

# PermaSEAL<sup>PRO</sup> 11 Geodrain

Protection & Drainage Membrane



**PermaSEAL<sup>®</sup> PRO 11 Geodrain is a market leading, two-core drainage membrane consisting of a high-quality geotextile filter layer bonded to a water impermeable HDPE (High Density Polyethylene) drainage membrane.**

It is the ideal solution for fast and effective surface drainage on podium decks, buried roofs, balconies and terraces.

**PermaSEAL<sup>®</sup> PRO 11 Geodrain** is designed to relieve water pressure that bears against horizontal and vertical structures. By allowing water to pass through the geotextile fabric layer and into the cavity created by the 11mm dimpled membrane, depressurisation and fast drainage of the site is achieved.

The optimal high-performance geotextile boasts high initial strength and is subject to minimum deformation under increasing working load. This, coupled with the high compressive strength (500kN/m<sup>2</sup>) of the innovative, specially-reinforced and grooved-stud design, offers a drainage membrane that's ideal for projects with heavy loading and traffic. It also offers a high level of protection against mechanical damage to the primary waterproofing in vertical and horizontal applications.

Walkable and driveable slabs and pavement coverings require membrane drainage in order to prevent water logging and damage to paving caused by the freeze/thaw cycle. PermaSEAL<sup>®</sup> PRO 11 Geodrain prevents the paving from warping by alleviating water build-up. Intensive and extensive flat green roofs can also benefit from the high loading ability and fast drainage. In particular, intensive green roofs where trees and heavy vegetation/soil depths run alongside heavy vehicle traffic, the membrane not only withstands the vehicle loads but also stops waterlogging of the roots, without the need for two separate membranes for each type of build-up.

<b>PERMASEAL<sup>®</sup> PRO 11 GEODRAIN</b>	<b>PRODUCT TECHNICAL DETAILS</b>
Membrane	Virgin HDPE
Geotextile	Polypropylene (Tyvar)
Stud height	11mm
Total weight	>700g/m <sup>2</sup>
Number of studs	4000/m <sup>2</sup>
Compressive strength	> 500kN/m <sup>2</sup>
Colour	Gold
Water drainage capacity	Up to 3.15 l/s m
Roll length	15m
Roll width	2m
Temperature resistance	-30°C to +80°C
Chemical properties	Chemical resistant
Physical properties	Safe for drinking water
Characteristic opening width	Approx. 170 µm
Water permeability EN ISO 11058	Approx. 100 · 10 <sup>-3</sup> m / s
Fire resistance	Class E

## FEATURES

- Unique, **specially reinforced** stud design
- **High compressive strength** – 500kN/m<sup>2</sup>
- **High grade geotextile filter** layer prevents siltation of the cavity
- **Innovative stud design** for secure interlocking of stud to stud overlap joints
- **Integrated geotextile fabric** firmly bonded to the membrane to prevent slip and compression of the fabric
- **Tested Impact Sound Reduction** under foot traffic
- **Waterproof, vapour resistant, salt resistant, rot resistant, contaminant and chemical** resistant

# INNOVATION & PERFORMANCE

## INNOVATIVE OVERLAP SYSTEM

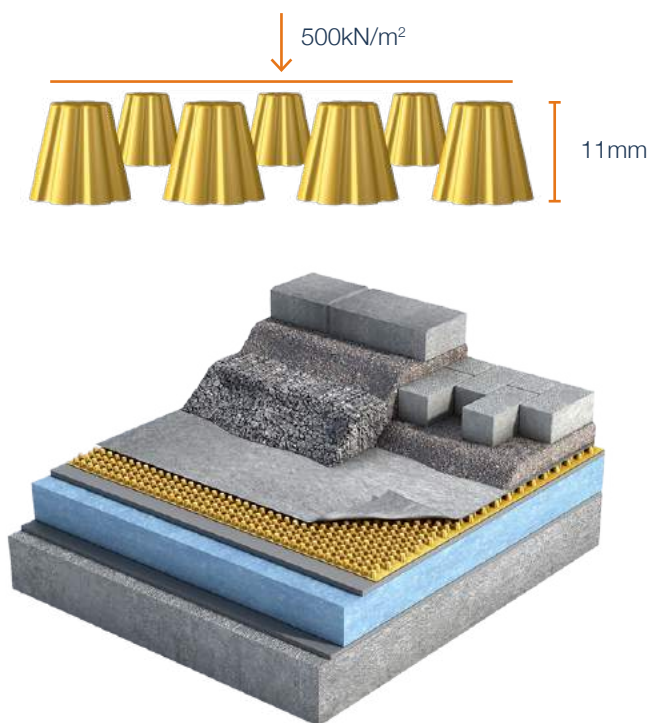


Push button design - an innovative, grooved stud design with indentations on every stud along the outer rows of the membrane. This securely interlocks a row of studs between overlapping membranes. The result is a faster installation that's not weather dependent like butyl tapes.

## BALANCED WEIGHT DISTRIBUTION & HIGH LOADING CAPACITY

The extra number of studs and the smooth reverse side of the membrane ensures the best load distribution and optimal protection of the primary waterproofing.

The innovative, grooved stud design and the sheer number of studs, enables the membrane to achieve an extremely high compressive strength of 500kN/m<sup>2</sup>. With the correct build-up of base and sub base material on top, the membrane can withstand very heavy truck loads and heavily built up intensive green roofs with parks, trees etc.



## FAST WATER DRAINAGE

The optimal water drainage capacity is many times higher than that required by drainage standard DIN 4095 and considerably greater than mineral fill drainage layers. This provides reliable protection against waterlogging that causes frost damage to paving and rotting of green roof roots. The 11mm stud height also ensures fast water drainage without unnecessarily raising the overall height of your build up.

## IMPACT SOUND REDUCTION



Tested and approved to BS EN ISO 10140 – achieving impact sound reduction for insulated flat roof structures of up to 34dB.

## TRUSTED PROTECTION



>700g/m<sup>2</sup> Virgin Quality HDPE, 500kN/m<sup>2</sup> compressive strength. The two-layer system reliably protects the underlying waterproofing against mechanical damage, but also against damaging thermal stress.

PermaSEAL® PRO 11 Geodrain conforms to BS EN 13252, meaning you can trust in the performance.

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# HORIZONTAL & VERTICAL INSTALLATION

In all instances, primary waterproofing is applied to the surface of the structure in accordance with the product data sheets to provide a waterproof, radon or gas proof barrier as required.

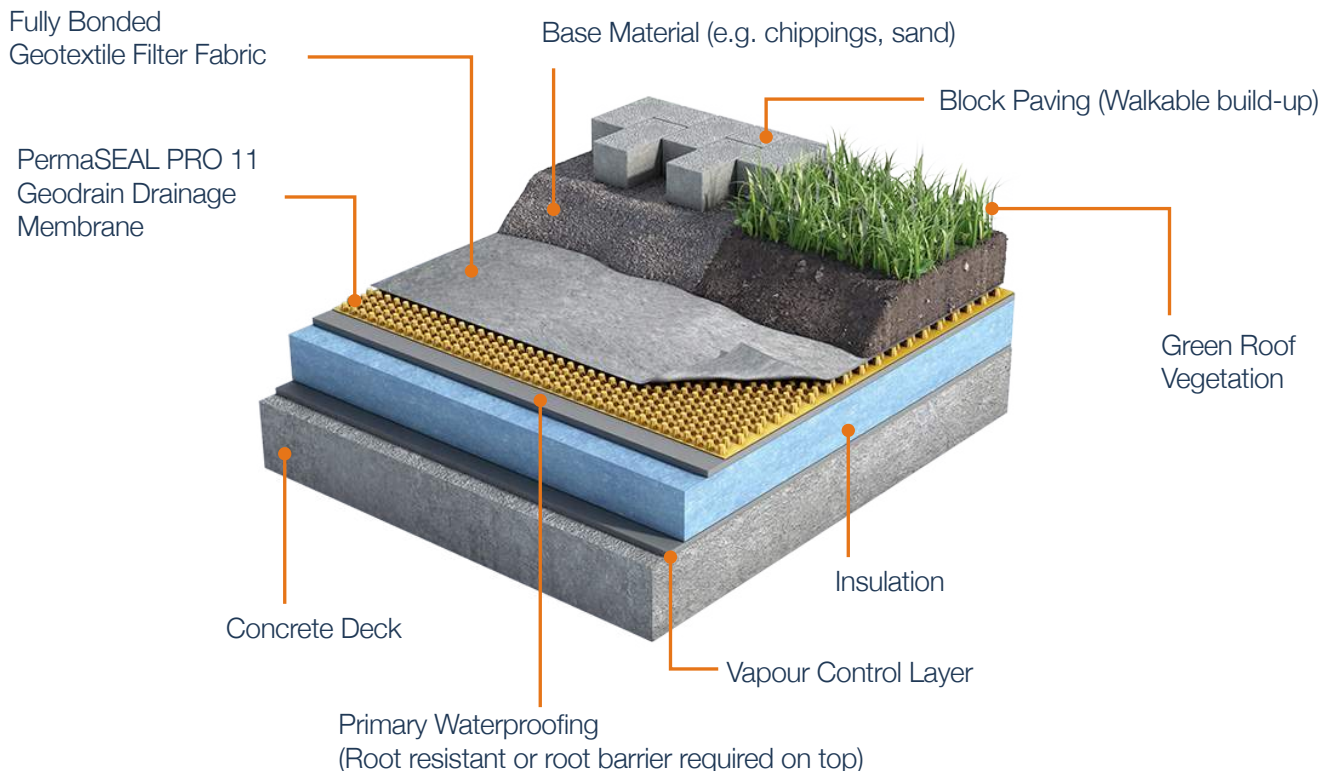
## HORIZONTAL INSTALLATION

The surface of any large flat roof or deck should have a gradient of at least 2%. PermaSEAL® PRO 11 Geodrain membrane is unrolled across the primary waterproofing layer with the geotextile filter fabric facing upwards. Coverage of a 30m<sup>2</sup> area can be achieved in one pass.

Offer up the next sheet of membrane and pull back the geotextile that sits against the flange of the previous sheet. The penultimate row of studs on each side of the membrane have a specially designed indentation that allows the overlapping stud row from the next sheet to interlock. This creates a secure joint against movement. PermaSEAL® Jointing Tape can be applied to the face of the flange and pressed between the two sheets of membrane for a complete seal if required.

If the length of membrane needs to be extended, the connecting membrane is placed under the previous membrane by 200mm. The membrane can be cut to length and needs to return up the base of any adjacent wall or parapet by at least 150mm or to the top edge of any filling. Any exposed vertical surface of the membrane can be capped or protected with a sealing strip.

Once PermaSEAL® PRO 11 Geodrain membrane has been installed to the complete deck, movement of materials by wheelbarrow is acceptable. With a 200mm covering of a base material, the use of wheeled loaders is also permitted at this point. In horizontal applications the membrane can withstand heavy vehicle traffic, with the weight of the vehicle depending on the thickness of the sub-base and base material.



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# HORIZONTAL & VERTICAL INSTALLATION

## VERTICAL INSTALLATION

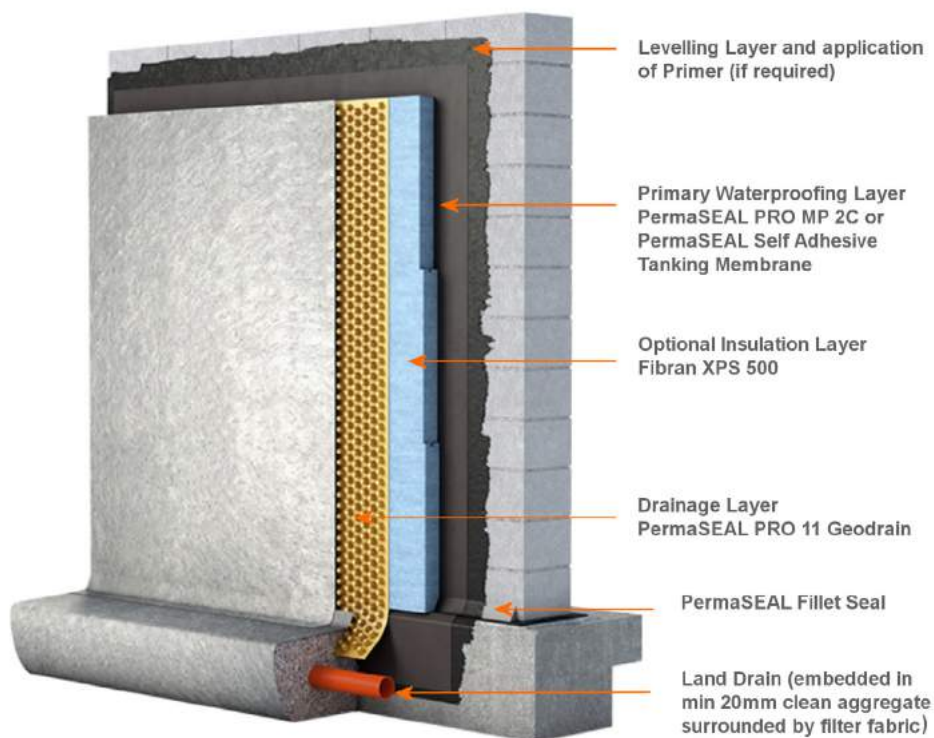
PermaSEAL® PRO 11 Geodrain is supplied in 2m wide rolls. If the foundation wall is less than 2m in height it is possible to unravel the length of the roll horizontally with no laps. For walls over 2m, fix PermaSEAL® PRO 11 vertically with the geotextile fabric layer facing the backfill and the gold drainage layer against the primary waterproofing on the wall.

Ensure that the membrane is fitted level by laser levelling the wall beforehand. Secure the PermaSEAL® PRO 11 membrane to the wall with PermaSEAL® Quick Plugs along the top of the sheet at approximately 500mm centres. Drill 10mm holes 80mm into the substrate and hammer home the plugs.

Overlap subsequent sheets of PermaSEAL® PRO 11 and interlock the studs along the flanged section, as per instructions for horizontal installation.

In build-ups without insulation, PermaSEAL® Geodrain Capping Strip is fixed to the wall to cap off the exposed top section of the membrane. Where insulation is included between the geodrain membrane and primary waterproofing, the capping strip will not be able to span the depth of the insulation, therefore a flashing detail will be required.

Place a land drain at the base of the foundation so that the top of the drain is below the top of the internal slab level. Place the drain within a bed of clean graded 20mm stone surrounded by a sheet of geotextile filter fabric, ensuring that enough is available to overlap the fabric on the face of the PermaSEAL® PRO 11 Geodrain, for continuity.



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## INSTALLATION UNDER THE RAFT

Lay PermaSEAL® PRO 11 Geodrain with the filter fabric facing down, in adjoining strips above the hardcore. Sand blinding is not required. Extend PermaSEAL® PRO 11 Geodrain beyond the footprint of the raft by 500mm and continue to the land drain.

Overlap and tape sheets with PermaSEAL® Jointing Tape.

Further Type A waterproofing/ gas control membrane must be laid above the PermaSEAL® PRO 11 Geodrain ready to bond to the concrete pour. These are then lapped up to connect later to the primary waterproofing on the wall, to provide a continuous waterproofing barrier.

### NOTE:

If PermaSEAL® PRO 11 Geodrain has been installed below the raft before the concrete pour, the land drain will need to be lowered so it is below the horizontal membrane that sits under the raft.

This product is not designed to be a waterproofing membrane, it is designed to be the protection and drainage layer over the primary waterproofing. Please contact our technical department if at all unsure as to its suitability.

## FINISHING & OTHER INFORMATION

### FINISHING

Carefully backfill the excavation. If graded stone is used, a protection board is not required but the stone should be placed in controlled layers of no more than 600mm so as to prevent slump to the membrane.

If the removed soil is to be recycled, ensure that it does not contain sharp stones and ensure that the soil is compacted every 600mm. If sharp stones exist within the recycled soil, a protection board will be required.

### FURTHER INFORMATION

When specifying PermaSEAL® PRO 11 Geodrain it is imperative that the membrane is specified in the correct detail as part of a wider waterproofing and drainage system.

### STORAGE

Store upright in dry conditions at temperatures between 5°C and 25°C. Do not expose to freezing conditions or direct sunlight. Protect from UV light.

### HEALTH & SAFETY

Please use the product only in accordance with the information given in this datasheet and the installation guide. There is no legal requirement for a Safety Data Sheet for this product.

### ACCREDITATIONS

PermaSEAL® PRO 11 Geodrain Protection and Drainage membrane is tested and CE marked to the relevant standard.

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