

How to Waterproof Basement Walls

How to Waterproof Basement Walls & Floors – Help, Advice & FAQ's

Take a look at [Video User Guide](#).

I want to convert my basement. How should I waterproof it?

BS 8102 2009 Protection of structures against water from the ground states that type C cavity drain membrane systems are considered to be the most effective and trouble free type of waterproofing for cellar or basement refurbishment. Baseline cavity membranes are capable of dealing with substantial volumes of water, as detailed in the relevant data sheets. When water is flowing through concrete or mortar there may be a tendency for dissolved lime to be brought into the cavity. If there is a risk that the water carries dissolved lime, silts or other contaminants with cavity blocking potential, then this inflow should be stemmed or controlled prior to fitting the membrane. Use plugging compound where ingress is localized or a 3:1 render coat incorporating an accelerator if of a widespread nature.

Can cavity drain membranes be used in all situations?

Baseline cavity membranes can be applied to almost all sound building structures below ground, which are affected by dampness or water ingress and are particularly well suited for use in cellar and basement renovations. However, they are not recommended for use in the following situations.

- Where the cavity membrane system cannot be drained.
- Where the membrane is fixed onto internal flat soffits having no drainage fall potential.
- Under or on top of concrete/stone staircases. These should be independently coated using an epoxy vapour barrier.

Do I need prepare the wall and floor surface prior to installing Baseline membrane systems?

One of the benefits of using cavity drain membrane is that in general, very little preparation to the substrates is required and although the cavity membrane is flexible and does not need a perfect surface for application, the following points need to be considered.

- Loose or de-bonded plaster together with coverings that may be affected by being closed in behind the Baseline cavity membrane such as gypsum, lightweight plaster, wallpaper, timbers, fixing grounds etc should be removed prior to membrane application. Only where dense and well-adhered sand and cement renders are present should they be left in place.
- Excessively uneven wall and floor surfaces should be dubbed out/levelled especially if timber battens are to be fixed to support dry lining board or a wooden floor finish.
- Substrates must be free protrusions that might damage the membrane.
- Where mould, mosses, lichens and algae, has affected substrates, surface sterilisation should be undertaken using Microtech biocide.
- Loose, friable or defective masonry should be repaired to ensure solid membrane fixing points.

What are my drainage options?

BS 8102 1990 states that almost all basement structures are likely to be subjected to water pressure at some period of their life. This assumption of hydrostatic pressure dictates that some form of water removal system must always be fitted with Baseline cavity membranes in below

ground structures, irrespective of conditions at the time of inspection or installation. There are two principle forms of drainage; these are a Natural Gravity Drain and a Mechanical Sump & Pump Arrangement, which can be used in conjunction with falls or drainage channels. The drainage is the key to the success of the cavity membrane system and the following points should be considered. Natural Gravity Drainage is only feasible, within the bounds of the property or at a point of exit from it, where 'internal drainage' is certified as being in the good working order and the connection of local drains into public drains or a soak-away includes protection against blockage or back-up potential.

Clients should be made aware that drains and soak-away systems can and do block up or back up causing flooding, including escape of foul waste and failure of the cavity membrane system. Natural drainage should only be considered at the instruction of a local authority building control officer who is prepared to sanction and accepted responsibility for its use. Otherwise a sump and pump system should always be used. Various Mechanical Sump and Pump kits have been specifically designed for the purpose of controlling ground water ingress without risk of back-up or flooding in basement refurbishment projects. The simple to fit Black Sump kit comprises of a polyethylene pre-formed sump chamber with a lid, a submersible pump that is controlled by an automatic integral float switch and comes with a non-return valve, a high level water alarm that warns of mechanical or power failure and all the fixtures and fittings. The Sumpflo prudently provides a double pump system which has a second pump in the sump chamber. This secondary pump provides back up in case of a mechanical failure of the principal pump. Consideration may also be given to installing Powerflo, a battery powered back-up pump for circumstances where loss of mains power could be catastrophic.

How does the water get to the drain?

The water can be channelled into a natural drain or a sump via drainage conduit or a gentle fall of the flooring slab. Aqua Channel is a pre-formed P.V.C drainage conduit specifically designed for the control of water ingress in below ground situations. It is fitted around the perimeter of the floor at the vulnerable wall/floor junction, can be used in most waterproofing situations, and is particularly suited for use in conjunction with the Baseline Cavity Drain Membrane system for basement or cellar renovations. Water entering the building through the walls is controlled behind the Baseline Membrane and diverted to the Aqua channel at the base of the wall.

The water enters the Aqua channel through pre-drilled drainage holes and must then be diverted to a suitable drainage point, either natural or a sump and mechanical pump. If reinforcing bars in the slab prevent the use of Aqua -Channel at the wall/floor junction, then a fall, in the direction of the sump/water collection chamber, must be created. Floors should be constructed or adapted with falls of 2-3 towards the water collection facility. It is essential that there are no undulating surfaces or depressions in the floor that permit a pond-like collection of water. The floor should always be tested, by spraying with a hose to ensure that all water finds its way to the water collection point, before laying the cavity membrane.

Where can I find out how to install the membranes, channels and sump kits?

You can download product guides from the twistfix web-site for basement conversions where you can download technical drawings for basement waterproofing design and cellar drainage details. If you have other questions phone our technical help line.