



# Hanson **Waterproofing**

# Expertise and experience

Hanson Concrete is the UK's largest supplier of ready-mixed concrete and has a national network of over 180 static and mobile production plants.

We produce quality-assured, ready-mixed concrete, designed to suit any application and our ready-mixed concrete solutions have been specially developed for the civil engineering professional.

Combining this capability with our partner Sika®, who are a leader in concrete admixture technology and experts in waterproofing, we have developed a product range for structural waterproofing.

The range is based around a three-tier product offering (see page 5), which incorporates:

- The Hanson Watertight Concrete system
- SikaProof® – a fully bonded membrane system

The Hanson waterproofing system provides waterproofing for:

- Basements
- Lift pits
- Concrete facades
- Residential and industrial buildings such as housing, commercial and leisure facilities
- Engineered structures such as retaining walls and tunnel shafts



# Waterproofing concept and considerations

To define the appropriate waterproofing strategy and type of system for a specific project, it is important to consider not only the ground conditions but also the project requirements.

The British Standard BS 8102:2009 describes different levels of watertightness required for the end use of a structure.

For waterproofing structures below ground, BS 8102:2009 outlines three different waterproofing methods, the choice of which should take all of the relevant project requirements into consideration.

- **Type A:**  
Type A waterproofing, also known as tanking, is an externally or internally applied barrier system applied to the walls and floors of the structure that can withstand ground water from entering the building under pressure.
- **Type B:**  
Type B waterproofing is an inbuilt characteristic of the actual structure by adding waterproofing additives to the concrete used to form the floors and walls of the structure.
- **Type C:**  
Type C waterproofing is essentially a set of dimpled membranes called Cavity Drain Membrane (CDM) installed externally or internally to the walls and floors of the structure. A type C system does not aim to prevent water coming into the structure but instead manages it and diverts it into either a pumping chamber or external land drain.

## Grade 1

### Basic utility

Some seepage and damp areas tolerable\*

- Underground car parks
- Plant rooms
- Workshops

\* Dependent on use



## Grade 2

### Better utility

No water penetration, ventilation may be required

- Underground car parks
- Storage areas
- Workshops
- Electrical plant rooms



## Grade 3

### Habitable

No water penetration, totally dry environment

- Ventilated residential units and offices
- Restaurants and commercial areas
- Leisure facilities



## Additional requirements (formerly Grade 4)

As Grade 3, plus consideration of the internal environment required

- Air conditioning
- Ventilation
- Radon and methane protection
- Residential areas
- Computer rooms
- Archives
- Special purpose facilities and areas



# Hanson waterproofing product offering



Dual system approach: BS 8102:2009 suggests consideration be given to the use of dual systems. For example, Type A plus Type B protection where the assessed risks are deemed to be high or the consequences of a failure to achieve the required internal environment are too high.

Hanson is able to offer a complete solution in these circumstances by providing the Hanson Watertight Concrete system together with the SikaProof® fully bonded membrane system.

### Benefits

All the benefits of the silver offering, plus:

- 25 year warranty
- Two lines of defence
- Compatible systems
- Engineered solutions
- Single company providing support and warranty

The Hanson Watertight Concrete system – a waterproofing system integrated into the concrete. Liquid water penetration is stopped by the structure itself and cannot entirely pass through into the structure. The watertight concrete is combined with the appropriate Sika® joint sealing systems for connections, construction and movement joints.

### Benefits

- Complete solution – includes design, support and ancillary materials
- Peace of mind – experience in the waterproofing and concrete industry
- All relevant approvals and standards
- On-site inspection and support
- 15 year warranty

Hanson Watertight Concrete – concrete pore blocker and powder. The powder is a combined water-resisting and HRWR/Superplasticising admixture, used to enhance the workability and reduce the permeability of concrete. However, joint sealing systems may well be needed for connections and movement joints.

### Benefits

- Integral waterproofing solution
- Strong water reduction, resulting in higher density, durability and strength performance
- Reduced water penetration under hydrostatic pressure

# Hanson Watertight Concrete systems

Utilising the latest admixture technology from admixture partner Sika®, Hanson Watertight Concrete gives confidence to all those involved in the project. Every good quality concrete will allow the passage of water through it as a function of capillarity, when there is water on one side of the structure and air on the other, the volume of capillary pores in the concrete mix is proportional to the water/cement ratio. A two-step process is used to achieve a watertight concrete.

**Step 1:** Reduce the water cement ratio, increasing the density of the mix and minimising the size of the pores whilst producing a highly workable concrete to aid placement and compaction.

**Step 2:** Block the remaining capillary pores ensuring a complete watertight finish.

As well as the concrete technology it is important to consider how to deal with construction joint protection.

**SikaSwell®** – sealing profiles which swell in contact with water.

**Sika® Tricosal® Waterbar** – a galvanised sheet with a layer of composite film on one side. The special coating bonds closely and permanently to the concrete to provide a watertight seal.

**SikaFuko®** – injectable hoses for sealing and possibly resealing construction joints in watertight structures against water ingress.

**Sikadur®-Combiflex® SG System** – a high performance joint and crack sealing system for construction joints, expansion (movement) joints and cracks.

**Sika® Waterbar** – flexible waterstops based on plasticised PVC are used to waterproof expansion (movement) joints.

## Where to use it

- Reservoirs
- Underground applications
- Water tanks
- Dams
- Sewage treatment works
- Liquid storage tanks
- Basements
- Underground car parks
- Plant rooms
- Archive storage areas

## Features

- Complies with BS 8102:2009 type B integral waterproofing construction
- Quality-assured
- Sustainable
- Greatly reduces waste on-site
- Reduces vehicle movements to site
- 100% recyclable

## Benefits

- Keeps water in or out as required
- Enhanced long term performance including increased durability
- Reduced risk of reinforcement corrosion
- Reduces installation time and cost
- Available as a pumpable or flowing mix
- Backed by a Sika® warranty and BBA certificate

*Benefits subject to good concreting practice (placement, finishing and curing).*

## Case Study: BDP Studio



Hanson Concrete supplied Hanson Watertight Concrete during the construction of the stunning new BDP (Building Design Partnership) Studios in Manchester, in order to ensure a dry basement that conforms to BS 8102 Grade 4. Situated right on the water's edge at 11 Ducie Street, on the Piccadilly Basin, it was essential that the basement should have a controlled environment capable of storing archives, sensitive materials or for computer rooms.

In order to achieve this, Hanson Watertight Concrete incorporating Sika® admixtures was chosen for these basement areas. The studio building was constructed by Kier North West for BDP as part of the £250 million, Town Centre Securities city centre mixed-use scheme. Before building work could be started on the project, a sealed sheet piled cofferdam was put in place by Adana Construction to create a dry dock. Hanson Concrete then supplied Watertight Concrete for the construction of the basement.

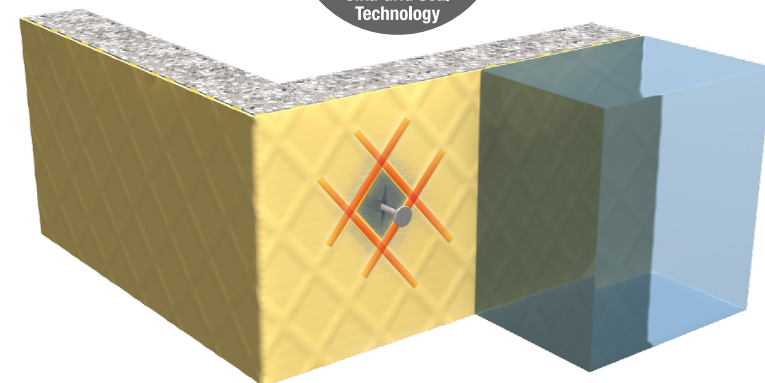
Hanson Watertight Concrete works by including Sika® ViscoCrete®, a powerful superplasticiser to reduce the water content and in turn reduce the capillary pores within the matrix, and Sika® 1+ pore blocker to block the remaining pores. Construction joints and other details were sealed using products from Sika's range of jointing solutions, from basic hydrophilic strips to injectable hydrophilic profiles.

BDP chose Hanson Watertight Concrete because "the product was technically well developed and Hanson Concrete in partnership with Sika® offered support during site operations, in addition to an effective warranty on the achievement of the watertight construction. The basement of our studios houses the IT servers which support all of BDP's UK offices, therefore it was essential to have an effective waterproof barrier adjacent to the Rochdale Canal."

# SikaProof® – a fully bonded membrane system

An innovative waterproofing system that will simplify your way of working. SikaProof®-A is a pre-applied sheet membrane waterproofing system consisting of an embossed, highly flexible polyolefin membrane, with a special grid pattern of sealant and a specially designed non-woven fleece. This unique system produces a durable mechanical bond, which is created when the fleece is completely bonded to the fresh concrete. In addition, the sealant prevents any lateral water underflow and migration between the SikaProof®-A membrane system and the structural concrete.

Sika® Grid Seal Technology is at the core of SikaProof®-A. It consists of a special sealant that is factory applied in a grid pattern, which creates 'mini watertight compartments'. This sealant grid seals and blocks any lateral water underflow, even in the event of any local damage to the membrane. The sealant grid itself is also protected by the specially designed fleece that is laminated into the grid sealant.



## Where to use it

SikaProof® can be used to waterproof all types of reinforced concrete basements and other below ground structures. Typical projects are:

- Residential and industrial buildings such as housing, commercial and leisure facilities
- Engineered structures such as retaining walls and tunnel shafts

## Features

- Complies with BS 8102:2009 type A waterproofing construction
- Sika® Grid Seal Technology

## Benefits

- High durability
- No lateral water underflow
- High flexibility and crack bridging ability
- Cost-effective solution
- Approved detailings
- Effective radon and methane barrier
- Quality backed by Sika® warranty and a BBA certificate

## Case Study: Asquith Spencer Park



CJ O'Shea and Co. Ltd built a stunning new development at Asquith Spencer Park, comprising of four new homes designed by Chassey and Last Architects for Landview Properties, set within acres of rural scenery close to Wandsworth Common. Each home covers in excess of 425 square metres, with a lower floor basement, plus four additional floors above ground, together with associated landscaping and parking.

The basement area provides an extensive cinema and games room, together with a utility room and guest bedroom. The concept is to give the homeowners a seamless blend of high-end technology with refined family living.

A cost-effective watertight solution for the basement was required, that would ensure complete watertightness and adhere to the principles laid out for Grade 3 of BS 8102:2009. During the design development, CJ O'Shea chose a dual system from Sika® Limited. This consisted of SikaProof®-A, together with the Hanson Watertight Concrete system.

In this 'belt and braces' construction, Sika® Watertight Concrete system is also being used for all basement construction. Watertightness of the concrete is obtained by incorporating powerful, state-of-the-art, Sika® admixtures in the mix. Hanson Concrete supplied 400m<sup>3</sup> of Hanson Watertight Concrete to the project. Joints were sealed using the BBA approved SikaSwell® jointing system, which consists of joint sealing profiles that expand on contact with water.

# Other concrete solutions from Hanson

Like Watertight, our other ready-mixed concrete solutions have been specially developed for the civil engineering and construction professional, each with its own unique qualities and characteristics.

Whether you're faced with difficult ground conditions, difficult applications or difficult access, Hanson Concrete solutions has the answer.

**Colourcrete** is a range of coloured concretes that can add a whole new dimension to your project. It can be used wherever conventional concrete is specified and can be colour-matched to blend with the surrounding area or help your project stand out from the crowd.

**Duracrete** is a durable, high-performance concrete which can achieve strengths in excess of 100N/mm<sup>2</sup>. The use of microsilica provides a dense structure and gives excellent chemical and abrasion resistance. Duracrete develops its strength very quickly and allows early use. High abrasion resistance means it can withstand heavy trafficking such as loading bays, while impact resistance and durability are also greater than conventional concrete. Duracrete is ideal for use in varied heavy industrial applications including warehouse floors, service yards, scrap yards, waste transfer stations and waste recycling centres.

**EasyFill** is a highly air-entrained concrete developed for trench reinstatement and void fill applications in various environments. It's a lightweight material produced by incorporating a powerful concentrated air entraining admixture into a base concrete or mortar.

**EasyFlow** is a self-placing concrete that offers huge benefits and cost savings by allowing placement of concrete in difficult situations. It is easy and quick to place, needs no vibration, and moves effortlessly through intricate or congested reinforcement, with no bleeding or segregation. This can mean a substantial reduction of labour and equipment. The faster, unassisted placing brings lower site costs and reduced risk and exposure to noise and vibration.

**EasyFoam** is a finely graded mortar, foamed to provide a low density material ideal for trench reinstatement, including void fill, insulation, cavity walls and non-structural applications. A lightweight material, it is produced by incorporating a pre-formed foam into a base mix of cement paste or mortar.

**EasyPile** is a unique product range that has been specifically formulated for piling concrete. The range consists of a mix specifically designed for CFA structural piling which can be used in all ground conditions but is particularly suitable in difficult areas where there is a high risk of damage to cages. The range also consists of mixes engineered for use in secant pile construction. Hanson's EasyPile concrete range offers the ideal solution to many of today's engineering challenges facing the piling and foundation specialist.

**EcoPlus** is a range of high quality sustainable concretes designed to help you meet current and future environmental agendas. By replacing up to 70% of Portland cement in a concrete mix with Hanson Regen (GGBS), we have developed a product that generates a much lower level of embodied CO<sub>2</sub> than if ordinary cement was used. Hanson Regen, along with other environmental benefits, also improves the performance of the product, making it more durable and aesthetically lighter in colour.

**FastTrack** is a range of high early-strength concretes which speed up construction by allowing quick release of formwork. It can save time, energy and money by ensuring production deadlines can be met with confidence, reducing the requirement for external heating and reducing production time and increasing productivity.

**Protect** extends the life of structures and buildings by protecting the reinforcement within the concrete with a special corrosion inhibitor. It uses the latest technology within the mix design to extend the life of structures and buildings. Using a special multifunctional corrosion inhibitor, the reinforcement within the concrete benefits from an absorbed protective film which delays the corrosion process.

**Fibrecrete** is a polypropylene fibre-reinforced concrete which offers benefits in both the fresh and hardened state. When fresh, both bleed and plastic cracking are considerably reduced. The effect on early age tensile strength during hardening is also beneficial, and after hardening the fibres improve the toughness and general durability. One of its main applications is in pavement and floor slabs where crack control and durability are of particular importance.

# Contact us

## → EASY TO ORDER

Hanson Watertight Concrete is available nationwide from all Hanson Concrete plants. For a free quote or more information, please contact your regional customer service office.

### CONTACTS

#### Sales enquiries and prices:

T: 0330 123 4535  
E: [ConcreteSales@hanson.com](mailto:ConcreteSales@hanson.com)

#### Orders (account holders):

T: 0330 123 4530  
E: [ConcreteOrders@hanson.com](mailto:ConcreteOrders@hanson.com)

#### Orders (cash sales):

T: 0330 123 4540  
E: [ConcreteOrders@hanson.com](mailto:ConcreteOrders@hanson.com)

**To discuss a bespoke mix, please contact the technical team at your local customer service office using the contact details opposite.**

# Hanson UK is a leading supplier of heavy building materials to the construction industry.

We produce aggregates (crushed rock, sand and gravel), ready-mixed concrete, asphalt, cement and cement-related materials. We are part of the HeidelbergCement Group, which has leading global positions in aggregates, cement and concrete. Hanson UK is split into four business lines – aggregates, concrete, asphalt and contracting and cement – which together operate around 300 manufacturing sites and employ over 3,500 people.

For detailed information on all areas of Hanson and our products visit [hanson.co.uk](http://hanson.co.uk)

## BULK CEMENT

- Regen (GGBS)
- Grey
- White



## AGGREGATES

- Sand and gravel
- Crushed rock
- Bulk decorative aggregates
- Agricultural lime
- Rock armour
- Silica sand

## ASPHALT

- Era® – low temperature asphalt
- Durafalt
- Tuffgrip
- Tuffpave



## CONCRETE

- EcoPlus
- Grey – CEM I, II, III
- Ready-mixed concrete
- Ready-mixed mortar
- Screed
- Coloured concrete – Colourcrete
- Piling concrete – EasyPile
- Watertight concrete
- Sprayed concrete
- Reinforced concrete – Fibrecrete



## CONTRACTING

- Highway maintenance
- Road surfacing

## PACKED PRODUCTS

- Cement
- Ready-to-use mortar
- Ready-to-use concrete
- Asphalt
- Construction aggregates
- Decorative aggregates
- Sands
- Rock salt



SMARTPHONE SCAN CODE

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