

## GREENSEAL 5000

### LIQUID APPLIED WATERPROOFING MEMBRANE SYSTEM

#### DESCRIPTION

Greenseal 5000 is a waterproofing system ideally used between slabs to protect them against the penetration and lateral movement of water. Greenseal 5000 waterproofing membrane is a cold applied, seamless, elastomeric single component moisture curing bitumen modified polyurethane, specially formulated for hand application by using squeeze or roller to vertical or horizontal surface. It should be applied directly from the container (liquid application). It is designed especially for use as a flexible continuous waterproofing membrane between two-course concrete, between masonry construction and bituminous toppings and also for exterior below grade waterproofing of masonry.

#### USES

- Parking garages
- Pool decks
- Roof Top
- Shower stalls
- Mechanical rooms
- Fountains
- Bridges
- Highways
- Balconies
- Below grade slabs
- Culverts
- Around drains
- Dams
- Reservoirs
- Concrete tanks

#### PRODUCT PROPERTIES

Tests	Test Results	Standard
Shore A Hardness	47.5	ASTM D-2240
Tensile Strength, Mpa	>2.0	ASTM D-412
Elongation, Percent, Avg.	>800%	ASTM D-638
Puncture Resistance, average	34 N	ASTM E-154
100% Modulus, Mpa	1.6	ASTM D-412
Adhesive to Concrete. Mpa (Pull-off Adhesive Test- applied on concrete)	0.9 (Cohesive B)	ASTM-D-4541
Moisture Vapor Transmission Perm. Inches/mm <sup>2</sup> /24h	0.000248 grains	ASTM-E 96
Crack Test 1/16 inch, Cycled 10 times/24 hours@ 15 F	No Loss of Bond or Cracking Exhibited	
Crack Bridging Test a) Original b) After contact in the following Chemical for 72 hours i) 0.5% (w/v) NaOCl ii) 1.25% (w/v) NH <sub>4</sub> OH iii) 3.7% (w/v) HCl	No cracks No cracks No cracks	(Able to bridge crack up to 2mm in width)
Viscosity	20,000 cPS ±10%	

\* Results shown are typical but are not intended as performance criteria for on-site installed material.

## ADVANTAGES

1. Inherent membrane flexibility
  - Permits nominal expansion and contraction without losing bond to substrate
  - Durable and remains elastic at extreme temperatures
2. Creates a seamless and continuous protective membrane
  - Effective water and vapour proofing system
3. Chemically impervious barrier
  - Resistant to acids, alkalis and salts
  - Not susceptible to bacteria attack
4. Wide range of curing temperature
  - From -4°C to 42°C
5. Irreversible chemical curing
  - Membrane remains intact after curing even when exposed to elevated temperatures
6. Seal Crack
  - Prevents new concrete from cracking
  - Able to rehabilitate cracked surfaces by sealing cracks up to 2mm wide
7. Ease of application
  - No special tools or equipment required
8. Anti Root
  - By forcing the root to travel elsewhere
  - Prevent future root growth while effectively stopping infiltration.

## COVERAGE

20 litres per 12m<sup>2</sup> (1.65 litre/m<sup>2</sup>) should produce a cured membrane of 1mm thick when GS 5000 is applied to lightly steel trowelled concrete surfaces. We recommend GS5000 application with Fibre Mesh embedded after GS5000 primer follow by GS5000 roller grade at 1.65/m<sup>2</sup> and the thickness shall be 1 mm thick. Coverage may vary with the application technique used. Actual coverage rate and mm thickness depends on finishes and porosity of the substrate.

## APPLICATION INSTRUCTIONS

### SURFACE PREPARATIONS

Surface preparations are required before using Greenseal 5000.

Thoroughly clean concrete surfaces free of oil, grease, paint and loose dust, mud and laitance and hose down concrete surfaces thoroughly. For best results, all concrete deck surfaces should be lightly steel troweled to a fairly smooth finish. New concrete must be water cured, at least 14 days old and the surfaces must be dry.

GS 5000 must be applied on concrete below 45°C to avoid bubbles forming on the surface. In case of bubbling, a spike roller can be rolled over the membrane to release the bubbles

### Static Joints and Cracks:

Joints and cracks less than (2.0mm) should be filled by pre-stripping. The material should be applied to both fill and overlap the joint or crack to a width of 4" (100mm) on each side.

### Working or Expansion joints:

All such joints over (2.0mm) wide must be sealed with Greenseal sealant. Care however, should be taken to prevent the waterproofing membrane from adhering to the joint sealant. This could cause sealant or membrane failure. Such adhesion can be prevented by applying a coat of liquid household wax over the cured sealant, and pre-stripping as above. Joints treated in this fashion will function independently of the overall waterproofing system.

### Metal Preparation:

All metal should be wire brushed or sandblasted to bright metal and then primed with Greenseal Aluminum Primer prior to application of GS 5000.

### Vent, Post Penetration and Drain Pipe:

Clean metal surfaces to bright metal and prime. Remove dust, debris and any other contaminants from voids. Seal with Greenseal sealant, as previously indicated. GS 5000 will adhere to PVC pipe without priming.

### Treatment to Honeycombing and Void:

All honeycombing form-tie and void detected must be plugged with Greenseal injection grout prior to the application of GS 5000.

For treatment to cold joint between floor slab where vertical walls meets slab, the area shall be pre-stripped to 100mm wide on the slab of the concrete and 100mm on the vertical wall. The final membrane is applied at the corner between the walls and slab.

**APPLICATION : WITHOUT FIBRE MESH**

1. All surfaces to be thoroughly inspected, the concrete surface must be clean and free from oil, grease, paint, loose dust, mud and laitance.
2. Greenseal 5000 shall be applied directly onto the concrete surface after the recommended surface preparation work had been completed.
3. Applied directly from the container, no mixing is required.
4. Before application of the 1<sup>st</sup> coat of GS5000, apply a thin layer of Greenseal 5000 primer.
5. The coat of GS5000 shall be applied at the rate 1.65 litre/m<sup>2</sup> with a proper roller ensuring that all surface of the concrete surface is covered.
6. Mark up areas of approximately 12 m<sup>2</sup> per pail of 20 litres to achieve the final average thickness of 1 mm. This can be done by marking an area of 10 m<sup>2</sup> and pour 20 liters of Greenseal 5000 and evenly applied the content with a rubber edged notched squeegee by the rate of 2 litre/m<sup>2</sup>.
7. The whole procedure is repeated from area to area until the whole roof surface is covered with Greenseal 5000, and ensuring that the membrane are overlapped at least 50 mm between coats.
8. For overnight application all joint or edge must have at least 100mm overlapping of Greenseal 5000.
9. On completion of the Greenseal 5000 membrane, it shall be proceed to protective cement panel. It shall be covered as soon as possible by protective screed to fall and if possible after 3 working days. A time frame of exposure of the membrane shall not exceed for more than one month. A cement/ sand (1:4) protective screed of 50mm thick shall be laid on the entire waterproofing system and embedded with BRC A4 in panels of 2m x 2m and joint of 10mm x 12mm and the joints to be filled with Greenseal Bituminous sealant with backer rod as base.
10. Tiling works shall be laid on top of protective screed.

Using Greenseal 5000 with Greenseal Fiber Mesh

For better tensile strength, use in conjunction with Greenseal Fiber Mesh.

**APPLICATION : WITH FIBRE MESH**

1. All surfaces to be thoroughly inspected, the concrete surface must be clean and free from oil, grease, paint, loose dust, mud and laitance.
2. Greenseal 5000 shall be applied directly onto the concrete surface after the recommended surface preparation work had been completed.
3. Applied directly from the container, no mixing is required.
4. Before application of the GS5000, apply a thin layer of Greenseal 5000 primer.
5. After the Greenseal 5000 primer has been applied, ensure that the polyester fibre mesh is all flatten and the layer of Greenseal 5000 primer will be sipping through the polyester fibre mesh. It is important to roll the GS5000 with sufficient material and shall not be less than 1.65 litre/m<sup>2</sup> coverage.
6. Mark up areas of approximately 12 m<sup>2</sup> per pail of 20 liters to achieve the final average thickness of 1 mm (with fibre mesh). This can be done by marking an area of 12 m<sup>2</sup> and pour 20 liters of Greenseal 5000 and evenly applied the content with a rubber edged notched squeegee by the rate of 1.65 litre/m<sup>2</sup>.
7. The whole procedure is repeated from area to area until the whole roof surface is covered with Greenseal 5000, and ensuring that the membrane are overlapped at least 50 mm between coats.
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10. Tiling works shall be laid on top of protective screed.

**FEBRE MESH PROPERTIES**

DESCRIPTION		RESULT
Weave:		Plain
Material (Tex):	Warp: Weft:	22 x 1 x 2 44
Density (counts/inch):	Warp: Weft:	20 10
Unit weight (g/m <sup>2</sup> )	Raw: Finished product:	54±5 60±5
Content of resin:		≥14%
Tensile strength (N/50mm):	Warp: Weft:	≥650 ≥320
Tensile strength after 28days conditioning in 5% NaOH:	Warp: Weft:	≥50% of original ≥50% of original

**MIXING**

- No mixing is required.

**CURING**

The freshly applied GS 5000 shall be protected from direct rain, dirt, oil, grease or other loose particle for at least 12 hours. It is foot trafficable after 24 hours and resistant to light mechanical stress after 3 days. Permanent water pressure resistance shall be achieved after a full hardening of 7 days.

**CLEANING EQUIPMENT**

Upon completion of the application, tools and equipment should be cleaned immediately with Greenseal Reducer.

**STORAGE AND SHELF LIFE**

Greenseal 5000 has a shelf life of 24 months. Keep containers tightly closed and away from ignition sources. Do not expose it to direct sunlight or leave it too long in the open air.

A thin layer of skin coat may occur after content is long exposed to the air. However, this can be easily removed and the rest of the content can be used.

**POT LIFE**

Greenseal 5000 can be used up to 3 months once the packaging is opened. Protect from heat and frost.

**PACKAGING AND APPEARANCE**

- 20 litre pail & 4 litre pail
- Colour: Black bitumen

**PRECAUTION**

- Bubbling may occur if apply on substrates that are wet.
- Greenseal 5000 should not be used as exposed or wearing surfaces.
- Greenseal 5000 should not be used where a solvent odour is objectionable such as in close proximity to areas where food preparation or processing take place during the time of application.
- GS 5000 must be applied on concrete below 45°C to avoid bubbles forming on the surface. In case of bubbling, a spike roller can be rolled over the membrane to release the bubbles

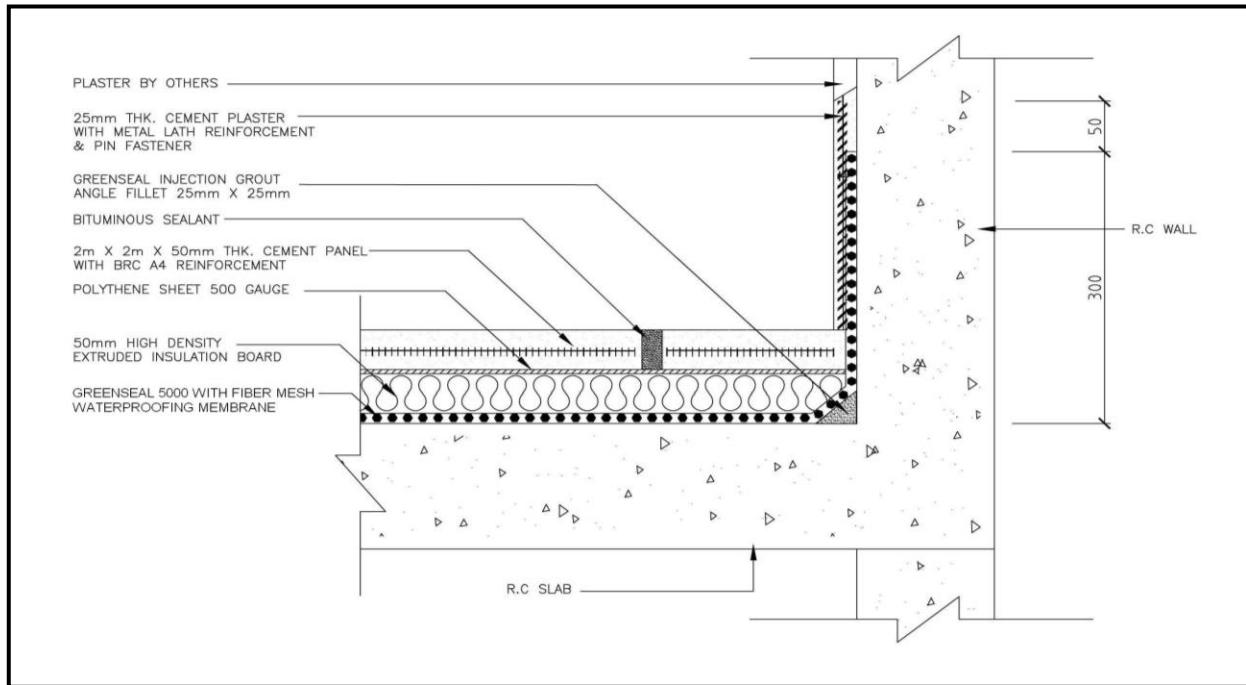
**HEALTH, SAFETY AND CLEANING**

It is recommended that the applicator wears a safety goggles and gloves. Avoid prolonged contact with exposed skin, and keep away from mouth and eyes. In case of skin contact, wash areas with soap and water. If contact with eyes, rinse thoroughly with clean water. Seek medical attention immediately if irritation persists.

**TECHNICAL PHOTO USING GREENSEAL 5000 WATERPROOFING SYSTEM**



**TECHNICAL DRAWING USING GREENSEAL 5000 WATERPROOFING SYSTEM**



**Guarantee**

The information contained in this leaflet is based on our experience and technical knowledge, obtained through laboratory testing and from bibliographic material. GREENSEAL reserves the right to introduce changes without prior notice. Any use of this data beyond the purposes expressly specified in the leaflet will not be the Company's responsibility unless authorized by us. Our guarantee covers exclusively the quality of the manufactured product. We will not accept any responsibility exceeding the value of the purchased product.

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Greenseal is certified by  
MS ISO 9001:2008 Quality Management System  
ISO 14001:2004 Environment Management Systems