

11 CRYSTALSEAL

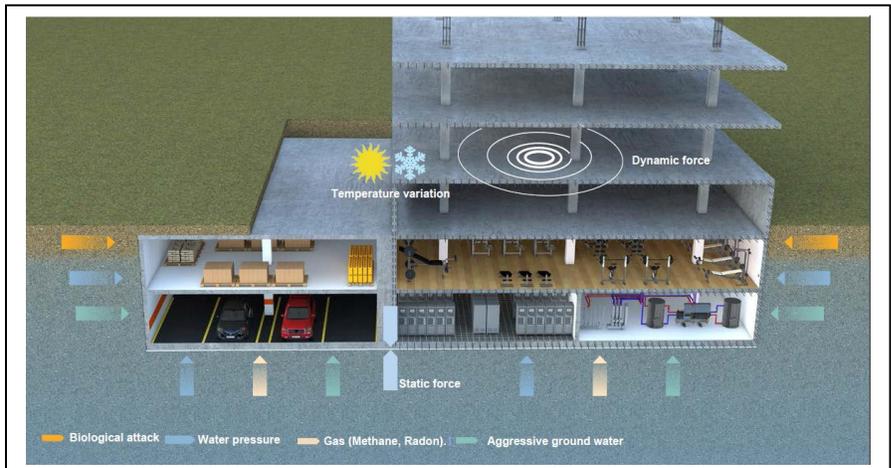
Surface Applied Capillary Waterproofing Cementitious Coating

1 .Description:

CRYSTALSEAL waterproofing coating ensures the total and permanent solution to water leakage, ingress, or seepage in concrete structures or any cementitious substrate. The formation and development of insoluble crystals into water bearing capillaries and interstitial effectively blocks the further passage of water and ensures permanent water tightness for the life of the structure.

2 .Scope:

Prokem is a leading waterproofing company in Egypt and has been producing innovative and high quality waterproofing products since 1997. Our fully integrated and compatible system solutions are sustainably produced and well proven in practice for many decades all over Egypt tested and certified according to various international test standards. *Prokem* offers clients, specifiers and contractors the security of clearly defined performance characteristics and the most robust solutions for their specific requirements.



Waterproofing systems for below ground structures are faced with stringent requirements regarding durability, exposure and stress conditions. Today, owners generally request a service life of buildings of 20-30 years or more and infrastructure of up to 50 years. Lack of watertightness can severely reduce the long-term durability of buildings and below-ground structures. This can badly affect its planned use as water ingress will result in physical attack and deterioration of the concrete and embedded steel.

3. Basement waterproofing concept:

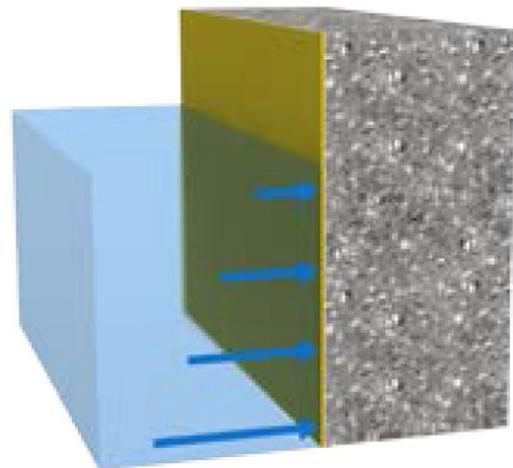
BS 8102:2009 outlines three different waterproofing methods, the choice of which should take the entire relevant project requirements into consideration. The standard suggests consideration be given to the use of dual systems. For example, Type A plus Type B protection where the assessed risks are deemed to be high or the consequences of a failure to achieve the required internal environment are too high.

Prokem are able to offer a complete solution in these circumstances.

3.1. External waterproofing system (type A)

A waterproofing barrier applied on the external surfaces that are exposed to ground water (positive side). The structure is protected against water ingress and also against any aggressive substances or influences.

For some materials such as post applied waterproofing mortars and coatings, access to the external surfaces is required for application after concreting



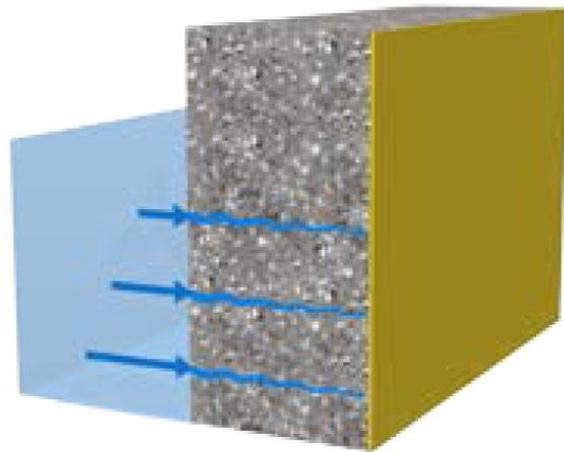
- Grade of watertightness: Grades 1–3 plus additional requirements
- Application: New construction
- Protection provided: Waterproofing & concrete protection
- Durability: Low to high durability (dependent upon application)

3.2. Internally applied waterproofing system (type B)

A waterproof barrier is applied on the internal surfaces of the structure (negative side). These systems do not prevent damage to the structure from water ingress, or concrete damage due to aggressive chemicals.

Generally these systems are applied as coatings or sheet membrane linings, and are recommended for refurbishment works for example where access to the directly exposed surfaces is not possible.

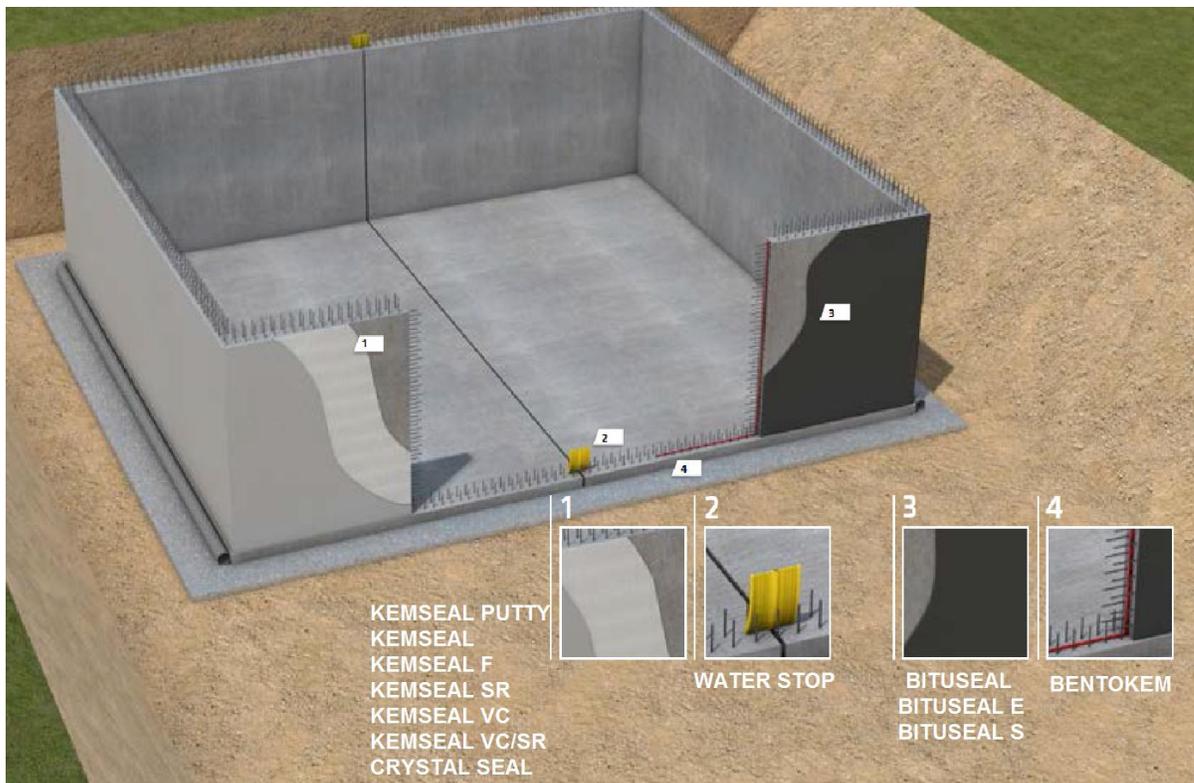
- Grade of watertightness: Grades 1 – 3
- Application: Generally for refurbishment or as additional measures
- Protection provided: Waterproofing
- Durability: limited durability (as the structure is unprotected)



FAST TO APPLY, CRACK-BRIDGING, CEMENTITIOUS BASED MEMBRANES.

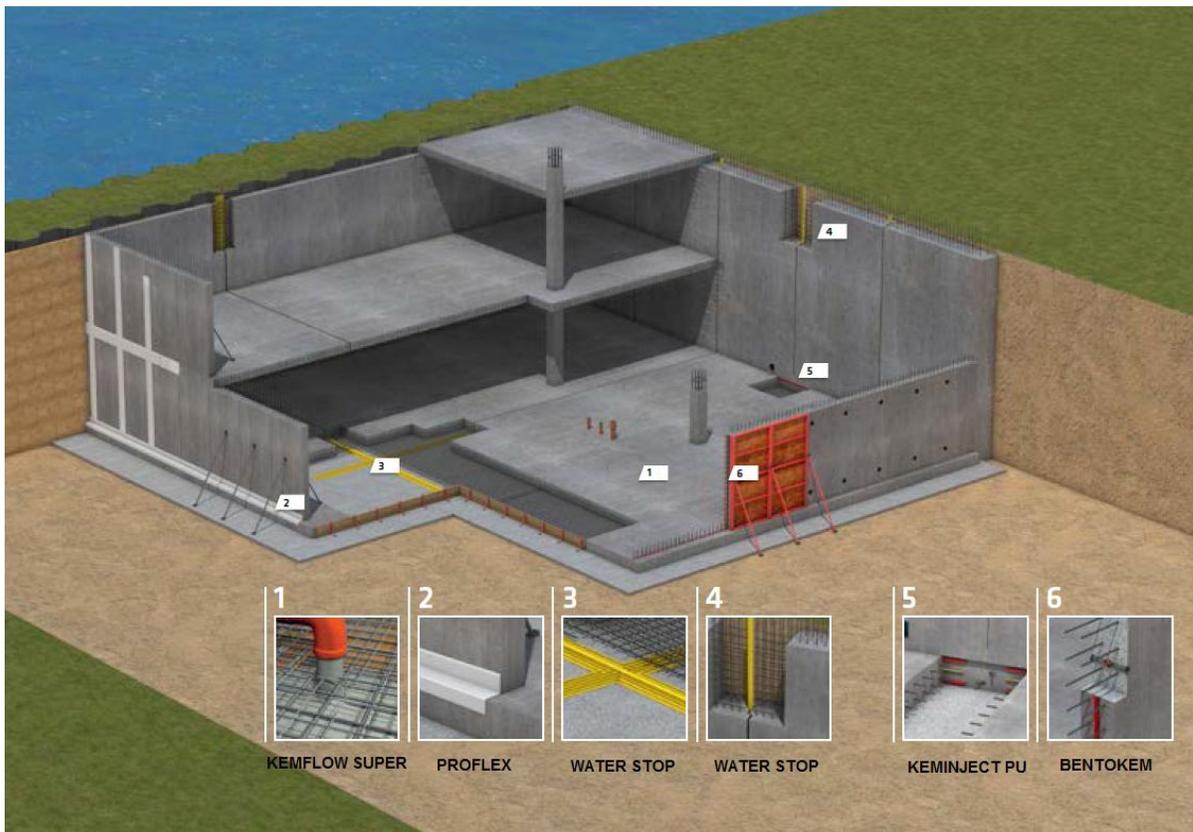
Prokem cementitious applied membranes (CAM) are highly elastic and flexible polymeric systems, usually based on Cementitious membrane with excellent technical properties for high performance applications. These materials are applied on prepared / primed external concrete surfaces by spraying and provide excellent solutions for complex detailing.

Cementitious applied membranes will also prevent any lateral water underflow in the event of local damage. Application below the base slab is done on a special fleece before the structural concrete slab is placed.



***Prokem* Watertight Concrete**

Prokem are the market leader in concrete waterproofing technology. Combining this with our expertise in waterproofing has led to the development and evolution of the *Prokem* Watertight Concrete System.



4. Applications such as potable. Water tanks, sprinkler tanks, attenuation tanks, clean and dirty water systems require a specific approach to keeping water in and protecting groundwater against pollution.

4.1. POTABLE WATER TANKS/PITS AND PONDS

Potable water tanks and reservoirs can be protected in various ways including the use of **KEMSEAL** or **CRYSTALSEAL** applied systems. Joints and cracks in the structure are commonly sealed using **PROFLEX** system.



4.2. PRIMARY AND SECONDARY SEDIMENTATION TANKS

Retention pools, tanks of sewage water or chemical effluents require chemically resistant linings for protection of the subsoil and groundwater against pollution. Following the specific requirements **KEMSEAL**, **CRYSTALSEAL** or epoxy coatings may be chosen.



5. How to use:

5.1. Surface preparation:

5.1.1. Surfaces to be treated must be free from dust, oil, grease, paint residual curing compound, mould oils.

5.1.2. Remove any laitance and provide an open pored, slightly rough surface sufficient to act as a mechanical key, essential for adequate adhesion of the **CRYSTALSEAL** treatment.

5.1.3. Areas of weak or honeycombed concrete must be repaired. Hollow, debonding renders must be removed

5.1.4. Surfaces to be treated if not already wet, should be saturated for a period of 24 hours before first applications

5.2. Mixing:

5.2.1. Add 3 parts of powder to one part of potable water.

5.2.2. Place 3/4 of potable water into a suitable mixing container.

5.2.3. Add **CRYSTALSEAL** (powder) to the clean water while mixing. Mechanical mixing must be used to ensure complete dispersion of the powder component, add the remaining clean water and mix for an additional three minutes



5.3. Application:

5.3.1. **CRYSTALSEAL** mixes are applied by brush or spray onto the dampened substrate..

5.3.2. Apply the material in 2 coats at right angles, the second coat whilst the first is firm, but 'green' - usually 3-4 hours after first coat (dependant on temperature).

5.3.3. For old concrete, brickwork and granular concrete blocks, replace the second **CRYSTALSEAL** coat with a render 5-10mm thick



5.4. Curing:

5.4.1. The **CRYSTALSEAL** must be prevented from drying out too rapidly and should be kept damp for 5-7 days.

5.4.2. Mist spraying with water and covering with polythene is effective when drying out would otherwise take place.

5.4.3. Protect from weathering, sun, frost and wind for a similar minimum period.

6. Theoretical Coverage:

Two coat slurry application:

- **CRYSTALSEAL**: 0.8-1kg / m² / coat.

Application of render coat:

- **CRYSTALSEAL** : 10kg per m² at 5mm thick

