

PermaSEAL[®]

Permagard

3mm Clear Membrane

Installation Guide

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1. Introduction

PermaSEAL 3 Clear is a high quality, high density polyethylene (HDPE) 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 and floor applied membrane.

PermaSEAL 3 Clear has a life expectancy of at least 30 years (DIN 9001:2000). PermaSEAL 3 Clear 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 clear damp proofing membrane can accept a range of wall finishes. An independent track frame can be erected in front of the membrane or timber battens can be fixed to the head of PermaSEAL Brick Plug holding the membrane in place. PermaSEAL 3 Clear can accommodate insulation, underfloor heating, screed and floating floors.

2. Installation guidelines

PermaSEAL 3 Clear 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.

3. Wall installation

PermaSEAL 3 Clear is fixed studs facing the wall to create an air/ depressurisation gap. The gap created is designed for either air movement or water movement down to a drainage system (if applicable).

PermaSEAL 3 Clear 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 3 Clear is fixed to the wall with either the PermaSEAL Brick Plug or PermaSEAL Quick Plug. For ease of use both can be supplied with pre-fitted rubber sealing washers which when hammered home will compress against the membrane to create a watertight seal. As an option for slightly undulating surfaces the seals can be removed and the head of the plug wrapped with PermaSEAL Rope which when compressed against the membrane will stick to both the plug and membrane to create a permanent bond.

Place the membrane in position as level as you can judge by eye. Using a 10mm drill bit, drill through the centre of a stud near the top and edge to a depth greater than the fixing. The fixing is then hammered into the pre-drilled hole until the seal compresses tightly into the stud. The rubber washer re-seals the hole. Level the membrane using the spirit level or laser level if used, and fix another plug about 2m along at the top of the sheet. The membrane will now be hanging level to the wall.

If you are fixing horizontally, continue fixing every 2m until you have reached the end of the roll or you have covered all of the wall(s) to be treated. It is very important to regularly check the level. If the membrane is not level, you may well find that the membrane is kinked and looks unsightly, it will also dive down when fitted around corners.

If you are fixing vertically, hang each subsequent sheet by the two fixings as described above. The subsequent sheet should overlap by at least the width of the flange (part with no studs) of the new sheet. You may find it easier to interlock the first stud of the new sheet to the last stud of the last sheet as this helps to keep the new sheet level. The vertical joints have to be sealed with PermaSEAL Tape. It is easier to apply the tape to the inner surface of the flange of the next sheet. Clean the flange and the face of the last sheet with a clean rag. 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 flange. 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 should be used to help sealing in cold or damp conditions.

4. Plug fixing centres

Once the wall membrane is hanging off the top fixings the rest of the fixing plugs need to be fixed.

The spacing of these fixings is dependent on the type of wall finish to be used:

Timber battens	600mm centres vertically and 400mm horizontally. Barrel Vaults require tighter centres 300mm around the vault and 600mm down the vault.
Fixed metal track	800mm centres vertically and 600mm horizontally.

Free standing timber stud walls, metal frames and block walls do not require specific fixing centres. In these cases, use sufficient fixings to ensure the membrane is neat and tidy and reasonably tight to the wall, especially around corners and reveals.

Where brick or block walls will be restrained to the retaining wall using wall ties, additional fixings should be installed to accommodate the restraints at the correct installation centres specified.

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. It is essential the PermaSEAL Brick Plug or Quick Plug is sealed with PermaSEAL Rope as this gives a better seal in this situation. All fixings should be in line both horizontally and vertically.

5. Battens

Battens should be pre-treated and of a minimum dimension of 25mm x 38mm although you may find that 25mm x 50mm offers better fixing at the edge of the plasterboard.

The battens can be fixed into the PermaSEAL Brick Plug or PermaSEAL Quick Plug without piercing the membrane, by using 5mm (size 10) self-tapping screws. The plug will take 25mm of screw, so be sure to purchase the correct length for the thickness of batten.

Over-tightening of over length screws can loosen the plug. Be very careful not to puncture the wall membrane when drilling and fixing the battens. Battens should be fixed so that all plasterboard edges are supported. Use a timber treatment such as Permagard Universal Wood Preserver to protect cut battens.

Once the battens are fitted into position, plasterboard can be fixed to them using plasterboard screws. Care should be taken not to exceed the depth of the battens with the screws, and thereby puncture the membrane.

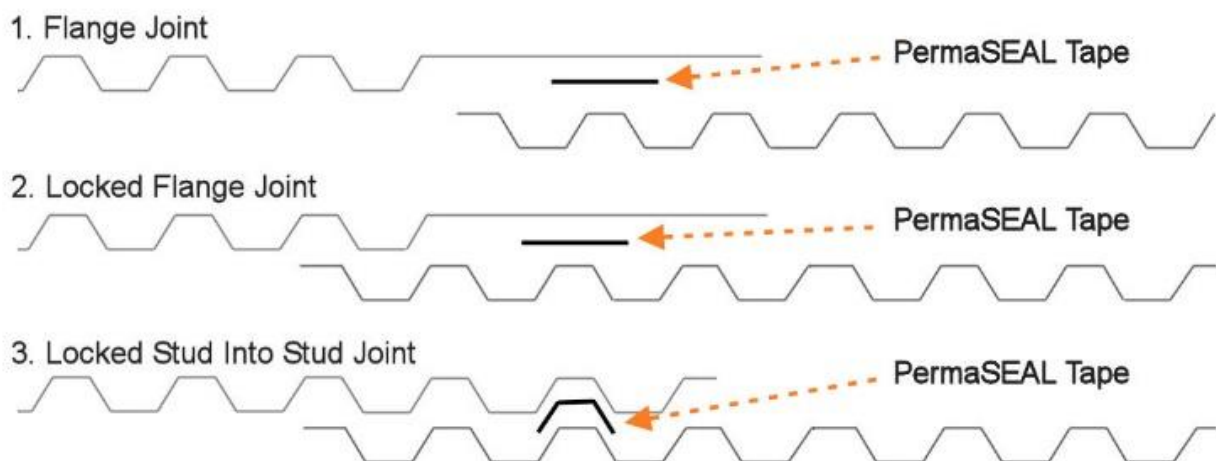
6. Membrane sealing and jointing instructions

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 3 Clear membrane for good adhesion. Any visible air gaps between the membrane and the sealing compound must be firmly pressed out to give a full watertight seal.

There are three standard types of sealed joints that can be made:

1. **Flange Joint:** The Flange Joint should be used whenever the flat flanged edge of the membrane is available. Consecutive membrane widths are fixed to the walls or laid on the floor so that the flange lays over the top of the studded edge of the previous sheet. The flange must cover a minimum of two rows of studs. Using the PermaSEAL Tape, unroll this onto the studded edge sheet, beneath the flange. The PermaSEAL Tape should be positioned between the last two rows of studs on the flat section, and pressed firmly into place.
The backing paper should still be on the tape at this point. Check that the flanged edge of the upper membrane is in position and covering two rows of studs before removing the backing paper from the PermaSEAL Tape. Once the flanged edge is in position, remove the PermaSEAL Tape's backing paper. Press the two membrane layers together firmly as you remove the protective backing paper.
2. **Locked Flange Joint:** This joint is similar to the 'Flanged Joint' but has the first line of studs of the next sheet of PermaSEAL 3 Clear interlocking with the last line of studs on the previous sheet of PermaSEAL 3 Clear. This method is used where you wish to guarantee that the next sheet of PermaSEAL 3 Clear is laid or fitted exactly square to the previous sheet and is useful on large floors or where the wall membrane is fitted horizontally and a horizontal joint is required.
3. **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 last two studs of the previous sheet of membrane with the backing tape still adhered. Carefully remove the backing tape and push the next sheet studs into the previous sheet studs to create the flat joint.



8. Floor preparation

It is essential that there are no undulating surfaces or depressions in the floor. Where an existing solid floor is to be dampproofed PermaSEAL 3 Clear can be used to create an air void and protect internal floor finishes from damp.

The concrete slab/raft should have PermaSEAL Lime Inhibitor applied to reduce the risk of limescale build up under the PermaSEAL 3 Clear membrane.

9. Floor installation

Starting at one side of the room, unroll the membrane with the studs down and cut to fit the area. The membrane is butt jointed to the wall. This process is then repeated until the whole area is covered. The floor membrane can be joined using one of the methods previously described, we suggest the locked flange joint is used.

There may be instances where PermaSEAL 3 Clear membrane may need to join to a DPC membrane, simply clean both surfaces and join with PermaSEAL Tape. If there are any services coming through the floor, the membrane can be cut and trimmed around them. This should be carried out as tight as possible then any gap left should be sealed with either PermaSEAL Rope or PermaSEAL Corner Strip. It should be noted that protrusions through the floor slab/raft should be avoided wherever possible as they create weaknesses that allow unnecessary water ingress.