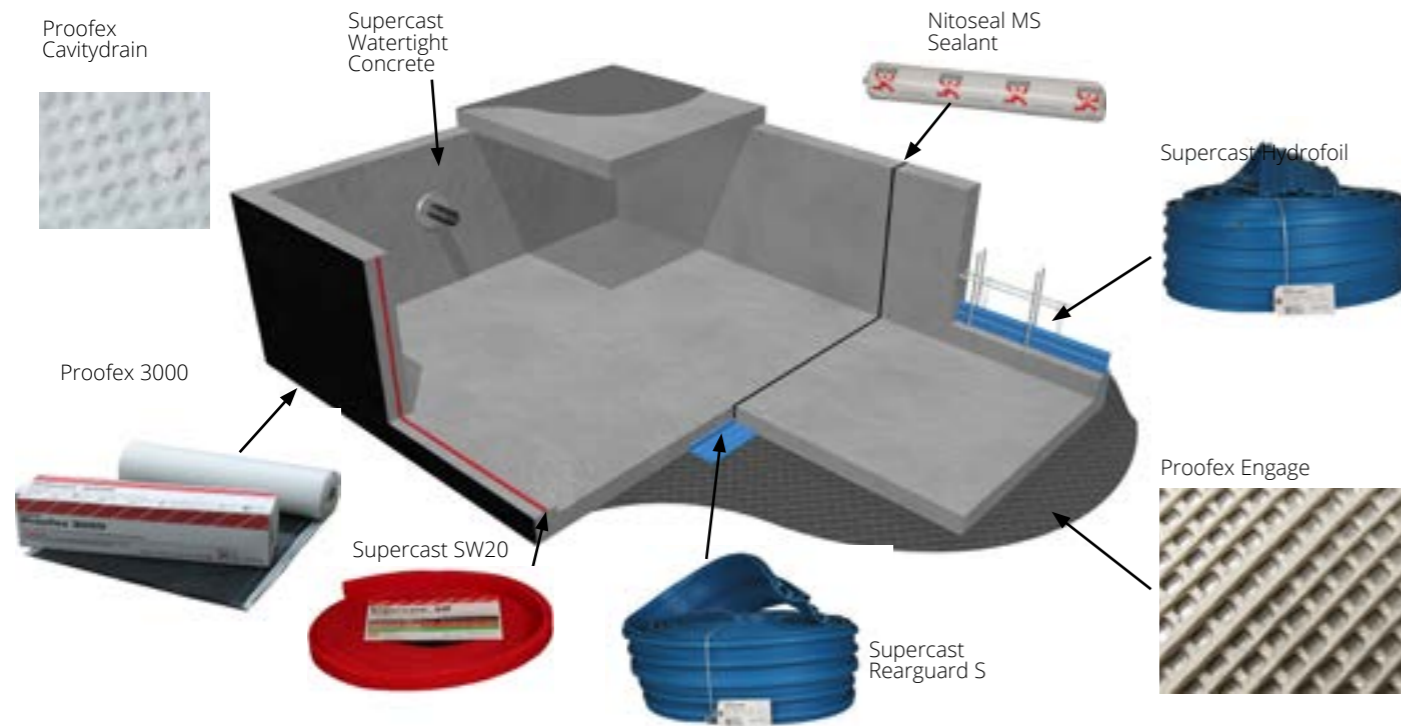
Production – Supercast Watertight Concrete is produced using a pre-bagged powder admixture, designed for use in the Readymix Industry with all types of Portland cements and combination materials such as flyash, PFA, GGBS limestone fines and microsilica.

Based on a unique blend of fatty acid salts and hydrophobic materials Supercast Watertight Concrete Powder is supplied as a white chloride-free powder, pre weighed in water soluble bags, for easy dispensing.

## Standards compliance

Supercast Watertight Concrete Powder complies with EN934-2 Table 9 as a water resisting admixture.

Supercast Watertight Concrete Powder is permitted for contact with public water supply under DWI's 'List of Approved Products For Use In Public Water Supply In The United Kingdom (May 2015); 2.4 List of Authorised Cement Admixture Components.



The 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.

Type A (Barrier), Type B (Structurally Integral) and Type C (Drained) The type of protection is selected to suit a specific construction method, appropriate to a range of internal environments (eg. underground car parks, to plant rooms, storage facilities and ventilated basements in residential and commercial buildings).

A combination of types A, B and C protection may be required.

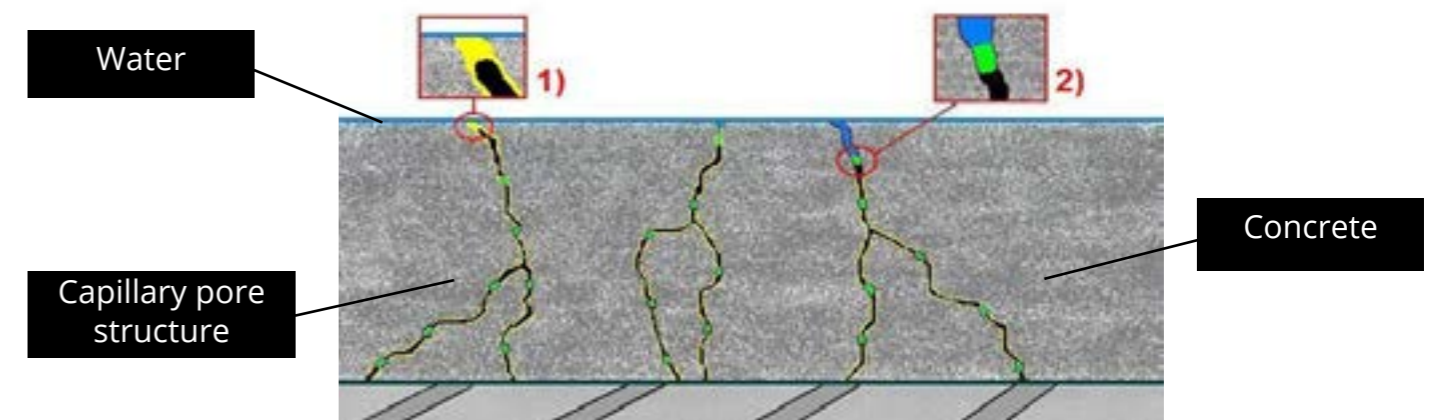
Fosroc supplies a range of waterproofing products in accordance with Types A, B and C as specified in BS BS8102:2009. Our products meet all relevant performance standards and are manufactured under quality management systems certified to ISO 9001 and 14001. Our waterproofing products have either BBA approval or CE marking where required.

# WHY SUPERCAST WATERTIGHT CONCRETE?



Applications	Features	Benefits
<ul style="list-style-type: none"> <li>Basements</li> <li>Reservoirs</li> <li>Water tanks</li> <li>Dams</li> <li>Sewage treatment works</li> <li>Liquid storage tanks</li> <li>Tunnels</li> <li>Underground car parks</li> <li>Plant rooms</li> <li>Archive storage areas</li> <li>Swimming pools</li> </ul>	<ul style="list-style-type: none"> <li>Reduces porosity</li> <li>Reduces permeability</li> <li>Reduces diffusion coefficient</li> <li>Increases water resistance and corrosion resistance</li> <li>Chloride free. Ideal for concrete containing embedded steel</li> <li>Pre-bagged powder for easy dispensing</li> <li>Easily dispersed throughout concrete mix</li> <li>BBA accredited, certificate no. 06/4310</li> <li>Can form part of a complete waterproofing solution in conjunction with the Fosroc range of membranes and drained cavity systems.</li> <li>Safe for contact with public water</li> <li>Standard 10 year warranty available upon request</li> </ul>	<ul style="list-style-type: none"> <li>Keeps water out, or in, as required</li> <li>Reduced risk of reinforcement corrosion</li> <li>Enhanced long term performance including increased durability</li> <li>Reduces installation time - simplified design and reduced design time</li> <li>Cost effective</li> </ul>

Fosroc Supercast Watertight Concrete is designed to meet the requirements of waterproofing as defined in BS8102 (all grades). The use of a specifically designed admixture provides Fosroc Watertight Concrete with structurally integral waterproofing. BBA Approved.



The Concrete Admixture offers a Hydrophobic layer 1) and pore blocking action 2)



# DESIGN GUIDELINES FOR SUPERCAST WATERTIGHT CONCRETE

These guidelines should be used in conjunction with those stated on the product BBA certificate, 06/4310.

1. The reinforcement design for the concrete structure must be designed to achieve a maximum through section crack width of 0.3mm although where there is evidence of increased risk due to a high or variable water table a through section crack width of 0.2mm may be stipulated. Refer to the guidance in BS EN 1992-3:2006 for further information.
2. The standard minimum sectional thickness is 200mm although a greater minimum thickness may be recommended for specific projects.
3. All standing water must be removed prior to concrete placement.
4. Smooth grout tight formwork should be used for wall construction and floor slabs placed onto either a grout check membrane or smooth concrete blinding.
5. The maximum area for a single concrete pour for a floor area is 400m<sup>2</sup> for which the aspect ratio should not exceed 2:1.
6. The maximum aspect ratio for a single wall pour is 3:1 and this should not include more than two corners or changes of direction.
7. All formwork should be left in place for a minimum of 24 hours. Formwork should not be removed until the concrete has sufficiently hardened in order that it can carry safely its own weight and any loads to which it is subjected. Following shutter strike exposed concrete surfaces (floor & wall) should be cured for up to 28 days with polyethylene sheet, wet hessian or Concure WB.
8. An integral kicker of between 150mm and 250mm in height should be formed with the base slab where watertight retaining walls are to be constructed. Kicker strips are completely unsuitable for watertight concrete construction. Kickerless construction carries an additional risk of water penetration that should be avoided or additional protective measures applied to mitigate the increased risk.
9. A 20mm wide x 5mm deep smooth rebate should be formed in the joint face of all construction joints (wall & floor) with at least 80mm concrete cover to an exposed face. Supercast SW20 waterstop should be continuously bonded with Supercast SWX which should be allowed to cure for at least 8 hours prior to concrete pour. The Supercast SW20 must be butt jointed and not overlapped with any gaps filled with Supercast SWX.
10. Movement joints should be waterproofed with Supercast PVC Waterstop, project specific advice and details can be provided upon request.
11. The maximum pour length for capping beam construction is 10m and should include no more than two corners or changes in direction. Formed joints should be made watertight using Supercast SW20 bonded with Supercast SWX located a minimum of 80mm inside the externally facing sides of the joint following the advice given in item 9.
12. Where practicable accessible and maintainable external drainage measures should be installed to alleviate any water pressure that could form against the structure in accordance with the recommendations given in BS8102:2009 incorporating a geo-composite drainage sheet such as Proofex Sheetdrain 80 and a perforated land drain located below finished base slab level. (For project specific advice please contact Fosroc Technical Department)

13. For construction of details such as pipe penetrations (floor & wall) and sealing tie bolt holes please refer to the relevant standard detail drawings available from Fosroc Technical Department upon request. Project specific detail drawings can be produced upon receipt of the construction drawings.

## Instructions for use

### Mix design

Concrete containing Supercast Watertight Concrete Powder is normally supplied as ready-mixed concrete by any QSRMC or BSI registered producer. The concrete must have a minimum cement content of 350 kg/m<sup>3</sup>, be batched with a maximum water/cement ratio of 0.45 and have a consistency of S2 or greater. However to optimize performance of Supercast Watertight Concrete Powder, it is recommended that a water/cement ratio of 0.40 or lower is utilised. Trials are recommended to ensure the desired performance characteristics are achieved.

Once the fresh concrete is mixed, further materials must not be added. The consistency of the concrete can be adjusted using a suitable water-reducing or superplasticising admixture complying with BS EN 934-2: 2009, Tables 3.1 and 3.2, to ensure the maximum water/cement ratio of 0.45 is not exceeded.

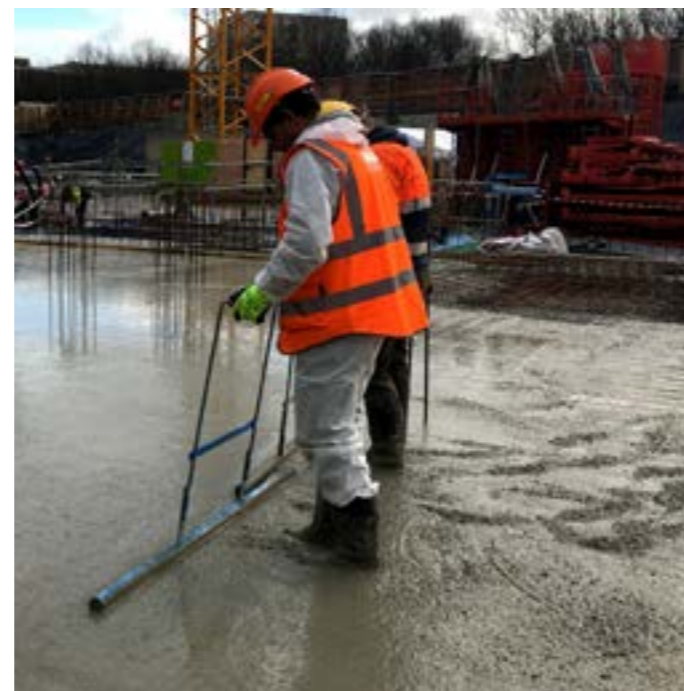
### Mixing and Placing

Supercast Watertight Concrete Powder is added to the mixer at the correct dose prior to batching the concrete constituents. Where a superplasticiser is required, it is mixed in after the addition of Supercast Watertight Concrete Powder. The resulting concrete should be mixed for a minimum of five minutes to ensure even distribution of Supercast Watertight Concrete Powder throughout the concrete.

Concrete containing Supercast Watertight Concrete Powder should be placed in the same way as normal concrete, in accordance with BS 8000-2.1: 1990, BS 8000-2.2: 1990, BS EN 13670: 2009

### Curing

In line with good concrete practice: cure all concrete with Concure WB Clear. (75% curing efficiency) BS 7542.



# CASE STUDY



## Pontoon Docks London

CUSTOMER  
Bouygues UK Ltd

SECTOR  
Residential

DATE  
2018

### PRODUCT

- Proofex Total
- Proofex 3000MR
- Nitocote EP405
- Proofex Engage
- Supercast Watertight Concrete

## THE PROJECT

Pontoon Docks is a high quality, mixed use complex, in the East London Docks area, including residential, retail, basement, storage and car park facilities. Due to the site's location adjacent to the river Thames and the land being heavily contaminated with methane and carbon dioxide, both basement waterproofing and gas protection solutions were required.

## THE SOLUTION

Fosroc proposed Proofex Total a reinforced gas and damp proofing membrane for protection beneath the slab in areas designated for retail storage, in conjunction with Nitocote EP405 epoxy resin providing protection against water vapour and ground gases such as radon, carbon dioxide and methane. Nitocote EP405 was used to protect against water and ground gases through kicker joints, over the pile heads which had been designed to be flush, and around the perimeter for gas protection continuity. Proofex Engage fully bonded membrane was also used beneath the slab along with Proofex 3000 MR to the retaining wall. Fosroc Supercast Watertight concrete, produced in compliance with NHBC requirements using Fosroc Supercast Watertight Concrete Powder admixture, together with Proofex Engage offered a Type A and Type B combined waterproofing solution.

## THE BENEFITS

Fosroc were able to work with the client to produce the unique detail work for the flush pile caps due to large portfolio of fully integrated waterproofing solution. The client could have confidence in the installation which was carried out by SW Contracts a Fosroc trained Waterproofing Alliance Member and supported by regular site visits from Fosroc. Fosroc's gas proof solution was independently tested and verified in accordance with BS8485:2015, by Geoshield.



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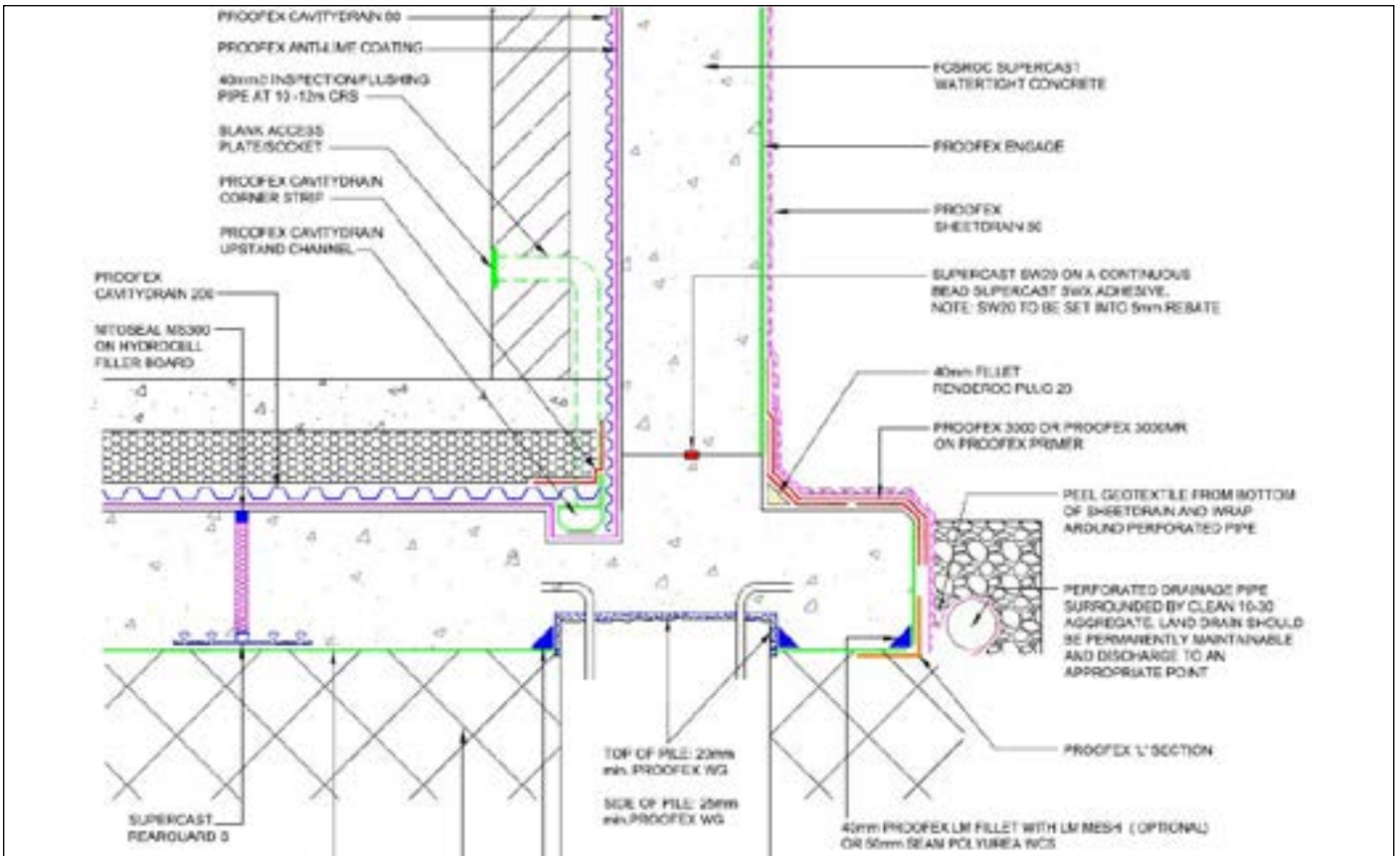
Testing of Proofex Total and Nitocote EP405



Proofex Engage installed



Fosroc Supercast Watertight Concrete



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.

Using our range of fully integrated waterproofing products our team of CSSW

qualified experts, are able to work with clients to design optimum solutions for watertight structures.

We combine high quality products, expert technical support, on-site customer service, innovation, design and specification support, to provide bespoke solutions for both new build and refurbishment projects.

- Specialist admixtures
- Curing compounds
- Protective coatings
- Waterproofing
- Floor toppings
- Grouts
- Anchors
- Repair mortars
- Adhesives
- Joint sealants
- Injection materials

# 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

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