PermaSEAL®
Permagard

8mm Mesh membrane

Installation Guide

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1. Introduction

PermaSEAL 8 Mesh is a high density polyethylene (HDPE) cavity drain membrane suitable for use in waterproofing structures below ground level (basements) and isolating damp walls above ground level. The stud depth of 8mm provides a suitable air gap for use as a wall applied membrane.

PermaSEAL 8 Mesh is suitable for use in accordance with BS8102:2022 to provide Type 'C' drained protection to structures below ground providing a Grade 3 dry environment suitable for domestic or commercial use.

It is essential that if applied in this way it is used in conjunction with the PermaSEAL sump and pump system (unless passive drainage is available on one side of the building) and that this is maintained throughout the lifetime of the installation.

PermaSEAL 8 Mesh has a life expectancy of at least 30 years (DIN 9001:2000). PermaSEAL 8 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 waterproofing 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 8 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 8 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 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 with sand & cement or with PermaSEAL Fillet Seal to ensure a solid fixing and easier installation.

3. Wall installation

PermaSEAL 8 Mesh is fixed studs facing the wall to create an air/ depressurisation gap and the flat meshed surface facing inwards towards the installer. The gap created is designed for either air movement or water movement down to a drainage system.

PermaSEAL 8 Mesh can be fixed horizontally or vertically depending on the area to be lined and the wall height. Horizontal fitting requires less joints as the roll is simply unrolled around the room however, this method will require movement of the full roll which is relatively heavy to start and can be difficult at height. Vertical fitting is a lot easier as you are only dealing with part sheets. This method is also employed where the wall height is taller than the roll height so the roll is cut into predetermined lengths (wall height) and installed like wall paper. This method has a lot more joints as each section needs to be overlapped and joined to the next strip, as per jointing instructions later.

PermaSEAL 8 Mesh is generally fixed to the wall with the PermaSEAL Plaster Plug however, the PermaSEAL Brick Plug can also be used. The PermaSEAL Plaster Plug should be sealed with either a rubber sealing washer or PermaSEAL Sealing Rope. Before installation the rubber seal or the PermaSEAL Rope must be fitted onto the plug. Once the plug is hammered home this will create a watertight seal against the membrane.

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 8 Mesh is pulled tight and square while fixing as this will avoid sagging or bulging which can cause problems when plastering or rendering.

Using an 8mm drill bit, drill through the membrane at the top corner (normally through one of the studs) into the wall to a depth of at least 65mm. Using either a sealing washer or the PermaSEAL Rope on the plaster plug, put the plug into the predrilled hole and 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 further fixings. Hammer the plugs home using a large headed hammer such as a rubber mallet. Fix the plugs in a square formation at 350mm centres. Now fix a plug in the centre of the four fixings, creating the look of a 5 on a dice. All fixings are then a maximum of 250mm centres.

If you are fixing vertically, the subsequent sheet should overlap by at least the width of the non-meshed section interlocking the 3 studs. The vertical joints have to be sealed with PermaSEAL Tape. It is easier to apply the tape to the inner surface of the next sheet. Clean the face of the last sheet with a clean cloth. When you have fixed the new sheet level with the correct overlap, pull off the backing paper from the tape and peel down whilst applying pressure to the membrane. Once all the backing paper has been removed, apply more pressure with the palm of your hand to further seal the whole of the joint. A hot air gun can be used to help sealing in cold or damp conditions being careful not to melt the membrane.

When fixing the system to vaulted soffits you must ensure that enough fixings are used to keep the wall membrane tight to the soffits with no sagging. The recommended fixing centres, as suggested previously, are applicable to vaulted soffits also but take care to check the membrane is tight or additional fixings may be required. When dealing with curved surfaces the PermaSEAL Plaster Plug must be sealed with PermaSEAL Rope as this gives a better seal in this situation. All fixings should be in line both horizontally and vertically.

4. Membrane sealing and jointing instructions

It should be noted that all membrane and sealing surfaces must be clean, dry and dust free before applying sealing materials. When making a joint between two sections of membrane, PermaSEAL Tape should be pressed firmly against the PermaSEAL 8 Mesh membrane for good adhesion. Any visible air gaps between the membrane and the sealing compound must be firmly pressed out to give a fully watertight seal.

The PermaSEAL 8 Mesh will require the following type of joint:

Locked Stud into Stud Joint: Where a 'Flanged Joint' is not possible, and where the studs from each sheet line up correctly so that they interlock into each other, a 'Stud into Stud' joint is possible. The overlap should be a minimum of three studs. PermaSEAL Tape is used to achieve a flat joint. Attach the PermaSEAL Tape to the flat area between the studs.

The face of the membrane joint can also be sealed with the application of PermaSEAL Fleece Strip, this product is a single sided jointing tape with a fleece face. It is simply applied over the surface of any joints to form a surface seal. This should be done as a secondary seal after the application of the above joint between the membranes.

5. Vaulted or curved cielings

We do not advise mesh membranes are used on vaulted ceilings. We advise vaulted ceilings are lined with PermaSEAL 8 Clear or PermaSEAL 8 ECO X. This limits the number of fixings used, when compared to using PermaSEAL 8 Mesh, reducing the risk of a poorly secured fixing causing a leak. Batten and board or other dry-lining methods are also lighter and easier to apply than wet renders.

NB: If a mesh membrane is required for a project, it is imperative that you discuss this with the Permagard technical team before works are carried out.

6. Finishes

Due to the thermally welded mesh on the face of the membrane, PermaSEAL 8 Mesh will accept a number of finishes.

Acceptable plasters are Tarmac Whitewall, Universal One Coat or PermaSEAL Renovating Plaster. These should always be applied in two coats, generally 24 hours apart.

A cement render is also acceptable but a minimum 7 day curing period between coats is essential as shrinkage cracks may appear.

A 15mm minimum total thickness for all renders and plasters is advisable. An approximate 6mm scratch coat followed by similar or thicker for the float coat and finish.

The dot & dab system for plasterboard fixing requires a minimum adhesive to board coverage of 50% of the board area. Please note, insulated plasterboard is not compatible with the dot & dab, mesh membrane system. Building regulations require two mechanical fixings to each board. This would pierce the membrane with no access to repair it.

If insulation is required, we would advise PermaSEAL 8 Clear installation with timber or metal track system.

Note: It is essential that the waterproofing designer incorporates drainage facilities to remove any water from a cavity drain membrane system, otherwise failure of the system will occur if there is water ingress.

7. Maintenance

PermaSEAL cavity drain membrane system will require maintenance for the lifetime of the system however, this is mainly the drainage channels and sump and pump system. For information on this please refer to relevant installation guides, technical data sheets or speak with our technical team.

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