

Safeguard® Structural Waterproofing System (SWS)

Product Description

Safeguard® Structural Waterproofing System (SWS) is a highly effective waterproof treatment process of sound stable surfaces normally encountered within building structures. Safeguard® SWS Slurry is a pre-mixed formulation of hydraulically setting powder. When mixed with water and applied to a masonry substrate, silicate salts form at the interacting faces which enter and fill the pores and capillaries of the substrate and form a monolithic bond thereby blocking the passage of water as well as becoming an integral part of the structure.

Benefits

- Waterproofing & refurbishment of basements, cellars, aquariums, fish ponds, and water features
- For concrete, masonry, and render
- Resistant to frost and heat after setting.

Properties

Appearance	Grey powder
Size(s) & Packaging	25 kg bags
Coverage	3 – 6 kg/m ² per coat (subject to site conditions and requirements)
Storage	Store above 5 °C in dry conditions.
Shelf Life	12 months

Application Information

1. Preparation – Walls

- 1.1. Remove all windows, linings, staircases, radiators, brackets, wires, pipes, electrical sockets etc. that may be present and which would prevent a continuous seal.
- 1.2. Remove existing plaster and/or render back to original substrate and clear away resultant rubble.
- 1.3. Where whitewash, paint, dirt, oil etc. is present, totally remove either by grit blasting or needle gunning. Bush hammering is considered too aggressive and should be avoided, as it also creates a layer of compacted dust.



- 1.4. Remove any exposed timber fixing blocks, lintels etc. and either brick up resultant voids or replace with reinforced concrete lintels.
- 1.5. Carefully examine surfaces to be coated and remove any nails or other metal fixings.
- 1.6. Using a 3:1 sand:cement mix, together with additional brickwork where necessary, make good any holes, angles, etc.
- 1.7. Rake out mortar joints to a depth of 10 – 15 mm in order to provide a good key and resist shrinkage forces.
- 1.8. Power wash prepared walls to remove all loose dust and dirt.

At this stage apply SWS Salt Neutraliser in strict accordance with the instructions.

- 1.9. Apply a first 'tight' coat of 3 parts sharp washed sand to 1 part cement. The gauging water for this mix should comprise of 1 part SWS Bondaid Plus to 4 parts water. Force well into raked out joints and leave in a relatively smooth continuous surface. Allow 24 hours prior to the application of any subsequent coat.
- 1.10. Should water pressure be present, this may be relieved by inserting weep tubes into the wall. This will enable work to continue and the weep holes can eventually be sealed using Safeguard SWS Rapid Setting Plug.

2. Preparation - Floor/Wall Junction and Vertical/Horizontal Internal Angles

One of the potentially weakest points of any structural waterproofing application process is the floor/wall junction and particular attention to this detail is required.

- 2.1. At floor wall junction chase out the floor to a minimum of 25 mm from the wall and 25 mm into the floor, cutting into the wall where possible.

Flush out chase formed to remove grit dust etc. and whilst still damp fill chase with Safeguard® SWS Fillet Seal. Press fully into chase and whilst still green form a 'bottle' cove.

- 2.2. Apply Safeguard® SWS Fillet Seal to all vertical internal angles and again form a rounded 'bottle' cove.
- 2.3. Safeguard® SWS Fillet Seal should also be applied to the wall/ceiling joints of vaults if relevant.

3. Preparation – Penetrating Services

Very often tanking works take place where penetrating services are present i.e. electric, water and gas mains. Careful attention to these areas is essential.

- 3.1. Carefully chase out masonry surrounding the penetrating service to a minimum depth and width of 25 mm.
- 3.2. Flush out with water to remove loose grit dust etc.

If considered appropriate, first of all apply a flexi joint material around the penetrating service. Using Safeguard® SWS Bondaid Plus diluted with water at a 4:1 ratio, mix a quantity of Safeguard® SWS Fillet Seal and ram into the chase surrounding the penetrating service.

- 3.3. If the penetrating service or item is of iron or steel, then this must be thoroughly prepared and treated with a proprietary rust inhibitor in accordance with the manufacturers instructions, prior to the application of any tanking procedures and paying particular attention to the point of entry into the building.

4. Preparation – Floors

It is almost certain that floors adjacent to walls which require structural waterproofing are of solid construction and these therefore should be included within any proposed scheme. In the event of timber floors being present, then it is probable that decay may exist and new solid floors should be laid. This is essential if a complete system is required.

- 4.1. Establish the stability and construction of the solid floor. If it is stable and not possible to reduce head height by 60 mm, ascertain whether or not it is possible to lift the existing floor screed off the underlying floor slab. If neither of these options are possible, then a new solid floor construction will be required.
- 4.2. If an existing floor is to remain and be coated, jet wash entire surface and form floor/wall junctions as detailed under section 2.
- 4.3. If a new solid floor is to be introduced this should be laid up to the concrete slab level only at this stage – the final screed to be applied at the very end of all works (See Section 5.7).
- 4.4. If an existing floor is to be maintained but reduced headroom would cause a problem, consider the use of a self levelling mortar on top of the Safeguard® SWS Slurry coating which must be protected from mechanical wear.

5. Application – Walls and Floors

First Coat (Walls and Floors). Mechanically mix Safeguard® SWS Slurry to the desired consistency using gauging water comprising of 1 part SWS Bondaid Plus to 4 parts water. Dampen prepared surface as required and apply first coat by trowel or brush to a thickness of approximately 3 mm. For a partial system lap out onto floor surface for a minimum of 200 mm. All angles must be coated in one continuous operation and not cut into or up to. The total treatment of any angle should be completed within one hour of the initial application. If brush applied finish first coat in vertical strokes.

- 5.1. Second Coat (Walls and Floors). Allow a minimum of eight hours to lapse following the application of the first coat. Apply a second coat of Safeguard® SWS Slurry in the same fashion as the first coat to a depth of 2 mm. If brush applied finish second coat in horizontal strokes.
- 5.2. Allow second coat to dry for a minimum of 24 hours. Where severe dampness is being covered, a few 'weak spots' may show. Should this happen apply a third coat of Safeguard® SWS Slurry over the areas in question, allowing sufficient over lap onto the surrounding drier surfaces.
- 5.3. Third Coat (Walls Only). Allow a minimum of 24 hours from the application of the final Safeguard® SWS Slurry coat. Apply a 10mm render coat made up of 3 parts sharp washed sand (B.S. 822 M Grade) to one part cement incorporating Safeguard® SWS Bondaid Plus in the gauging water, diluted at a ratio of 1:4. If this coat is to be left overnight or for a period of time, apply as a splatter coat in order to ensure an adequate key later. Take this coat down to the floor.

- 5.4. Fourth Coat (Walls Only). Whilst the third coat is still green or provided it has been left adequately keyed, apply a render coat of 3 parts sharp washed sand (B.S. 822 M Grade) to 1 part cement to a depth of 10 mm. Take down to floor and scratch finish.
- 5.5. Finish Coat (Walls Only). Finish using Thistle Multi-finish or similar. Do not over-trowel and stop 25 mm above intended finished screed level.
- 5.6. Floors. Following the final finish coat to the walls, check that the first and second coats applied to the floor have not been damaged. It is suggested that the floors are physically protected following the second coat, whilst the third, fourth and finish coats are applied. Lay a conventional floor screed over entire floor area.

Important Note:

Metal angle beads should NOT be used in structural waterproofing situations. All angles should be formed. If angle beads are to be used in the finishing coat then they should be of either stainless steel or plastic type.

All cementitious based systems are susceptible to considerable shrinkage forces as the water employed in the application process evaporates. It is inevitable therefore that some cracking and possible de-bonding will occur to some degree.

6. Fixings

- 6.1. Ideally any structurally waterproofed surface should not be punctured, as this creates a point of weakness. Where it is not possible to avoid a fixing, the following procedure should be followed.
- 6.2. Drill a hole twice the thickness and 13 mm deeper than the proposed fixing.
- 6.3. Flush hole with minimal water and ram in a stiff mix of Safeguard SWS Fillet Seal to ensure that no air pockets exist and the hole is completely filled.
- 6.4. Allow to fully cure, then drill the centre of the SWS Fillet plug with the correct size hole to accommodate the proposed fixing.
Note: Where water pressure exists, the structurally waterproofed surface should not be punctured at all.
- 6.5. Skirting board and services. Any skirting boards to be re-fitted should be fixed using a suitable adhesive. Pipes and electric cable should be concealed in glue fixed surface conduits.

Door frames, window frames, skirtings, staircases etc. to be re-fitted should have their concealed surfaces thoroughly treated with ProBor® 20 prior to fixing. If re-fixed whilst treated walls are still damp, protect contact surfaces with a physical DPC material.

7. Condensation

- 7.1. By virtue of their position within a property, surfaces which require structural waterproofing will nearly always have a cooler surface temperature and as a consequence will be more prone to the effects of condensation. This point should always be borne in mind when 'designing' a structural waterproofing system and recommendations for the control of atmospheric moisture i.e. humidistat controlled ventilation fans, de-humidifiers, constant dry heat etc. should always be incorporated within specifications.
- 7.2. As a matter of course, a condensation check should be undertaken at the time of the initial inspection and this is especially relevant during the cooler winter months. This is easily undertaken using a diagnostic hygrometer and surface thermometer and further details are available from the technical department of Safeguard.

8. Decoration

- 8.1. Because the substrate behind the structurally waterproofed surface will never dry out, it is very important that any re-decoration must not act as a vapour barrier. Only vapour permeable materials such as Trade Emulsions and ordinary wall papers should be used. Gloss paints, vinyl emulsions, together with vinyl and washable wall papers should be avoided as these will 'trap' moisture behind the decorated surface, allow salts to migrate and cause a blistering and peeling of the decorative surface thereby giving the appearance of a system failure. Any re-decoration within 12 months after the completion of the works should only be regarded as temporary.
- 8.2. During the initial period following the completion of structural waterproofing it is normal for the surfaces to appear to be 'sweating'. This will eventually reduce as the water used during the works evaporates. This may take some time and is dependent upon ventilation.

Other Information

Dry Rot Irrigation – Chemical Damp-Course

Installation

If structural waterproofing is to be carried out over masonry which has been irrigated because of dry rot, or had a chemical damp course installed, 21 days should be allowed before the application of structural waterproofing mixtures on such walls.

Partial System

The application of a partial system may in some circumstances cause the movement of moisture to previously unaffected areas and allowance for this occurrence should be made. This is especially relevant at the floor/wall junction and the preparatory work detailed in section 2.0 should always be undertaken and the subsequent first and second coats (sections 5.1 and 5.2) should always be lapped out onto the floor for a minimum of 200 mm. In the event of a physical membrane existing in the floor, then continuity must be maintained by using a flexible waterproof joint.

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