

TOPPROOF

The ideal watertight concrete



Tarmac TopProof offers a simple, cost effective alternative to traditional watertight construction methods.

Concrete is naturally porous. This can be a problem for sites exposed to harsh weather conditions , chemical attacks , high humidity and for surfaces that are in constant contact with water. TopProof uses specialist admixtures to produce concrete with very low porosity.

This makes it suitable for use with fully watertight systems in a wide range of environments. It saves time by eliminating the need for additional membranes or finishes. It also enhances resistance to chloride diffusion, reducing the risk of reinforcement corrosion and improving long term durability.

***ULTIMATE
SOLUTIONS***

HOW IT WORKS



Conventional concrete contains capillaries, making it naturally porous

Concrete is naturally porous due to its capillaries forming migratory paths for water to pass through. This porosity can be reduced by adding special active components which block these capillaries, effectively sealing the concrete permanently against the penetration of water and harmful chemicals.

Topproof is designed to meet the requirements of waterproofing as defined in BS8102 (all grades). The use of specifically tailored admixtures provides TopProof with structurally integral waterproofing. This enables concrete to be poured and compacted with ease in



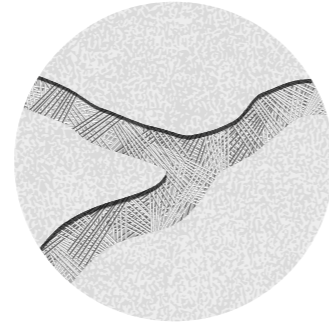
Hydrophobic admixture forms barrier inside capillaries during the hydration process.

comparison to barrier type products or membranes which function only at the surface of the concrete. Tarmac's TopProof concrete can provide a fully integral watertight system when used in conjunction with secondary waterproofing systems.

Tarmac are able to supply three types of waterproofing admixtures based on client requirements:

HYDROPHOBIC POWDER

Powder admixture using hydrophobic and pore blocking technology to create polymer barriers inside pores during the hydration process.



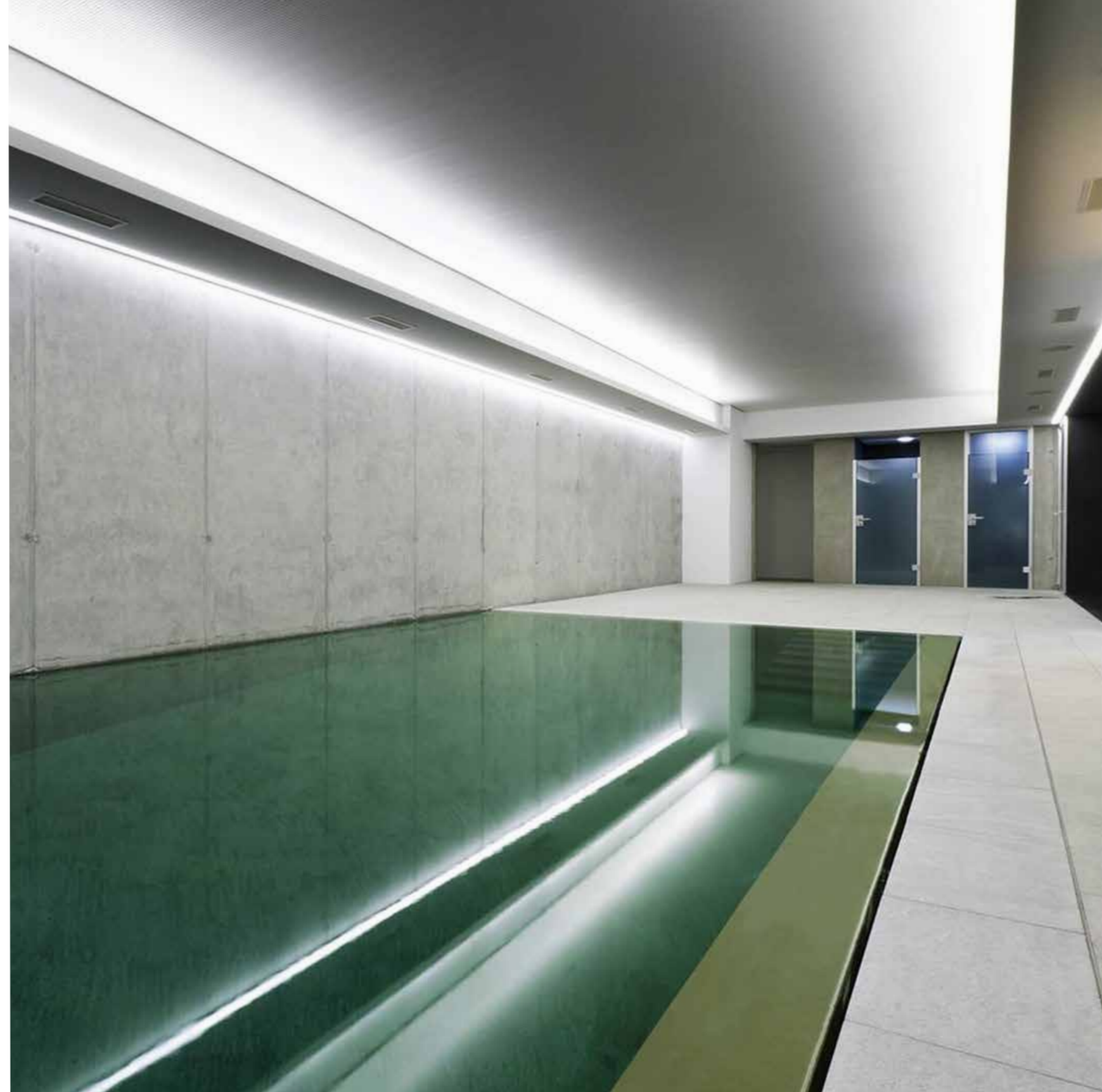
Crystalline admixtures form a non-soluble crystalline structure, blocking capillaries.

HYDROPHOBIC LIQUID

Liquid admixture using hydrophobic and pore blocking technology to create barriers inside pores during the hydration process.

CRYSTALLINE POWDER

Powder admixture that uses self healing crystalline technology to form a non-soluble crystalline structure, blocking capillaries.





LOW POROSITY

Very low porosity for reduced permeability to water and water vapour



HIGH PERFORMANCE

Effectively seals water in or out as part of a fully watertight system



REDUCED CORROSION

Enhances resistance to chloride diffusion, to reduce the risk of reinforcement corrosion



COMPLEX STRUCTURES

Available in as a self-compacting concrete to form complex waterproof structures



CONSISTENCY & CONTROL

Admixtures introduced during production for guaranteed consistency and control



TIME SAVING

Can eliminate the need for additional membranes or finishes, simplifying designs, saving time and helping to eliminate site waste



WEATHER PROTECTION

Improves protection for sites exposed to harsh weather and high humidity



CRITICAL ENVIRONMENTS

Helps to reduce moisture in critical environments such as basements, storage archives and plant or computer rooms



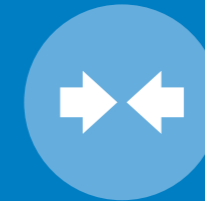
WATER RESISTING

Ideal for surfaces in frequent contact with water such as swimming pools, aquariums, reservoirs and water treatment plants



BUSINESS AS USUAL

Delivered and installed like a conventional concrete, with no special handling or safety requirements



REDUCED SHRINKAGE

Less susceptible to early age and drying shrinkage cracks, both common problems when using external membranes



RESPONSIBLY SOURCED

Tarmac has been awarded BES 6001 rating of 'Very Good' for responsible sourcing across all product ranges



APPLICATIONS

Topproof is designed for a range of environments and applications

Water retaining structures:

swimming pools; leisure centres; aquariums

Utilities:

dams; reservoirs; water treatment plants; tidal power stations; sewers and drainage structures

Aquatic and marine structures:

bridges; river and coastal defences; docks & ports; marinas

Moisture critical environments:

computer rooms, electrical and plant rooms; archives; storage facilities; warehouses

Below ground structures:

basements; car parks; lift pits; tunnels



OUR EXPERIENCE

The Friars Walk, Newport

THE CHALLENGE

For the expansive lower area of the building, Waterman Consultants required a robust and durable waterproofing solution that could meet both Grade 3 of BS 8102:2009 and BS 8485 codes whilst at the same time being flexible for the different site details.

OUR SOLUTION

Working alongside Sika®, a dual system of more than 9,000m of the Sikaproof® A08 system together with 3,300m³ of Tarmac TopProof watertight concrete was supplied to deliver outstanding levels of watertightness to the lower floor. TopProof is better for the environment compared to conventional methods of waterproofing.

This is because many membranes contain oil-based chemicals and synthetic materials.

Ordinary concrete contains fine pores which allow moisture to penetrate the surface and pass through. The size and volume of these pores is dictated by the water/cement ratio - the higher the ratio, the more porous the concrete. TopProof's pores are filled to create high density ensuring a watertight concrete.

RESULTS AND BENEFITS

A great watertight concrete was supplied by Tarmac to Churngold Construction which was of a very high quality. Ideal for below ground and basement construction, it prevents water from migrating through the concrete. State-of-the-art Sika admixtures work within the concrete, firstly to reduce the water/cement ratio, thus increasing the density of the mix and minimising the size, volume and continuity of the concrete's pores, and secondly to fill the remaining pores.

James Rivers from Churngold Construction commented, "These are great waterproofing systems and I cannot speak highly enough of the team involved."

Swimming Pool, Amington

THE CHALLENGE

SPR Construction Services are one of our flowing concrete/screed partners based in the West Midlands region.

They came to Tarmac with a swimming pool project which required waterproof concrete but they also wanted the mix to have flowing characteristics as they only had a team of two on site.

An easy to lay, flowing waterproofed concrete allowed Tarmac's technical team to create the Topflow and TopProof mix solution.

OUR SOLUTION

To ensure the TopProof mix design criteria was met along with flowing characteristics of Topflow, Tarmac had to use specialist, bespoke admixtures to allow the hybrid of TopProof, Topflow to be created.

The flowing nature of the Topflow mix meant the labour shortage issue was eradicated.

The specialist admixtures ensured critical waterproofing requirements such as a low water cement ratio was still achieved even with the high fluidity of the mix.

RESULTS AND BENEFITS

6m³ of the TopProof, Topflow hybrid was supplied to complete the swimming pool base. With just a small team of two on site the mix was pumped in and finished within an hour.

A further 20m³ of Topflow was supplied for the area surrounding the swimming pool, again, to help this site achieve a high quality surface finish with limited labour on site. Tarmac's Topflow is self compacting so doesn't need vibration, allowing sites to benefit from cost saving as well as improving health and safety on site. Topflow is easy to install due to its flowing properties and can achieve high quality finishes of SR2 tolerance.

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