CONCRETE
SIKA SOLUTIONS FOR WATERTIGHT CONCRETE

100 YEARS OF WATERPROOFING EXPERTISE AND EXPERIENCE

SIKA IS A GLOBAL MARKET leader in concrete admixture technology. Combining this with our expertise in waterproofing has led to the development and evolution of the Sika® Watertight Concrete System.

Sika is a global company with an enviable reputation for innovation, quality and experience. This has led to a market leading position in many construction fields, in particular, waterproofing of buildings and structures.

OUR COMPLETE RANGE OF BELOW GROUND WATERPROOFING SOLUTIONS INCLUDES:

- Sika® Watertight Concrete System
- Sika® Membrane Systems (SikaProof® and Sikaplan®)
- Sika® Liquid Applied Membranes Systems (Sikalastic®)
- Sika® Waterproof Mortars and Bituminous Coating Systems (SikaTop®, SikaSeal® and Sika®Igolflex®)

THE ADAVANTAGES OF THE SIKA® WATERTIGHT CONCRETE:

- Time saved at design and construction stages as the need for complex detailing and installation is eliminated
- Cost effective in comparison with other systems
- Delivers maximum usable area to the occupier
- Quality backed by a 50-year track record
- Peace of mind for the owner, designer, contractor, and end of user of the building

The Sika® Watertight Concrete System offers a comprehensive solution for watertight structures. The system consists of concrete that has been specially modified with Sika admixtures to produce watertight concrete; and carefully selected waterstops for construction and movement joints. Watertight concrete structures can be designed to keep water in or out or both. The need to maximize design flexibility has led owner and designer to look below ground as an alternative, whether for basement parking or a habitable environment.

STRUCTURES, APPLICATIONS AND COMPETENCE

The Sika® Watertight Concrete System can be used for all types of below-ground structures, including habitable basements, car parks and areas for business use. As with all below-ground structures, adequate ventilation and air conditioning should be appropriate to the intended use.

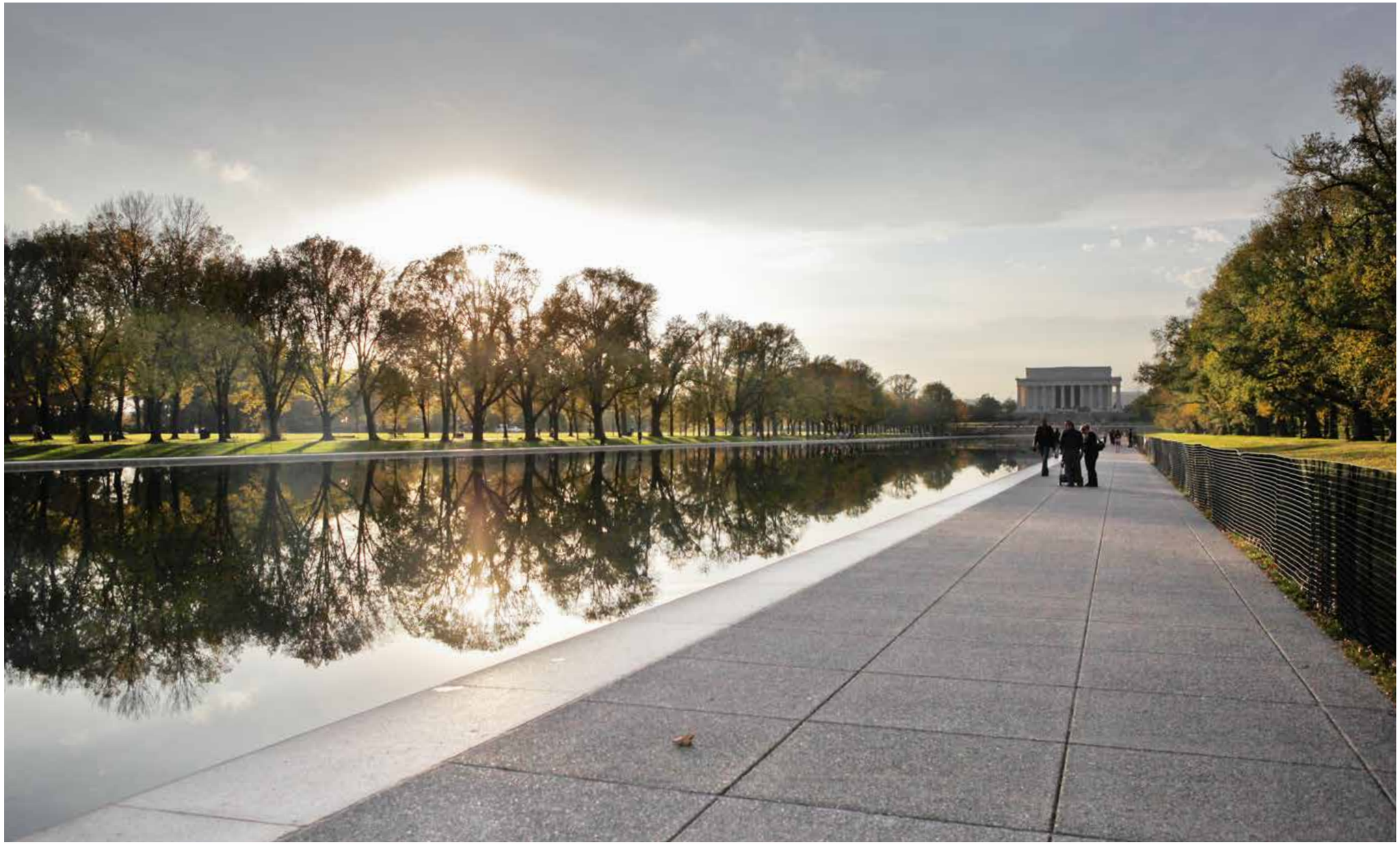
Keeping water OUT	**Keeping water IN**
Basements	Swimming pools
Habitable basements	Water retaining structures
Parking garages	Dams
Utility/plant rooms	Water structures
Tunnels	Waste water treatment structures

The Sika® Watertight Concrete System complies with numerous standards throughout the world, with local approvals in place with eminent establishments such as the British Board of Agrément. It is suitable and has been used extensively in all levels of protection of below-ground structures.

Sika welcomes involvement in a project at the earliest opportunity. Using our experience and expertise we can bring significant benefits to the project. Designers and contractors have easy access to standard application CAD drawings, specification service and technical help through our local representatives. Detailing such as structure thickness, construction joints, pour sequencing, aspect ratios and service entries should be discussed with your Sika representative. If the assesed risks are deemed excessively high, thought should be given to the use of a dual system by combining the benefits of the Sika® Watertight Concrete System and an additional Sika® Waterproofing System.

PROJECT REFERENCE

Lincoln Memorial Reflecting Pool, Washington D.C.



Owner: National Park Service
U.S. Department of the Interior
Engineer: KCE Engineers, CO

The Sika® Watertight Concrete System was used to construct the new Lincoln Memorial Reflecting Pool in Washington D.C.

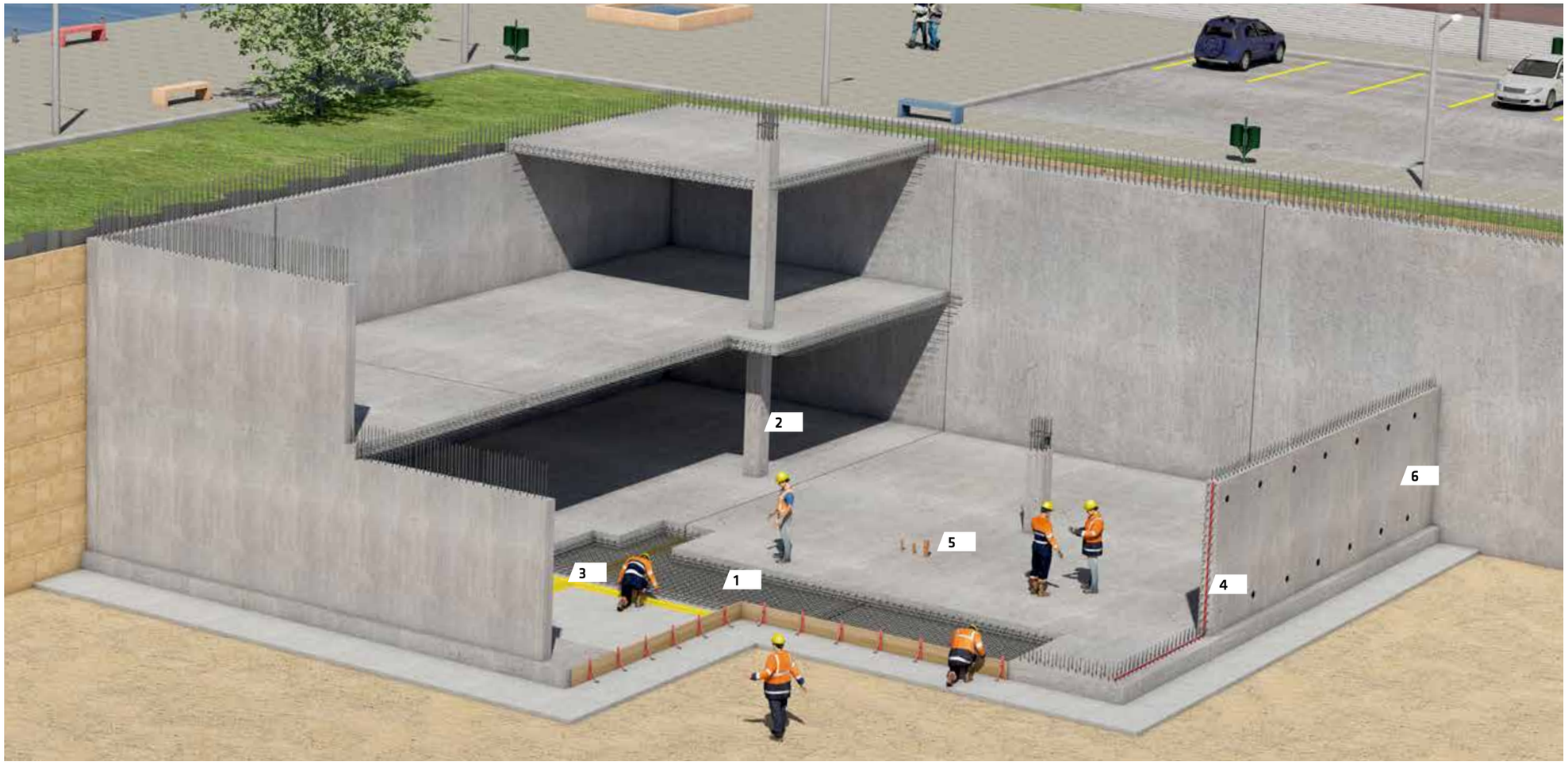
Chosen for its proven track record as well as offering demonstrable time and cost savings versus other systems. The unique integral concrete solution provided by Sika simplified the construction process and improved overall concrete durability and performance.

In conjunction with Sika® Watertight Concrete, SikaSwell® hydrophilic joint sealing profiles were used to seal all construction joints to provide a whole system solution for the reconstruction of the Lincoln Memorial reflecting pool.

PRINCIPLES IN PRACTICE

CAREFUL SELECTION OF KEY TECHNOLOGIES AND PRODUCTS IS VITAL TO MEET THE DEMANDS EXPECTED OF A WATERTIGHT STRUCTURE.

Sika has the unique position of being able to provide intelligent solutions with the most advanced technologies from a comprehensive range of products. This ability ensures that all system components are compatible.



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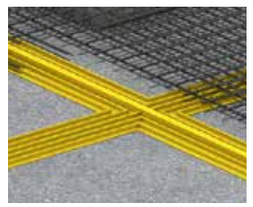
Sika® WT
Watertight Concrete

2

Sika® ViscoCrete®
Water reduction and improved durability

3



Sika® Waterbar
Movement and construction joints

4

SikaSwell®
Construction joints

5

SikaSwell®
Sealing service entries and penetrations

6

SikaSwell® Rings and Plugs
Sikadur® 31
Sealing tie bar holes

THE PRINCIPLES OF ACHIEVING WATERTIGHT CONCRETE

CONCRETE TECHNOLOGY

Despite the apparent density of concrete it can be described as a porous material that allows the passage of water through a structure of capillary pores. These capillaries are the voids created by the water in the concrete that is necessary to start the chemical reaction for hardening known as hydration.

Sika® Watertight Concrete incorporates Sika® ViscoCrete® superplasticiser technology which reduces the water/cement ratio (capillarity) whilst producing a highly workable concrete to aid placing and compaction. The lowering of the water/cement ratio reduces the volume, size and continuity of the capillary structure.

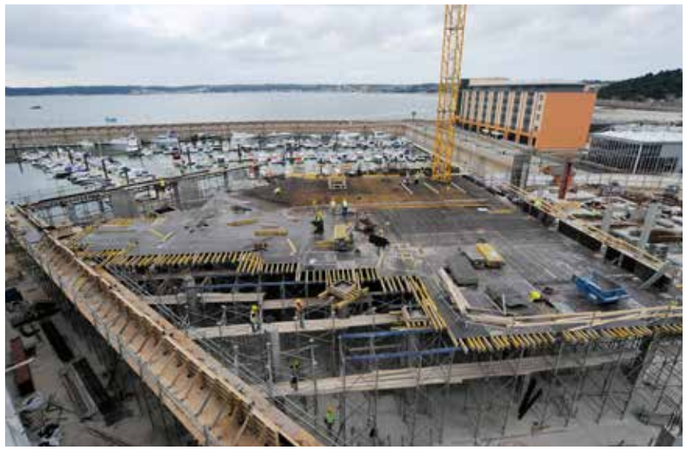
The remaining capillary pores are then blocked using a product from the Sika® WT range to ensure the concrete is watertight. Due to the design of Sika® Watertight Concrete, early age and ultimate strength as well as durability are enhanced. The Sika® Watertight Concrete System should be obtained from a ready-mixed concrete supplier with a recognized third party accreditation.

CONCRETE PRACTICE

Good site practice is the key to ensuring the concrete technology from Sika and the correct structural design come together to achieve a watertight structure.

- Planning of concrete pours
- Formwork
- Placement and compaction
- Curing

Efficient curing of concrete is essential in any situation. It helps reduce the risk of cracking and enhances durability. A high quality spray on curing membrane is recommended.



ON SITE SUPPORT

Sika supports the specifier and designer from design through to completion. As well as technical support, the provision of standard CAD drawings and other documentation, Sika personnel are on hand to advise and assist the ready-mix concrete producer and the contractor at every stage of the project. Sika technical staff will provide training to site personnel in order to familiarize them with the Sika products they will be using. They will visit the site regularly to ensure compliance with the specification.

PROJECT REFERENCE

Coventry University Engineering and Computing Facility, Coventry

Owner: Coventry University
Engineer: Arup

The Sika® Watertight System was used to construct the basement of the visually stunning new Engineering and Computing facility at Coventry University, This innovative building, which was designed by Arup incorporates highly sustainable technologies that include solar thermal energy, biomass boilers and rainwater harvesting. In addition to the of facilities basement contains a high precision wind tunnel and flight simulator.

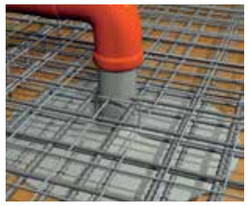
PROJECT REFERENCE

Underground Mansion, London

Architect:
Jones Lamball Architects

The Sika® Watertight Concrete System enabled the construction of an exciting partly subterranean mansion, on a strip of previously vacant land between two existing buildings in London. The main living, entertainment and swimming pool areas are underground.

SIKA WATERTIGHT CONCRETE SYSTEM COMPONENTS

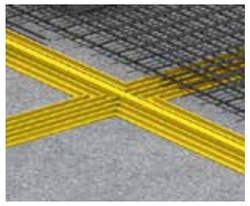


Sika® WT

- Sika® WT-100 series is a range of pore blocking admixtures.
- Sika® WT-200 series is a range of crystalline pore blocking/self-healing admixtures.

Sika® ViscoCrete®

Sika® ViscoCrete® reduces the size, volume and continuity of the capillary structure.

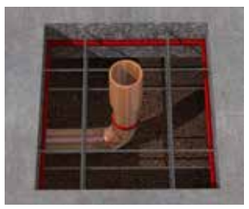


Sika® Waterbar

Sika® Waterbar are used to waterproof expansion (movement) and Construction (no-movement) joint.

SikaSwell®

SikaSwell® profiles and sealants swell in contact with water to seal construction joints (non-movement joints).



SikaSwell®

SikaSwell® profiles and sealants swell in contact with water to seal service entries and penetrations.

SikaSwell® Rings and Plugs Sikadur® 31

SikaSwell® rings and plugs and Sikadur® 31 are used to seal formwork tie bar holes against water ingress.

Sika® Antisol®

Sika® Antisol® is a spray applied membrane for the curing, hardening and sealing of concrete.

Sikadur-Combiflex® -SG

Sikadur-Combiflex®-SG is a high performance joint and crack sealing system.

PROJECT REFERENCE

Google Headquarters, Montevetro, Dublin

Owner: Google
Architect: Mahony Pike
Engineer: Arup

The Sika® Watertight Concrete System was used in the construction of Montevetro one of the tallest commercial buildings in Dublin. It comprises of office space spread over 15 floors, and is located on the water's edge on the Grand Canal Basin in Dublin. The development is owned by Google and is part of its European headquarters. It has three basement car park levels, with the space for cars, motorcycles and bicycles.

To ensure a dry environment in the basement car park, consulting engineers Arup specified the Sika® Watertight Concrete System.

SIKA FULL RANGE SOLUTIONS FOR CONSTRUCTION:

WATERPROOFING

CONCRETE

REFURBISHMENT

SEALING AND BONDING

FLOORING

ROOFING

FOR SIKA GCC INFORMATION:

gcc.sika.com

WHO WE ARE

Sika is a globally active specialty chemicals company supplying the building and construction industry, as well as manufacturing industries. Sika is a leader in processing materials used in sealing, bonding, damping, reinforcing and protecting loadbearing structures. Sika's product lines feature high quality concrete admixtures, specialty mortars, sealants and adhesives, damping and reinforcing materials, structural strengthening systems, industrial flooring as well as roofing and waterproofing systems.

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