

PermaSEAL[®]

Permagard

3mm Mesh Membrane

Installation Guide

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1. Introduction

PermaSEAL 3 Mesh is a high quality, high density polyethylene (HPDE) membrane suitable for use in damp proofing structures above ground level. The stud depth of 3mm provides a suitable air gap for use as a wall applied membrane.

PermaSEAL 3 Mesh has a life expectancy of at least 30 years (DIN 9001:2000). PermaSEAL 3 Mesh is an inert product. It is highly resistant to water, alkalis, saline solutions and organic acids, and is not affected by minerals. It is also resistant to bacteria, fungi, and other small organisms.

This mesh damp proofing membrane can accept a range of wall finishes. The mesh fabric welded to the face of the membrane is the ideal key for direct render finishes or dot and dab plasterboard. PermaSEAL Mesh membranes are ideal for use where space is at a premium for example, staircases, small rooms etc as when finished with a render the total surface thickness can be as slim as 20mm including the membrane.

2 Installation guidelines

PermaSEAL 3 Mesh can be installed over a wide range of substrates in varying situations. However, before the system is installed, the area must be assessed to determine what preparation is required:

1. Plaster that may be affected by being closed in behind the cavity drain membrane in the "wet zone", such as gypsum or lightweight plaster, or where the existing plaster is loose or de-bonding, should be removed from walls/soffits prior to membrane application. Only where dense and well adhered sand and cement renders are present and where removal may cause unwanted structural damage to substrates can they be left in place.
2. All timber fixtures and other organic material must be removed to prevent risk of fungal or bacterial growth behind the membrane, e.g. skirting boards, timber plates, old wallpaper etc. If evidence of rot exists, this must be dealt with by a specialist contractor prior to installation of the membrane. If any mould, etc. exists, this should be cleaned off and the area sterilised with a fungicidal wash.
3. If the walls are uneven or areas have deteriorated, any large depressions should be levelled and made good to ensure a solid fixing and easier installation.
4. If any evidence of wet rot or dry rot is seen, have it dealt with by a qualified remedial specialist.
5. If a new slab is to be laid as part of the works, it is preferable to fit PermaSEAL 3 Mesh prior to the laying of the floor slab with the floor DPM extending upwards in front of the PermaSEAL 3 Mesh ready for the concrete pour.

3. Wall installation

Cut the membrane to size. Ideally, PermaSEAL 3 Mesh should be continued down past the slab to the oversite. If this is not possible, cut the membrane so that it finishes tightly to the soffit and floor finish. A gap is not required at the floor; indeed, the system works more efficiently when the system is not ventilated as this impedes the natural vapour drive from inside the property to the outside that still continues through the PermaSEAL 3 Mesh.

PermaSEAL 3 Mesh is fitted to the wall with the studs to the wall and the flat meshed surface facing inwards towards the applicator. Fix the membrane to the wall with the PermaSEAL Plaster Plug with a rubber grommet fitted to all substrates except to slightly friable mortar substrate, when the PermaSEAL Cob Plug should be used.

PermaSEAL 3 Mesh is fitted horizontally or vertically. Fit the membrane as level as possible - best results are achieved when a long builder's level or a rotating laser level is used. Care must be taken to ensure that the PermaSEAL 3 Mesh is pulled tight and square while fixing as this will avoid sagging or bulging which can cause problems when plastering or rendering.

Using a 7 or 8mm drill bit (depending on substrate), drill through the membrane (normally through one of the studs) into the wall to a depth of at least 65mm. Put one of the plug washers onto the plaster plug then hammer home until the seal is tight against the membrane and so prevents migration of dampness and salting from the substrate to the wall finish.

Use a small number of fixings to initially fit the membrane to the wall as level as possible. Once the section of membrane is on the wall add the further fixings. Hammer the plugs home using a wide headed hammer such as a lump hammer or mallet.

A smaller diameter bit can be used on softer substrates to ensure a tight fit for the plug. Fixing centres must not be greater than 250mm. On curved or uneven surfaces, closer fixings should be used. Fit PermaSEAL 3 Mesh 300mm to return walls to isolate wall finishes from dampness transmitting from the main wall being treated. PermaSEAL 3 Mesh can be taken into reveals. Fixing should not take place above 30°C and below -5°C.

3. Membrane sealing and jointing

Position fixings close to the edge of all joints to reduce the risk of shrinkage cracks. Joints are created by butt jointing the two edges together and then over sealing the joints with PermaSEAL Fleece Overstrip.

PermaSEAL 3 Mesh can be taken round corners. On particularly difficult shaped corners, cut the PermaSEAL 3 Mesh and butt joint and seal as above. PermaSEAL Fleece Overstrip should be firmly pressed into the mesh of the PermaSEAL 3 Mesh to facilitate the joint. In cold and damp conditions, a heat gun should be used to gently evaporate surface moisture and then to assist in pressing the PermaSEAL Fleece Overstrip into the mesh of the membrane.

Sealing around protrusions

Where the membrane has to be cut around pipes or other protrusions, carefully cut the membrane around the protrusion and then seal around the protrusion with Mastic or PermaSEAL Fleece Overstrip to ensure there is no bridging between the damp substrate and the new finish. 6mm scratch coat, 6mm second or float coat.

Puncturing the membrane

If the finished wall is punctured when holes are drilled to fix brackets, etc., Mastic should be inserted before fixing bolts are inserted to ensure no bridging from the damp substrate occurs.

4. Finishes

PermaSEAL 3 Mesh is suitable for internal use only. The wall finish can be plaster, render, hydraulic lime or plasterboard bonded to the membrane with a propriety adhesive compound.

Plastering

The recommended plaster for PermaSEAL 3 Mesh is Tarmac Whitewall One Coat. Please note that we do not recommend that this product is used in one single coat to PermaSEAL Mesh membranes.

The application of the plaster should be in two coats:

If a finish coat is required this should be of 3mm. Tarmac Whitewall should be applied in accordance with good plastering practice as described in BS 8481 : 2006, BS EN 13914-2 : 2005.

Always allow 24 hours drying time between coats of plaster. For a high impact resistant finish, use Whitewall High Impact Backing Plaster.

NOTE: Tarmac Whitewall are not suitable for areas of high humidity and wet areas such as swimming pool surrounds.

Rendering

Render with a mix of sand, cement and lime should be applied in two coats using the procedures defined within BS EN 13914-1 :2005 to a total thickness of 14mm. A 3mm skim coat of finishing plaster can be added once the render is fully cured.

The scratch coat should be a mix of 1 part lime: 1 part cement: 5 parts clean well-graded sharp sand and the second or float coat should be a mix of 1 part lime: 1 part cement: 6 parts clean well-graded sharp sand. The scratch coat should be 7mm and the second or float coat should be 7mm.

To lessen incidence of cracking, it is best to mix the lime and sand a day or more before use. Cement can then be added at the time of rendering.

The work should be of two coats of render and if required, a third coat of finishing plaster. The purpose of the 7mm scratch coat is to stiffen up the lath and to provide rough and absorbent, backing for subsequent coats. Work this scratch coat well into the mesh.

Each 7mm coat of render should be allowed to dry for a period of not less than seven, preferably ten days, longer if possible. Cracking may occur if shorter time is allowed between coats.

It is important that the render coats are allowed to cure correctly over the 7-to-10-day period with the render dampened as required. If the scratch coat has not fully cured, slumping of the render can result.

Before applying the second or float coat, carefully drill or scratch out a small area into an area behind the mesh, within the membrane stud, to confirm that it is fully cured.

The surface will cure quite quickly but the area behind the mesh must be fully cured also. In warm periods the render should be protected from excessive drying out by covering with damp hessian sheets with plastic sheeting over.

Dampened down the scratch coat before application of the float coat. A smooth finish is not recommended. Expansion joints should be trowelled in through the render to the membrane. These joints must be filled with a suitable flexible polymer-based sealant.

Expanded metal angle beads and stop beads can be fixed where appropriate using dabs of the same material mixed as for the scratch coat.

Hydraulic lime

NHL (Natural Hydraulic Lime) 3.5 should be used to a combined depth of 20mm with a 10mm scratch coat and a 10mm second or float coat. The mix ratio is 2.5 parts sand to 1 part NHL 3.5 mixed as per manufacturer's instructions.

The 10mm scratch coat is pushed firmly into the membrane mesh. Check the application the day after and rub out any Cracks. The surface should be thoroughly scratched without breaking the surface of the mesh. The scratch coat has to be left for a minimum of 7 days to set. It should be protected from draughts and extremes of temperature.

Before applying the second or float coat, carefully drill or scratch out a small area into an area behind the mesh, within the membrane stud, to confirm that it is set and reasonably hard. The surface will cure quite quickly but the area behind the mesh that has to be set.

Plasterboard on dabs

Plaster board panels can be fixed to PermaSEAL 3 Mesh by the dot and dab method, giving a dry surface ready for immediate decoration. 'Dabs' should be applied to the heads of the PermaSEAL Plaster Plugs, board edges and membrane to cover 50% of the PermaSEAL 3 Mesh.

DO NOT APPLY DECORATIONS UNTIL PLASTERS OR RENDERS ARE THOROUGHLY DRY.

Technical staff will be pleased to give help and advice on the most effective use of the product.