

Pre or post- applied bentonite waterproofing membrane with unique surface bentonite impregnation for impermeable lap joints

Uses

Basement waterproofing protection to grades 2 and 3 as defined in BS8102:2009. Provides a vapour and waterproof membrane in building and civil engineering structures and protection to the structure from attack by aggressive chemical substances in the ground.

Advantages

- Unique impermeable lap joints derived from surface bentonite impregnation of the non-woven geotextile layer during manufacture
- Full surface contact between the bentonite-impregnated cover layer and the concrete ensures that small cracks and surface imperfections are sealed
- Quick and easy installation in almost all weather conditions
- Forms a tenacious mechanical bond to poured concrete when cast in situ, remaining in place if settlement of the substrate occurs
- No requirement for priming systems, joint taping or protection systems
- One product can be used in both pre-applied and post-applied construction situations
- BBA accredited, certificate no. 06/4310

Description

Proofex Hydromat consists of two elements –

- Natural sodium bentonite as the sealing material.
- Two layers of geotextile to encapsulate and contain the bentonite.

A continuous layer of natural sodium bentonite is sandwiched between a needle-punched polypropylene geotextile (the cover layer) and a slit film woven geotextile (the carrier layer). The components are needle-punched together uniformly across the membrane to hold the bentonite sealing material in a stable position.

The surface of the cover layer is filled during manufacture with the same bentonite as in the centre of the membrane to facilitate continuity of bentonite across the membrane and the creation of impermeable overlap joints.

Standards compliance

British Standard 8102:2009 – code of practice for 'Protection of Structures Against Water From the Ground'.

Properties

Membrane properties	Typical value
Tensile strength MD/CD DIN EN ISO 10319	20kN/m / 11kN/m
Puncture force DIN EN ISO 12236	2500N
Peel strength ASTM D6496	>360N/m
Montmorillonite Content (Sodium Bentonite) XRD	Approx. 90%

Application instructions

Substrate preparation

Horizontal application – the membrane must be applied to a smooth prepared substrate. Standing water should be removed before the membrane is unrolled. Concrete blinding is preferred but a well-rolled granular fill with a compacted sand blinding is acceptable. The substrate shall be free from loose aggregate or other sharp protrusions.

Vertical application – the membrane is applied to as-cast concrete, formwork or adjoining retaining structures. The surface of the concrete or retaining structure should be as smooth a prepared finish as possible.

Installation below floor slabs

Roll out the product and trim to fit. A watertight seal is achieved by overlapping adjacent panels by minimum 100mm for 1.2 x 4.5m and 150mm for 2.5 x 15m at side and end laps, ensuring that the lap area is free of debris. Care must be taken to ensure that the product is installed without wrinkles or folds, and that the non-woven geotextile is facing upwards such that it will be in contact with the concrete when it is poured.

The overlaps should run in a uniform direction, and concrete must be placed on top of the membrane, following the direction of the overlaps to remove the possibility of concrete folding back the panel and interrupting the waterproofing continuity. A minimum 150mm concrete floor slab can then be cast.

At day joints, the remaining exposed sections of Proofex Hydromat should be covered with a suitable weather resistant cover to protect it from rain, and accidental damage and trafficking of this area should be minimised. In the event that equipment and materials must be stored on the applied membrane, a 50mm concrete screed should be cast over the membrane as protection. Upon continuation, care should be taken to conform with the lapping requirements detailed above.



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Proofex Hydromat

Installation against shuttering

At the transition between the horizontal and the vertical, Proofex Hydromat is simply turned up through 90 degrees and stapled or nailed to the shuttering. Remove nail heads before casting concrete if flat head nails are used, such that the nails can be removed with the shuttering without damaging the membrane. Staples or nails should only be located in the lap area between adjacent panels, at c. 300mm centres along the line of the lap.

Installation on cast vertical walls

Following completion of the wall, Proofex Hydromat should be fixed to the wall face by nailing with soft washer fixings, such as Hilti X-SW 30-ZF. The nail length is determined by substrate type and condition: if in doubt, contact Fosroc Technical Department. Care must be taken to ensure that the product is installed without wrinkles or folds, and that the bentonite-impregnated non-woven geotextile is placed facing the concrete and on the backfill side of the wall.

Overlaps must be a minimum of 100mm for 1.2 x 4.5m and 150mm for 2.5 x 15m and be nailed every 300mm along the top edge and within the lap area. The remaining area of the membrane within the laps should not be nailed. The overlap of the membrane between the kicker and the wall must be a minimum of 350mm, lapped to ensure that the panel coming down the wall laps over the panel coming up from the slab. This area must be nailed tightly. An additional membrane sealing strip with a width of 400mm may be placed directly over the kicker joint and running parallel to it and directly over the overlap area between the vertical and returning horizontal panels.

Backfill must be free from any angular material or debris which could damage the membrane and should not contain rocks larger than 50mm.

To prevent intrusion of backfill materials between the Proofex Hydromat and the concrete wall, a protective termination bar may be installed. This is commonly made of non-degradable boards, fixed to the structure through the membrane at 100-150mm below the top of the tanking line around the whole structure.

Installation for sealing vertical walls against retaining structures

Before constructing the structural wall, fix the Proofex Hydromat directly onto the retaining wall. The bentonite impregnated non-woven geotextile side of the membrane must be installed facing the structural wall which is yet to be cast.

Nail or staple the product in place within the lap area between adjacent panels, nailing at 300mm centres along the line of the lap. It is important that the membrane panels are installed evenly, without folds or wrinkles, and ensuring that

any vertical laps involve the uppermost panel coming down over the lower panel.

Care and Detailing

Double layers should be used at all corners.

Outside edges of installed membrane should be protected by plastic sheeting at the end of work to ensure they remain clean and dry to form the overlap the following day. Plant or equipment should not be permitted to travel on the unprotected surface of the membrane.

Any repair patches should overlap the repair area and extend beyond the extremity of the damage by a minimum of 200mm. The area to be patched should be free of debris and swept clean. If this causes loss of the bentonite in the cover geotextile then extra Proofex Hydromat Powder (either in dry form or as a paste for sloping or vertical surfaces) at a minimum of 0.5kg/sq.m should be placed around the perimeter of the area and then the patch placed in position.

Sealing around penetrations must be carried out in accordance with Fosroc's instructions and technical guidance.

Tie bolt holes should be filled with Renderoc Plug 20 and then covered with a 'mushroom' of Proofex Hydromat Powder in paste form. This should be done before fixing of the Proofex Hydromat for post-fixed membrane installations, or prior to backfilling for pre-fix applications. In applications where the membrane is shutter-fixed, patches of Proofex Hydromat extending a minimum 150mm beyond the bolt locations are also required, lapping with the surrounding membrane.

Normally Proofex Hydromat does not need to be artificially hydrated. However, if the membrane could come into contact with liquids such as salt water, before it hydrates the membrane must be artificially hydrated. Consult Fosroc for technical guidance.

Ancillary products

Proofex Hydromat Powder

To ensure watertight continuity during detailing work and for sealing around awkward geometrical shapes, it may be necessary to cover an area with loose natural sodium bentonite powder. This can be done using Proofex Hydromat Powder, either in dry condition or mixed 1 part powder:4 parts water in the form of a paste.

A typical area of use is around piles. See Fosroc standard details.



Fosroc® **Proofex Hydromat**

Estimating

Proofex Hydromat

Thickness:	7mm (dry)
Roll sizes:	1.2 m x 4.5 m 2.5 m x 15 m
Weights:	30 kg, 210 kg

Proofex Hydromat Powder

Bag size:	25kg
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Limitations

Proofex Hydromat should only be hydrated with normal groundwater.

The hydration of Proofex Hydromat is adversely affected by the presence of salts e.g sea water and may also be affected by the presence of soluble materials such as those found in chalk or lime soils.

Consult Fosroc Technical for advice in these circumstances

Precautions

Health & Safety

Proofex Hydromat 2.5m x 15m weighs approximately 210kg and the 1.2 m x 4.5 m roll weighs approximately 30kg in the dry state; both should be lifted by mechanical equipment.

Proofex Hydromat Powder weighs 25kg and should be lifted by two operatives.

Applied Proofex Hydromat can become slippery to walk on when wet.

For further information refer to appropriate Product Safety Data Sheet.

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