BBA BRITISH BOARD OF AGREMENT
TECHNICAL APPROVALS FOR CONSTRUCTION

By Appointment to H M The Queen
Building Materials Manufacturers
Sovereign Chemicals Limited
Barrow in Furness

Uniclass	L6814
CI/SfB	(13)

SOVEREIGN

HEY'DI K11

TANKING SYSTEM



STRUCTURAL WATERPROOFING

Basements can provide valuable additional space in commercial, civil and of course domestic buildings

In new build situations, maximising the useable space of a building by incorporating a substructure basement is more and more becoming a consideration for designers and clients alike. In existing domestic properties adding value and lifestyle improvements by the conversion of damp/wet basements to provide additional useable space offers significant long term benefits.

Substructure waterproofing design guidance is given in BS 8102:2009 Protection of structures against water from the ground. This document assists designers, engineers and specifiers in advising on methods of dealing with and preventing the entry of water from surrounding ground into a building below ground level, given the clients' expectations and existing structure type and condition.

The term 'Tanking' refers to the application of a bonded membrane to a substrate which will prevent the passage of ground water. This method of waterproofing is categorised as Type A within BS 8102.

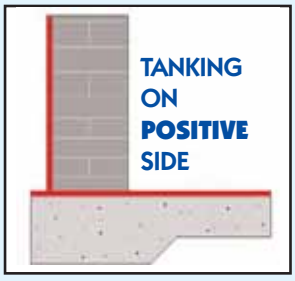
The Sovereign Hey'di K11 Tanking System will provide Type A protection in accordance with this British Standard Code of Practice

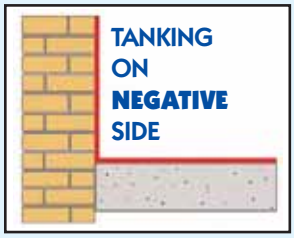




All below ground structures differ and because of this Sovereign provide a free of charge K11 Tanking Specification Service to assist in ensuring long term success of the system

TANKING





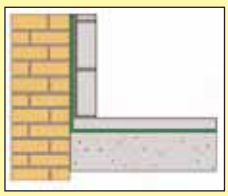
Tanking systems are applied to either the positive side or the negative side of a substrate.

Positive tanking is achieved when the hydrostatic water pressure is pushing the tanking onto the substrate and is generally used in new build situations.

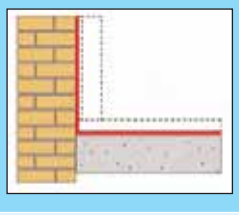
Negative tanking is where the tanking system is applied to the other side of a wall and the hydrostatic water pressure will try to push the tanking off the substrate. This approach is generally used in existing basements and complies with the requirements of BS 8102. Successful Tanking on the negative side requires a comprehensive specification, as supplied free of charge by Sovereign on request.



When tanking existing basements internally, products such as asphalt, self adhesive membranes or liquid applied membranes all require a supporting vertical brick or blockwork lining wall, which is normally backfilled with a sand/cement mix and loaded with a concrete slab or a minimum 50mm sand/cement floor screed, incurring obvious space penalties.



The Sovereign Hey'di K11 Tanking System, however, can be applied direct to the suitably prepared/rendered substrate, with a final thickness of less than 5mm, without the necessity of a supporting backfilled wall or loading concrete slab. This can lower overall project costs by reducing material quantities and labour time.



The photos on the front cover show a series of before, during and after situations where the Sovereign Hey'di K11 Tanking System has been applied

K11 TANKING SYSTEM

Sovereign Hey'di K11 is an alkali-resistant synthetically modified cement which is mixed with styrene-butadiene and water, producing a waterproof slurry coating preventing both damp and water penetration. The chemicals in the slurry react, penetrate and fill off or block the capillaries, bonding onto the prepared surface, forming a strong monolithic bond enabling it to resist hydrostatic pressure.



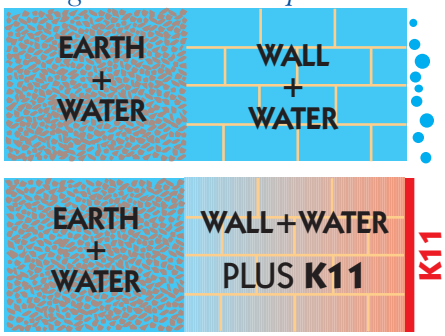
Applying the second coat of K11 completing a secure, space saving, dry envelope ready for plastering, decorating and occupation

Lateral/penetrating damp in above and below ground situations can be resolved for both old properties and new buildings using the Sovereign Hey'di K11 Tanking System. The K11 Tanking System has proved to be highly successful for waterproofing many varying types of structure worldwide for many years.

Tanking is the creation of a watertight envelope as it must be assumed that water pressure will come to bear upon the structure at some point in its life - BS 8102 refers. Therefore with any below ground or retaining structure, tanking should be applied to all surfaces below ground level, and ideally linked in with an effective damp proof course above ground level in order to achieve a continuous system.

If continuity is not achieved, for whatever reason, then the basement will remain vulnerable to damp/water ingress via untreated areas.

Ground water migrates into the retaining wall and transfers through to the internal space



The K11 System has the unique characteristic that the material becomes an integral part of, and achieves a monolithic bond with the substrate

POWDER X

Powder X is a rapid setting/plugging compound with almost instant curing, used to stop water ingress prior to tanking with the K11 System. It can be applied as a dry powder or mixed with water into a wet paste and used as a plug.





Tanked basement, before and after treatment, now dry and capable of being used for many domestic purposes



Remember below ground areas are particularly prone to condensation. Tanking may encourage the potential for condensation to occur and consideration must be given to its control

We strongly recommend the use of **Sovereign Renderlite Renovating Plaster**, an easy to apply internal plaster that has excellent thermal qualities, ideal for tanking situations.



Furthermore, the **Sovereign ConCure 20/20 Wall Mounted Positive Input Ventilation Unit** is strongly recommended also. This is a state of the art home ventilation and condensation control unit which gently ventilates the area and assists in re-distributing heat from a central location in the basement or flat.



Sovereign understand the importance of Design Considerations and are Proud of the Free of charge Individual Technical Specification Service available to Customers on request

Preparation and Applicati

The K11 Tanking System must be applied to structurally stable walls and floors, which must meet the current design standards/regulations for the intended purpose and situation. Floors must be of such design so as to resist both floatation stresses exerted by hydrostatic pressure and deflection from internal loading. Although not always possible, the inclusion of a maintainable external land drainage system should be considered as an integral part of the overall waterproofing design.

The following guidelines are for the preparation and application of the K11 Tanking System in an existing basement

1 Products must be stored in clean, dry conditions



2 Thorough preparation of the substrate is critical to the overall success of the tanking system

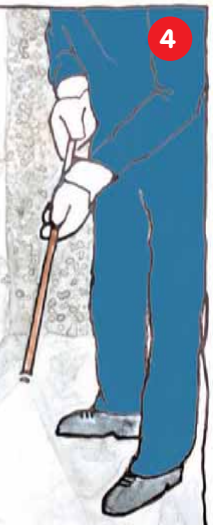
Typically for existing structures this will involve mechanical preparation



3 Thoroughly clean and saturate the substrate with clean water prior to application



4 After recommended curing period newly constructed floors must be pressure washed to remove any surface residues/ laitance often formed during concrete curing



5 Take steps to prevent water ingress before continuing. This can be achieved using Powder X



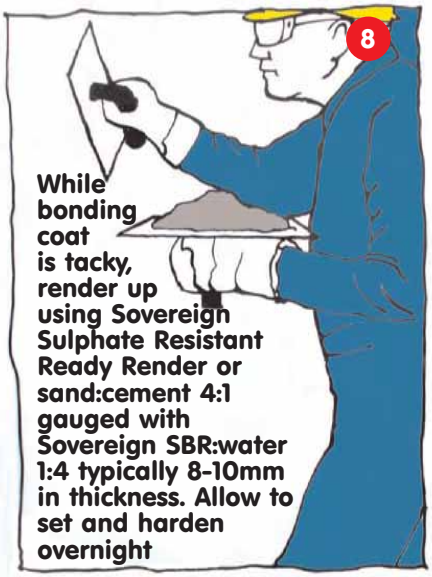
6 Apply Antisulphate diluted 1:1 with water direct onto the prepared substrate and leave overnight



7 Brush apply to walls a bonding coat consisting of Sovereign SBR:water 1:1 mixed with fresh OPC



8 While bonding coat is tacky, render up using Sovereign Sulphate Resistant Ready Render or sand:cement 4:1 gauged with Sovereign SBR:water 1:4 typically 8-10mm in thickness. Allow to set and harden overnight

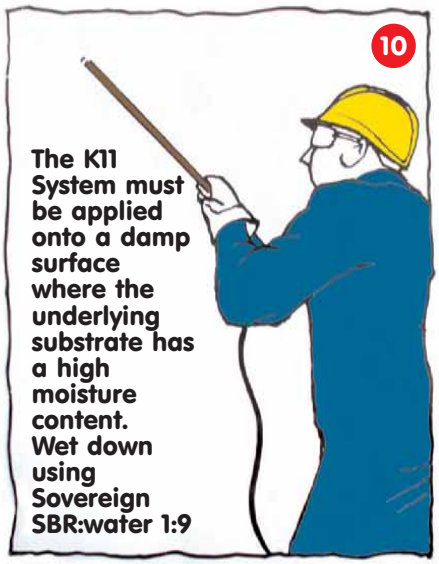


9 Apply neat Antisulphate onto the rendered substrate and allow to soak in

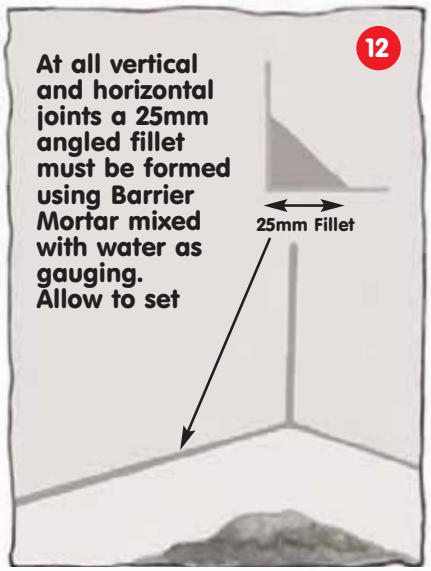


These are general guidelines. As no two basements are the same we would always recommend that a specification is obtained from our Technical Department

ion of K11 Tanking System





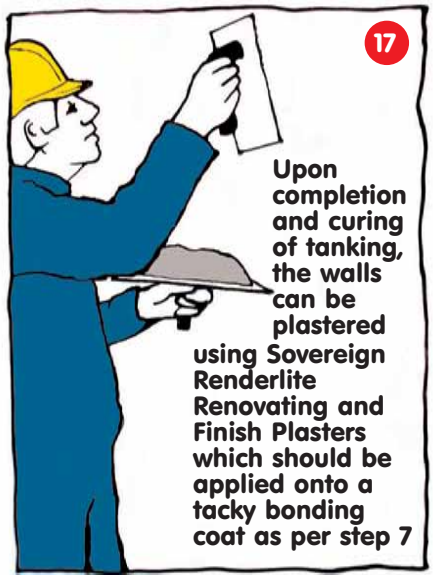














Note 1: *Antisulphate treatment is required where ground water/salts are present.*
Note 2: *Sound new build structures may not require the application of a modified render coat enabling K11 to be applied direct.*
Note 3: *Tanking may encourage condensation and consideration must be given to its control.*

We recommend the use of Sovereign Renderlite Renovating Plaster which has excellent thermal properties, ideal for this situation. Furthermore the Sovereign ConCure 20/20 Wall Mounted Positive Input Ventilation Unit could also be used to provide home ventilation and condenstion control in basements.

K11 TANKING SYSTEM - TYPICAL USES

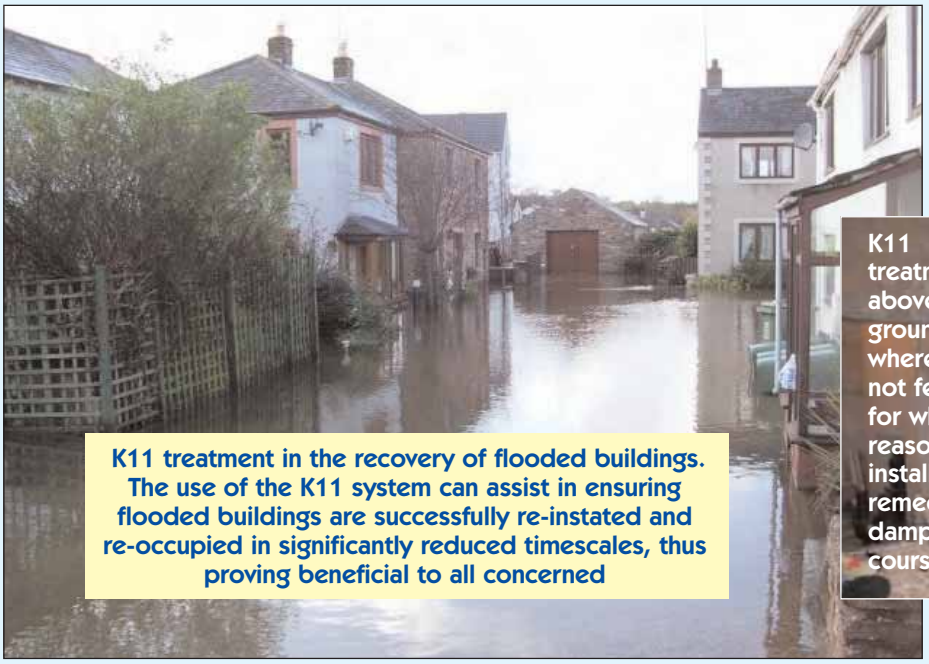
Primarily the Sovereign Hey'di K11 Tanking System has been used for providing Type A waterproofing of substructures such as cellars and basements. However, the K11 system has also been successfully put to good use in many other damp proofing or waterproofing situations, such as:



K11 treatment above ground level to prevent rainwater penetration

Tanking bund walls for storage tanks





K11 treatment in the recovery of flooded buildings. The use of the K11 system can assist in ensuring flooded buildings are successfully re-instated and re-occupied in significantly reduced timescales, thus proving beneficial to all concerned



K11 treatment above ground level where it is not feasible, for whatever reason, to install a remedial damp proof course



Tanking garage inspection pits



Tanking of a Swimming Pool at Oxford University

Sovereign Products are also ideal for Tiling in Swimming Pools - further details available on request

Tanking equestrian pools



Tanking Koi Carp/Fish ponds



Assistance, Advice and Individual Technical Specifications are freely available from our Technical Department on request

Above are just a few of the many varied uses of the

Sovereign Hey'di K11 Tanking System



In certain areas of the country Radon reduction measures may be required - further details available on request

Technical Data

K11



An alkali-reactive waterproofing product based on cement, modified with alkali resistant material in Grey and White.

Working time of 20 minutes
Initial set 4 hours
Final set 5 hours
Bonding strength:
After 2 days > 5N/mm²
After 28 days > 22N/mm²
Compressive Strength:
After 2 days > 7N/mm²
After 28 days > 50N/mm²
U Value < 100
Chloride contents < 0.002%
Dynamic E modulus after 90 days < 30000N/mm²
Adhesion Strength > 3N/mm²

Water Impermeability Certificates and Tests.
British Board of Agrément No 91/2608.

Potable Water Complies with BS6920 for use with drinking water. Listed in Water Fittings and Materials Directory under concrete cement and mortar waterproofers 5055 ASTME-149, ASTMC-190 ASTMC 580 Army-C.E. CRD-C48.55.

Under normal use will provide an effective barrier to the transmission of liquid water for the life of the building to which it is applied.

Packaging: 25kg sacks.
Storage: Approximately 1 year in dry conditions.
Cleaning Utensils: Wash with water after use.

BARRIER MORTAR



A hydrophobic ready mixed repair mortar based on cement, modified with artificial resins. Barrier Mortar will not crack unlike hard sand:cement and is ideal for tanking fillets.

Mixing water required < 12%
Working time about 5 hours
Initial set about 6 hours
Final set about 7 hours

Tensile bending strength
28 days > 6N/mm²
Compressive strength
28 days > 40N/mm²
Water absorption coeficient 0.05kg/m²h° 5

Coverage: Angled fillet with 25mm side about 1.0kg/linear metre
Material: A grey powder
Packaging: 25kg sacks
Storage: Store the bags closed in a dry place
Frost resistant
Shelf life: Up to two years
Cleaning Utensils: Clean with water immediately after use

ANTISULPHATE



Antisulphate is an aqueous Zinc fluoro-silicate solution designed to neutralise salts in masonry.

Brush apply or use a low pressure non-atomising spray producing droplets is ideal for application.

Viscosity approx 5rnPa.s
Material: A clear liquid
Coverage: 10kg does 45m² for 2 coat application
Packaging: 10kg & 5kg plastic bottles
Storage: Store closed in a dry place

Although the materials are not sensitive to frost, it is recommended the cans are stored at temperatures above 5°C

Shelf life: Up to two years
Cleaning Utensils: Clean with water immediately after use

SBR BONDING AGENT



A water resistant dispersion of carboxylated styrene-butadiene-styrene block copolymer. The material is non-ionic, free from fillers, polyvinyl acetate and organic solvents.

SBR Bonding Agent once cured will not re-emulsify, unlike PVA, and should always be used in damp conditions for screeds, external renders, etc.

Solids content > 47 %
Filler contents 0 %
pH value 10.5 - 11.5
Specific Gravity approx. 1.01
Viscosity approx 100mPa.s
Min. film formation temp. 0°C
Film tensile strength > 1.5N/mm²
Film clonation > 1000%

Material: A white liquid
Packaging: 10kg and 5kg bottles
Storage: store closed in a dry place

After use, bottles should be carefully resealed to prevent skin-formation
If freezing occurs allow the product to thaw slowly at room temperature
SBR Bonding Agent has a shelf life of one year

Cleaning utensils: Wash with water after use

RAPID



A quick setting cement based powder which when mixed with water and/or SBR Bonding Agent will set in one minute and be cured in about 8 minutes. For use in general repair work, filling cracks, etc. It can be mixed with sand and/or Portland cement to extend curing times as follows:-

Fast Setting Cement	Portland Cement 35 F	Sand	Hardened Approx. After
1 Part	-	-	2 Minutes
1 Part	1 Part	-	7 Minutes
1 Part	-	3 Parts	11 Minutes
1 Part	1 Part	6 Parts	33 Minutes

Material: A grey powder
Coverage: Depending on use
Packaging: 15kg buckets
Storage: Store closed in a dry place, Shelf life up to two years
Cleaning Utensils: Clean with water immediately after use

POWDER X



Powder X is a rapid setting/plugging compound with almost instant curing, used to stop water ingress prior to tanking with the K11 System. It can be applied as a dry powder or mixed with water into a wet paste and used as a plug.

Material: A grey powder
Packaging: 5kg and 15kg plastic buckets

Shelf life: 12 months when stored unopened and above ground in cool dry conditions

RENDERLITE RENOVATING PLASTER



An easy to apply internal plaster incorporating water resisting and salt inhibiting additives whilst still allowing the wall to breathe. It also has a U value much lower than sand/cement renders or gypsum based plasters. Particularly suited to post tanking situations.

Material: A grey powder
Coverage: Approximately 3.5m² per 25kg bag at 10mm thickness
Packaging: 25kg sacks
Storage: Store the bags closed in a dry place
Frost resistant

BBA CERTIFICATE No 91/2727

Shelf life: 6 months unopened when stored according to instructions

Safety Data

K11, Barrier Mortar, Powder X, Rapid and Renderlite Renovating Plaster
are cement based products. Contact with wet product or between dry powder and body fluid may cause irritation to eyes or skin - avoid contact. Contact with skin can sensitise certain individuals - wear gloves. Avoid breathing dust. Wear goggles if risk of eye contact, spraying or when working above head height.

SBR Bonding Agent
is a white liquid carboxylated styrene-butadiene-styrene block copolymer. It is essentially non-hazardous but the following general safety precautions are applicable. Avoid contact with eyes. In cases of contact with eyes or skin, wash off with clean water.

Antisulphate
is an aqueous zinc fluoro-silicate solution. Avoid contact with skin and eyes. Wear gloves and goggles. When spraying use a coarse, non-atomising spray and wear a respirator fitted with A1P2 filter.

FULL SAFETY DATA SHEETS ARE AVAILABLE ON REQUEST.

C.O.S.H.H. REGULATIONS apply to these products and C.O.S.H.H. assessments should be completed before commencing contracts.

Features of the K11 Tanking System

- Self supporting System
- No requirement for supporting structures
- Only 4-5mm in thickness
- Provides maximum use of available space
- Forms a monolithic bond with substrates
- Tested to 15 bar pressure on negative side
- Used successfully worldwide for many years
- Straightforward application
- No expensive specialised equipment required
- BBA Certificate Nº 91/2608
- Durable life of building solution
- Suitable for new and existing structures
- Applied to positive or negative side of structure
- Variety of alternative uses
- Provides Type A protection in accordance with BS 8102

Coverage Rate Guide

Sovereign Hey'di K11 Tanking System

	K11	MIXING RATIOS SBR to K11	Anti Sulphate	Barrier Mortar as Fillet	MIXING RATIOS SBR to Water as Gauging
Above Ground Level ONE COAT	2kg per M²	2.5kg to 25kg K11	1kg per 13.5M²	1kg per linear M	1 SBR to 2 Water
Below Ground Level TWO COATS	4kg per M²	5kg to 25kg K11	1kg per 4.5M²	1kg per linear M	2 SBR to 1 Water

Note: Additional SBR Bonding Agent will be required where bonding coats and a modified render coat are to be applied. This will be at a rate of 0.2 kg SBR/M² for each coat.

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